U. S. Department of Agriculture
Natural Resources Conservation Service

Engineering Job Approval Chart

WV-ENG-26
Revised: Jan. 2007

Name: _____ **Title:** _____ **Location:** _____

Issued by: _____ **Title:** _____ **Date Issued:** _____

Practice or System	Practice Code	Controlling Factors	Units	Job Class I	II	III	IV	V	VI	Maximum Approval Authority Plan	Dsgn	QA
Access Road	560	Roadway Surface	Type	Soil	Gravel	Asphalt	Concrete	all	all			
		Class					II	I				
		Culvert, I.D.	In.	18	24	36	48	60	all			
		Length	Ft.	2,000	5,000	10,000	20,000	all	all			
Agri-Chemical Handling Facility	702	Tank Volume	Gal	250	500	1000	2,500	5,000	all			
Animal Mortality Facility	316	Animal Units	No.	None	2	5	10	all	all			
Animal Trails and Walkways	575	Surface Material	---	None	Vege	Sawdust Cinders	Gravel	Paved	all			
Clearing & Snagging	326	Length	Ft.	10	50	100	500	all	all			
Composting Facility **(*1)**	317	Number of Cells	Each	1	2	5	10	all	all			
Dike	356	Class of Dike	---				none	III				
		Water Height	Ft.	1	2	3	4	6				
Diversion	362	Drainage Area	Ac.	5	10	20	50	all	all			
Dry Hydrant	432	Capacity	GPM	200	500	800	1,200	all	all			
		Lift	Ft.	5	10	14	18	all	all			
Filter Strip	393	Length	Ft.	100	200	500	1,000	all	all			
Forest Trails and Landings	655	Surface Material	---	None	Vege	Sawdust Cinders	Gravel	Paved	all			
		Culvert, I.D.	In.	18	24	36	48	60	all			
		Length	Ft.	2,000	5,000	10,000	20,000	all	all			
Grassed Waterway	412	Capacity	CFS	1	10	50	100	all	all			
Heavy Use Area Protection	561	Surface Material	---	None	Vege	Sawdust Cinders	Gravel	Paved	all			
Animal Units		Roofed		None	10	25	100	all	all			
		Unroofed						10	10			
Roofing **(*2)**		Roof Area	SF	None	800	1600	3200	6000	all			
Hillside Ditch	423	Drainage Area	Ac.	5	10	20	50	all	all			
Irrigation System - Surface												
Microirrigation	441	Irrigation Area	Ac.	0.5	10	20	50	all	all			
Sprinkler	442	Irrigation Area	Ac.	0.5	10	20	50	all	all			
Irrigation Water Conveyance, High Pressure greater than or equal to 50 psi	430DD	Length	Ft.	500	1,000	2,000	5,000	all	all			
		Capacity	GPM	50	100	600	1,200	all	all			
Irrigation Water Conveyance, Low Pressure less than 50 psi	430EE	Length	Ft.	500	1,000	2,000	5,000	all	all			
		Capacity	GPM	10	100	200	400	all	all			
Irrigation Water Mgt.	449	Irrigation Area	Ac.	1	10	20	50	all	all			
Land Clearing	460	Surface Area	Ac.	10	50	100	200	all	all			
Land Smoothing	466	Surface Area	Ac.	20	75	150	300	all	all			
Lined Waterway or Outlet	468	Capacity	CFS	0	15	50	200	all	all			

Practice or System	Practice Code	Controlling Factors	Units	Job Class I	II	III	IV	V	VI	Maximum Approval Authority Plan	Dsgn	QA
Manure Transfer	634											
Structures				SEE Waste Storage Facility (313)								
Pipeline, Gravity		Length	Ft.	0	20	50	100	all	all			
Liquid or Slurry		Head	Ft.	0	5	10	15	25	all			
		Diameter	In.	0	6	18	24	all	all			
Pipeline, with Pump		Length	Ft.	0	250	500	1,000	5,000	all			
Liquid or Slurry		Pressure	PSI	0	10	25	50	80	all			
		Diameter	In.	0	6	8	12	all	all			
Pumping Plant												
Centrifugal (up to 2,500 GPM)				SEE Pumping Plant for Water Control (533)					all			
Submersible (50 to 200 GPM)				SEE Pumping Plant for Water Control (533)					all			
PTO			HP			0	80	all	all			
Other Conduits				SEE Lined Waterway or Outlet (468)								
Other Transfer Methods						Mech. Scrapers	Truck	all	all			
Obstruction Removal	500	Hazard to Public	---					low	signf			
Open Channel	582	Capacity	CFS	50	100	300	400	500	2,000			
		Velocity	FPS	2	4	6	8	10	12			
Pest Management	595	Surface Area	Ac.	5	20	160	640	all	all			
Pipeline	516	Length	Ft.	500	1,000	2,500	5,000	all	all			
		Pressure	PSI	50	100	150	200	300	all			
		Diameter	In.	1.25	2	4	6	8	all			
Pond Sealing or Lining												
Flex. Membrane	521A	Area Treated	Ac.	0.1	0.5	1	5	all	all			
Soil Dispersant	521B		Ac.	0.1	0.5	1	5	all	all			
Bentonite	521C		Ac.	0.1	0.5	1	5	all	all			
Cationic Emuls	521D		Ac.	0.1	0.5	1	5	all	all			
Precision Land Forming	462	Area Treated	Ac.	5	20	50	100	all	all			
Pumping Plant for Water Control	533											
Axial Flow		Static Head	Ft.	0	5	10	15	25	all			
		Capacity	GPM	0	1,000	5,000	10,000	50,000	1,000,000			
Centrifugal, Turbine,		Static Head	Ft.	0	50	100	200	350	500			
and Submersible		Capacity	GPM	0	200	1500	2,500	3,500	5,000			
Recreation Land Grading & Shaping	566	Area Treated	Ac.	2	5	10	15	all	all			
Recreation Trail and Walkway	568	Surface Material	---	None	Vege	Sawdust Cinders	Gravel	Paved	all			
Roof RO Management	558	Total Roof Area	Sq. Ft.	500	1,000	3,000	5,000	all	all			
Spoil Spreading	572	Surface Area	Ac.	0.5	2	10	25	all	all			
Spring Development	574	Capacity	GPM	5	10	20	50	all	all			
Stream Crossing	578	Velocity, normal	FPS	0	1	2	3	5	all			
		Capacity, normal	CFS	1	5	15	50	all	all			
Channel Stabilization	584	Design Capacity	CFS	100	200	300	600	1,000	2,000			
		Design Velocity	FPS	1	2	4	7	10	12			
Streambank Protection	580											
Vegetated		Length	Ft.		0	2,000	5,000	all	all			
Mechanical		Bankfull Capacity	CFS	0	500	1,000	3,500	5,000	20,000			
		Bankfull Velocity	FPS	1	2	4	7	10	12			
		Water Height Above Shoreline	Ft.			1	2	3	5			
Subsurface Drain	606	Length	Ft.	3,000	5,000	10,000	40,000	all	all			
		Diameter, inside	In.	6	8	12	18	all	all			
Surface Drain												
Field Ditch	607	Capacity	CFS	1	5	25	50	all	all			
Main or Lateral	608	Velocity	FPS			2	5	10	12			
		Capacity	CFS	1	10	50	100	1,000	2,000			
Underground Outlet	620	Capacity	CFS	0.5	1	5	10	all	all			

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Waste Storage Facility	313											
Embankment		Effective Height	Ft.	10	15	20	25	35	all			
		Volume	Cu.Ft.	30,000	75,000	300,000	1 mill.	2 mill.	5 mill.			
Structures		Volume	Cu.Ft.	30,000	75,000	300,000	1 mill.	2 mill.	5 mill.			
		Wall Height										
		Above Ground	Ft.	4 **(*3)**	7	10	13	16	all			
		Below Ground	Ft.	3	4	5	6	8	all			
(Preapproved designs are listed in the AWMFH)		Tank Span (Diam)	Preapprvd									
		Above Ground	Ft.	20	30	40	50	all	all			
		Below Ground	Ft.	0	10	12	14	16	all			
		Tank Span (Diam) Site Design										
		Above Ground	Ft.	20	30	40	50	all	all			
		Below Ground	Ft.	0	10	12	14	16	all			
Waste Treatment Lagoon	359											
Aerobic		Surface Area	Ac.	1	3	5	15	25	50			
Anaerobic		Volume	Cu.Ft.	10,000	50,000	500,000	1 million	2 mill.	5 mill.			
		Effect. Height Dam	Ft.	10	15	20	25	35	all			
Waste Utilization	633	Surface Area	Ac.	20	40	160	640	all	all			
Wastewater Treatment Strip	635	Surface Area	Ac.	1	2	5	10	all	all			
Water & Sediment Control Basin	638	Settled Fill Height	Ft.	1	3	5	10	15	all			
		Storage Capacity	Cu.Ft.	1,000	5,000	10,000	20,000	all	all			
Water Harvesting Catchment	636	Area	Ac.	1	40	50	80	all	all			
		Storage Capacity	Gal.		1,200	2,000	27,000	all	all			
Watering Facility	614	Capacity	Gal.	100	500	1,000	2,000	all	all			
Well	642											
Consolidated		Diameter	In.	6	8	10	12	all	all			
		Depth	Ft.	50	150	400	700	all	all			
Unconsolidated		Diameter	In.	6	8	10	12	all	all			
		Depth	Ft.	25	75	150	300	all	all			

(*1) Approval applies only to Composter Designs by Standard Drawings WV-ENG-71 through 79.
(*2) Approval applies only to Cattle Feedlot by Standard Drawings WV-ENG-82Ai-iii and 83.
(*3) Approval applies only to Poultry Litter Storage Structure Designs by Standard Drawings WV-ENG-65Ai-iii, 66, 67, 68, and 83.
and Dry Stack Beef Manure Storage Structure Designs by Standard Drawings WV-ENG-84Ai-iii and 83.

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Dams, all		Hazard Class						a	b			
Diversion Dam **(*4)**	348	Effective Height	Ft.	3	6	10	15	20	20			
Sediment Basin	350	Drainage Area	Ac.	20	50	200	640	12,800	25,600			
Pond	378	Conduit Diam.	In.	12	18	24	36	48	all			
Aqua. Fishponds	397	Storage x Height	Ac-Ft x Ft	10	50	200	500	3,000	all			
Dam	402	Active Fault	---	None	None	None	None	None	None			
Grade Stab	410											
Struct. Water Control	587	Straight Drop Spwy										
		Net Drop	Ft.	0	2	4	6	all	all			
		Capacity	CFS	0	25	100	300	all	all			
		Box Inlet Drop Sp										
		Net Drop	Ft.	2	3	4	5	all	all			
		Capacity	CFS	0	25	100	300	all	all			
		Toe Walls										
		Net Drop	Ft.	0	1	2	4	all	all			
		Capacity	CFS	0	25	100	300	all	all			
		Chutes										
		Net Drop	Ft.	0	2	4	8	all	all			
		Capacity	CFS	0	25	100	300	all	all			
		Slide Gate										
		Head => 10 ft.	CFS	0	20	50	150	all	all			
		Head < 10 ft.	CFS	0	20	150	300	all	all			
		Radial or Tainter					none	all	all			
		Siphon										
		Head	Ft.	0	0	2	5	all	all			
		Capacity	CFS	0	0	10	50	all	all			
(*4) Additional	348	Streamflow 25 yr.	CFS	100	500	1,000	1,500	2,000	3,000			
Requirements For		Flow Diverted	CFS	25	50	100	150	200	500			
Diversion Dam		Height of Drop	Ft.	3	3	5	7	8	15			

CONTROLLING FACTORS FOR DAMS AND RELATED STRUCTURES

The Pond Standard (378) limits the effective height to twenty feet (20), unless otherwise approved by the State Conservation Engineer. The standard is limited to low-hazard ponds which, in the event of failure, will not result in the loss of life; damage to homes, commercial or industrial buildings, main highways, or railroads; or in interruption of the use or service of public roads.

Effective Height is defined as the difference in elevation, in feet, between the auxiliary spillway crest and the lowest point in the cross section taken along the centerline of the dam. If there is no auxiliary spillway, then the top of dam is the upper limit.

The WVDEP - Dam Safety Section Certificate of Approval is required for dams which are 1) 25 feet or more in height which can impound 15 acre-feet or more of water, OR 2) six (6) feet or more in height and impound 50 acre-feet or more of water. Dam height is measured from the natural bed of a stream or watercourse at the downstream toe of the barrier. See 378 standard for details.

NOTES REGARDING ALL ENGINEERING PRACTICES

For any practice not on this chart, approval authority is with the State Conservation Engineer

Job classification for a practice, or system of practices, shall be determined by the most limiting factor of any practice included in the system. Therefore, a project consisting of a system of practices will be assigned only one job classification. That classification shall be shown on the cover sheet of the drawings.

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