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CHAPTER 1B – NOMENCLATURE

SECTION 1B – 1 - PRINCIPAL ABBREVIATIONS

ABBREVIATIONS

The following abbreviations may be found in this manual as well as in other design reference materials:

AASHTO	- American Association of State Highway and Transportation Officials.
ABC	- Alcohol Beverage Control
ACOE	- Army Corps of Engineers
ADT	- Annual Average Daily Traffic
AFS	- Automated Fuel System
AHS	- Automated Highway Systems
APS	- Automated Purchasing System
ARTS	- Advanced Rural Transportation System
ASAP	- Alcohol Safety Action Program
ASCE	- American Society of Civil Engineers
ASTM	- American Society for Testing and Materials
ATIS	- Advanced Traveler Information System
ATMS	- Advanced Traffic Management Systems
BAMS	- Bid Analysis Management System
BMS	- Bridge Management System
BPR	- Business Process Reengineering
BOCA	- Building Officials and Code Administration
CA	- Certification Acceptance
CADD	- Computer Aided Drafting and Design
CBLAD	- Chesapeake Bay Local Assistance Department
CBR	- California Bearing Ratio
CE	- Categorical Exclusion
CEQ	- Council on Environmental Quality
CERCLA	- Comprehensive Environmental Response Compensation and Liability Act
CFS	- Cubic feet per second
CM	- CADD Manual*
CMAQ	- Congestion Mitigation and Air Quality
CMS	- Congestion Management Study
COE	- Corps of Engineers
CSIP	- Corridor Safety Improvement Program
CRSI	- Concrete Reinforcing Steel Institute

* Rev. 7/06

CVO	- Commercial Vehicle Operations
CZM	- Coastal Zone Management
DCR	- Department of Conservation and Recreation
DDHV	- Directional Design Hourly Volume
DEIS	- Draft Environmental Impact Statement
DEQ	- Department of Environmental Quality
DHR	- Department of Historic Resources
DHV	- Design Hourly Volume
DMME	- Department of Mines, Minerals and Energy
DMV	- Department of Motor Vehicles
DNH	- Division of Natural Heritage
DOC	- Department of Commerce
DOE	- Department of Education
DOI	- Department of the Interior
DSP	- Department of State Police
DWM	- Department of Waste Management
EA	- Environmental Assessment
EAR	- Expected Accident Rate
ED	- Environmental Division
EIR	- Environmental Impact Report
EIS	- Environmental Impact Statement (DEIS-Draft, FEIS-Final)
EMS	- Emergency Medical Services
EPA	- Environmental Protection Agency
EPMS	- Equipment Preventive Maintenance System
E & S	- Erosion and Sediment
FA	- Federal-Aid
FAI	- Federal-Aid Interstate
FAP	- Federal-Aid Primary
FAPM	- Federal Aid Program Manual
FARS	- Fatal Accident Reporting System
FAS	- Federal-Aid Secondary
FAU	- Federal-Aid Urban
FEA	- Final Environmental Assessment
FEIS	- Final Environmental Impact Statement
FHWA	- Federal Highway Administration
FI	- Field Inspection
FIFRA	- Federal Insecticide Fungicide Rodenticide Act
FIS	- Flood Insurance Study
FMS	- Financial Management System II
FONSI	- Finding of No Significant Impact
FPS	- Feet Per Second
FTA	- Federal Transit Administration
FY	- Fiscal Year

GDHS	- "A Policy on the Geometric Design of Highways and Streets"
GIS	- Geographic Information System
GPS	- Global Positioning System
GSA	- General Services Administration
HCM	- Highway Capacity Manual
HPMS	- Highway Performance Monitoring System
HTRIS	- Highway and Traffic Records Information System
HOV	- High-Occupancy Vehicle
IACM	- Interagency Coordination Meeting
IDMS	- Integrated Document Management System
IECC	- Interagency Environmental Coordination Meeting
IIM	- Instructional and Informational Memoranda (L & D)
IGRDS	- Interactive Graphic Roadway Design System
IMMS	- Integrated Maintenance Management System
IPM	- Integrated Project Manager
ITD	- Information Technology Division
ISO	- International Standardization Organization
ISTEA	- Intermodal Surface Transportation Efficiency Act of 1991
ITE	- Institute of Traffic Engineers
IVHS	- Intelligent Vehicle Highway System
L & D	- Location and Design (Division)
LDSM	- Survey Manual
LOP-1	- Letter of Permission #1
MATS	- Materials Test System
MASH	- AASHTO Manual for Assessing Safety Hardware (2009)*
MHW	- Mean High Water
MIS	- Major Investment Study
MOA	- Memorandum of Agreement
MPO	- Metropolitan Planning Organization
MTRS	- Micro Traffic Records System
MUTCD	- Manual of Uniform Traffic Control Devices
NAAQS	- National Ambient Air Quality Standards
NCHRP	- National Cooperative Highway Research Program
NCTRP	- National Cooperative Transit Research and Development
NEPA	- National Environmental Policy Act
NGS	- National Geodetic Survey (Formerly USC & GS)
NHS	- National Highway System

* Rev. 1/12

NHTSA	- National Highway Traffic Safety Administration
NIST	- National Institute of Standards and Technology
NMFS	- National Marine Fisheries Service
NPDES	- National Pollution Discharge Elimination System
NPS	- National Park Service
NWR	- National Wildlife Refuge
OA	- Outdoor Advertising
OEMS	- Office of Emergency Medical Services
PCE	- Programmatic Categorical Exclusion
PCES	- Project Cost Estimating System
PDC	- Planning District Commission
PE	- Preliminary Engineering
PH	- Public Hearing
PIM	- Public Involvement Manual
PMS	- Pavement Management System
PPR	- Preliminary Plan Review
PS & E	- Plans, Specifications and Estimates
PGL	- Profile Grade Line*
PTMS	- Public Transportation Management System
PVC	- Polyvinylchloride
QMAC	- Quality Management, Assurance and Compliance
RB Spec.	- Road and Bridge Specifications
RBS	- Road and Bridge Standards
RCRA	- Resource Conservation and Recovery Act
RDG	- AASHTO Roadside Design Guide
RDM	- Road Design Manual (L & D)
ROD	- Record of Decision
RRR	- Resurfacing, Restoration, and Rehabilitation
R/W	- Right of Way
SAAP	- Special Advertisement and Award Process
SAE	- Society of Automotive Engineers
SARA	- Superfund Amendments and Reauthorization Act
SCS	- Soil Conservation Service
SDSD	- Special Design Section Drawing
SERP	- State Environmental Review Process
SI	- International System of Units
SIP	- State Implementation Program
SMS	- Safety Management System
SR	- State Route

* Rev. 7/09

SUE	- Subsurface Utility Engineering
SWM	- Storm Water Management
SYP	- Six Year Plan
TED	- Traffic Engineering Division
TEDM	- Traffic Engineering Design Manual*
TIP	- Transportation Improvement Program
TMS	- Traffic Monitoring System
TPD	- Transportation Planning Division
TRB	- Transportation Research Board
TSCA	- Toxic Substances Control Act
TSTC	- Transportation Safety Training Center
TVA	- Tennessee Valley Authority
USCE	- United States Corps of Engineers
USCG	- United States Coast Guard
USFWS	- United States Fish and Wildlife Service
USGS	- United States Geological Survey
UVA	- University of Virginia
VDM	- VDOT Drainage Manual
VASAP	- Virginia Alcohol Safety Action Program
VCU	- Virginia Commonwealth University
VDACS	- Virginia Department of Agriculture and Consumer Services
VDGIF	- Virginia Department of Game and Inland Fisheries
VDH	- Virginia Department of Health
VDOT	- Virginia Department of Transportation
VGP-1	- Virginia General Permit #1
VIMS	- Virginia Institute of Marine Science
VECSW	- VDOT Erosion & Sediment Control & Stormwater Program Manual
VESCH	- VDOT Erosion & Sediment Control Handbook
VSWMH	- Virginia Stormwater Management Handbook
VWAPM	- Virginia Work Area Protection Manual
VMRC	- Virginia Marine Resources Commission
VOF	- Virginia Outdoors Foundation
VPDES	- Virginia Pollution Discharge Elimination System
VSP	- Virginia State Police
VTRC	- Virginia Transportation Research Council
VTTTC	- Virginia Transportation Technology Transfer Center
WWPP	- Virginia Water Protection Permit

* Rev. 7/06

SECTION 1B – 2 - HIGHWAY TERMS

DEFINITIONS

The definitions of highway terms that follow have been approved by the Department or adopted by AASHTO and are by no means a complete listing. However, it is felt that this list embraces the range of definitions applicable to design requirements.

A

ABANDONMENT - The relinquishment of the public interest in right of way or activity thereon with no intention to reclaim or use again for highway purposes.

ACCELERATION - The rate of change of velocity with respect to time.

ACCESS MANAGEMENT - The process that provides (or manages) access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity and speed.

ACQUISITION OR TAKING - The process of obtaining right of way.

ASPHALT COATING

Prime coat - An application of a low viscosity liquid asphalt material to coat and bind mineral particles preparatory to placing a base or surface course.

Seal coat - A thin treatment consisting of asphalt material, usually with cover aggregate, applied to a surface course. The term includes but is not limited to sand-seal, chip seal, slurry seal, contrast seal, fog seal, and blot seal.

AVERAGE RUNNING SPEED - The summation of distance divided by the summation of running times.

AXLE LOAD - The total load transmitted by all wheels, the centers of which may be included between two parallel transverse vertical planes 1 meter (40 inches) apart, extending across the full width of the vehicle.

B

BACKFILL - Material used to replace or the act of replacing material removed during construction.

BASELINE - Alignment on which the proposed right of way and construction is based.

BINDER COURSE - A plant mix of graded aggregate (generally open graded) and asphalt material which constitutes the lower layer of the surface course.

BOARD - Commonwealth Transportation Board of Virginia.

BORROW - Suitable material from sources outside the roadway prism used primarily for embankments.

BRIDGE - A structure, including supports, erected over a depression or an obstruction such as water, highway or railway and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 6 meters (twenty feet) between inner faces of abutments.

Bridge length - The greater dimension of a structure measured along the baseline of the roadway between backs of abutment backwalls or between ends of bridge floor.

Bridge roadway width - The clear width of structure measured at right angles to the center of the roadway between the bottom of curbs or, if curbs are not used, between the base of the inner faces of parapets or railings at the edge of shoulder.

C

CAPACITY (Traffic) - The maximum number of vehicles which has a reasonable expectation of passing over a given section of a lane or a roadway in one direction or in both directions for a multi-lane highway, during a given time period under prevailing roadway and traffic conditions.

CERTIFICATION ACCEPTANCE - Form of documentation by VDOT for FHWA (on all Federal-Aid projects except Interstate) showing that all Federal requirements have been met.

CHORD - Segment whose endpoints (chord points) lie on a circle or curve.

CLEAR ZONE - The roadside border area, starting at the edge of the through traveled way (edge of pavement), available for safe use by errant vehicles.

COMMISSIONER - Commonwealth Transportation Commissioner of Virginia and Vice-Chairman of the Commonwealth Transportation Board.

CONDEMNATION - The process by which property is acquired for public purposes through legal proceedings under power of eminent domain.

CORRIDOR - A strip of land between two termini within which traffic, topography, environment and other characteristics are evaluated for transportation purposes.

CULVERT - A conduit which provides a passage for water, vehicles, animals, or people through highway or railroad embankment (For detailed definition refer to VDOT's Drainage Manual).

D

DESIGN SPEED - A speed determined for design and correlation on the physical features of a highway that influence vehicle operation: the maximum safe speed maintainable over a specified section of highway when conditions permit design features to govern.

DISPOSABLE MATERIAL - Material that is not adequate for use on the project and must be disposed of off the project.

E

EASEMENT - A grant of the right to use property for a specific use.

EMBANKMENT - A structure of soil, soil-aggregate or broken rock between the existing ground and the subgrade.

EXPRESSWAY - A divided arterial highway for through traffic with limited access and generally with grade separations at major intersections.

EXTRA WORK - An item of work not provided for in the contract as awarded but found by the engineer to be essential for the satisfactory fulfillment of the contract within its intended scope.

F

FEE SIMPLE - Full ownership of property (Right of way).

FLEXIBLE PAVEMENT - A pavement structure comprised of aggregates, as opposed to rigid portland cement concrete pavement.

FORCE ACCOUNT WORK - Prescribed work paid for on the basis of actual costs and appropriate additions.

FREEWAY - An expressway with full control of access.

G

GORE - The area immediately beyond the divergence or before the convergence of two roadways bound by the edges of those roadways.

GRADE SEPARATION - A crossing of two highways, or a highway and a railroad, at different levels.

Overpass - A grade separation where the subject highway passes over a highway or railroad.

Underpass - A grade separation where the subject highway passes under a highway or railroad.

GREENWAY - Linear Corridor of private or public recreation lands and waters, providing access to open space and recreational activities and linking rural and urban spaces (e.g. bicycle facilities, utility corridors, scenic roads and highways, abandoned railroad rights-of-way, etc.)

H

HARD CONVERSION - Conversion from one measurement system to another using the numerical conversion factor to calculate quantities in a new system and then, rounding to a convenient dimension.

HECTARE - The derived unit of area equal to 10,000 m².

HIGHWAY, STREET OR ROAD - A general term denoting a public way for purposes of vehicular travel.

HISTORIC SITE - A building, monument, park, cemetery or other site having public interest and National, regional or State significance, which should be considered in the location and design of a highway.

HYDROPLANING - A condition where one or more tires of a moving vehicle are separated from the pavement by a film of water; usually due to a combination of depth of water, pavement surface texture, vehicle speed, tread pattern, tire condition and other factors.

I

INTERCHANGE - A system of interconnecting roadways usually in conjunction with one or more grade separations, providing for the movement of traffic between two or more roadways on different levels.

INTERCHANGE ELEMENTS

Direct connection - A one-way turning roadway which does not deviate greatly from the intended direction of travel.

Ramp - A turning roadway at an interchange for travel between intersection legs.

Loop - A one-way turning section of roadway that curves to the right to accommodate a left-turning movement.

Outer connection - A one-way turning roadway primarily for the right-turning movement, outside of a loop.

Two-way ramp - A ramp for traveling in two directions.

INTERCHANGE TYPES

Cloverleaf - A 4-leg interchange with loops for left turn movements and outer connections for right turns or two-way ramps for these turns.

Diamond interchange - A 4-leg interchange with a single one-way ramp in each quadrant. All left turns are made directly on the minor highway.

Directional interchange - An interchange, generally having more than one highway grade separation, with direct connections for the major left-turning movement(s).

INTERSECTION - The general area where two or more highways join or cross, within which are included the roadway and roadside facilities for traffic movements in that area.

INVERT - The lowest point in the internal cross section of a pipe or other drainage structure.

L

LAND DEVELOPMENT PROJECT - A manmade change to the land surface that potentially changes its runoff characteristics as a permanent condition.

LANE

Auxiliary lane - The portion of the roadway adjoining the traveled way for parking, speed change, storage for turning, weaving, truck climbing or for other purposes supplementary to through traffic movement.

Turn Lane - An auxiliary lane to accommodate turning vehicles.

Parking Lane - An auxiliary lane primarily for the parking of vehicles.

Speed-change lane - An auxiliary lane, primarily for the acceleration or deceleration of vehicles entering or leaving the through traffic lanes.

LEVEL OF SERVICE - A qualitative rating of the effectiveness of a highway in serving traffic, measured in terms of operating conditions. Note: The Highway Capacity Manual identifies operating conditions ranging from "A" for best operation (low volume, high speed) to "F" for poor operation where volumes are below capacity.

General Operating Conditions for Level of Service:

- A - Free flow, with low volumes and high speeds
- B - Stable flow, but speeds beginning to be restricted by traffic conditions
- C - In stable flow zone but most drivers restricted in freedom to select their own speeds
- D - Approaches unstable flow; drivers have little freedom to maneuver
- E - At or near capacity of highway, flow is unstable, may be short delays
- F - Forced flow at low speeds, many delays, volumes are below capacity

(A Guide for Selection of Design Levels of Service may be found in AASHTO's [A Policy on Geometric Design of Highways and Streets](#).)

LIMITED ACCESS - The regulated limitation of public access rights to and from properties abutting a highway facility. This limited access can be either "full", providing access to selected public roads and prohibiting crossings at grade and direct driveway connections, or "partial", providing access to selected public roads, crossings at grade, and some private driveway connections.

LINEAGE (PPMS-ID) – Any other applicable PPMS-ID numbers.

LOGICAL TERMINI - Overall limits of project (all connected "C" projects)

M

MEDIAN - The portion of a divided highway separating the traveled ways for traffic.

MINIMUM TURNING RADIUS - The radius of the minimum turning path of the outside of the outer front tire. (Vehicle manufacturers' data books give minimum turning radius to the centerline of the outer front tire.)

O

OPERATING SPEED - The highest overall speed at which a driver can travel on a given highway under favorable weather conditions and under prevailing traffic conditions without exceeding the safe speed as determined by the design speed on a section-by-section basis.

OUTER SEPARATION - The portion of a highway between the traveled ways of a roadway for through traffic and a frontage street or road.

P

PARKWAY - An arterial highway for non-commercial traffic, with full or partial control of access and usually located within a park or a ribbon of park like developments.

PEDESTRIAN – A Person of foot or by wheelchair.*

PLANS - The contract drawings which show a location, character and dimensions of the prescribed work, including layouts, profiles, cross sections and other details.

PPMS-ID LINEAGE – Any other applicable PPMS-ID numbers.

PROFFER - Land offered for dedication to the Department/Municipality/County by a property owner or developer for the purpose of making road improvements.

PROPOSED - The term "proposed" is to be used for roadways, lanes, interchanges and items that are not construction items in the contract (e.g. - Prop. [Ⓜ] Prop. W.B.L., Prop. R/W, etc.).

* Rev. 7/12

R

RADIAN - The supplementary unit of plane angles with its vertex at the center of a circle that is subtended by an arc equal in length to the radius.

REQUIRED - The term "required" is to be used to apply to items to be constructed by the contractor for which payment will be made (e.g. - St'd. CG-6 Req'd., St'd. DI-3B Req'd., St'd. GR-8 Req'd., etc.).

RIGHT OF WAY - A general term denoting land, property or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

RIGID PAVEMENT - A pavement structure having as one course a portland cement concrete slab.

ROADBED - The graded portion of a highway, within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

ROADWAY - The portion of a highway, within the limits of construction, and all structures, ditches, channels, waterways, etc. necessary for the correct drainage thereof. A divided highway has two or more roadways.

ROOTMAT - Stumps, roots, and other perishable plant material located in the area to be graded or in areas of clearing and grubbing.

S

SELECT MATERIAL - Suitable native material obtained from roadway cuts or borrow areas or other similar material used for subbase roadbed material, shoulder surfacing, slope cover or other specific purposes.

SHY LINE OFFSET - A distance beyond which a roadside object will not be perceived as a threat by a driver.

SHOULDER - The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles for emergency use and for lateral support of base and surface courses.

SLIP RAMP - An angular connection between an expressway and a parallel road.

SOFT CONVERSION - Conversion from one measurement system to another using the numerical conversion factor to calculate quantities in a new system.

SPECIAL PROVISIONS - Additions and revisions to the standard and supplemental specifications applicable to an individual project.

SPECIFICATIONS - The compilation of provisions and requirements for the performance of prescribed work.

Standard specifications - A book of specifications approved for general application and repetitive use.

Supplemental specifications - Approved additions and revisions to the standard specifications for general use.

SPEED - The rate of vehicular movement, generally expressed in miles per hour.

Average highway speed - The weighted average of the design speeds within a highway section.

Average running speed - For all traffic, or component thereof, the summation of distances divided by the summation of running time.

Design speed - A speed determined for design and correlation of the physical features of a highway that influence vehicle operation. It is the maximum safe speed that can be maintained over a specified section of highway when conditions are so favorable that the design features of the highway govern.

Running speed - The speed over a specified section of highway, being the distance divided by running time.

STORM SEWER SYSTEM - Drainage system installed to carry storm water runoff, consisting of two or more pipes in a series connected by one or more drop inlets.

SUBSTRUCTURE - That part of a bridge structure below the bearings of simple and continuous spans, skewbacks of arches and top of footings of rigid frames; including backwalls, wingwalls and wing protection railings.

SUPERSTRUCTURE - That part of a bridge structure above the bearings of simple and continuous spans, skewbacks of arches and top of footings of rigid frames; excluding backwalls, wingwalls and wing protection railings.

U

UNSUITABLE MATERIAL - Material that is not adequate for use in the normal roadway prism, but may be used in other areas on the project.

V**VEHICLE -**

Bus - A motor vehicle designed for the transportation of more than 10 persons.

Design vehicle - A selected motor vehicle, the weight, dimensions and operating characteristics of which are used in highway design.

House trailer - A trailer or semitrailer which is designed, constructed and equipped as a dwelling place, living abode or sleeping place either permanently or temporarily and is equipped for use as a conveyance on streets and highways.

Light delivery truck - A single unit truck, such as a panel or pick-up truck, with size and operating characteristics similar to those of a passenger car and commonly used for short-haul light delivery service. For capacity analysis purposes it is considered to be a passenger car.

Parked vehicle - A vehicle stopped for temporary storage.

Passenger Car - A motor vehicle, except motorcycles, designed for carrying 10 passengers or less and used for the transportation of persons.

Semitrailer - A vehicle designed for carrying persons or property and for being drawn by a motor vehicle and so constructed that some part of its weight and that of its load rests upon or is carried by another vehicle.

Standing vehicle - A vehicle stopped for a brief interval as when loading or unloading.

Trailer - A vehicle designed for carrying persons or property and drawn by a motor vehicle which carries no part of the weight of the vehicle and load of the trailer.

Truck tractor - A motor vehicle designed for drawing other vehicles but not for a load other than a part of the weight of the vehicle and load drawn.

VOLUME (Traffic) - The number of vehicles passing a given point during a specified period of time.

Average daily traffic - The average 24-hour volume, being the total volume during a stated period divided by the number of days in that period. Unless otherwise stated, the period is a year.

Design volume - A volume determined for use in design, representing traffic expected to use the highway. Unless otherwise stated, it is an hourly volume.

Thirtieth highest hourly volume - The hourly volume that is exceeded by 29 hourly volumes during a designated year.

SECTION 1B – 3 - PLAN ABBREVIATIONS

ABBREVIATIONS

Abbreviations should be avoided on plans where possible. Certain abbreviations are, of course, helpful and often necessary. The following is a list of abbreviations allowable for use on plans. Undoubtedly there are other acceptable abbreviations but this list should serve as a guide for standardization of our road plans.

Ac.	- Acre
Aban.	- Abandon or Abandoned
Abut.	- Abutment
Accel.	- Acceleration
ADT	- Average Daily Traffic
Aggr.	- Aggregate
Ahd.	- Ahead
Approx.	- Approximate
Asph.	- Asphalt
Avg.	- Average
Base.	- Basement
Beg.	- Beginning or Begin
Bk.	- Back
Ⓡ	- Baseline
Bl.	- Block
Bldg.	- Building
Bld.	- Boulevard
BM	- Bench Mark
Br.	- Brick or Bridge*
C	- Cut
CATV	- Cable Television
C.B.	- Cinder Block
CBR	- California Bearing Ratio
C-C	- Center to Center, Curb to Curb
Cem.	- Cement or Cemetery
CG	- Change of Grade
C&G	- Curb & Gutter
Ch.	- Chord
Chan. Ch.	- Channel Change
Cl.	- Class, Clearance
C.L., Corp. Lim.	- Corporate Limits
Cl. & Gr.	- Clearing & Grubbing
Ⓢ	-Centerline

* Rev. 7/06

CM	- Corrugated Metal
C.S.	- Circular Curve to Spiral
Co.	- County, Company
Conc.	- Concrete
Cond.	- Condition
Conn.	- Connection
Constr.	- Construction
Cont.	- Continuous, Continuously
Corp.	- Corporate or Corporation
Cu. Yds., CY	- Cubic Yards
Culv.	- Culvert
D=	- Degree of Curve (Curve Data)
DB	- Deed Book
Dbl.	- Double
DE=	- Spiral Angle
Decel.	- Deceleration
Dept.	- Department
Des.	- Design
DHV	- Design Hourly Volume
DI	- Drop Inlet
Dia.	- Diameter
Dispos.	- Disposable
Dist.	- Distance
Distr.	- District
Dr.	- Drive, Drainage
Dwl.	- Dwelling
D=	- "Delta" Deflection Angle Between Tangents (Central Angle)
Dc=	- Central Angle between S.C. & C.S.
DS=	- Spiral Angle
E	- Electric
E=	- Superelevation Rate
Ease.	- Easement
EBL	- East Bound Lane
Elev.	- Elevation
EW	- Endwall
ES	- End Section
ES=	- External Distance
Engr.	- Engineer, Engineering
Entr.	- Entrance
EP	- Edge of Pavement
Eq.	- Equality
Est.	- Estimate or Estate
Excav.	- Excavation
Exist.	- Existing

F	- Fill
Fr.	- Frame or From
G	- Gas
Gal., Gals.	- Gallon (s)
Galv.	- Galvanized
Gar.	- Garage
Gr.	- Gravel or Guardrail
GV	- Gas Valve
HEC	- Horizontal Elliptical Concrete Pipe*
Hor.	- Horizontal
Hydr.	- Hydraulic
Hwy.	- Highway
Incl.	- Included, Including
Int.	- Intersection
In Pl.	- In Place
Inv.	- Invert
I.P.	- Iron Pin
Jct.	- Junction
k=	- Simple Curve Coordinate (Abscissa)
kg	- Kilogram
km/h	- Kilometers Per Hour
L=	- Length of Circular Curve (Curve Data)
Lb(s)	- Pound(s)
LC=	- Length of Circular Curve
LF	- Linear Feet
LH=	- Long Chord
Lim. Acc.,L/A	- Limited Access
Liq.	- Liquid
Ln.	- Lane
Loc.	- Location
LS	- Lump Sum
Ls=	- Length of Spiral
LT=	- Long Tangent
Lt.	- Left
m	- Meter
Maint.	- Maintenance
Matl.	- Material
Max.	- Maximum
Med.	- Median
MH	- Manhole (Storm Water)
Mi.	- Mile
Min.	- Minimum

mm	- Millimeter
Mod.	- Modified
Mon.	- Monument
N	- North
NBL	- North Bound Lane
N&C	- Nail & Cap
NGS	- National Geodetic Survey
No.	- Number
Off.	- Office
Ohd., O.H., Ovhd.	- Overhead
Orig.	- Original
p=	- Simple Curve Coordinate (Ordinate)
Pave.	- Pavement
PB	- Plat book
P.C.	- Point of Curvature
PCC	- Point of Compound Curvature
Perm.	- Permanent
Pg.	- Page
Pkwy.	- Parkway
Pl.	- Place
P.I.	- Point of Intersection
ℙ	- Property Line
POC	- Point on Curve
POST	- Point on Sub Tangent
POT	- Point on Tangent
PRC	- Point of Reverse Curvature
Prel.	- Preliminary
Proj.	- Project
Prop.	- Proposed
PSY	- Per Square Yard
P.T.	- Point of Tangency
PTP	- Permanent Turning Point
PVC	- Polyvinyl Chloride
Pvt.	- Private
Quan.	- Quantity
R=	- Radius of Circular Curve (Curve Data)
RC=	- Radius of Circular Curve
Rd.	- Road
Ref.	- Reference
Reinf.	- Reinforced
Reloc.	- Relocated
Req'd.	- Required
Ret.	- Retaining

Rev.	- Revision - Revised
Rt.	- Right
Rte.	- Route
R/W	- Right of way
RR	- Railroad
Rwy.	- Railway
SBL	- South Bound Lane
S.C.=	- Spiral to Circular Curve
S.D.S.D.	- Special Design Standard Drawing
SFM	- Sanitary Force Main
SSMH	- Sanitary Sewer Manhole
Sect.	- Section
Spec. Des.	- Special Design
Sq. Yd., SY	- Square Yard
Sty.	- Story
St.	- Street
Sta.	- Station
ST	- Short Tangent
S.T.=	- Spiral to Tangent
Stab.	- Stabilized
St'd.	- Standard
SS	- Storm Sewer
Str.	- Stream
Struct.	- Structure
SU	- Single Unit (Trucks)
Subgr.	- Subgrade
Super.	- Superelevation
Sur.	- Survey
Surf.	- Surface
Surf. Tr.	- Surface Treated
SW	- Sidewalk
T=	- Tangent Distance (Curve Data)
T.C.=	- Tangent of Circular Curve
Tel. Ped.	- Telephone Pedestal
Temp.	- Temporary
fc=	- Deflection Angle of Spiral Curve
Topo.	- Topography, Topographic
TP	- Turning Point
Trans.	- Transition
Trav.	- Traverse
T.S.=	- Tangent to Spiral Distance
Typ.	- Typical
U=	- Long Tangent
Ult.	- Ultimate

Unsuit.	- Unsuitable
USC & GS	- United States Coast & Geodetic Survey (Now National Geodetic Survey)
USGS	- United States Geological Survey
V=	- Velocity
v=	- Short Tangent
Var.	- Variable
VC	- Vertical Curve
Vert.	- Vertical
VDOT	- Virginia Department of Transportation
Vol.	- Volume
VPD	- Vehicles Per Day
VSD	- Vertical Sight Distance
Va.	- Virginia
W	- Water
W/	- With
W/O	- Without
WB	- Will Book
WBL	- West Bound Lane
WV	- Water Valve
WM	- Water Meter
X=	- Tangent Distance for SC
XS=	- Tangent Distance for S.C.
X-Sect.	- Cross Section
X-over	- Crossover
Y=	- Tangent Offset for SC
YS=	- Tangent offset of the S.C.

RAILROADS IN VIRGINIA

FORMER NAMES	FORMER NAMES	FORMER NAMES	CURRENT NAMES
B & O - BALTIMORE & OHIO C & O - CHESAPEAKE & OHIO W & P - WINCHESTER & POTOMAC W & S - WINCHESTER & STRASBURG	*CHESSIE SYSTEM	CSX TRANSPORTATION	CSX TRANSPORTATION
CC & O - CAROLINA, CLINCHFIELD & OHIO CLINCHFIELD HAYSI L & N - LOUISVILLE & NASHVILLE SCL - SEABOARD COASTLINE	SBD - SEABOARD SYSTEM		
		RF & P - RICHMOND, FREDERICKSBURG, & POTOMAC RAILWAY COMPANY	
		[*NS CORPORATION - NORFOLK SOUTHERN]	
	NF & D - NORFOLK, FRANKLIN & DANVILLE	N & W - NORFOLK & WESTERN	NORFOLK SOUTHERN RAILWAY
	NS - NORFOLK SOUTHERN	CNW - CAROLINA NORTHWESTERN	
	SOU - SOUTHERN	NS - NORFOLK SOUTHERN RAILWAY COMPANY	
		D & W - DANVILLE & WESTERN INTER - INTERSTATE RAILROAD COMPANY V & S - VIRGINIA & SOUTHWESTERN	
		CW - CHESAPEAKE WESTERN	CW - CHESAPEAKE WESTERN
		[*CSXT & *NS COMBINED] N & PBL - NORFOLK & PORTSMOUTH BELT LINE RAILROAD	N & PBL - NORFOLK & PORTSMOUTH BELT LINE RAILROAD
			[INDEPENDENT RAILROADS] AMTRAK - NATIONAL RAILROAD PASSENGER CORPORATION W & W - WINCHESTER & WESTERN RAILROAD ESHR - EASTERN SHORE RAILROAD
			[OTHER RAILROADS] COMMONWEALTH RAILWAY COMPANY SALTVILLE RAILROAD - MUNICIPAL OWNED NORTH CAROLINA & VIRGINIA R.R. CO. METRO - WASHINGTON METROPOLITAN AUTHORITY CHESAPEAKE AND ALBEMARLE RAILROAD CO. BUCKINGHAM BRANCH RAILROAD CO. VIRGINIA SOUTHERN RAILROAD SHENANDOAH VALLEY RAILROAD

*HOLDING COMPANIES - NOT RAILROADS

SECTION 1B - 4 SHALL AND WILL LANGUAGE

SHALL AND WILL LANGUAGE

The following policy applies to all information included in plan assemblies:

All actions referring to the Contractor will be referenced using the word “shall” and all actions referring to the Department will be referenced using the word “will”. “Shall” indicates the Contractor is contractually bound to performing that task or function and “will” indicates the Department is bound to performing its task or function.

Such terms as “to be”, “is to be”, or “must” will be avoided when referring to actions by the Contractor or the Department.