



LAND SURVEYOR STATE-SPECIFIC (LS), LS-B, PHOTOGRAMMETRY, AND STATE-SPECIFIC PHOTOGRAMMETRY EXAM INFORMATION

VA STATE SPECIFIC LAND SURVEYOR EXAM (LS)

The Virginia State Specific Land Surveyor examination is a two-hour multiple-choice examination and contains 50 questions. Questions cover Board regulations, statutes and technical knowledge. Regulation and statute questions are contained in each of the content areas noted below. A minimum scaled score of 70 must be obtained in order to achieve a passing score.

This is an open book exam. You may use published books, codes, tables, standards and ordinances, and bound reference materials. Bound reference materials are defined as stitched, glued or fastened by spiral binders, plastic snap binders, brads, screw posts, or ring binders. Stapled papers are not considered bound. Current regulations, available on the Board's website here (<http://www.dpor.virginia.gov/Boards/APELS/>), will print as a single sheet format and is an unbound document. Bind all reference materials as described. Examinees may tab reference books before the examination with permanent Post-it™ type notes and flags. Extra Post-it™ notes and flags are not permitted in the examination room. Examinees are not permitted to exchange any reference materials during the examination, and are not permitted to write and make notes in any of the reference materials. Writing tablets and legal pads are not permitted. All items brought to the test site will be the examinee's sole responsibility. The Board or the facility is not responsible for any lost, misplaced and/or stolen items.

The content outline is as follows:

1. Regulations
2. Virginia Statutes
3. Geometrics
4. Land Planning, Design and Drainage
5. Construction/Route Location Survey
6. Erosion and Sediment Control

7. Boundary Survey Law
8. Wetlands/Chesapeake Bay/Water Quality
9. Hydrographic

SUGGESTED REFERENCES FOR VA STATE SPECIFIC LAND SURVEYOR EXAM

- *Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects Regulations 18VAC10-20 (et seq.)*
- *Library of Virginia Standards for Plats 17VAC15-60 (et seq.)*
- *Code of Virginia §13.1-542 (et seq.) Professional Corporations*
- *Code of Virginia §13.1-1000 (et seq.) Virginia Limited Liability Company Act*
- *Code of Virginia §13.1-1100 (et seq.) Virginia Professional Limited Liability Company Act*
- *Code of Virginia §15.2-2200 (et seq.) Planning, Subdivision of Land and Zoning*
- *Code of Virginia §28.2-1300 (et seq.) Wetlands*
- *Code of Virginia §33.1-184 Evidence as to existence of a public road*
- *Code of Virginia §54.1-400 (et seq.) Architects, Engineers, Surveyors, Certified Interior Designers and Landscape Architects*
- *Code of Virginia §55-79.39 (et seq.) Condominium Act*
- *Code of Virginia §55-287 (et seq.) Virginia Coordinate System*
- *VDOT Drainage Manual (current edition)*
- *VDOT Road and Bridge Standards (current edition)*
- *VDOT Survey Manual (current edition)*
- *VDOT Subdivision Street Requirements (current edition)*
- *VDOT Work Area Protection Manual (current edition)*
- *VDOT Road Design Manual (current edition)*
- *VDOT Program Manual (current edition)*
- *Virginia Erosion & Sediment Control Handbook*
<http://www.deq.virginia.gov/Programs/Water/Stormwater/Management/Publications/ESCHandbook.aspx>

- DCR Virginia Stormwater Management Handbook – DCR Publication
 - DCR and VWRRRC Virginia Stormwater Management BMP Clearinghouse (<http://vwrrc.vt.edu/swc/>)
 - *Chesapeake Bay Preservation Area Designation and Management Regulations* 9VAC10-20 (et seq.)
 - *US Clean Water Act*, Section 404
(<http://water.epa.gov/lawsregs/guidance/wetlands/sec404.cfm>)
 - US Army Corps of Engineers *Hydrographic Survey Manual EM-1110-2-1003*, January 2002.
 - US Army Corps of Engineers *Wetland Delineation Manual* Technical Report Y-87-1
<http://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf>
 - *Virginia Wetlands Management Handbook*
(http://www.ccrm.vims.edu/permits_web/guidance/handbook/handbook.pdf)
 - *Clark on Surveying and Boundaries* (June 1998), Robillard and Bouman
 - *Route Location and Surveying*, Hickerson
 - *Surveying*, Francis H. Moffit/Harry Bouchard
 - NOAA Tide Tables
 - *Boundary Control and Legal Principles*, Robillard and Wilson
 - *Easements and Revisions*, Donald Wilson
 - *National Geodetic Survey – Geodetic Mark Preservation*
- * All references to the *Code of Virginia* and the *Virginia Administrative Code* (VAC) only requires attention in those areas of the codes that pertain to the practice of surveying. All codes may be accessed through the Virginia Legislative Information System at <http://leg1.state.va.us/>.

LAND SURVEYOR B (LSB) EXAM

The Land Surveyor B examination is an eight-hour multiple-choice examination with a morning and an afternoon session. The morning session consists of 50 questions and the afternoon session consists of 50 questions. An individual must be licensed as a Virginia Surveyor in order to take this examination. An overall scaled score of 70 must be achieved in order to pass the examination for licensure. This is an open book exam.

The content outline is as follows:

1. *Erosion Control*
2. *Storm Drainage Systems*
3. *Land Planning and Design*
4. *Sanitary Sewer*
5. *Water Line Extensions*
6. *Federal/State/Local Standards*

SUGGESTED REFERENCES FOR LAND SURVEYOR B EXAM

- *Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects Regulations 18VAC10-20 (et seq.)*
- *VDOT Drainage Manual (current edition)*
- *VDOT Road and Bridge Standards (current edition)*
- *VDOT Survey Manual (current edition)*
- *VDOT Subdivision Street Requirements (current edition)*
- *VDOT Minimum Standards of Entrances (current edition)*
- *Virginia Erosion & Sediment Control Handbook*
<http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/Publications/ESCHandbook.aspx>
- *Code of Virginia §54.1-400 (et seq.) Architects, Engineers, Surveyors, Certified Interior Designers and Landscape Architects*
- *VDH Manual for Waterworks Regulations and the Practice for Waterworks Design*
- *Sewage Collection and Treatment Regulations 9VAC25- 790 (et seq.)*
- References (of your choice) on Sanitary Sewer Design and the Practice of Surveying

* All references to the *Code of Virginia* and the *Virginia Administrative Code* (VAC) only require attention in those areas of the codes that pertain to the practice of surveying. All codes may be accessed through the Virginia Legislative Information System at <http://leg1.state.va.us/>.

PHOTOGRAMMETRY EXAM

The Photogrammetry examination is a six-hour examination containing 100 questions. Examinees must pass the Fundamentals of Surveying Examination prior to registering for this examination. An overall scaled score of 70 must be achieved in order to pass the examination. This is an open book exam.

The content outline is as follows:

1. Statutes and Rules
2. Standards
3. Project Planning
4. Geodesy and Map Projections
5. Data Acquisition
6. Data Reduction and Analysis
7. Documentation and Map Presentation
8. Business Principles and Communication
9. Quality Assurance.

SUGGESTED REFERENCES FOR THE PHOTOGRAMMETRY EXAM

- *Elements of Photogrammetry with Applications in GIS*, Wolf & Dewitt (3rd edition)
- *Remote Sensing and Image Interpretation*, Lillesand & Kiefer (5th or 6th edition)
- *Digital Elevation Model Technologies and Applications: The DEM Users Manual* (2nd edition), edited by David F. Maune, PhD, CP
- *Glossary of the Mapping Sciences*
- *ASPRS Manual of Photogrammetry*
- *Introduction to Modern Photogrammetry*, Mikhail, Bethel, McGlone

VIRGINIA STATE SPECIFIC PHOTOGRAMMETRY EXAM

The Virginia State-Specific Photogrammetry examination is a two-hour examination containing 50 multiple-choice questions. This is an open book exam.

The content outline is as follows:

1. Regulations
2. Statutes
3. Control Field Practices
4. Photogrammetric Mapping
5. Virginia Mapping Standards
6. Flood Plain Mapping
7. Geometrics

SUGGESTED REFERENCES FOR THE VIRGINIA STATE SPECIFIC PHOTOGRAMMETRY EXAM

- *Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects Regulations 18VAC10-20 (et seq.)*
- *Code of Virginia §28.2 Fisheries and Habitat of the Tidal Waters*
- *Code of Virginia §33.1-184 Evidence as to existence of public road*
- *Code of Virginia §42.1-92 (et seq.) State Publications Depository Program*
- *Code of Virginia §54.1-300 (et seq.) Department of Professional and Occupational Regulation*
- *Code of Virginia §54.1-400 (et seq.) "Architects, Engineers, Surveyors, Certified Interior Designers and Landscape Architects"*
- *Code of Virginia §55-287 (et seq.) Virginia Coordinate System*
- *Chesapeake Bay Preservation Area Designation and Management Regulations 9VAC10-20 (et seq.)*
- *Library of Virginia Standards for Plats 17VAC15-60 (et seq.)*
- *VDOT VA Work Area Protection Manual (2002 edition)*
- *VDOT Location and Design Survey Manual (2002 or current edition)*

- *Elements of Photogrammetry* by Paul R. Wolf and Bon A. Dewitt. McGraw Hill (2002). ISBN: 0-07-292454-3.
- *Manual of Photogrammetry*, (5th edition), ASPRS (American Society for Photogrammetry and Remote Sensing). Editor: J Chris McGlone, 2004. ISBN: 1-57083- 071-1
- *Introduction to Modern Photogrammetry* by Edward M. Mikhail, James. S. Bethel, J. Chris McGlone. John Wiley & Sons, Inc.
- *Digital Elevation Model Technologies and Applications: The DEM Users Manual*. (2nd edition). Edited by David F. Maune, A Maune, ASPERS, 5410 Grosvenor Lane, Suite 201, Bethesda, MD 20814. ISBN: 1-57083-082-7. ISBN: 04-471-30924-9
- *Digital Elevation Model Technologies and Applications*. David Maune.
- *A First Text on Geographic Information Systems*. Bolstad, P., (2002).
- *Model Virginia Map Accuracy Standards Guideline* (https://www.vita.virginia.gov/uploadedfiles/vita_main_public/librarian/psgs/guideline_map%20accuracy%20guideline_701_00.pdf)
- National Geodetic Survey NAD83(NSRS2007) National Readjustment (<http://www.ngs.noaa.gov/NationalReadjustment/>)
- *Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques* by the Federal Geodetic Control Committee, (5/11/88, revised 8/1/89). http://docs.lib.noaa.gov/noaa_documents/NOS/NGS/Geom_Geod_Accu_Standards.pdf
- * All references to the *Code of Virginia* and the *Virginia Administrative Code* (VAC) only require attention in those areas of the codes that pertain to the practice of surveying. All codes may be accessed through the Virginia Legislative Information System at <http://leg1.state.va.us/>.