

Index of Pennsylvania Amendments to the National Engineering Manual are listed under the "Manual State Supplements" under Pennsylvania, Title 210-Engineering. Shown on next page.



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March 13, 2019

NATIONAL ENGINEERING MANUAL

Pennsylvania (PA) 210-V

PA Amendment 5

Subject: Design Guide 11- Floors (Slabs-on-Ground) for Concrete Structures

Purpose: Announce the addition of “*Design Guide 11- Floors (Slabs-on-Ground) for Concrete Structures*”.

Background: The June 2017 edition of Title 210 - National Engineering Manual, Part 536.22 provides design criteria on Concrete Slabs-on-Ground. This is referenced in the updated February 2019 PA Conservation Practice Standard (313) Waste Storage Facility. To assist designers in the selection of the appropriate floor steel, PA NRCS has developed “*Design Guide 11- Floors (Slabs-on-Ground) for Concrete Structures*”.

Action Taken: This Amendment can be found by going to <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pa/technical/?cid=stelprdb1167587> and then clicking “Index and Amendments announcing PA Supplements to National Engineer Manual”, open file and scroll to page 3.

“*Design Guide 11- Floors (Slabs-on Ground) for Concrete Structures*” is posted on the PA NRCS website:

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/pa/technical/?cid=nrcs142p2_018111

This document will also be posted within the next 90 days at <http://directives.sc.egov.usda.gov/Default.aspx>. On that page click *Manuals* from the left browser window. Under *Manuals* click *Title 210-Engineering*, expand *National Engineering Manuals*, roll down and expand, *Manuals State Supplements, Pennsylvania*, expand *Title 210-Engineering, Part 36.22 (D)*, and then click *highlighted line* to get the document.

Any questions contact Peter J. Vanderstappen, PE, State Conservation Engineer at 717-237-2228 or peter.vanderstappen@pa.usda.gov.

DENISE COLEMAN
State Conservationist





August 18, 2015

NATIONAL ENGINEERING MANUAL

Pennsylvania (PA) 210-V

PA Amendment 4

Subject: PA Engineering Job Approval Authority Charts

Purpose: Announce that the PA Engineering Job Approval Authority Charts have been updated.

Background: The official PA Engineering Job Approval Authority Charts found in eDirectives under the National Engineering Manual are listed with the State Supplements were last updated in March 2011. New practice standards and changes in the National Template warranted updating the Pennsylvania version.

Action Taken: This Amendment and attachments can be found by going to <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pa/technical/?cid=stelprdb1167587> and then clicking "Index and Amendments announcing PA Supplements to National Engineer Manual", open file and scroll to page 3.

The official PA Engineering Job Approval Authority Charts will be posted within the next 90 days at <http://directives.sc.egov.usda.gov/Default.aspx>. On that page click *Manuals* from the left browser window. Under *Manuals* click *Title 210-Engineering*, expand *National Engineering Manuals*, roll down and expand, *Manuals State Supplements, Pennsylvania*, expand *Title 210-Engineering, Part 510.9*, and then click *highlighted line* to get the new charts.

Any questions, contact Hosea Latshaw, PE, State Conservation Engineer at 717-237-2212 or hosea.latshaw@pa.usda.gov.

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PA 501.9 PA ENG-5 PA Engineering Job Approval Authority Chart 1 of 5											
CODES	PRACTICE [9]	CONTROL FACTORS	UNIT	CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	I&E	DESIGN	CONST
	Any Engineering Practice	Alter the visual resources of beaches and shoreline on oceans and the Great Lakes		None	None	None	None	None			
	Any Engineering Practice	Hazard Potential as defined in NEM	class	Low	Low	Low	Low	Low			
309	Agri/Chemical Handling Facility	Tank, Total Storage Volume	Gal	150	250	500	1000	All			
313a	Waste Storage Facility[6/13]	Tank Design Capacity	Cu Ft	xxxx	25,000	50,000	100,000	250,000			
313b	Waste Storage Facility[6/13]	Wall height above ground [5]	Feet	xxxx	8	10	12	All			
313c	Waste Storage Facility[6/13]	Wall height below ground [5]	Feet	xxxx	4	8	12	16			
313d	Waste Storage Facility[6/13]	Covered Tank span above ground	Feet	xxxx	8	12	16	All			
313e	Waste Storage Facility[6/10/13]	Roof Span	Feet	xxxx	20	40	60	All			
313f	Waste Storage Facility[6/13]	Pond, Design Capacity	Cu Ft	xxxx	50,000	100,000	1,000,000	2,000,000			
316	Animal Mortality Facility	Capacity, Primary Bins	CuFt	xxxx	1250	2500	5000	All			
317	Composting Facility	Capacity,Litter/Manure	CuFt	xxxx	10000	20000	50000	All			
318	Short Term Storage of Animal Waste and Byproducts	Footprint	SF	All	All	All	All	All			
326	Clearing & Snagging	Channel Bank Length	Feet	xxxx	200	400	1,000	All			
348a	Dam, Diversion [1]	Streamflow, 25 year	Cfs	100	500	1000	1500	2000			
348b	Dam, Diversion [1]	Flow Diverted	Cfs	25	50	100	150	200			
348c	Dam, Diversion [1]	Height Of Drop	Feet	3	3	5	7	8			
402a	Dam [3] [1]	Height of Fill [4]	Feet	10	15	20	25	35			
402b	Dam [3] [1]	Drainage Area	Acre	20	99	320	640	12,800			
402c	Dam [3] [1]	Embankment over fault		None	None	None	None	None			
350a	Sediment Basin [3] [1]	Height of Fill [4]	Feet	10	15	20	25	35			
350b	Sediment Basin [3] [1]	Drainage Area [4]	Acre	20	99	320	640	12,800			
350c	Sediment Basin [3] [1]	Embankment over fault		None	None	None	None	None			
351	Water Well Decommissioning	All	Each	xxxx	xxxx	All	All	All			
353	Monitering Well	All	Each	xxxx	xxxx	All	All	All			
356a	Dike [1]	Water Height	Feet	xxxx	xxxx	2	6	12			
356b	Dike [1]	Hazard	Class	xxxx	xxxx	xxxx	3	2			
359a	Waste Treatment Lagoon	Aerobic, Surface Area [4/11/13]	Acre	xxxx	xxxx	1	5	10			
359b	Waste Treatment Lagoon	Anaerobic, Volume [4/11/13]	Cu Ft	xxxx	xxxx	50,000	500,000	2,000,000			
360	Closure of Waste Impoundments	Depth	Feet	6	8	10	12	15			
362	Diversion	Design Capacity	c f s	25	50	100	200	All			
366	Anaerobic Digester	Animal Units(1000 lb.) [6/11/13]	No.	xxxx	xxxx	500	1000	All			

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PA 501.9 PA ENG-5		PA Engineering Job Approval Authority		Chart 2 of 5							
CODES	PRACTICE	CONTROL FACTORS	UNIT	CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	I&E	DESIGN	CONST
367	Roofs and Covers [6/10]	Span	Feet	xxxx	20	40	60	All			
371	Air Filtration and Scrubbing	All	Each	xxxx	xxxx	All	All	All			
374a	Farmstead Energy Improvement	Electr.,Mech., or Struc. Mod [14,15]	Each	xxxx	xxxx	All	All	All			
374b	Farmstead Energy Improvement	Other-Bulb replace or insulation [14/16]	Each	All	All	All	All	All			
378a	Pond [3]	Height of Fill [4]	Feet	5	10	15	25	35			
378b	Pond [3]	Drainage Area	Acre	10	20	99	320	12,800			
393	Filter Strip	Treatment Area	Sq.Ft	5000	15000	30000	50000	All			
410a	Grade Stabilization Struct [3]	Drainage Area	Acre	20	99	320	640	12,800			
410b	Grade Stabilization Struct [3]	Effective height	Feet	xxxx	2	4	6	8			
410c	Grade Stabilization Struct [3]	Embankment over fault		None	None	None	None	None			
412	Grassed Waterway	Design Capacity	c f s	50	100	200	300	All			
430a	Irrigation Pipeline	Greater than 50 psi	g p m	200	500	1500	2500	3500			
430b	Irrigation Pipeline	Less than 50 psi	g p m	200	500	1500	2500	5000			
432	Dry Hydrant	Pump Lift	Feet	xxxx	5	10	15	All			
436a	Irrigation Reservoir [3]	Height of Fill [4]	Feet	5	10	15	25	35			
436b	Irrigation Reservoir [3]	Drainage Area	Acre	10	20	99	320	12,800			
436c	Irrigation Reservoir [3]	Embankment over fault		None	None	None	None	None			
441	Irrigation System, Microirrigation	Area Irrigated	Acre	xxx	10	40	80	All			
442	Irrigation System, Sprinkler	Acres Irrigated	Acre	xxx	10	40	80	All			
449	Irrigation Water Management	Area Irrigated	Acre	xxx	10	40	80	All			
457a	Mine Shaft & Adit Closing [8]	Shft(vert)-comp. fill, depth	Feet	xxxx	xxxx	xxxx	25	50			
457b	Mine Shaft & Adit Closing [8]	Shft(vert)-comp. Capping Clr. Span	Feet	xxxx	xxxx	xxxx	4	16			
457c	Mine Shaft & Adit Closing [8]	Shft(vert)-comp. Plug (partl. fill)	Each	xxxx	xxxx	xxxx	xxxx	xxxx			
457d	Mine Shaft & Adit Closing [8]	Adit (Horiz.) Barriers permeable	Sq Ft	xxxx	xxxx	xxxx	40	All			
457e	Mine Shaft & Adit Closing [8]	Adit (Horiz.) Barriers impermeable	Each	xxxx	xxxx	xxxx	xxxx	xxxx			
453a	Land Recl., Landslide Treat. [8]	Haz. to Pub. Safe. none Slide Area	Acres	xxxx	xxxx	xxxx	0.5	1			
453b	Land Recl., Landslide Treat. [8]	Haz. Pub. Safe-none-Max dpt to fail	Feet	xxxx	xxxx	xxxx	5	10			
453c	Land Recl., Landslide Treat. [8]	Haz. Pub. Safe-none-sur slp slide	%	xxxx	xxxx	xxxx	25	50			
453d	Land Recl., Landslide Treatm. [8]	Moderate to High	Job	xxxx	xxxx	xxxx	xxxx	xxxx			
455	Land Recl., Toxic Disch.Cont. [8]	Flow	Cfs	xxxx	xxxx	25	50	100			
468a	Lined Waterway or outlet	Design Capacity	c f s	xxxx	50	100	200	All			

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PA 501.9 PA ENG-5		PA Engineering Job Approval Authority			Chart 3 of 5						
CODES	PRACTICE	CONTROL FACTORS	UNIT	CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	I&E	DESIGN	CONST
468b	Lined Waterway or outlet	Velocity	Fps	3	4.5	6.5	8	All			
500a	Obstruction Removal [8]	No hazard to public during removal	Acre	0.2	1	2	10	All			
500b	Obstruction Removal [8]	Mod to high hazd to pblc dur remvl	Job	xxxx	xxxx	xxxx	All	All			
516a	Pipeline	Length	Mile	0.1	0.5	1.0	2	30			
521a	Pond Sealing	Maximum Water Depth	Feet	xxxx	10	15	25	All			
521b	Pond Sealing	Applies only on 313, all liner types	Sq Ft	xxxx	15,000	25,000	150,000	275,000			
527a	Karst Sinkhole Treatment	Depth	Feet	5	10	15	20	All			
527b	Karst Sinkhole Treatment	Drainage Area	Acre	5	10	15	30	All			
533a	Pumping Plant	Capacity, Centrifugal&Turbine	Gpm	50	100	500	1000	3,500			
533b	Pumping Plant	Head, Centrifugal	Feet	50	100	200	250	350			
533c	Pumping Plant	Capacity, Axial Flow	Gpm	xxxx	xxxxx	xxxx	30,000	50,000			
533e	Pumping Plant	Head, Turbine	Feet	50	100	200	350	500			
543	Land Recl.-Aband. Mine [8]	Surface Area - No Fires	Acre	xxxx	5	10	20	All			
544	Land Recl. Curent. Mined Land	Area Reclaimed	Acre	xxxx	5	10	20	All			
558	Roof Runoff Structure	Roof Area	Sq Ft	5000	7500	15000	30000	All			
560a	Access Road	Road length	Mile	xxxx	0.5	1	2	All		j	
560b	Access Road	Road surface material	Matrl	xxxx	xxxx	Gravel	Paved	All			
560c	Access Road	Culvert pipe diameter [2]	Feet	1	2	3	5	6			
560d	Access Road	Culvert monlthic concrt,open	Sq Ft	xxxx	xxxx	xxxx	9	25			
560e	Access Road	Bridge Span, standard design	Feet	xxxx	xxxx	xxxx	12	24			
561a	Heavy Use Area Protection	Surface, Gravel	Sq Ft	1000	2500	5000	10000	All			
561b	Heavy Use Area Protection	Surface, Vegetation	Acre	0.5	1	5	10	All			
561c	Heavy Use Area Protection	Surface, Concrete or other	Sq.Ft	1000	2500	5000	10000	All			
568	Trail & Walkways	Length	Mile	xxxx	0.5	1	5	All			
574	Spring Development	Number	Each	xxxx	xxxx	All	All	All			
575	Animal Trails and Walkways	Length	Feet	500	1000	2500	5000	All			
578a	Stream Crossing	Design Velocity	Fps	4.5	6.5	8	10	All			
578b	Stream Crossing	Bankfull Capacity	c f s	500	1000	2000	5000	All			
580a	Strbk and Shorln Prt	Water Height Above Shore Line	Feet	xxxx	xxxx	1	2	3			
580b	Strbk and Shorln Prt	Vegte, Bank Lgth	Feet	100	200	500	1000	All			
580c	Strbk and Shorln Prt	Bankfull Capacity	c f s	100	500	1000	2000	5000			
580d	Strbk and Shorln Prt	Bankfull Velocity	Fps	3	4.5	6.5	8	10			
582a	Open Channel	Design capcty subctl flow only	c f s	50	100	200	300	1000			
582b	Open Channel	Design Velocity	Fps	xxxx	xxxx	6	8	10			

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PA 501.9 PA ENG-5			PA Engineering Job Approval Authority						Chart 4 of 5					
CODES	PRACTICE	CONTROL FACTORS	UNIT	CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	I&E	DESIGN	CONST			
584a	Channel Bed Stbl.	Design Capacity	c f s	50	100	200	300	1000						
584b	Channel Bed Stbl.	Design Velocity	Fps	xxxx	xxxx	6	8	10						
587a	Structure for Water Cntl [3]	Height of Fill [4]	Feet	10	15	20	25	35						
587b	Structure for Water Cntl [3]	Drainage Area	Acre	20	99	320	640	12,800						
587c	Structure for Water Cntl [3]	Embankment over fault		None	None	None	None	None						
600a	Terraces [7]	Drained By Gradient Terraces	Acre	10	20	30	40	All						
600b	Terraces [7]	Drained By Storage Terraces	Acre	xxxx	10	20	30	All						
606a	Subsurface Drain	Max Inside Diameter	Inch	4	6	8	12	All						
606b	Subsurface Drain	Total System Length	Feet	3000	5000	20000	40000	All						
607	Surface Drain, Field Ditch	Area drained	Acre	10	20	50	100	All						
608a	Surface Drainage, Main or Lat.	Design Velocity	Fps	xxxx	4	6	8	10						
608b	Surface Drainage, Main or Lat.	Design Capacity	c f s	50	100	300	500	1000						
614	Watering Facility	Capacity	Gal	xxxx	600	1500	2000	All						
620	Underground Outlet	Maximum Inside Diameter	Inch	4	6	12	18	All						
634a	Waste Transfer	Length of pipe, loading	Feet	xxxx	50	100	150	All						
634b	Waste Transfer	Milk House Waste System, Milk Cows	Each	50	100	250	500	All						
635	Vegetated Treatment Area	Treatment Area	Sq.Ft	5000	15000	30000	50000	All						
638	Water and Sdmt Ctrl Basin [4]	Height of Fill [4]	Feet	xxxx	5	10	15	All						
642a	Water Well	Public Health, Livestock Use	Each	xxxx	xxxx	xxxx	All	All						
642b	Water Well	All Others	Each	xxxx	xxxx	All	All	All						
656a	Constructed Wetland	Height of Fill	Feet	xxxx	xxxx	xxxx	3	6						
656b	Constructed Wetland	Drainage Area	Acre	xxxx	xxxx	xxxx	50	99						
657a	Wetland Restoration	Height of Fill	Feet	2	4	6	8	All						
657b	Wetland Restoration	Drainage Area	Acre	5	20	50	99	All						
658a	Wetland Creation	Height of Fill	Feet	2	4	6	8	All						
658b	Wetland Creation	Drainage Area	Acre	5	20	50	99	All						
659a	Wetland Enhancement	Height of Fill	Feet	2	4	6	8	All						
659b	Wetland Enhancement	Drainage Area	Acre	5	20	50	99	All						
670	Lighting System Improvement	Building footprint [14] [15]	SF	10,000	40,000	80,000	100,000	All						
672	Building Envelope Improvement	Building footprint [15] [16]	SF	10,000	40,000	80,000	100,000	All						

[No.] For numbers in brackets see Footnotes found on Chart 5 of 5

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PA 501.9 PA ENG-5

PA Engineering Job Approval Authority

Chart 5 of 5

FOOTNOTES including [No.] in brackets found in Chart 1 thru 4

1. All designs requiring State or Federal permits (except general permits) shall be approved by an Area Engineer or the State Conservation Engineer, as appropriate.
2. Includes storm water conduits not associated with access roads.
3. Limited to NRCS hazard Class a dams and structures with relatively impervious cutoff, simple foundations, and standard or proven designs.
4. See 378 Ponds for additional limiting criteria and definitions of control factors.
5. Above ground refers to total wall height. Below ground refers to height of backfill against wall.
6. Waste storage structures or components with NRCS standard detailed drawings prepared by others having NRCS concurrence, can be used following review by the area engineer, regardless of height, provided the design assumptions and restrictions are properly satisfied considering the existing site conditions.
7. See 638 Water and Sediment Control Basin for additional limiting criteria.
8. Land Reclamation Abandoned Mined Areas. Hazard to public safety limitation apply to the construction methods or treatment during and after reclamation.
9. Engineering practices not listed in individual JA chart must be approved by persons with engineering job approval. Newly adopted National Practices not listed have Class V approval for SCE whom can delegate.
10. All roofs not using Standard Detailed Drawings require approval by an engineer.
11. All aerobic with mechanical aeration are Class 5.
12. Includes assistance on state game land, national forests, and parks.
13. Design approval for practice 313, Waste Storage Facilities for non-solid manure or practice 359 Waste Treatment Lagoon can be delegated to engineers only.
14. Energy audit completed by TSP or outside entities. Design completed by TSP, PE, or vendor.
15. Construction certified by qualified professional.
16. Insulation could include the following:
 - *Greenhouse-Insulate unglazed walls
 - *Building Envelope-Greenhouse screens or sealant or attic insulation or wall insulation



October 1, 2014

NATIONAL ENGINEERING MANUAL

Pennsylvania (PA) 210-V

PA Amendment 3

Subject: Use of LiDAR (Light Detection and Ranging) data

Purpose: Establish State engineering policy on the use of LiDAR (Light Detection and Ranging) data for planning and/or design of conservation practices.

Background: Natural Resources Conservation Service (NRCS) staff and our partners use a wide range of survey methods and equipment to plan and design conservation practices. Another tool is using LiDAR data to develop contour maps for planning or to supplement actual field survey work done. Guidance policy on the use and limitations along with the accuracy of the data available across Pennsylvania is attached.

Action Taken: This Amendment and attachment can be found by going to <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pa/technical/?cid=stelprdb1167587> and then clicking "Index and Amendments announcing PA Supplements to National Engineer Manual".

The official version will be posted within the next 90 days at:
<http://directives.sc.egov.usda.gov/Default.aspx>, then click "Manuals" from the left browser window. Under Manuals click "Title 210-Engineering, National Engineering Manuals", roll down and click "Manuals State Supplements, Pennsylvania, Title 210-Engineering, Part 510.3.D".

Any questions, contact Hosea Latshaw, Professional Engineer (PE), State Conservation Engineer at 717-237-2212 or hosea.latshaw@pa.usda.gov.

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PA Part 510 – Planning

PA 510.3 Engineering Data to Support Plans

D. Use of LiDAR for Engineering Practices

(1) Background and Source

- (i) LiDAR (Light Detection and Ranging) is a technique used to obtain elevation data over large areas. Data quality can be affected by tree canopy, vegetation, type of data collection, and time of data collection.
- (ii) LiDAR data for use in Pennsylvania shall be downloaded from <http://www.pasda.psu.edu/>. This site is maintained by the Pennsylvania Spatial Data Access (PASDA) clearing house.

(2) Limitations of LiDAR

- (i) Site Changes – LiDAR data represent a snapshot of the elevation at the exact time the data were collected. Changes occurring after collection, such as erosion or construction activities, are not reflected in the data.
- (ii) Grade Breaks – LiDAR data are typically collected in a grid, not necessarily at observed grade changes as with a typical field survey. Features such as ditch bottoms may not be accurately represented.
- (iii) Vegetation – Vegetation at the time of data collection may cause an inaccurate LiDAR representation of the ground elevation. For example, tree canopy or heavy vegetal cover may provide a reduced density of ground points collected, therefore reducing the accuracy of the data.
- (iv) Site Specific Features – Some landscape features that should be identified for engineering design purposes but usually are not well defined by the LiDAR data include:
 - Tile intakes and outlets
 - Culvert inlets and outlets
 - Fences
 - Buildings
 - Wells
 - Locations below water level
 - Utilities
 - Wooded areas
 - Property lines
- (v) Accuracy – Most LiDAR data that have been collected in Pennsylvania are adequate to support mapping of topographic contours at a 2 foot interval (Quality Level 3). Some engineering planning and design applications require accuracy to 1 foot or even 0.5 foot contours or better.

Elevation Quality Level	Horizontal Resolution Terms		Vertical Accuracy Terms	
	<i>Point Density, Pts / m²</i>	<i>Nominal Pulse Spacing, m</i>	<i>*RMSE_z in Open Terrain, cm</i>	<i>Equivalent Contour Accuracy, ft</i>
QL 1	8	.35	9.25	1**
QL 2	2	.7	9.25	1
QL 3	1 – 0.25	1 – 2	≤18.5	2

*RMSE_z = Root Mean Square Error in the vertical direction

**QL1 is needed to obtain accuracy for sites with heavy canopy or vegetative cover.

(3) Use of LiDAR

- (i) **Planning** – Use of LiDAR data is very well suited for planning purposes for all conservation engineering practices. LiDAR derived data may be in the form of triangulated irregular network (TIN), digital elevation model (DEM) surface, or contour lines.
- (ii) **Final Design** – Pennsylvania’s statewide LiDAR data and derivative Digital Elevation Models (DEMs) are QL3 and as such, the only allowable design uses are for those that correspond to the 2 ft. accuracy requirements. Using software tools to computer generate a smaller contour interval is not supported by the data accuracy level of the current Pennsylvania statewide LiDAR data.

For design of engineering practices, the following table (Figure PA510-1) presents allowable Design Uses of LiDAR data for Pennsylvania NRCS.

Figure PA 510-1 LiDAR Allowable

Design Use	Applicable Practice Type(s)
Stage storage computations	Wetland stage storage areas
Excavation	Wetland macrotopography areas
Waterway channel hydraulics	Alternative Waterways
Grade and location	Pipelines
Grade and Location	Irrigation or Micro-Irrigation
Watershed area and slope determination	All types
Grade and Location	Access Roads
Grade and Location	Animal Trails or Walkways

- For each project, visually field check to ensure that the LiDAR contours accurately represent the site where the project is located. LiDAR can miss abrupt changes in elevation when adjacent to cover. If there is a concern, check a minimum of 3 points using survey equipment to verify elevations and distances. If the discrepancy is confirmed, discontinue use of LiDAR data for that site.
 - For each project site, gather actual survey data for any portions of the site that are under water, contain unusual vegetative cover, actively eroding (gullies or headcuts), have structures, embankments, outlets, or have been regarded, etc. Use the site specific information for the design, rather than the LiDAR data.
 - LiDAR data can be used for areas beyond the site specific data to generate a larger topo area.
 - Additional practices not listed can be approved by the State Conservation Engineer on a case by case basis.
- (iii) Note that the allowable use of LiDAR data does not alleviate designer of the responsibility to collect other necessary data using traditional survey and investigation techniques as needed to complete the practice design.
- (iv) **LiDAR Documentation** – Metadata reference for use of LiDAR in design projects exists at the Pennsylvania Spatial Data Access (PASDA) site referenced above. Source has been determined to meet NRCS requirements and not required for each (design) use.



March 17, 2014

NATIONAL ENGINEERING MANUAL

PA 210-V

PA Amendment 2

Subject: PA Job Approval Authority Revisions

Purpose: To distribute the attached “Job Approval Charts”

Background: The 3d Edition of National Engineering Manual (NEM) was released in July of 2011. Pennsylvania State Supplements were added in August 2011 by PA Amendment 22 that voided all previously amendments and announced the first amendment to the 3d edition of the NEM.

This amendment reflects changes in the Engineering Job Classification Charts by adding control factors for (374) Farmstead Energy Improvement and the addition of Chart 5 with the associated Footnotes.

Action Taken: Please note. The official version can be found at <http://directives.sc.egov.usda.gov/Default.aspx>, then click *Manuals* from the left browser window. Under *Manuals* click *Title 210-Engineering*, *National Engineering Manuals*, roll down and click, *Manuals State Supplements, Pennsylvania, Title 210-Engineering, Part 501-Authorizations, Subpart A-Review and Approval* and then roll down to section *PA501.9 Engineering Job Classifications That Utilize Controlling Factors* and click “[Click here for the Engineering Job Classification used in PA](#)” to open PA Engineering Job Approval Authority Charts 1 thru 5.

These approvals will be added to appropriate staff as determined by the Area Engineer and Assistant State Conservationist for your area.

Any questions, contact Hosea Latshaw, PE, State Conservation Engineer at 717-237-2212 or hosea.latshaw@pa.usda.gov.

DENISE COLEMAN
State Conservationist





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November 16, 2011

National Engineering Manual

PA210-V

Amendment PA-21

Subject: Removal of all old Pennsylvania Addendums to the National Engineering Manual.

Purpose: To provide guidance on removing all outdated PA pages from the National Engineering manual.

Effective Date: Upon Receipt

Background: The National Engineering Manual is officially kept on the National NRCS Website at the following link:

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

The links to the Pennsylvania State Supplements to this manual are located at the following link:

[http://www.pa.nrcs.usda.gov/technical/Engineering/index.html#NRCS Manuals and Handbooks with Pennsylvania Addendums](http://www.pa.nrcs.usda.gov/technical/Engineering/index.html#NRCS_Manuals_and_Handbooks_with_Pennsylvania_Addendums)

Action: The following pages have been updated.

PA501.3 Compliance of Engineering Work with Laws and Regulations
PA501.4 Engineering Job Approval Authority
PA501.6 Engineering Work Reviewed for other Agencies
PA501.7 Classification of Engineering Jobs
PA501.9 Engineering Job Classifications That Utilize Controlling Factors
PA503.2 General Considerations
PA505.3 Review of Technical Services Performed by Others
PA511.5 Design Checking and Review
PA512.20 General
PA512.32 QA Procedures
PA512.51 Scope
PA512.52 Documentation

If you have questions, please contact Peter Vanderstappen, Agriculture Engineer at Peter.Vanderstappen@pa.usda.gov or 717-237-2228.

A handwritten signature in dark ink, appearing to read "Hosea Latshaw", is written over the printed name.

Hosea Latshaw

State Conservation Engineer

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