

Conservation Planning

Brandon Bishop
(Acting) Animal Husbandry Specialist
East Technical Center

Our Mission: We deliver conservation solutions so agricultural producers can protect natural resources and feed a growing world.



Helping People Help the Land

Helping our clients manage their natural resources and achieve their goals while at the same time meeting the producers responsibility to care for the land

NRCS is USDA's technical agency for providing assistance to private land managers, conservation districts, tribes, and other organizations in planning and carrying out conservation activities and programs

NRCS works with many **partners** to fulfill our mission.



Helping People Help the Land

Hugh Hammond Bennett's list of what soil conservation does. (1940)

1. Holds soil and its contents of plant nutrients in fields, pastures, and woodlands
2. Maintains or increases the supply of beneficial organic matter and organisms in the soil
3. Keeps land productive
4. Stores rainfall in the soil for crop use
5. Increases diversification of crops
6. Increases per acre yields
7. Makes cultivation easier and more efficient
8. Reduces cost of operation and maintenance of farm machinery
9. Increases farm income
10. Reduces waste of rainfall and helps control floods
- 11. Reduces the filling of stream channels, ditches, and reservoirs with the debris of erosion**
- 12. Reduces stream pollution**
- 13. Improves conditions for wildlife and fish**
14. Puts all land into productive use according to adaptability
15. Develops cooperation of people working together on common problems
16. Causes people to love the land and develops appreciation of rural life
17. Encourages people to work together in a neighborly way.



Soil Erosion
Soil Health
Efficient use/storage of water
Diversity
Economics
Flood control
Water quality
Wildlife
Partnerships
Relationships
Human/ Social considerations



Hugh Hammond Bennet Principles as outlined in his text “Elements of Conservation” dated 1947

Consider the needs and capabilities of each acre within the plan

Consider the client’s facilities, machinery, and economic situation

Incorporate the client’s willingness to try new practices

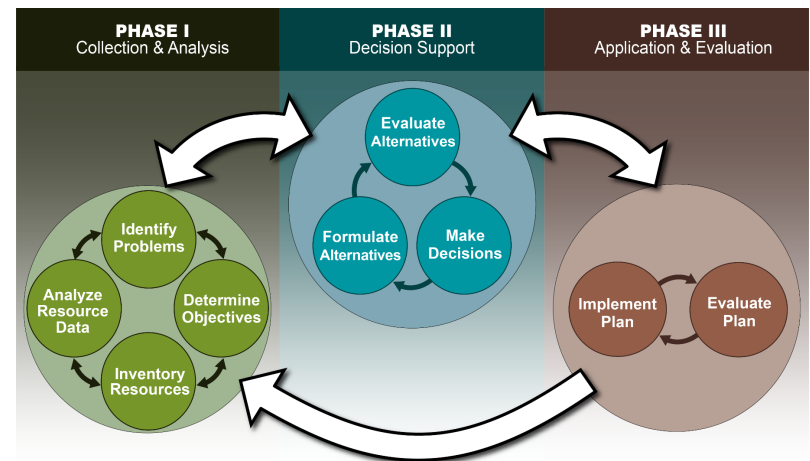
Consider the land’s relationship to the entire farm, ranch, or watershed

Ensure the conservationist’s presence out on the land



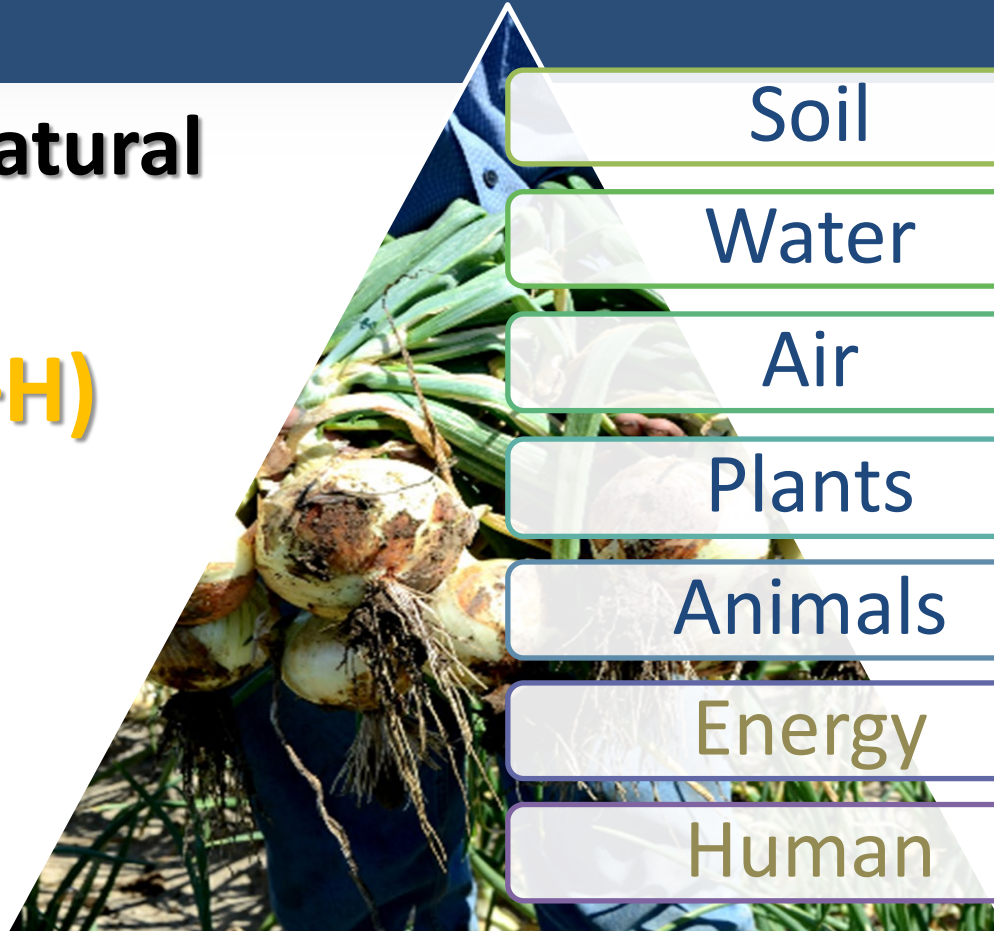
Emphasis: What the land (natural resources) needs, not what the producer wants

- Identify and assess **resource concerns**
 - Site visits, Planning Criteria, assessment tools
- Work with clients to **develop solutions**
 - Alternatives, Conservation practices, discussions with client
- Provide assistance to **implement solutions** on the ground
 - Technical Assistance – site visits, IR's, designs
 - Financial Assistance



What are Natural Resources

(SWAPAE+H)



Soil

Water

Air

Plants

Animals

Energy

Human

What is a Conservation Plan

A conservation plan is the record of decisions and supporting information for treatment of a unit of land meeting planning criteria for one or more identified **natural resource** concerns as a result of the planning process.

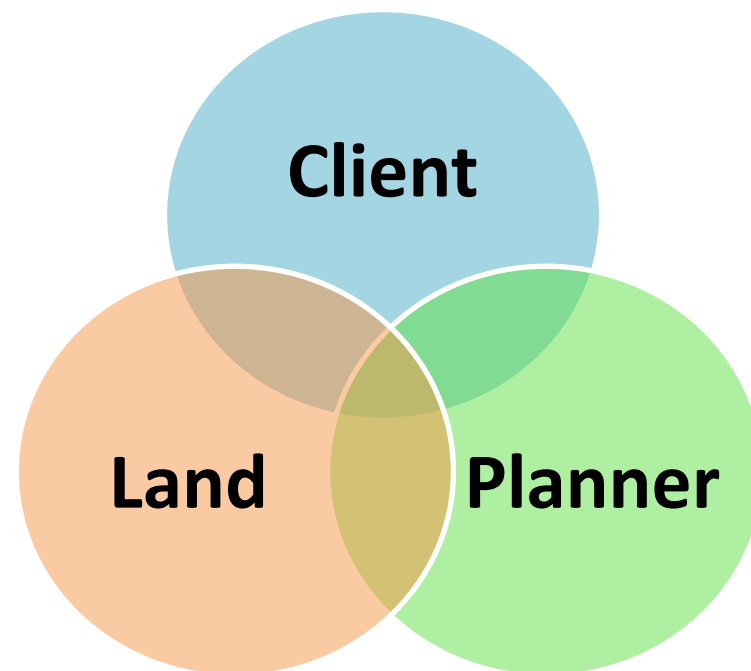


Desired Future Condition

A quantitative or qualitative expression of an ecological, economic, or social condition one is attempting to achieve. This goal is compared with the predicted outcomes of alternative implementation options.



- Establish relationship between client, planner and Land
 - Client – Planning objectives need to be based on clients needs and values regarding the use, management and treatment of area, history
 - Planner – Experience and knowledge of the area, solutions to problems and ability to influence or motivate client
 - Land - Soil-water-plant-animal interactions
- Planning = Transfer of Knowledge
 - Listen to client – guide them to decision making
 - Landowners put conservation on the ground
 - **we influence them and motivate** them.

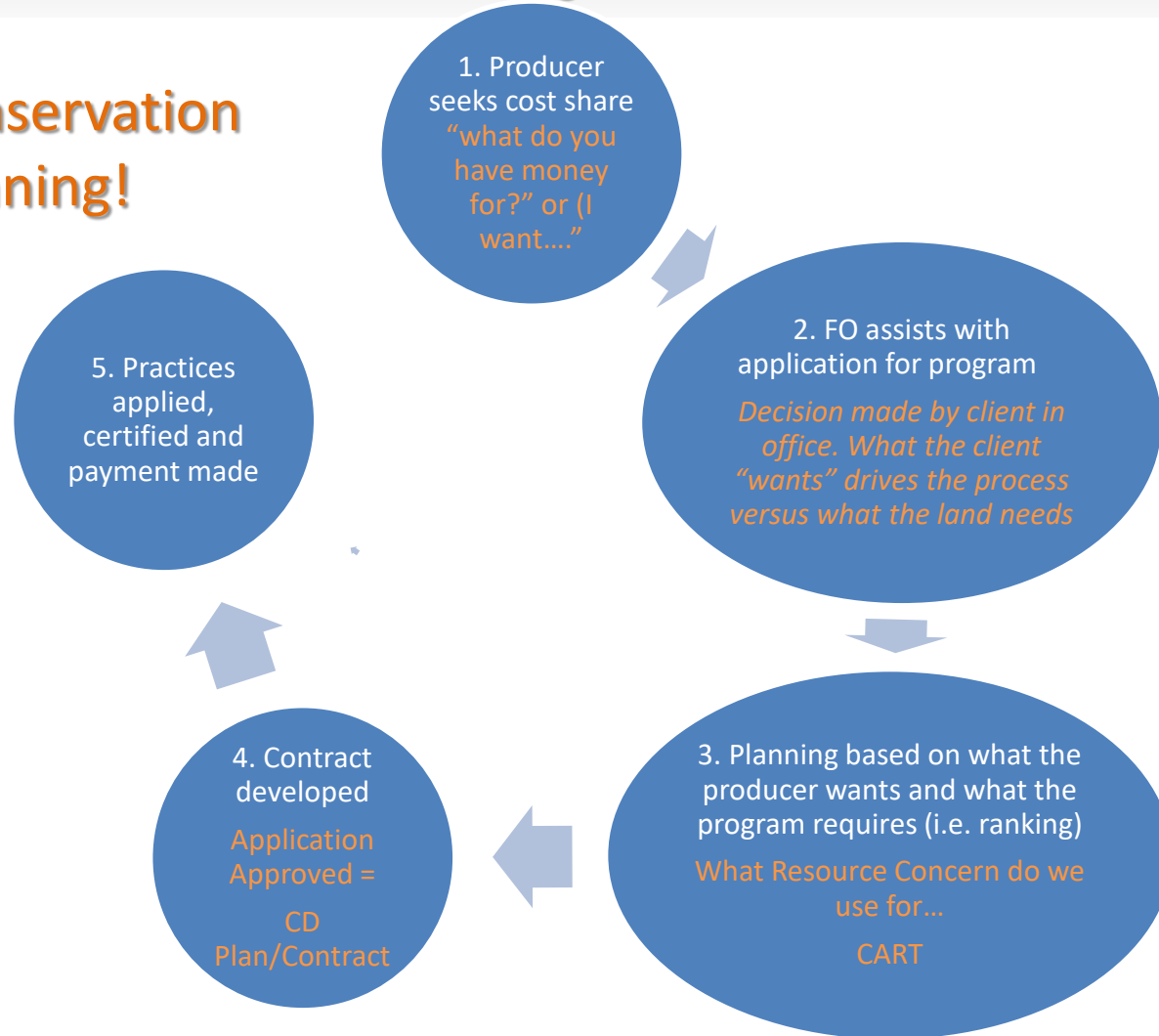


Clients will make and implement sound decisions if they understand their resources, natural resource concerns and opportunities, and the effects of their decisions.

Our Foundation - Conservation Planning

Conservation Planning – Its what we DO!

NOT Conservation Planning!



Policy and Guidance for Conservation Planning



Yes, the boring stuff.....

Guidance Resources

To assist the planner throughout the process, NRCS maintains various policy, manuals, handbooks, and guides.

eDirectives
Electronic Directives System

Go

- Advanced Search
- Search Tips
- RSS

Browse by Directive

- General Manual
- Handbooks
- Intraoffice Instructions
- Manuals
- National Bulletins
- National Instructions
- Technical Notes
- Technical Releases
- User Guides

USDA United States Department of Agriculture
NRCS Natural Resources Conservation Service
Grazing Lands Technology Institute
Revision 1 December 2003

National Range and Pasture Handbook

United States Department of Agriculture
Soil Conservation Service

National Engineering Handbook

Section 3

Sedimentation

Table of Contents

- Chapter 1 -- Introduction
- Chapter 2 -- Sediment Properties
- Chapter 3 -- Erosion
- Chapter 4 -- Transmission of Sediment by Water
- Chapter 5 -- Deposition of Sediment
- Chapter 6 -- Sediment Sources, Yields, and Delivery Ratios
- Chapter 7 -- Field Investigations and Surveys
- Chapter 8 -- Sediment Storage Design Criteria
- Chapter 9 -- Units and Equivalents

USDA United States Department of Agriculture
Natural Resources Conservation Service

Table 100 - National Planning Procedures Handbook

National Planning Procedures Handbook (NPPH), Edition 1

(100-400-R, 1-4 Ed., Revised, 6/10/2016)



100 - 1

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

TERRACE (F1)

CODE 690

DEFINITION
An earth embankment or a combination ridge and channel constructed across the field slope.

PURPOSE
This practice is applied as part of a resource management system for one or more of the following purposes:

- To reduce erosion by reducing slope length.
- To retain runoff for mobile conservation.

CONDITIONS WHERE PRACTICE APPLIES
This practice applies when:

- Soil erosion caused by water and excessive slope length is a problem.
- Excess runoff is a problem.
- There is a need to conserve water.
- The soils and topography are such that terraces can be constructed and reasonably farmed.
- A suitable outlet can be provided.

CRITERIA

General Criteria Applicable to All Exposures

Spacing: Slope terraces at intervals across the slope to achieve the intended purpose. The maximum spacing of terraces for erosion control is that necessary to achieve soil loss tolerance (L). Include both the terrace system with planned as-built slopes and cultural practices such as residue management when determining soil loss. The slope length used when checking soil loss for a proposed terrace spacing is the distance from the terrace ridge to the next lower terrace channel measured along the natural flow direction.

The maximum spacing for terraces for erosion control shall be determined by 1) of the 2 equations below. Maximum spacing for erosion control based on T may be increased by as much as 10 percent to provide better location or alignment, to accommodate farm machinery, or to meet any adjustments. The horizontal interval (H_c) as determined by other method, after any adjustments, should not exceed the shown T in Table 1. The drainage area above the top terrace of a system shall not exceed the area that would be drained by a terrace of equal length with normal spacing.

Table 1. Maximum horizontal interval

Land Slope (percent)	Maximum H _c (feet)	With Contour Stripcropping (feet)
0-2	450	600
2-4	300	600
4-6	250	500
6-9	150	400
9-12	100	200
12-18	100	100
> 18	100	100

Conservation practices encourage an increased productivity and quality of lands. To obtain the latest version of this document, contact the National Planning Procedures Coordinator, Conservation Practice Standards, Natural Resources Conservation Service.

NRCS, KS
May 2015

National Planning Directives

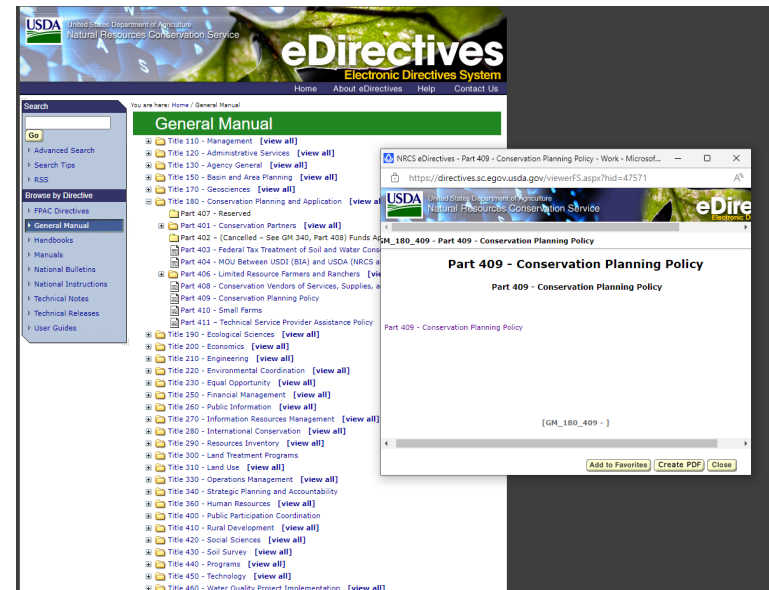
<https://www.nrcs.usda.gov/wps/portal/nrcs/asl/national/people/employee/>

- Established to help implement legislated laws and regulations
 - Interpret laws to make them more understandable
- Sources of Direction for Conservation Planning
 - Policy (GM 180, 190)
 - Procedure (NPPH)
 - Manuals (FSA Compliance, Programs)
 - Handbooks
 - Technical Guidance (GM450, FOTG)
 - Tools (FOTG, Internal)
 - Program Guidance (Programs Manuals and handbooks)

The screenshot shows the eDirectives Electronic Directives System interface. At the top, there is a search bar with a 'Go' button. Below the search bar, there are navigation links: 'Advanced Search', 'Search Tips', and 'RSS'. A 'Browse by Directive' section lists various resources: 'General Manual', 'Handbooks', 'Intraoffice Instructions', 'Manuals', 'National Bulletins', 'National Instructions', 'Technical Notes', 'Technical Releases', and 'User Guides'. On the left side, there is a list of 'NRCS Employee Websites' including: AgLearn, CART, Concur Travel System, ConnectHR, Conservation Desktop, eDirectives, eForms, Employee Personal Page, EmpowHR, Exhibits & Displays, FA Tracker, FMI document management system, National Planning Procedures Handbook, FOTG - Field Office Technical Guide, National Publications & Distribution Center, NEST (Easements Staging Tool), NFC - National Finance Center, ProTracts, PRS, Receipt for Service, Resource Stewardship (RSET), Science & Technology Training Library, Soil Resources, Thrift Savings Plan, and WebTA. At the bottom, there is a 'USDA CONNECT' logo and the text 'UNITED STATES DEPARTMENT OF AGRICULTURE' and 'USDA Connect'.

Conservation Planning Policy GM180, Part 409 - Key Points

- Conservation plans are the basis for all assistance NRCS provides to clients
- Purpose - to prevent the degradation of resources and to ensure their sustained use and productivity, while considering the client's economic and social needs.
 - Conservation planning is conducted with the client – In the field
 - Work progressively towards a resource management system (RMS) level of management.
 - Conservation plan is developed and documents the client's selected alternative.



Conservation Planning Policy GM180, Part 409 - Key Points

- Title 180, **National Planning Procedures Handbook**, Part 600 (180-NPPH-600), provides procedures and guidance on implementing the NRCS conservation planning process.
 - Establishes standards (Handout)
- All plans approved / signed by NRCS designated **Level III Planner** and Client
 - The signature of the NRCS conservation planner certifies that the conservation plan meets the needs of the client; NRCS conservation planning policy, procedures, and standards; and any applicable program or provision requirements.

Title 180 – National Planning Procedures Handbook

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

National Planning Procedures Handbook (NPPH), Amendment 9



Conservation Planning Policy GM180, Part 409 - Key Points



- (3) The following persons are required to obtain the Level I, III or IV conservation planner designations as defined in 180-GM-409-409.9.
- (i) NRCS employees with conservation planning as a major duty included in their official position description.
 - (ii) Partner organization or agency employees, including conservation districts, acting on behalf of NRCS and independently assisting customers through the nine-step conservation planning process for developing RMS or progressive conservation plans for NRCS conservation programs.



A conservation planner is a person who **possesses the necessary skills, training, and experience** to implement the NRCS planning process to meet client objectives in solving resource concerns.

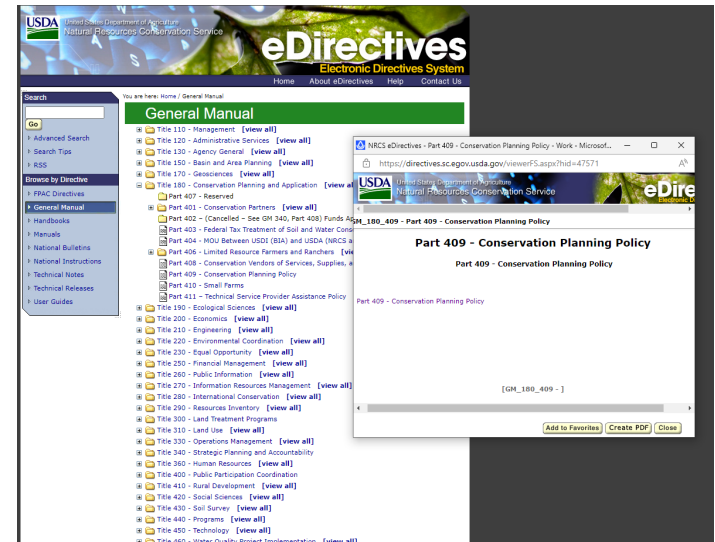
Employees/partners will be *designated one of the following roles:*

- **Level I Conservation Planner**
- **Level II (Technical Specialist)**
- **Level III Conservation Planner**



Conservation Planning Policy GM180, Part 409 - Key Points

- Policy requires that all conservation planning conducted by NRCS follow guidance in the FOTG.
- All NRCS-designated conservation planners will develop conservation plans that contain conservation practices that meet all NRCS standards and specifications as documented in the FOTG.




The Field Office Technical Guides

The FOTG are the primary technical reference for NRCS and are localized to apply specifically to an identified geographic area.

<http://efotg.sc.egov.usda.gov/>



 FIELD OFFICE TECHNICAL GUIDE

Welcome to NRCS Field Office Technical Guide (FOTG)

Select a state for documents.

State:

Support Help Log In

About FOTG

Technical guides are the primary scientific references for NRCS. They contain technical information about the conservation of soil, water, air, and related plant and animal resources.

Technical guides used in each field office are localized so that they apply specifically to the geographic area for which they are prepared. These documents are referred to as Field Office Technical Guides (FOTGs).

Appropriate parts of the Field Office Technical Guides are automated as databases, computer programs, and other electronic-based materials such as those included in these web based pages.

FOTG Sections

Section 1 - General Resource References

- General state maps.
- Descriptions of Major Land Resource Areas, watershed information, and links to NRCS reference manuals and handbooks.
- Links to researchers, universities, and agencies we work with.
- Conservation practice costs and agricultural laws and regulations.

Section 2 - Natural and Cultural Resources Information

- Detailed information about soil, water, air, plant, and animal resources.
- Cultural resources and information about protected plant and animal species.
- NRCS Soil Surveys, Hydric Soils Interpretations, Ecological Site Descriptions, Forage Suitability Groups, Cropland Production Tables, Wildlife Habitat Evaluation Guides, Water Quality Guides, and other related information can be found here as it becomes available.

Section 3 - Resource Concerns and Planning Criteria

- NRCS Quality Criteria, which establish standards for resource conditions that help provide sustained use.

Section 4 - Practice Standards and Supporting Documents

- NRCS Conservation Practice Standards that define the practice and where it applies. Practice specifications are detailed requirements for installing the practice in the state.

Section 5 - Conservation Effects

- Background information on how Conservation Practices affect each identified resource concerns in the state.

The Field Office Technical Guides

The FOTG contains five sections supporting the technical aspects of conservation planning activities as identified below:



“All certified conservation planners will develop conservation plans that contain conservation practices that meet NRCS standards and specifications as documented in the FOTG”. From GM Title 180, Part 409, 409.3 G.

Job Approval Authority

- Applies to all practices
 - Engineering (**NEM Section 210 Part 501**)
 - ECS (**GM 190 Part 417 (state supplement)**)
- What is JAA - The certification granted to an individual that has demonstrated the appropriate knowledge, skill, and abilities to plan, design, and certify installation of a given conservation practice
- Must be earned – not automatic - After Level I achieved
 - Experience
 - Training
 - Demonstrated competence
- Cannot operate without it and/or outside limits assigned
 - NRCS Policy
 - State Law - Engineering

Job Approval Authority

- Ensures practices are:
 - Planned Properly
 - Designed to accepted criteria
 - Constructed / implemented to meet design life and safety requirements
- **Inventory & Evaluation (Planning)**
 - On-site observations, assessment tools
 - Preparation of sound alternative solutions of sufficient intensity for the cooperator to make treatment decisions
- **Design**
 - Developing supporting data, drawings/specifications to ensure that the planned practice will meet the purpose for which it is installed
 - Includes setting specific inspection or monitoring requirements
- **Installation**
 - Confirmation that the practice is installed according to the conservation practice standard, specifications, and certification of practice completion

JAA

- Operate within your JAA
 - Know what you are assigned– don't plan, design or certify for anything not assigned
 - Know CPS standards
 - Only work on CPS you are comfortable with – OK to rely on others

U.S. Department of Agriculture
Natural Resources Conservation Service

ENGINEERING JOB APPROVAL AUTHORITY

OK-ENG-1
Mar-16

Delegated by: _____ Title: _____ Date: _____
(Responsible Engineer)

by: _____ Title: _____ Date: _____
(Supervisor)

Name: _____ Title: _____ Grade: _____ Office: _____

** GENERAL NOTE - All practices listed in this Job Approval Authority are limited to low hazard potential practices only. All higher hazard potential practices or practice codes not listed require prior state office approval.*

Practice Code	Practice Name or Component	Controlling Factor	Units	Class					Class V	Maximum Approval I&E	Maximum Approval Design	Maximum Approval Const.
				Class I	Class II	Class III	Class IV	Class V				
*	All Practices	Hazard potential as defined in NE M 503	Class	Low	Low	Low	Low	Low				
500	Access Road	Surface Treatment	Kind	Soil	Gravel	Asphalt	Concrete	All				
		Length	Ft	0,000	5,000	10,000	20,000	All				
		Maximum Grade	Percent	8	15	20	All					
		Culvert Pipe	In	24	48	60	72					
591	Amendments for Treatment of Agricultural Waste	Number of Poultry House Treated	Each	None	2	3	6	All				
316	Animal Mortality Facility	Total Treatment Volume	Cu. Ft.	None	1000	1500	5,000	All				
				Normal Mortality - Mechanical	Mortality Rate	None	None	None	All			
450	Anionic Polyacrylamide (PAM) Application	Area Treated	Ac	40	80	160	640	All				
397	Aquaculture Ponds	∅										
310	Bedding	Area	Ac	40	100	320	640	All				

Alan V. Davis SKILLS MATRIX WORKSHEET

Name: Alan V. Davis Title: Rangeland Specialist Location: State Office
Concurred by: Anthony Burns Title: Area Resource Conservationist Date: 5/24/2016

ETHICS STATEMENT

In exercising Job Approval Authority as shown below, I agree to utilize my assigned technical approval authority only for work that I am competent and qualified to perform. Economic, social, cultural and environmental impacts will be considered before a conservation practice is recommended. I will seek assistance from others when complicating factors warrant. I also understand that conservation practices can have negative effects on some resources. I agree to consider the impacts of practices on all resources before recommending their use.

Employee signature: _____ **Date:** _____

Conservation Practice	Lead Discipline	Controlling Factor	Units	Job Class					MAX APPR AUTHORITY I and E Design Const /Planning /Dev /Install			Approved by	Approved date	
				I	II	III	IV	V	I	E	Const			
311 Alley Cropping	EcoSci ESD-For	Number of tree species	Number	1	2	3	All	All	3	2	1	Bob Graham	5/24/2016	
314 Brush Management	EcoSci ESD-For	Treatment type	Mechanical chemical aboveground or burn and treat or burn treat	Mechanical	Mechanical	Mechanical	All treat types	All treat types	All	5	5	5		
				1	1	1	1	1	1	1	1	1	1	
	EcoSci ESD Rangeland M&SP	Ecological Sites	Number	1	5	10	all	all	3	2	1			
318 Prescribed Burning	EcoSci ESD-For	Fuel volatility	Fuel class	UNDER REVIEW	UNDER REVIEW	UNDER REVIEW	UNDER REVIEW	UNDER REVIEW	3	3	3	Joe Farmer	5/4/2016	

Wrap Up

Conservation planners have a great deal of information available to them through policy, manuals, handbooks, the FOTG, bulletins and circulars.

Much of this information can be found in **eDirectives**, however other sources may be on a shelf or in a file cabinet in the field or State office.