

NRCS - North Dakota Engineering Job Approval Authority

Employee Name: _____ Title: _____ Grade: _____ Location: _____

Delegated By: _____ Title: _____ Date: _____
 (Responsible NRCS-North Dakota Engineer)

Concurred: _____ Title: _____ Date: _____
 (Supervisor)

NOTES

1. Engineering job approval authority is delegated based on the NRCS North Dakota employee's training, experience, and demonstrated competence.
2. NRCS North Dakota employees shall not approve the planning, design, or construction of engineering practices that exceed their individual job approval authority for the practice by project stage.
3. Engineering job approval authority for field office employees may only be delegated by the responsible Area Engineer. Engineering job approval authority will be granted to Area Engineers, and state office employees, by the State Conservation Engineer.
4. The controlling factor that results in the highest classification determines the Job Class. The listed quantity is the maximum allowed under that job class. For example, an irrigation pipeline with a design capacity of 2,200 gpm and maximum design pressure of 45 psi is a Job Class IV.
5. Planning, design, or construction of engineering work not incorporated into a ND Practice Standard, or more complex than a Job Class 5, must be approved by the State Conservation Engineer.
6. All jobs to be constructed under a formal (FAR) contract must be approved by the State Conservation Engineer.
7. Job Class I-V for all practices is limited to low hazard potential as defined in NEM Part 503.
8. Planning documentation, design drawings, and asbuilt/inspection notes shall include clear documentation of the practices involved, job class for each, and the approving ND NRCS employee.
9. Evaluations of existing components for Comprehensive Nutrient Management Plans may be approved only when the practices involved are within the ND NRCS employees individual job approval authority for Planning.
10. NRCS NEM policy regarding checking must be followed at the design phase of the project, regardless of JAA.

REVIEW REQUIREMENTS

Individual Engineering Job Approval Authority will be reviewed with the ND NRCS employee as required by policy in NEM501 and revised as needed. If no significant changes are made, the following table will be used to indicate the review has been made by the appropriate ND NRCS engineer.

Chart Reviews

Initials

Date

DEFINITIONS OF INDIVIDUAL ENGINEERING JOB APPROVAL AUTHORITY CATEGORIES

Planning – Technical work required to complete steps 3 through 6 of the conservation planning process, for alternatives that include engineering practices. May include field investigations, evaluation of existing infrastructure, planning level survey work, and preliminary computations required to determine feasibility, technical eligibility, material quantities, and estimate costs for engineering alternatives. Typically considered at the level of a 'conceptual design' in the engineering profession. May require assistance, or review and approval, from higher levels for complex or unusual practices. NEM 501,

Design – All work required to produce final design documents for engineering practices in accordance with practice standards and other agency engineering requirements. Includes final survey work, field investigations, engineering analysis (hydrologic, hydraulic, structural, geotechnical, ect.) as necessary to produce final design report, drawings, construction specifications, inspection plan, and operation and maintenance plan. May require assistance, or review and approval, from higher levels for complex or unusual practices. NEM 501, 511

Construction - Technical work required to determine that construction of conservation practices has or is being performed in accordance with design drawings and specifications. Includes surveys for construction staking, layout, materials evaluation/testing, recording inspection notes, and producing final asbuilts and certification quantities. May require assistance, or review and approval, from higher levels for complex or unusual practices. NEM 501, 512

Code No.	Practice	Controlling Factors	Units	Job Classes					RESPONSIBILITY LIMITS		
				I	II	III	IV	V	Planning	Design	Construction
	Any Practice	Hazard Potential per 501.7C	CLASS	Low	Low	Low	Low	Low			
560	Access Road	Road Length	MI	0.5	1	2	3	All			
366	Anaerobic Digester, Controlled Temperature	Daily Treatment Volume	CFT	None	None	None	None	All			
575	Animal Trails and Walkways	Length	FT	None	500	1,000	2,000	All			
316	Animal Mortality Facility	Capacity-Dead Animals	CFT	1,250	2,500	5,000	All	All			
450	Anionic Polyacrylamide (PAM)	Application Area	AC	None	10	40	All	All			
396	Aquatic Organism Passage	See Stream Crossing for JC Criteria									
326	Clearing and Snagging	Drainage Area	SQMI	10	20	50	100	All			
		Linear Ft. of Channel	FT	None	None	500	2,000	All			
360	Closure of Waste Impoundments	Volume	CYD	None	2,000	5,000	10,000	All			
317	Composting Facility	Capacity-Dead Animals	CFT	1,250	2,500	5,000	All	All			
		Litter/Manure	CFT	10,000	20,000	50,000	All	All			
656 402	Constructed Wetland Dam	Effective Height of Fill	FT	None	None	3	6	All			
		Storage Volume at Top of Fill	AC-FT	None	12.5	25	50	All			
		Drainage Area	AC	None	100	320	640	All			
		<u>1/</u>									
348	Dam, Diversion	Streamflow(25yr.Freq.)	CFS	None	200	500	1,000	2,000			
		Flow Diverted	CFS	None	50	100	150	200			
		Height of Drop	FT	None	2	4	6	8			
356	Dike	Water Height	FT	None	2	4	6	12			
		Hazard	CLASS	None	III	III	III	III			
362	Diversion	Design Capacity	CFS	10	50	100	200	500			
554	Drainage Water Management	Area	AC	20	40	80	160	All			
410	Grade Stabilization Structure	<u>1/</u>									
412	Grassed Waterway	Design Capacity	CFS	10	50	100	200	500			
561	Heavy Use Area Protection	Area Protected									
		Vegetative Cover	AC	None	2	6	10	All			
		Paved Surfacing	AC	None	0.5	2	4	All			
320	Irrigation Canal or Lateral	Design Capacity	CFS	None	None	50	100	500			
388	Irrigation Field Ditch	Design Capacity	CFS	3	5	10	15	50			
464	Irrigation Land Leveling	Average Volume / AC	CY/AC	None	500	750	1,000	All			
		Max Cut	IN	None	6	12	18	All			
436	Irrigation Storage Reservoir	<u>1/</u>									
430	Irrigation Pipeline	Design Capacity	GPM	None	None	1,500	3,000	3,500			
		Design Pressure	PSI	None	None	80	160	All			
428	Irrigation Water Conveyance Ditch & Canal Lining	Design Capacity	CFS	None	10	50	100	500			
		Design Velocity	FPS	None	2	4	6	8			
466	Land Smoothing	Design Area	AC	None	40	80	All	All			
468	Lined Waterway Outlet	Drainage Area	AC	None	None	300	640	All			
		Capacity	CFS	None	None	50	100	All			
576	Livestock Shelter Structure	Preapproved Portable Shelter - Height	Ft	All	All	All	All	All			
		Permanent Structure - Height	Ft	None	None	8	10	All			

Code No.	Practice	Controlling Factors	Units	Job Classes					RESPONSIBILITY LIMITS		
				I	II	III	IV	V	Planning	Design	Construction
441	Microirrigation	Area Irrigated	AC	None	None	None	10	All			
353	Monitoring Well	Well Plan	EACH	None	None	None	None	All			
500	Obstruction Removal	No Hazard to Public Area to be Treated	AC	None	All	All	All	All			
582	Open Channel	Design Capacity	CFS	None	None	100	200	500			
		Design Velocity	FPS	None	None	3	5	10			
516	Pipeline	Length	MI	None	0.5	2	5	30			
		Diameter	IN	None	1.5	2	4	8			
		Pressure	PSI	None	125	160	200	300			
378	Pond (Embankment)	1/									
	Pond (Excavated)	Storage	CYD	1,000	1,500	2,000	2,500	All			
521	Pond Sealing or Lining										
521A	Flexible Membrane	Maximum Water Depth	FT	None	8	12	15	All			
521B	Soil Dispersant	Maximum Water Depth	FT	None	None	None	8	All			
521C	Bentonite Sealant	Maximum Water Depth	FT	None	8	12	15	All			
521D	Cationic Emulsion	Maximum Water Depth	FT	None	None	None	None	All			
521E	Asphalt Sealed Fabric	Maximum Water Depth	FT	None	8	12	15	All			
462	Precision Land Forming	AC Treated	AC	None	None	20	80	160			
533	Pumping Plant	<i>Centrifigual Pump</i>									
		Design Capacity	GPM	500	1000	1800	3000	3500			
		Static Head	FT	100	165	205	265	350			
		<i>Low Volume Pump</i>									
		Design Capacity	GPM	None	5	10	20	30			
		Static Head	PSI	None	100	200	300	400			
		<i>Turbine Pump</i>									
		Design Capacity	GPM	500	1000	1,800	3,000	3,500			
		Static Head	PSI	100	165	265	400	500			
		<i>Manure Pit Pump</i>									
	Pipeline Length	FT	None	None	500	1,500	All				
	Design Capacity	GPM	None	None	None	400	800				
	Static Head	PSI	None	None	80	100	125				
555	Roof Runoff Structure	Roof Area	SQFT	None	1,000	5,000	10,000	All			
367	Roofs and Covers	Seasonal	SQFT	None	None	5,000	10,000	All			
		Permanent- Max Span	FT	None	None	50	100	All			
		Floating Pond Covers	SQFT	None	None	8,000	20,000	All			
350	Sediment Basin	1/									
632	Solid/Liquid Waste Separation Facility	Settling Basin Capacity	CUFT	None	None	100,000	200,000	All			
		Mechanical Methods	Types	None	None	None	None	All			
574	Spring Development	Capacity	GPM	None	5	10	All	All			
442	Sprinkler	Area Irrigated	AC	None	None	160	640	1280			
584	Stream Channel Stabilization	Design Capacity	CFS	None	None	200	500	1000			
		Design Velocity	FPS	None	None	6	8	10			
578	Stream Crossing	Ford- Max Design Velocity	FPS	None	2	4	6	All			
		Culvert - Max Horiz Span	FT	2	4	8	12	26			
		Bridge - Clear Span	FT	None	None	None	16	30			
580	Streambank Protection	Design Flood Flow	CFS	150	300	500	1,000	2,000			

Code No.	Practice	Controlling Factors	Units	Job Classes					RESPONSIBILITY LIMITS		
				I	II	III	IV	V	Planning	Design	Construction
		Design Flood Velocity	FPS	2	4	6	8	10			
		Eroded Bank Height	FT	3	5	10	15	25			
	Shoreline Protection	Water Height above Shoreline	FT	None	None	None	2	3			
587	Structure for Water Control	1/									
606	Subsurface Drain	Diameter	IN	None	8	16	24	All			
443	Surface & Subsurface Irrigation	Area Irrigated	AC	None	None	80	160	640			
		Gated Pipe- Max Head	FT	None	None	10	15	25			
		Gated Pipe- Min Head	FT	None	None	5	3	1			
607	Surface Drainage, Field Ditch	Design Capacity	CFS	None	None	5	10	All			
608	Surface Drainage, Main or Lateral	Design Capacity	CFS	10	25	100	500	1000			
		Design Velocity	FPS	None	None	None	5	10			
447	Tailwater Recovery	Design Capacity	CFS	None	None	1	3	All			
628	Underground Outlet	Inside Diameter	IN	None	8	16	24	All			
635	Vegetated Treatment Area	Infiltration Area	AC	1	2	5	10	All			
630	Vertical Drain	Design Capacity	CFS	None	10	50	100	All			
313	Waste Storage Facility	Storage Capacity	CFT	None	None	500,000	1 Million	2 Million			
	Storage Pond	Embankment Height	FT	None	None	15	20	35			
		Depth to Groundwater	FT	None	None	6	4	All			
		Wall Height	FT	None	None	6*	8*	All			
	Below Ground Storage Tank	Span	FT	None	None	12*	20*	All			
		Wall Height	FT	None	None	6*	10*	All			
	Above Ground Storage Tank	Width-Rectangular Structure	FT	None	None	12*	18*	All			
		Diameter-Circular Structure	FT	None	None	60*	80*	All			
		Stacking Facility	Wall Height	FT	None	None	6*	8*	All		
	634	Waste Transfer		GPM	None	100	300	500	All		
Volume			CFT	None	300,000	500,000	1 Million	All			
359	Waste Treatment Lagoon	Aerobic-Surface Area	AC	None	None	None	10	25			
		Anaerobic-Volume	CFT	None	None	None	1 Million	2 Million			
		Effective Height of Dam	FT	None	15	25	30	35			
614	Watering Facility	Stock Tank Capacity	GAL	None	1200	3000	6000	All			
		Storage Tank (Cistern) Capacity	GAL	None	None	8000	20000	All			
636	Water Harvesting Catchment	Area	SQFT	2,000	10,000	25,000	40,000	All			
638	Water and Sediment Control Basin	Fill Height - Dist.from Top of Ridge to Ground Surface Straight Line	FT	None	4	6	10	All			
		Drainage Area	AC	None	80	160	640	All			
642	Water Well	Depth of Well	FT	None	100	250	500	All			
658	Water Well Testing	Testing Plan	EACH	None	None	None	None	All			
658	Wetland Creation	Effective Height of Fill	FT	None	None	3	6	All			
		Storage Volume at Top of Fill	AC-FT	None	12.5	25	50	All			
		Drainage Area	AC	None	100	320	640	All			
351	Well Decommissioning	Well Diameter	IN	None	≥10	≥ 4 & < 10	< 4	All			
		Well Depth	FT	None	50	100	250	All			

Code No.	Practice	Controlling Factors	Units	Job Classes					RESPONSIBILITY LIMITS		
				I	II	III	IV	V	Planning	Design	Construction
659	Wetland Enhancement	Effective Height of Fill	FT	None	None	3	6	All			
		Storage Volume at Top of Fill	AC-FT	None	12.5	25	50	All			
		Drainage Area	AC	None	100	320	640	All			
657	Wetland Restoration	Effective Height of Fill	FT	None	None	3	6	All			
		Storage Volume at Top of Fill	AC-FT	None	12.5	25	50	All			
		Drainage Area	AC	None	100	320	640	All			

* Designs incorporate the use of Standard Detailed Drawings without structural modification of the drawings.

Note: When the defined limit is exceeded the project is considered to be in the next job class.

Definitions

Maximum fill height is the maximum difference in elevation between the top of the dam (on centerline including allowance for settlement) and the lowest point in the channel (on centerline).

Effective height of dam is the difference in elevation in FT between the lowest open channel emergency spillway crest and the lowest point in the original cross section on the centerline of the dam. If there is no open channel emergency spillway, the top of the dam becomes the upper limit.

Drainage area includes all areas that contribute runoff to the structure or project site.

Diameter is the inside diameter of the pipe or conduit. For pipe drop inlets, it is the diameter of the barrel.

Drop is the vertical distance in FT between the crest of the inlet or weir and invert of the outlet. This is not to be confused with hydraulic head above any point in the structure.

Pumping lift is the vertical distance between the water surface at the pump intake and the discharge water surface.

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1/ All with relatively impervious cutoff, simple foundation needs, and standard or proven designs not exceeding the limits set forth below:

Hazard Class	None	Low	Low	Low	Low	Low			
Embankment Over Active Fault	None	None	None	None	None	None			
Effective Height	FT	8	15	25	30	35			
Drainage Area	SQMI	0.1	0.25	1	3	20			
Conduit Spillway (Single) Inside Diameter	IN	None	15	24	36	48			
Box Culvert, Area of Opening	SQFT	None	None	None	12	16			
Storage X Height	Factor	100	200	1,000	2,000	3,000			
Reinforced Concrete Structural Spillways (Type B, C, or F)									
Net Drop	FT	None	None	4	6	8			
Weir Depth	FT	None	None	2	3	4			
Weir Capacity	CFS	None	100	150	300	500			
Box Inlet Drop Spillways									
Net Drop	FT	None	None	None	4	6			
Weir Capacity	CFS	None	100	150	300	500			
Toe Walls									
Net Drop	FT	None	None	2	3	4			
Weir Capacity	CFS	None	None	100	200	300			
Structures									
Chutes*									
Reinforced or Formless of Standard Designs with Straight Inlets									
Net Drop	FT	None	6	8	10	12			
Weir Depth	FT	None	1.5	2	2	3			
Weir Capacity	CFS	None	50	75	100	300			
Riprap									
Net Drop	FT	None	8	10	12	12			
Weir Depth	FT	None	1.5	2	2	2			
Weir Capacity	CFS	None	50	75	150	300			
Sod									
Net Drop	FT	None	3	5	7	12			
Weir Depth	FT	None	1.5	1.5	2	2.5			
Weir Capacity	CFS	None	25	50	100	300			
Slide Gate									
Head < 10 FT	CFS	None	20	50	100	200			
Head > 10 FT	CFS	None	20	50	100	500			
Siphon									
Head	FT	None	None	None	5	10			
Capacity	CFS	None	None	None	50	100			
Siphon Per 100 Ft.	FT	None	None	None	0.5	0.5			
Long Span Supported Pipe, Capacity	CFS	None	None	None	None	10			