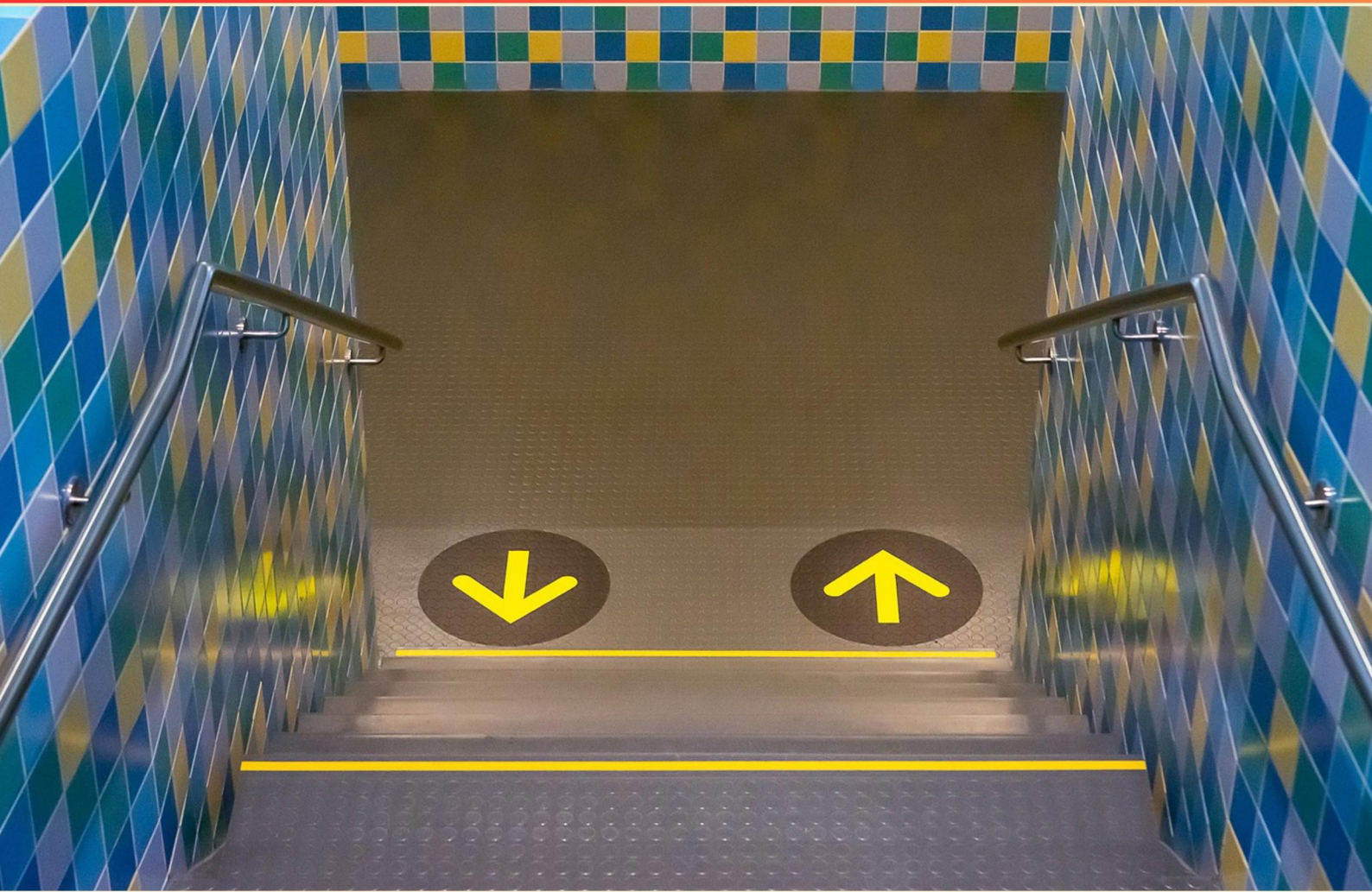


NGA 21 LOCATING AND MARKING OF FACILITIES PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. How is the location of the metal facility determined?**
 - A. Observing the strongest reading of the electromagnetic field
 - B. Measuring the average
 - C. Looking for the brightest color
 - D. Guessing
- 2. Which statement best describes the role of the receiver in a locating system?**
 - A. It powers the transmitter
 - B. It converts the induced voltage into visual and audio signals for location
 - C. It creates the magnetic field around the pipe
 - D. It substitutes for the earth stake
- 3. Which factor is an important determinant in the transmission of the impressed signal?**
 - A. Soil conditions
 - B. Weather
 - C. Humidity
 - D. Wind speed
- 4. Pipe locators consist of two major components?**
 - A. The Transmitter and the Receiver
 - B. The Antenna and the Receiver
 - C. The Cable and the Transmitter
 - D. The Receiver only
- 5. A receiver is used to do what?**
 - A. Detect corrosion
 - B. Transmit a signal
 - C. Detect and trace the electromagnetic field induced along the pipe by the transmitter
 - D. Ground the line

- 6. Electromagnetic Characteristics all modern pipe locating equipment operate by inducing an electromagnetic signal on a metallic facility (pipe or wire/cable).**
- A. By measuring soil moisture
 - B. By inducing an electromagnetic signal on a metallic facility
 - C. By visually inspecting from above
 - D. By acoustic emission only
- 7. What does bleed off or bleed over refer to in conductive locating?**
- A. Signal showing up only on the target line
 - B. Signal jumping to adjacent lines without direct electrical connection
 - C. Loss of signal when near water
 - D. Signal showing up on all lines equally
- 8. What forms of output does the receiver provide for locating cues?**
- A. Optical visual display and audio via headphones/speaker
 - B. Digital readout only
 - C. Thermal alarm
 - D. Radio transmission
- 9. Which option is not listed as an acceptable direct connection location when locating mains and services up to the meter?**
- A. Valves
 - B. Concrete standpipe
 - C. Inlet side of the gas meter
 - D. Test pipes
- 10. Depth Determination determines what?**
- A. The location of house connectors
 - B. The approximate depth of the pipe by triangulation
 - C. The exact diameter of the pipe
 - D. The surface temperature

Answers

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1. A
2. B
3. A
4. A
5. C
6. B
7. B
8. A
9. B
10. B

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Explanations

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1. How is the location of the metal facility determined?

- A. Observing the strongest reading of the electromagnetic field**
- B. Measuring the average
- C. Looking for the brightest color
- D. Guessing

The key idea is using the electromagnetic field readings from a locator to pinpoint buried metal. As you move the instrument over the area, the EMF strength rises and reaches its maximum directly above the metal facility. That peak reading marks the centerline or location of the buried metal, so you mark there. Averaging readings would dull or misplace the signal, and relying on color or guessing has no diagnostic value for locating underground metal. Use the strongest reading to identify the true position, then confirm with a careful pass to verify the centerline before marking.

2. Which statement best describes the role of the receiver in a locating system?

- A. It powers the transmitter
- B. It converts the induced voltage into visual and audio signals for location**
- C. It creates the magnetic field around the pipe
- D. It substitutes for the earth stake

In locating systems, the transmitter energizes the line, and the receiver's job is to sense that energy and translate it into usable cues for finding the pipe. The induced voltage or magnetic field generated by the transmitter is picked up by the receiver and then converted into audible beeps and visual indicators, telling the operator where the line runs and where to dig. This conversion to easy-to-interpret signals is what makes the location practical and accurate. The other described roles belong to different parts of the system or are not functions of the receiver: powering the transmitter, creating the magnetic field, or replacing the earth stake.

3. Which factor is an important determinant in the transmission of the impressed signal?

- A. Soil conditions**
- B. Weather
- C. Humidity
- D. Wind speed

Transmission of an impressed signal through the ground is governed by how conductive the soil is. Soil conditions—especially moisture content, salt content, and texture—determine the ground's resistivity. When soil is moist or saline, ions carry the current more readily, so the signal travels farther with less attenuation. Dry, sandy, or rocky soils raise resistance and dampen the signal quickly, limiting how far you can detect it. Temperature can shift resistivity, but the dominant factor is the soil's ability to conduct. Weather, humidity, and wind speed can influence surface moisture a bit, yet they don't set subsurface transmission as strongly as the soil's composition and moisture do. Because this controls the strength and reach of the impressed signal underground, soil conditions are the primary determinant.

4. Pipe locators consist of two major components?

A. The Transmitter and the Receiver

B. The Antenna and the Receiver

C. The Cable and the Transmitter

D. The Receiver only

Pipe locators work by introducing a signal into the buried line and then detecting that signal at the surface. The two major components are the transmitter and the receiver. The transmitter injects or energizes the signal into the pipe or tracer wire, creating a detectable field along the line. The receiver senses that signal and guides you to the pipe's path and depth. Without a transmitter, there's no signal to follow; without a receiver, you can't locate the line. An antenna may be part of the apparatus, but it's not the defining pair of major components. A system consisting only of a receiver can't locate because there's nothing to detect, and a separate "cable" component isn't what defines the two essential parts.

5. A receiver is used to do what?

A. Detect corrosion

B. Transmit a signal

C. Detect and trace the electromagnetic field induced along the pipe by the transmitter

D. Ground the line

In locating buried utilities, a receiver detects and traces the electromagnetic field induced along the pipe by the transmitter. The transmitter injects a signal into the line, creating a magnetic field that runs along and around the pipe. The receiver senses this field at the surface, letting you follow the pipe's path and estimate depth as you move the instrument over the ground. Corrosion detection isn't the role of the receiver, and transmitting or grounding the line are actions handled by other parts of the locating process, not by the receiver.

6. Electromagnetic Characteristics all modern pipe locating equipment operate by inducing an electromagnetic signal on a metallic facility (pipe or wire/cable).

A. By measuring soil moisture

B. By inducing an electromagnetic signal on a metallic facility

C. By visually inspecting from above

D. By acoustic emission only

All modern pipe locating equipment work by creating an electromagnetic field in a metallic pipe or cable and then sensing that field from the surface. The transmitter injects a current into the pipe (or onto a tracer wire connected to it), which generates a changing magnetic field along the length of the facility. The receiver on the ground picks up that magnetic field and follows it to map the pipe's path and estimate depth. This active EM method relies on the metal's ability to conduct the signal, which is why it's effective for metallic lines (and may require a tracer wire for non-metallic pipelines). Other approaches—measuring soil moisture, visually inspecting from above, or relying on acoustic emissions—don't directly reveal buried metallic facilities in the same way and aren't how modern pipe locators operate.

7. What does bleed off or bleed over refer to in conductive locating?

- A. Signal showing up only on the target line
- B. Signal jumping to adjacent lines without direct electrical connection**
- C. Loss of signal when near water
- D. Signal showing up on all lines equally

Bleed off or bleed over means the locating signal isn't confined to just the target line. When current is injected into that line, the electromagnetic field can couple into nearby metallic conductors that run close by—like adjacent pipes, cables, or metal structures—even though there's no direct electrical connection. That coupling causes the signal to appear on those other lines as well, which is what you're seeing as bleed over. This is why you might detect the tracer signal on lines you didn't intend to trace. In practice, this isn't about the signal disappearing or spreading evenly everywhere. It's about nearby conductors picking up some of the signal due to proximity and coupling, not because they're part of the same circuit.

8. What forms of output does the receiver provide for locating cues?

- A. Optical visual display and audio via headphones/speaker**
- B. Digital readout only
- C. Thermal alarm
- D. Radio transmission

Locating with a receiver relies on converting buried signals into human-perceptible cues. The usual outputs are a visual display and audio cues. The visual display shows signal strength and direction, helping you gauge alignment and sometimes depth as you move over the line. The audio feedback, heard through headphones or a speaker, lets you track changes in the signal as you sweep the area, which is especially helpful when you need to keep your hands free or work in cluttered or noisy environments. Together, these outputs give quick, actionable information to pinpoint the facility accurately. Digital readout alone wouldn't provide the same immediate, intuitive feedback, and a thermal alarm or radio transmission isn't how locating cues are typically communicated to the operator.

9. Which option is not listed as an acceptable direct connection location when locating mains and services up to the meter?

- A. Valves
- B. Concrete standpipe**
- C. Inlet side of the gas meter
- D. Test pipes

When locating mains and services up to the meter, you focus on points that are designed to provide access, testing, or isolation for the service line. Valves act as clear access points to shut off or isolate flow and help you pinpoint the line's location. The inlet side of the gas meter is another direct access point where the service line meets the meter, making it a valid reference for locating and testing. Test pipes are included because they exist specifically to test the system and offer a known point for measurement or verification. A concrete standpipe isn't a functional connection point for the service line; it's a structural feature, not an accessible link in the line you would use for locating or testing up to the meter. That's why it's not listed as an acceptable direct connection location.

10. Depth Determination determines what?

- A. The location of house connectors
- B. The approximate depth of the pipe by triangulation**
- C. The exact diameter of the pipe
- D. The surface temperature

Depth determination is about estimating how deep a buried utility sits beneath the surface. It uses triangulation, taking readings from multiple surface points to calculate the vertical distance to the pipe. This gives an approximate depth to guide safe excavation; it's not an exact measurement of size. It doesn't reveal the pipe's diameter, surface temperature, or the precise location of house connectors—those require different methods or records.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://nga21.examzify.com>

We wish you the very best on your exam journey. You've got this!

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