

From a field to a finished report

An annotated example of the national CEMA 216 Soil Health Testing deliverables.

Read this first
 Fictional teaching example. All people, farm identifiers, field geometry, visits, correspondence and laboratory results are invented. No fieldwork, laboratory analysis, professional certification or NRCS acceptance is represented. Not for submission.

Project identity	Illustrative entry
Activity / program	Soil Health Testing, CEMA 216 / EQIP (illustrative only)
Participant / business	Jordan Example (fictional) / Example Farm
Contract / land	EXAMPLE-216-2026 / Nebraska, Lancaster County
Farm / tract / planning land unit	EX-FARM-01 / EX-TRACT-01 / EX-PLU-01
Field / dates	Learning Field; about 40 acres. Sampled May 5; report May 27, 2026.
QI contact - entirely fictional	Teaching Practitioner; 100 Example Lane, Lincoln, NE 68508; 402-555-0146; qi@example.com

Purpose and scope

Establish a method-documented soil-health baseline across three landscape positions before considering changes to residue and cover-crop management. Use the results with field observations to decide what to investigate, then repeat sampling under comparable conditions.

Basic soil-health testing: the five required processes plus laboratory texture and pH. Advanced microbial diversity testing is outside this example. No nutrient prescription or carbon-credit calculation is included.

Qualification statement - illustrative, not a credential

The fictional QI is described as holding an MS in Soil Science and having three years of soil collection experience for laboratory analysis. This illustrates the degree-plus-experience qualification route. No real diploma, certificate or work history is asserted. In a real package, the QI states the applicable route and retains supporting evidence.

Why this page matters
 The report belongs to a specific participant, contract and land unit. Sign-off and acceptance spaces are on page 9; nothing in this teaching copy is signed or approved.

Agree on the work first

Mock pre-work record, laboratory check and correspondence. All events and messages below are invented.

Pre-work conference / April 15, 2026

Attendees: Jordan Example (participant), Teaching Practitioner (QI), and Example Field-Office Planner (NRCS role, fictional). Format: telephone. Held before fieldwork. Objective: a spatial baseline for Learning Field. Agreed scope: three composites in one PLU, five indicators plus measured texture and pH, two maps, observations, results, interpretation and a repeat-monitoring schedule.

Decisions: sample in early May before a new amendment or tillage operation; avoid extreme moisture and temperature. Keep landscape strata separate. Review laboratory methods and handling instructions before collection. Confirm contract timing and the office-copy privacy choice before delivery.

Laboratory verification / April 16, 2026

Example Teaching Lab is a fictional name, not an approved or accredited laboratory. The mock method confirmation lists the seven methods on page 6. In a real project, attach the receiving lab's written method confirmation and current evidence for a qualification route allowed by CEMA 216. No accreditation number or certificate is fabricated here.

Illustrative handling plan: clean tools; labeled containers for separate composites; protect samples from heat; cool promptly and ship the same day for next-day receipt, following the receiving laboratory's actual requirements. The fictional lab allocates the material for its method-specific preparation. This scenario does not prescribe a shipping protocol for every lab.

Correspondence included in this teaching case

Date / from	Mock record
April 17 / participant	Please establish a baseline at the shoulder, midslope and footslope. I want to understand differences before deciding whether to change cover-crop management.
April 20 / QI	Confirmed three separate composite samples and seven required indicator/characteristic methods. We will document depth, location, dates and laboratory handling. No treatment effect can be inferred from this one visit.
May 26 / participant	Please prepare a full participant copy. For this example only, I choose a full office copy and authorize its delivery. I am not choosing the optional SHAPE data submission.

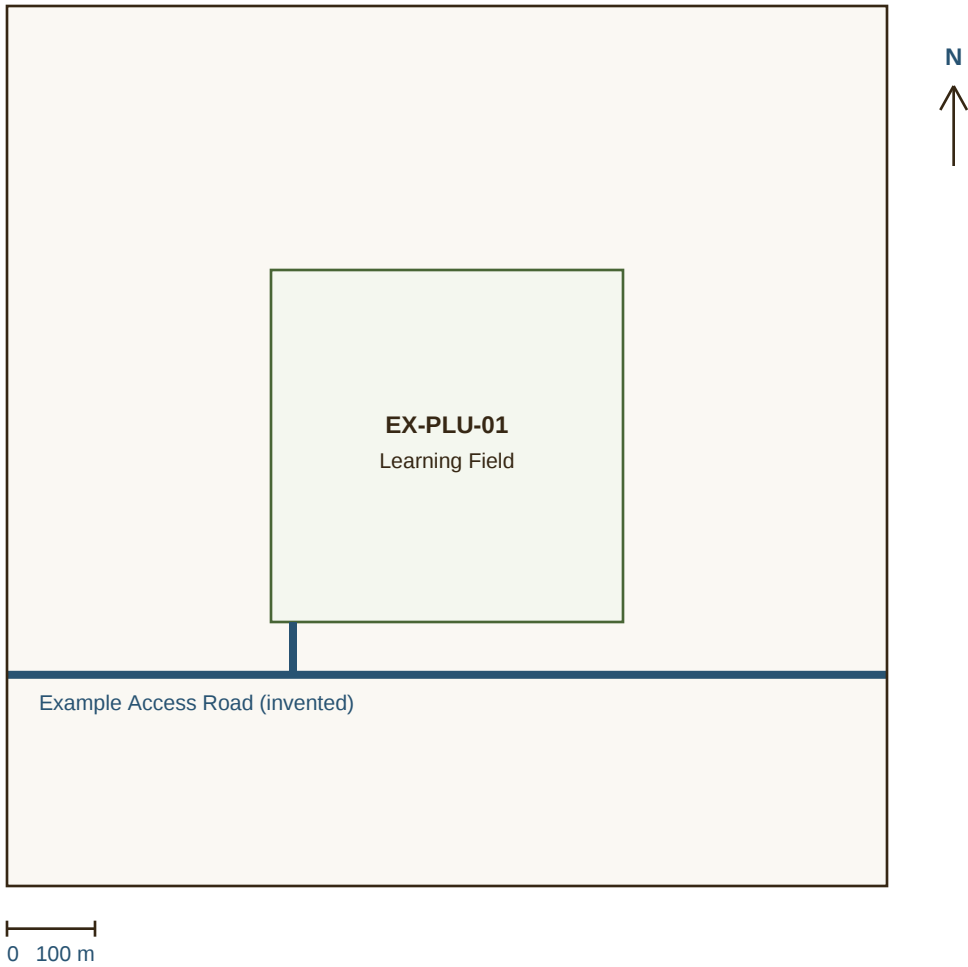
QI-supplied evidence

For real work, keep the actual conference notes, lab confirmation and relevant correspondence. A software checkbox is not evidence that these conversations occurred. The mock May 26 message is not real authorization.

Locate the project

General location map / Example Farm / Assisted by Teaching Practitioner (fictional) / Prepared May 4, 2026

Teaching location: Lancaster County, Nebraska. The WGS84 origin is 40.900000, -96.700000. All geometry, the property and the access road below are synthetic; this is not a surveyed parcel or navigation map.



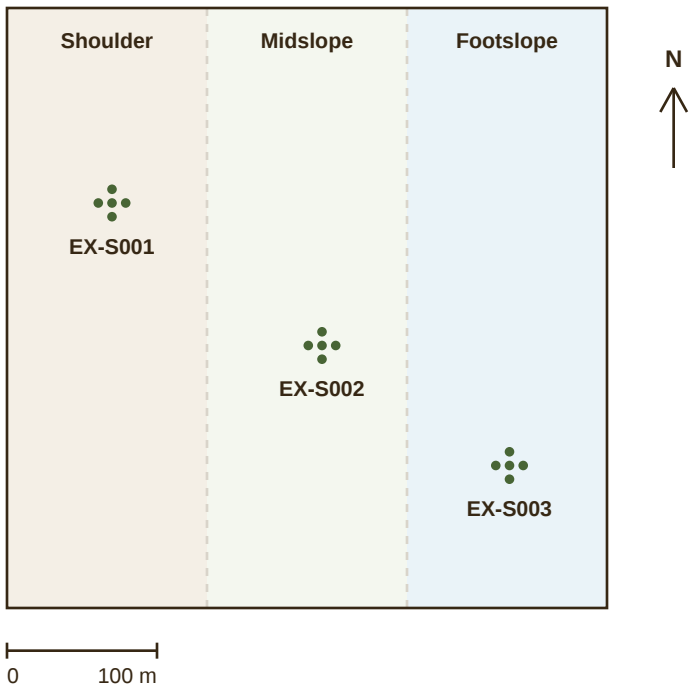
Map key	Meaning
Green rectangle	Synthetic PLU boundary; 400 x 400 metres (39.5 acres).
Blue line / short spur	Invented access road and entrance, not a real access instruction.
Outer frame	1,000 x 1,000 metre local context extent; north is up.

Replace with a real location map

The QI provides a map that lets the actual field be located using appropriate geographic coordinates and access information. Verify land identity and access permission. Synthetic coordinate accuracy is not GPS accuracy.

Map every composite

Soil sampling map / Example Farm / Assisted by Teaching Practitioner (fictional) / Prepared May 4, 2026



Sample / stratum	WGS84 latitude	WGS84 longitude
EX-S001 / West shoulder	40.902425	-96.699168
EX-S002 / Midslope	40.901572	-96.697504
EX-S003 / East footslope	40.900853	-96.696019

Polygon vertices (longitude, latitude), counterclockwise from southwest: (-96.700000, 40.900000); (-96.695246, 40.900000); (-96.695246, 40.903593); (-96.700000, 40.903593); (-96.700000, 40.900000).

Legend: background colors are three equal-area landscape strata, not official soil-survey units. Each five-dot group is one composite: a center plus four subsamples 30 feet (9.144 m) north, south, east and west. Do not combine composites. Coordinates use a local-distance approximation for this teaching drawing.

Why these points?

Stratified sampling within one approximately 40-acre PLU. The synthetic field is divided into three equal-area landscape strata: west shoulder, midslope and east footslope. One representative location is selected at random within the eligible area of each stratum. At each center, the center sample and four samples 30 feet away are combined into one composite. The three composites stay separate. This design illustrates spatial variation; it is not a replicated management experiment.

Record the collection

Mock field log and sample custody / May 5-6, 2026 / Example Farm, EX-PLU-01

Prior visit / April 30: participant and QI walked the field, recorded residue and surface-condition observations at the three mapped centers, and confirmed the strata. The May 5 sampling returns to those in-field assessment locations.

Visit record / May 5, 08:30-11:00

Attendees: Teaching Practitioner and Jordan Example. Work: verify the three strata, repeat the in-field observation locations, collect five subsamples at each center and create three separate composites. Result: all three composites labeled, checked against the map and prepared for the fictional laboratory. No deviations in the teaching scenario.

Illustrative context: corn-soybean rotation; preceding crop soybean; surface residue retained. Participant reports no recent tillage, amendment or chemical inputs. Air 64 F, soil 60 F at sampling depth; soil moist and friable, not saturated. Record actual dates of recent operations in a real field log. These invented observations are not laboratory or management recommendations.

Sample / time	Collection and field observation
EX-S001 / 09:10	Five subsamples; 0-7 inch layer. Lighter surface texture; thinner residue cover. Moist and friable, no standing water.
EX-S002 / 09:40	Five subsamples; 0-7 inch layer. Intermediate surface texture and residue cover. Moist and friable, outside traffic lanes.
EX-S003 / 10:15	Five subsamples; 0-7 inch layer. Finer surface texture and greater residue cover. Moist but unsaturated; no depression sampled.

Collection details

Clean tile spade used to remove a 2-inch-thick vertical slice from the 0-7 inch layer at each point. Surface debris removed without removing mineral soil. Center and four surrounding subsamples combined gently; stones, roots and debris removed. Tools cleaned between composites. Bag labels carry Example Farm, EX-PLU-01, sample ID, depth and May 5, 2026. All five subsamples belong to the same stratum.

Mock custody and shipping record

When / transfer	Condition and traceability
May 5, 11:00 / QI	Three separately labeled composite bags placed in cooler, protected from heat; ID cross-check complete.
May 5, 15:00 / dispatch	Same-day overnight dispatch under the mock lab instructions. Shipping reference EX-SHIP-01 (fictional).
May 6, 09:00 / lab receipt	Three intact bags received cool; IDs and depth match submission sheet. No mismatch noted in teaching record.

Keep the actual handling record

Confirm temperatures, storage, timing, sample quantity and packaging with the receiving lab before collection. Store actual collection and receipt details, including delays or deviations, rather than copying this scenario.

Keep the laboratory source

MOCK LABORATORY RESULTS / Example Teaching Lab / DEMO-260512 / Issued May 12, 2026

Not an analytical certificate
 Every value is invented for this example. Example Teaching Lab is not a real laboratory; no accreditation or test performance is asserted. Attach the original qualified laboratory report in a real package.

Client: Example Farm. Field: Learning Field / EX-PLU-01. Collected May 5; received May 6. Depth: 0-7 inches. Report basis: dry soil for mass-based results. Mock lab IDs DEMO-260512-01, -02 and -03 correspond to EX-S001, EX-S002 and EX-S003, respectively. Laboratory preparation, quality-control records and any reporting limits must come from the actual lab.

Indicator / method	Units	EX-S001	EX-S002	EX-S003
Wet aggregate stability / Wet sieving	% stable aggregates	44	57	63
Soil organic carbon / Dry combustion; organic C reported separately from inorganic C	% dry soil mass	1.4	1.7	2.0
Soil respiration / 24-hour incubation/burst	mg CO ₂ -C/kg dry soil	38	51	65
Labile carbon / Permanganate oxidizable carbon (POXC)	mg C/kg dry soil	350	425	510
Bioavailable nitrogen / Autoclaved citrate extractable (ACE) protein	mg protein/g dry soil	3.6	4.2	4.8
Texture: sand / silt / clay / Hydrometer	% / % / %	60 / 25 / 15	40 / 38 / 22	32 / 40 / 28
Soil pH / 1:1 soil:water	pH units	6.4	6.6	6.8

Texture classes: EX-S001 sandy loam; EX-S002 loam; EX-S003 clay loam. The three numbers for texture are sand / silt / clay and total 100% for each sample. SOC denotes organic carbon, not uncorrected total carbon; the real report must document how inorganic carbon is handled when present.

The method is part of the result
 Retain the lab name, report ID, sample crosswalk, exact methods, units and reporting basis. A test package name alone does not verify all required methods. This source sheet provides no good/poor thresholds or regional percentile scores.

Interpret with restraint

Illustrative QI narrative / No models, regional scoring systems or fertilizer recommendations used.

Wet aggregate stability

EX-S001 has the lowest measured stability in this example. Inspect surface sealing and residue cover there; this single baseline does not establish a management cause or an infiltration rate.

Soil organic carbon

SOC concentration increases from EX-S001 to EX-S003 alongside a texture change. These are concentrations, not carbon stocks. No bulk-density measurements or repeated baseline exist to calculate sequestration.

Soil respiration

Compare only with matching incubation and handling protocols. The lower EX-S001 value warrants checking field context; a larger value is not automatically a better overall soil-health rating.

Labile carbon

POXC is a method-specific carbon indicator. The cross-field differences provide a baseline for repeat testing, not a quantity of carbon credits or a universal good/poor threshold.

Bioavailable nitrogen

ACE protein is the selected indicator of an organic nitrogen food source. Do not treat these values as a fertilizer-N credit or convert them directly into a fertilizer rate.

Texture: sand / silt / clay

The measured texture classes differ across the three positions. Interpret carbon and biological indicators in that context; soil-survey texture does not replace this laboratory measurement.

Soil pH

Retain the 1:1 water method with these values. Any lime or nutrient recommendation needs crop, regional guidance and the additional tests appropriate to that decision.

Overall conclusion

The three composites establish an illustrative spatial baseline. EX-S001 has lower measured aggregation, carbon and biological indicators than EX-S003, while also having a coarser texture. Follow up at EX-S001 with surface-condition and management observations before proposing a change. These data do not prove a treatment effect, a yield response, carbon sequestration or a regional soil-health ranking.

What this baseline cannot tell you

The three composites are spatial observations, not independent replicates of a management treatment. There is no before/after comparison. Do not claim a statistically demonstrated improvement, a yield benefit, a fertilizer credit or carbon sequestration from these values.

Plan the repeat and the handoff

Monitoring, participant discussion and delivery choices / All entries below are illustrative.

Monitoring schedule and responsibilities

Review field conditions and management records each spring. For this fictional three-year plan, repeat the laboratory sampling in early May 2028, subject to the actual contract and conservation plan. Return to the same WGS84 centers, use the same five-subsample geometry and 7-inch depth, and match season, moisture, recent-input history, laboratory, methods and reporting basis. Record any unavoidable change. The participant maintains management records; the responsible QI coordinates sampling and interpretation.

Results discussion / May 26, 2026

Fictional attendees: participant and QI, telephone. The QI explained each indicator, texture differences and limits of a single baseline. Agreed next action: inspect EX-S001 for surface sealing, residue coverage and traffic history before selecting a management trial. Keep dated observations and management records. No nutrient-rate or 45Z eligibility determination was made.

Prepare two complete sets

Set / decision	Illustrative handling
Participant set	All pages, maps, source results, interpretation and monitoring information. Retain unredacted results and actual supporting evidence in a real project.
Office set	Full copy chosen in this mock scenario, based on the fictional May 26 correspondence. QI delivery in a real project requires participant authorization.
Optional SHAPE submission	Not chosen. No results or coordinates have been sent. This is a separate voluntary decision, not part of automatic report export.
Pre-acceptance review	Offer the local office an opportunity to review completeness. Record corrections and the participant/QI response before final acceptance.

A participant may withhold numerical results

The April 10 NRCS FAQ describes redacted laboratory reports or showing results without NRCS retaining them, while still demonstrating completion. Agree the evidence route with the office. The choice in this example is not consent for a real client.

Corrections and delivery log - not executed

QI technical review: unsigned. Participant acceptance: unsigned. NRCS administrative review: blank. Actual delivery date, recipient and method: not applicable to this teaching package. Any later correction should be versioned and sent to the agreed recipients, with the original record retained.

Review before anyone signs

Package index, sign-off spaces and official sources. This teaching copy cannot certify completed work.

Page(s)	What the teaching package shows	Real-project evidence
1, 9	Identity, scope, qualification and sign-off fields	Actual identities, QI qualification statement and signatures
2, 5	Conference, correspondence, field and custody records	Original records and laboratory confirmation
3-4	General location and sampling maps, polygon and points	Verified maps, land identity and collected WGS84 points
6-7	Mock source results, methods and interpretation	Original laboratory report and QI interpretation
8	Monitoring, privacy and delivery plan	Contract-specific schedule, authorization and delivery record

Unexecuted sign-off spaces

For actual work, the QI certifies compliance with applicable laws and regulations; the activity's general, technical and deliverable requirements; the program contract's conservation objectives; and the participant's objectives. Use the current standard's required statements in the real deliverable.

QI signature: _____ Date: _____
Participant acceptance of complete deliverables meeting objectives:
Signature: _____ Date: _____
NRCS administrative review: _____
Title: _____ Date: _____

SHE and the practitioner have different roles

SHE helps organize entered records, link samples and results, flag missing sections and generate report exports. The QI supplies and verifies evidence, interprets results and signs completed work. This editorial example includes mock attachments; it does not imply that software creates laboratory reports, credentials or agency acceptance.

Official sources / checked September 17, 2026

- 1. [NRCS CEMA 216 standard \(listed 04-2026; document footer January 2026R\)](#)
Qualification, pre-work conference, methods, sampling, maps and deliverables.
 - 2. [NRCS CEMA 216 Job Aid \(4-2026\)](#)
Field preparation and confirmation of laboratory methods.
 - 3. [NRCS CEMA 216 FAQ \(April 10, 2026\)](#)
Measured texture, interpretation, privacy choices and optional data submission.
- National activity sources: [nrqs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives/cpas-dias-and-cemas](#). Confirm current state instructions, contract terms and lab protocols. Linked source titles above open the official PDFs.