



## Design and Implementation Activity

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### Soil Health Management System Design

#### DIA 162

#### Definition

Develop site specific recommendations and designs for soil health related practices that address the 4 principles of soil health as identified in CPA 116 or a conservation plan.

#### REQUIREMENTS

##### General Requirements

A Design and Implementation Activity (DIA) assists a participant with implementing their conservation plan by providing site-specific instructions, requirements, plans, or specifications for putting conservation practices and enhancements on the land.

A DIA may involve providing assistance for a single conservation practice or a combination of structural, vegetative, or land management conservation practices, enhancements, and management activities.

Prior to initiation of the DIA, the Technical Service Provider (TSP) will schedule a conference with the participant and Natural Resources Conservation Service (NRCS) field office staff to ensure an understanding of the participant objectives (including practices to be covered by the DIA), required deliverables, and characteristics of the DIA tasks. The meeting between all parties may take place in person or electronically.

The participant and conservation planner have determined which practices a TSP will provide DIA assistance for. The TSP must have certification in NRCS Registry for each practice they will provide assistance for through this DIA. If not certified for a practice(s), a TSP can use a subcontractor who is a certified TSP for the practice(s). If there are no available certified TSPs, then that practice shall be removed from the scope of the participant's DIA.

DIA assistance is based on the participant's conservation plan and applicable conservation practice standards and related technical guidance provided in the NRCS Field Office Technical Guide (FOTG). Each NRCS State Office publishes appropriate technical guidance and reference information in the state's version of the FOTG. DIA assistance must conform with the conservation practice standards included in FOTG, Section 4 for the state where the practice(s) are to be implemented. A TSP may use conservation practice supporting documents found in the applicable state's FOTG, Section 4 to facilitate delivery of appropriate information to the participant. Examples of conservation practice supporting documents include statements of work (SOW), implementation requirements (IR), practice specifications (PS), standard drawings (SD), General Specifications (GS), Construction Specifications (CS), Material Specifications (MS), and design support tools. The FOTG homepage hyperlink is: <https://efotg.sc.egov.usda.gov/#/>.

##### Technical Requirements

This activity includes designing and implementing a system of conservation practices that follow the 4 principles of soil health:

- 1) **Minimize soil disturbance** by implementing conservation practices such as reducing tillage, managing irrigation, controlling traffic, prescribed grazing, integrated pest management to improve soil structure and water infiltration, reduce aggregate breakdown, and protect soil organism habitat and organic matter.
- 2) **Maximize soil cover** by implementing conservation practices such as using cover crops and surface residue management to reduce nutrient runoff, buffer soil temperature, reduce evaporation, reduce erosion, reduce aggregate breakdown, protect soil organic matter, and provide habitat for biological organisms.
- 3) **Maximize biodiversity** using diverse crop rotations, application of soil carbon amendments, multi-species cover crops, and livestock to improve nutrient cycling, break disease cycles, and stimulate below ground activity.
- 4) **Maximize living roots** by implementing conservation practices such as using cover crops, crop rotations, and perennial crops to maximize time periods of active growth throughout the year that provide soil biota a continuous food source.

The activity will meet the NRCS planning criteria for one or more of the following resource concerns:

- Soil organic matter depletion
- Soil compaction
- Soil organism habitat loss or degradation
- Aggregate instability
- Concentration of salts or other chemicals
- Plant productivity and health
- Wind erosion
- Sediment transported to surface water
- Sheet and rill erosion
- Naturally available moisture use

The activity includes developing implementation requirements for practices that can be used to enable the transition to a full-scale Soil Health Management System. It must meet the state adopted NRCS Conservation Practice Standards (CPS), Practice Specifications (PS) and Statements of Work (SOW) included in the participant's conservation plan or EQIP Contract and include a combination of the following primary practices and activities that address all four principles of Soil Health:

<b>Code</b>	<b>Primary Practice or Activity</b>
216	Soil Testing
327	Conservation Cover
328	Conservation Crop Rotation
329	Residue and Tillage Management, No-Till
334	Controlled Traffic Farming
340	Cover Crop

<b>Code</b>	<b>Primary Practice or Activity</b>
345	Residue and Tillage Management, Reduced-Till
484	Mulching
449	Irrigation Water Management
512	Forage and Biomass Planting
528	Prescribed Grazing
550	Range Planting
590	Nutrient Management
595	Pest Management Conservation System
610	Salinity & Sodic Soil Management
808	Soil Carbon Amendment

Supporting practices may be designed with primary practices over a transition period to provide the necessary means toward improved soil health.

<b>Code</b>	<b>Supporting Practice</b>
314	Brush Management
315	Herbaceous Weed Treatment
324	Deep Tillage
330	Contour Farming
333	Amending Soil Properties with Gypsum Products
338	Prescribed Burning
342	Critical Area Planting
382	Fence
394	Firebreak
516	Pipeline
548	Grazing Land Mechanical Treatment
561	Heavy Use Area Protection
574	Spring Development
575	Animal Trails and Walkways
580	Streambank and Shoreline Protection
614	Watering Facility
642	Water Well

Ensure that all activities and deliverables from CPA 116 or conservation plan have been completed, including:

- 1) Evaluations
  - a) Planned cropping system rotations - by Soil Health Management Unit (SHMU)
  - b) Soil Erosion Prediction with SCI and STIR – using current technology
  - c) WIN-PST evaluation
  - d) Cover Crop utilization narrative for operation and each SHMU

- e) In-Field Soil Health Assessment for Cropland for each SHMU, as applicable
  - f) Pasture Condition Score Sheet for each SHMU, as applicable
  - g) Interpreting Indicators of Rangeland Health reference sheet for each SHMU, as applicable
  - h) Soil Test Results- soil health, fertility, etc., as applicable
- 2) Soil Health Management Strategy
- a) Narrative description of the goals of the plan, to be based on evaluations and to incorporate monitoring
  - b) Required practices with a narrative description and implementation requirements as defined by the state
  - c) Supporting practices with a narrative description and implementation requirements as defined by the state- only agreed to practices will be included in plan.

## Definitions

- 1) *Soil health* is the continued capacity for soil to function as a vital living ecosystem to support plants, animals, and humans.
- 2) *Soil Health Management System* (SHMS) is a collection of NRCS conservation practices that focuses on maintaining or enhancing soil health by addressing four soil health management principles: minimize disturbance, maximize soil cover, maximize biodiversity and maximize the presence of living roots
- 3) *Soil Health Management Unit* (SHMU) is one or more planning land units with similar soil type, land use, and management that can vary in size or acreage depending on soil texture, topography, and cropping system. SHMU is like a conservation management unit but designed to assess soil health status and potential limitations on soil health indicators.

## DELIVERABLES

The TSP must provide documentation showing all the tasks indicated in the **Technical Requirements** section and the following sections:

### Cover Page

The cover page must include the following:

- 1) DIA name and number.
- 2) Participant information: Name, farm bill program name, contract number (TSP obtains contract number from participant), land identification (e.g., state, county, farm, and tract number).
- 3) TSP name, TSP number, TSP expiration date, mailing address, phone number, email address.
- 4) A statement by the TSP that services meet the DIA requirements, such as:
  - I certify the work completed and delivered for this DIA:*
    - *Complies with all applicable Federal, State, Tribal, and local laws and regulations.*
    - *Meets the General and Technical Requirements for this DIA.*

- *The planned practices are based on NRCS Conservation Practice Standards in the state Field Office Technical Guide where the practices are to be implemented.*
- *Is consistent with and meets the conservation goals and objectives for which the program contract was entered into by the participant.*
- *Incorporates alternatives that are both cost effective and appropriate to address the resource issue(s) and participant's objective(s).*

TSP Signature \_\_\_\_\_ Date \_\_\_\_\_

- 5) Participant's acceptance statement indicating:

*I accept the completed DIA deliverables as thorough and satisfying my objectives.*

Participant Signature \_\_\_\_\_ Date \_\_\_\_\_

- 6) A designated space for an NRCS reviewer to certify the agency's acceptance of the completed DIA.

*NRCS administrative review completion by:*

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

### **Notes and Correspondence**

- 1) Provide notes, in date-order that:
  - a) Document each interaction with the participant, results of that interaction, and the date of the interaction.
  - b) Document each site visit, its participants, the activity completed in the field, and results of each site visit.
  - c) Provide initials of the note-maker, if more than one person provides the assistance.
- 2) Provide copies of correspondence between the TSP and the participant relating to decision-making and completion of this DIA. For example, description of alternatives presented for evaluation and decision-making.

### **Implementation Maps**

- 1) Maps for a DIA must include these features:
  - a) Map title.
  - b) Participant's name.
  - c) Assisted By [TSP planner's name].
  - d) Date prepared.
  - e) Map scale.
  - f) Information needed to locate the planning area, such as geographic coordinates, public land survey coordinates, etc.
  - g) North arrow.
  - h) Appropriate map symbols and a map symbol legend on the map or as an attachment.
- 2) Maps to include, but not be limited to:
  - a) General location map of the implementation areas showing access roads to the location.

- b) Conservation Plan map may consist of several maps to account for the entire implementation area and must identify the Soil Health Management Units SHMU grouping of Farms/Tracts/Fields included in the SHMP, with boundaries.
- c) Sensitive/Critical Areas Map with narrative description.
- d) Soil map units identified by field or SHMU and interpretations or soil properties as defined by the state including drainage class and hydrologic group, ecological site and forage suitability group, soil health properties and interpretations.
- e) Other maps, as needed, with appropriate interpretations.

### **Design or Implementation Details**

- 1) Develop site-specific written instructions for implementing each planned conservation practice or activity included in the participant's DIA. Those instructions must:
  - a) Include, as a minimum, all items listed in each CPS "Plans and Specifications" section and the applicable Practice Specification (PS).
  - b) Include all items listed in the "Operations and Maintenance" section.
  - c) These items may be included in a single document or in multiple documents, as long as specification information is provided.
- 2) Statement of Work documents in a state's FOTG Section 4, include a Design section that lists deliverables needed for the participant's successful implementation.
- 3) Implementation Requirement documents in a state's FOTG Section 4 may be used to prepare and deliver site-specific conservation practice instructions, but are not required to be used.

### **Supporting Documentation**

Provide results of design tools, resource assessments, or other analyses that are required to meet the Criteria in the state's CPS and PS, including:

- 1) Soil Health Management Plan Strategy that includes a written description of the goals of plan.
- 2) Laboratory results of soil health testing, as applicable, and why they support the need for the conservation plan and planned practices.
- 3) In-field soil health assessment or other appropriate assessment results, as applicable.
- 4) Each designed conservation practice, details, location, and timing.
- 5) All documentation associated with Technical Requirements section or reference to the completed CPA 116.

### **Deliver Completed Work**

The TSP must:

- 1) Prepare and provide their participant two sets of the items listed in Deliverables.
  - a) One set is for the participant to keep.
  - b) The other set is for sharing with the local NRCS Office.
  - c) The TSP may transmit a set of the Deliverables to the local NRCS Office, if their participant

has authorized it. It is recommended to provide NRCS field office an opportunity to review the DIA deliverables, prior to asking for its acceptance.

2) Upload electronic copies of all the Deliverables on NRCS Registry.

## References

- Department of the Interior. Bureau of Land Management. Interpreting Indicators of Rangeland Health, Version 5 Tech Ref 1734-6. [https://www.blm.gov/sites/blm.gov/files/docs/2020-12/IB2021-007\\_att1.pdf](https://www.blm.gov/sites/blm.gov/files/docs/2020-12/IB2021-007_att1.pdf)
- USDA Natural Resources Conservation Service. National Planning Procedures Handbook. <https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=44407>
- USDA Natural Resources Conservation Service. Field Office Technical Guide. <https://efotg.sc.egov.usda.gov/#/>
- USDA Natural Resources Conservation Service. National TSP Website. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp/>
- USDA Natural Resources Conservation Service. National TSP Resources. <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/technical/tsp/?cid=nrcseprd1417414>
- USDA Natural Resources Conservation Service. Soil Health Technical Note 450-04. <https://directives.sc.egov.usda.gov/44340.wba>
- USDA Natural Resources Conservation Service. Cropland In-Field Soil Health Assessment Worksheet. <https://directives.sc.egov.usda.gov/45117.wba>
- USDA Natural Resources Conservation Service. Guide to Pasture Condition Scoring. <https://www.sare.org/wp-content/uploads/2020-Guide-to-Pasture-Condition-Scoring.pdf>
- USDA Natural Resources Conservation Service. Soil Health Technical Note 450-06. [https://www.nrcs.usda.gov/sites/default/files/2022-10/Cropland\\_InField\\_Soil\\_Health\\_Assessment\\_Guide.pdf](https://www.nrcs.usda.gov/sites/default/files/2022-10/Cropland_InField_Soil_Health_Assessment_Guide.pdf)
- USDA Natural Resources Conservation Service. WIN-PST Website. <https://www.nrcs.usda.gov/resources/tech-tools/windows-pesticide-screening-tool-win-pst>
- USDA Natural Resources Conservation Service. RUSLE2 Website. <https://www.nrcs.usda.gov/resources/tech-tools/water-erosion-rusle2>
- USDA Natural Resources Conservation Service. WEPS Website. <https://www.nrcs.usda.gov/resources/tech-tools/wind-erosion-prediction-system>