



# **Specifications for Land Surveys**

## **ADDENDUM**

**January 2020**

**Version 01.2020**

**This document is an addendum to the document titled:  
Specifications for Land Surveys**

**January 2014**

**Version 01.2014**

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## Section 1:

### Layer System and Other Considerations in AutoCAD

#### GENERAL MAP REQUIREMENTS – PAGES 3 & 4 - ITEM 12

##### Original item (Survey Standards 01/2014 Pages 3 & 4):

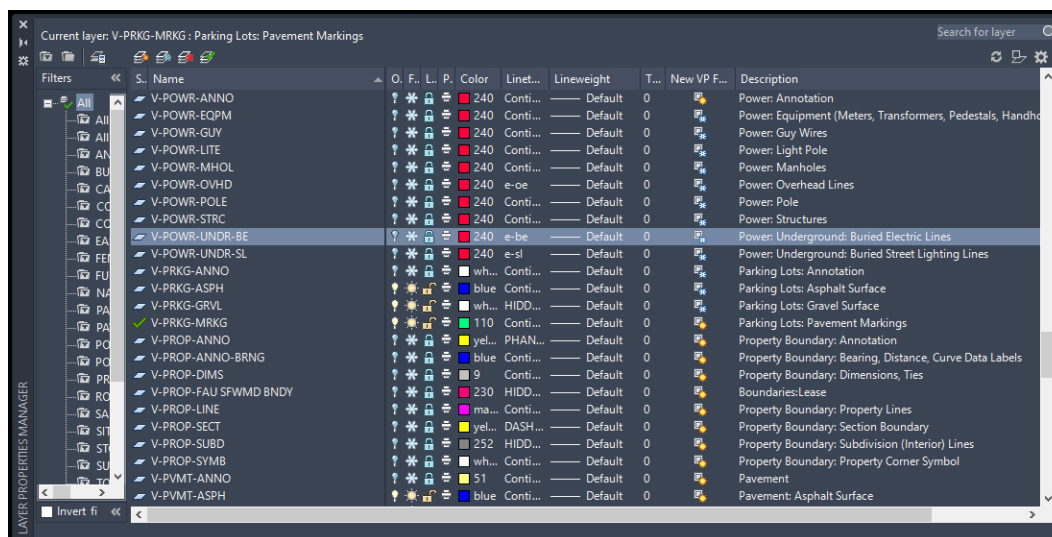
12) The map should be certified to Broward College, unless otherwise specified. All surveys will be drawn utilizing the BC AutoCAD Survey Template File which contains predefined layers, fixed blocks, and attribute blocks.

##### Modification (Addendum 01/2020):

12) The map should be certified to Broward College, unless otherwise specified. All surveys will be drawn utilizing the **USNCS (United States National CAD Standard) system, Version 4.0, section Survey/Mapping Layer List**. The USNCS is the layer system adopted by BC for all CAD documents starting in 2020.

##### Additional Items (Addendum 01/2020):

13) When a layer is created in the Layer Properties window, a short simple description of what the layer represents must be written in the Description column for that layer. Example: for layer V-ESMT-ELEC write the following description, “EASEMENTS, ELECTRICAL”.



**14) Always follow the USNCS layer naming system, layer names such as “sidewalk”, “pipes”, “trees”, are unacceptable.**

**15) The CAD (dwg) document should be clean and clear of irrelevant blocks and information both in paper space and model space. Make sure that all previous versions of objects, drafting process support elements, or other unused objects are deleted. All unused external references, blocks, and layers should be deleted and purged from the file.**

**Note:**

**See the Site Plan Layer List on pages 7 to 15 of this document.**

## Section 2:

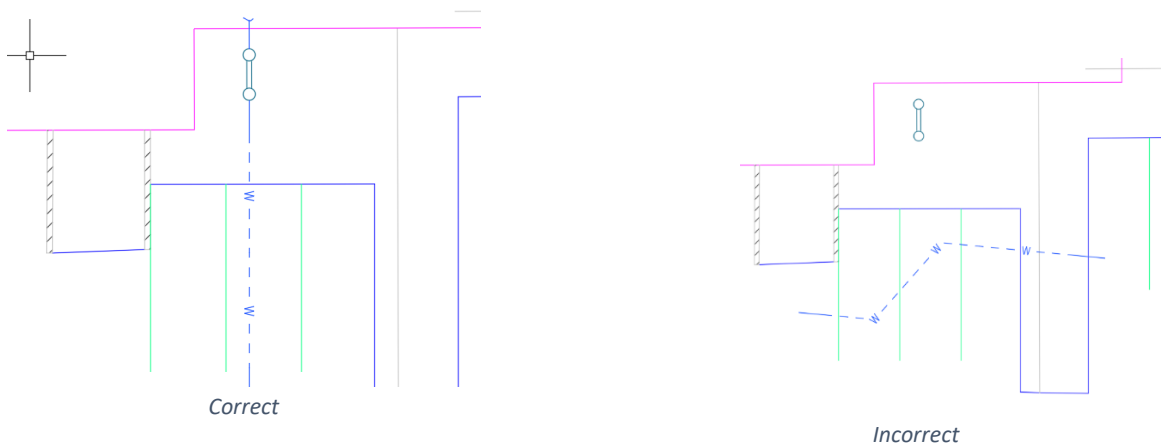
### Assigning Utilities to Layers, Utilities Standards

#### UTILITIES – (Survey Standards 01/2014 Page 5)

##### Additional Items (Addendum 01/2020):

6) The USNCS layer list is not exhaustive, and so the layers listed on the USNCS might not cover all the needs of a specific drawing. For example, the list of water utility layers does not include a specific layer for Chilled Water. In such a case, do not group different types of utilities within the same layer; rather, create a new layer following the logic of the USNCS naming system. Keep the existing V-WATR-UGND for underground water supply lines, but create V-WATR-CHILL for the chilled water lines.

7) Utility lines must always connect to an interface location. Interface locations are buildings, vaults, valves, easements, tanks, property limits, ponds, equipment, fixtures, meters, poles, etc. An active utility line cannot start and end in an open undefined area, it must go from one destination to another. If the interface at either end of a utility line cannot be determined, there should be a note on the drawing specifying the conditions/reasons for such an anomaly. Following this same logic, a water valve or an outdoor light post, cannot exist in isolation from the utility system, it must be connected to a line.



8) Utility layers must be colored as follows:

RED: Electrical Power Lines

ORANGE: Telecommunication, TV, alarm, and other low voltage power lines.

YELLOW: Gas, fuel, oil, and all other flammable utility lines.

BROWN: Sanitary sewer system.

GREEN: Storm drainage sewer system.

BLUE: Water supply, chilled water.

9) The type of pipes for specific utility runs must be expressed as a recurring acronym or abbreviation set up in the line type. For example: 42”CMP can be repeated along the line to express “42-inch diameter corrugated metal pipe”.

10) Utility lines should include attributes for each pipe or line segment. The attributes should include: utility type, pipe material, pipe diameter.

11) A utility line legend should be added to each page. Below is a list of utility line types to use, add more as needed:

<b>ELECTRICAL (BURIED)</b> <b>V-POWR-UNDR-BE</b> BE BE BE	<b>FLAMMABLE - NATURAL GAS</b> <b>V-NGAS-UNDR</b> GAS GAS GAS
<b>ELECTRICAL (OVERHEAD)</b> <b>V-POWR-OVHD</b> OE OE OE	<b>FLAMMABLE - FUEL</b> <b>V-FUEL-UNDR</b> FUEL FUEL FUEL
<b>LOW VOLTAGE - BMS</b> <b>V-LVOL-BMS-UNDR</b> BMS BMS BMS	<b>WATER</b> <b>V-WATR-UNDR</b> W W W
<b>LOW VOLTAGE - TELECOMM</b> <b>V-LVOL-COMM-UNDR</b> TEL TEL TEL	<b>CHILLED WATER</b> <b>V-WATR-CHILL-UNDR</b> CW CW CW
<b>LOW VOLTAGE - FIRE ALARM</b> <b>V-FIRE-ALRM-UNDR</b> FA FA FA	<b>SEWAGE</b> <b>V-SSWR-UNDR</b> 3" PVC 3" PVC 3" PVC 4" PVC 4" PVC 4" PVC 6" PVC 6" PVC 6" PVC 8" CLAY 8" CLAY 8" CLAY 10" CLAY 10" CLAY 10" CLAY 4" DIP 4" DIP 4" DIP FM FM FM
<b>LOW VOLTAGE - CABLE</b> <b>V-LVOL-CATV-UNDR</b> CATV CATV CATV	ETCETERA
<b>LOW VOLTAGE - CCTV</b> <b>V-LVOL-CCTV-UNDR</b> CCTV CCTV CCTV	<b>STORM DRAINAGE</b> <b>V-STRM-UNDR</b> 8" HDPE 8" HDPE 8" HDPE 15" HDPE 15" HDPE 15" HDPE 12" RCP 12" RCP 12" RCP
<b>LOW VOLTAGE - IRRIGATION CONTROL</b> <b>V-IRRI-CONT-UNDR</b> IC IC IC	ETCETERA

## **Section 3:**

### **Blocks and block attributes of trees as a CAD standard**

#### **TREES AND LANDSCAPING - PAGE 6 - ITEM 2**

##### **Original item (Survey Standards 01/2014 Page 6, Item 2)**

2) When specified, trees 2 caliper inches and larger will be located and have the following information identified: tree species (common name), trunk diameter measured at breast height, and tree number.

##### **Modification (Addendum 01/2020):**

**2) Trees 2 caliper inches and larger will be shown as blocks with attributes and have the following information identified in said attributes: tree number (correlated to Excel table specified on items 6 & 7 of this section), tree species (common name), and trunk diameter measured at 48" above the ground.**

## Section 4: Site Plan Layer List (non-exhaustive)

Name	Color	Linetype	Description
0	■ white	Continuous	
Defpoints	■ white	Continuous	
V-ANNO-LABL	■ yellow	Continuous	Labels
V-ANNO-LEGN	■ green	Continuous	Legends, Symbol Keys
V-ANNO-LOGO	■ white	Continuous	Logo
V-ANNO-MATC	■ 210	Continuous	Match Lines
V-ANNO-NARW	■ white	Continuous	North Arrow, Graphic Scale
V-ANNO-NOTE	■ green	Continuous	Notes
V-ANNO-NPLT	■ 9	Continuous	Non-Plotting Graphic Information
V-ANNO-REFR	■ white	Continuous	Reference, External Files
V-ANNO-REVS	■ yellow	Continuous	Revisions
V-ANNO-SYMB	■ yellow	Continuous	Reference Symbols
V-ANNO-TABL	■ white	Continuous	Data Tables
V-ANNO-TTLB	■ magenta	Continuous	Border and Title Block
V-ANNO-VIEW	■ white	Continuous	Viewport
V-BLDG-ACCS	■ 44	Continuous	Building Accesories
V-BLDG-ANNO	■ green	Continuous	Building Annotation
V-BLDG-BRLN	■ 12	HIDDEN	Building Restriction Line
V-BLDG-OTLN	■ magenta	Continuous	Buildings and Primary Structures: Outline
V-BLDG-OVHD	■ 201	HIDDEN	Buildings and Primary Structures: Overhead (Overhang) / Canopy
V-BLDG-PAD	■ white	DASHED2	Building Pad
V-BNDY-ANNO-CALL	■ magenta	Continuous	Boundaries: Bearing, Distance, Curve Data Labels
V-BNDY-ANNO-DIMS	■ white	Continuous	Boundaries: Dimensions in General
V-BNDY-ANNO-TABL	■ white	Continuous	Boundaries: Line Table, Curve Table
V-BNDY-BLOCK	■ white	Continuous	Boundaries: Block Lines
V-BNDY-CITY	■ red	Continuous	Political Boundaries: City
V-BNDY-CNTY	■ blue	Continuous	Political Boundaries: County
V-BNDY-LINE	■ magenta	Continuous	Boundaries: Boundary Line
V-BNDY-LOT	■ cyan	DASHED	Boundaries: Lot Lines
V-BNDY-NVAL	■ yellow	NVAL	Boundaries: Non-Vehicular Access Line
V-BNDY-PLAT	■ red	DASHED	Boundaries: Plat Line
V-BNDY-PRCL	■ blue	DASHED	Boundaries: Parcel Line
V-BNDY-SECT	■ blue	PHANTOM2	Boundaries: Section Lines
V-BNDY-SYMB	■ white	Continuous	Boundaries: Symbols

V-BNDY-TRCT	■ blue	Continuous	Boundaries: Tract Line
V-BORE-ANNO	■ 9	Continuous	Borings: Annotation
V-BORE-LOC	■ 9	Continuous	Borings: Location
V-BRDG-ANNO	■ white	HIDDEN	Bridge: Annotation
V-BRDG-ELEM	■ 35	Continuous	Bridge: Elements (End Bent, Railing, Deck, etc.)
V-BRKL-ANNO	■ 20	Continuous	Break Lines: Annotation
V-BRKL-BOTB	■ 20	HIDDEN2	Break Lines: Bottom of Bank
V-BRKL-FLOW	■ 20	HIDDEN	Break Lines: Flowline (Lowest Point of Ditch)
V-BRKL-TOPB	■ 20	HIDDEN2	Break Lines: Top of Bank
V-BSLN-ANNO	■ white	Continuous	Baselines: Annotation
V-BSLN-ELEM	■ white	Continuous	Baselines: Tangent Lines, Radial Lines, Chord
V-BSLN-GEOM	■ white	Continuous	Baselines: Geometry
V-BSLN-STAT	■ white	Continuous	Baselines: Stations Text
V-CATV-ANNO	■ 30	Continuous	Cable TV: Annotation
V-CATV-EQPM	■ 30	Continuous	Cable TV: Pedestals, Risers, Junnction Box, etc.
V-CATV-OVHD	■ 30	e-otv	Cable TV: Overhead Lines
V-CATV-UNDR	■ 30	e-btv	Cable TV: Underground Lines
V-CHEM-ANNO	■ 183	Continuous	Chemical: Annotation
V-CHEM-UNDR	■ 183	e-chm	Chemical: Underground Lines
V-COMM-ANNO	■ 30	Continuous	Communications: Annotation
V-COMM-EQPM	■ 30	Continuous	Communications: Vaults, Handholes, Pedestal, Cabinets, Risers, Junction Box
V-COMM-MHOL	■ 30	Continuous	Communications: Manhole
V-COMM-OVHD-FO	■ 30	e-of0	Communications: Overhead Lines Fiber Optics
V-COMM-OVHD-TEL	■ 30	e-ot	Communications: Overhead Lines Telephone
V-COMM-POLE	■ 30	Continuous	Communications: Pole
V-COMM-UNDR-BT	■ 30	e-bt	Communications: Underground/Buried Telephone Lines
V-COMM-UNDR-BTD	■ 30	e-bt-duct	Communications: Underground/Buried Telephone Duct Lines
V-COMM-UNDR-COMM	■ 30	e-comm	Communications: Underground Communication Lines
V-COMM-UNDR-FOC	■ 30	e-bfo	Communications: Underground/Buried Fiber Optic Cable
V-CTRL-ANNO	■ white	Continuous	Control Points: Annotation
V-CTRL-BMRK	■ white	Continuous	Control Points: Benchmarks
V-CTRL-GRID	■ white	Continuous	Control Points: Grid Lines
V-CTRL-HCPT	■ white	Continuous	Control Points: Horizontal
V-CTRL-HVPT	■ white	Continuous	Control Points: Horizontal/Vertical
V-CTRL-TRAV	■ white	Continuous	Control Points: Traverse
V-CTRL-VCPT	■ white	Continuous	Control Points: Vertical
V-CURB-BACK	■ 41	Continuous	Curb: Back



V-CURB-FACE	■ 41	Continuous	Curb: Face
V-CURB-FLOW	■ 41	Continuous	Curb: Gutter Flow Line
V-DRIV-ANNO	■ white	Continuous	Driveways
V-DRIV-ASPH	■ cyan	Continuous	Driveways: Asphalt Surface
V-DRIV-CONC	■ cyan	Continuous	Driveways: Concrete Surface
V-DRIV-FLNE	■ cyan	Continuous	Driveways: Fire Lane
V-DRIV-GRVL	■ cyan	Continuous	Driveways: Gravel Surface
V-DRIV-PVRS	■ cyan	Continuous	Driveways: Brick Pavers Surface
V-DTCH-ANNO	■ 24	Continuous	Ditches
V-DTCH-BOTD	■ 24	PHANTOM2	Ditches: Bottom
V-DTCH-CNTR	■ 24	CENTER2	Ditches: Centerline
V-DTCH-EWAT	■ 24	DASHED2	Ditches: Edge of Water
V-DTCH-TOPD	■ 24	PHANTOM2	Ditches: Top
V-ESMT-ACCS	■ 125	HIDDEN2	Easements: Access (Pedestrian Only; Private Access)
V-ESMT-ANNO	■ 125	HIDDEN2	Easements: Annotation
V-ESMT-CANL	■ 125	HIDDEN2	Easements: Canal
V-ESMT-CANL-MAINT	■ 125	HIDDEN2	Easements: Canal Maintenance
V-ESMT-CATV	■ 125	HIDDEN2	Easements: Cable Television
V-ESMT-CONS	■ 125	HIDDEN2	Easements: Conservation
V-ESMT-ELEC	■ 125	HIDDEN2	Easements: Electrical
V-ESMT-FDPL	■ 125	HIDDEN2	Easements: Flood Plain
V-ESMT-INEG	■ 125	HIDDEN2	Easements: Ingress/Egress (Vehicles; Private Access)
V-ESMT-LAKE	■ 125	HIDDEN2	Easements: Lake
V-ESMT-LAKE-MAINT	■ 125	HIDDEN2	Easements: Lake Maintenance
V-ESMT-LSCP	■ 125	HIDDEN2	Easements: Landscape
V-ESMT-NGAS	■ 125	HIDDEN2	Easements: Natural Gas Line
V-ESMT-PHON	■ 125	HIDDEN2	Easements: Telephone Line
V-ESMT-ROAD	■ 125	HIDDEN2	Easements: Roadway
V-ESMT-RWAY	■ 125	HIDDEN2	Easements: Right-of-Way (Public Access)
V-ESMT-SGHT	■ 125	HIDDEN2	Easements: Sight Distance
V-ESMT-SSWR	■ 125	HIDDEN2	Easements: Sanitary Sewer
V-ESMT-STRM	■ 125	HIDDEN2	Easements: Storm Sewer
V-ESMT-SWMT	■ 125	HIDDEN2	Easements: Storm Water Management
V-ESMT-TEMP	■ 125	HIDDEN2	Easements: Temporary Construction
V-ESMT-TRAL	■ 125	HIDDEN2	Easements: Trail/Path (Public Access)
V-ESMT-UTIL	■ 125	HIDDEN2	Easements: Utilities
V-ESMT-WATR	■ 125	HIDDEN2	Easements: Water Supply
V-FENC-ANNO	■ 76	Continuous	Fences: Annotation

V-FENC-CLF	■ 76	07 Chain Link Fence	Fences: Chain Link Fence
V-FENC-GATE	■ 76	Continuous	Fences: Gate, Gap
V-FENC-MTAL	■ 76	Metal fence	Fences: Metal (Iron Wrought, Ornamental, etc)
V-FENC-PLST	■ 76	Continuous	Fences: Platic, PVC
V-FENC-WOOD	■ 76	05 Wood Fence	Fences: Wood
V-FIRE-ANNO	■ 10	Continuous	Fireline: Annotation
V-FIRE-EQPM	■ 10	Continuous	Fireline: Equipment (Valves, Connection, etc.)
V-FLHA-ANNO	■ 214	DASHED2	Flood Hazard Area Annotation
V-FLHA-LINE	■ 214	HIDDEN	Flood Hazard Area Boundary Line
V-FM-UNDR	■ 42	e-fm	Sanitary Sewer System: Underground Force Main Piping
V-FUEL-ANNO	■ 2	Continuous	Fuel Gas: Annotation
V-FUEL-FEAT	■ 2	Continuous	Fuel Gas: Vent Pipers, Fill Cap, Valves
V-FUEL-MHOL	■ 2	Continuous	Fuel Gas: Manhole
V-FUEL-PIPE	■ 2	Continuous	Fuel Gas: Above-Ground Piping
V-FUEL-TANK	■ 2	Continuous	Fuel Gas: Storage Tanks
V-FUEL-UNDR	■ 2	Continuous	Fuel Gas: Underground Piping
V-GRAL-ANNO	■ 151	Continuous	Guard Rail: Annotation
V-GRAL-LEFT	■ 151	GUARD_L	Guard Rail: Posts on Left
V-GRAL-RGHT	■ 151	GUARD_R	Guard Rail" Posts on Right
V-MANG-ANNO	■ 90	Continuous	Mangrove: Annotation
V-MANG-EDGE	■ 90	Continuous	Mangrove: Edge/Limits
V-NGAS-ANNO	■ 2	Continuous	Natural Gas: Annotation
V-NGAS-EQPM	■ 2	Continuous	Natural Gas: Equipment (Valves, Meters, Risers, etc.)
V-NGAS-MHOL	■ 2	Continuous	Natural Gas: Manhole
V-NGAS-PIPE	■ 2	Continuous	Natural Gas: Above-Ground Piping
V-NGAS-TANK	■ 2	Continuous	Natural Gas: Storage Tanks
V-NGAS-UNDR	■ 2	e-gas	Natural Gas: Underground Piping
V-NODE-ACTL	■ 9	Continuous	Node: Aerial Horizontal and Vertical Control Points
V-NODE-ASPH	■ 9	Continuous	Node: Asphalt Points
V-NODE-BLDG	■ 9	Continuous	Node: Building Points
V-NODE-BLIN	■ 9	Continuous	Node: Baseline
V-NODE-BMRK	■ 9	Continuous	Node: Survey Benchmark Points
V-NODE-BRDG	■ 9	Continuous	Node: Bridge Survey Points
V-NODE-BRKL	■ 9	Continuous	Node: Break Lines, Spot Elevation Points and Lines for Creation of Break Lines
V-NODE-CABL	■ 9	Continuous	Node: Underground Cable Points
V-NODE-CNTL	■ 9	Continuous	Node: Baseline, Property Line and Centerline Points
V-NODE-CONC	■ 9	Continuous	Node: Concrete Surface Points

V-NODE-CURB	■ 9	Continuous	Node: Curb Points
V-NODE-DASP	■ 9	Continuous	Node: Description Attributes for Survey Points
V-NODE-DRIV	■ 9	Continuous	Node: Driveway Points
V-NODE-EASP	■ 9	Continuous	Node: Elevation Attributes for Survey Points
V-NODE-ELEC	■ 9	Continuous	Node: Electrical Points
V-NODE-FENC	■ 9	Continuous	Node: Fence Points
V-NODE-FENC-GRAL	■ 9	Continuous	Node: Fences Guard Rail Points
V-NODE-GRND	■ 9	Continuous	Node: Ground Points Indicating Elevations
V-NODE-MHOL	■ 9	Continuous	Node: Manhole Points
V-NODE-MRKG	■ 9	Continuous	Node: Pavement Marking Points (Yellow/White Stripes)
V-NODE-NGAS	■ 9	Continuous	Node: Gas Line and Appurtenances Points
V-NODE-PASP	■ 9	Continuous	Node: Point Number Attributes for Survey Points
V-NODE-PHON	■ 9	Continuous	Node: Telephone Points
V-NODE-PIPE	■ 9	Continuous	Node: Pipe Points (Driveway/Roadway Culverts)
V-NODE-POLE	■ 9	Continuous	Node: Pole Points (Power, Telephone, etc.)
V-NODE-POWR-LITE	■ 9	Continuous	Node: Power Light Pole Points
V-NODE-PVMT	■ 9	Continuous	Node: Pavement Points
V-NODE-RTWL	■ 9	Continuous	Node: Retaining Wall
V-NODE-SIGN	■ 9	Continuous	Node: Sign
V-NODE-SSWR	■ 9	Continuous	Node: Sanitary Sewer and Appurtenances Points
V-NODE-STRM	■ 9	Continuous	Node: Storm Sewer and Appurtenances Points
V-NODE-SURV	■ 9	Continuous	Node: Survey Points
V-NODE-SWLK	■ 9	Continuous	Node: Sidewalk Points
V-NODE-TRAF	■ 9	Continuous	Node: Traffic Signal Points
V-NODE-TREE	■ 9	Continuous	Node: Tree Points
V-NODE-TROW	■ 9	Continuous	Node: Tree Row Points
V-NODE-WATR	■ 9	Continuous	Node: Water Line and Appurtenances Points
V-NONP-WATR-ANNO	■ 150	Continuous	Non Potable Water: Annotation
V-NONP-WATR-INST	■ 150	Continuous	Non Potable Water:: Instrumentation (Meters, Valves, Pumps)
V-NONP-WATR-MHOL	■ 150	Continuous	Non Potable Water:: Manhole
V-NONP-WATR-PIPE	■ 150	Continuous	Non Potable Water:: Above-Ground Piping
V-NONP-WATR-UNDER	■ 150	e-npw	Non Potable Water:: Underground Piping
V-PARK-ANNO	■ white	Continuous	Park: Annotation
V-PARK-EQPM	■ 9	Continuous	Park: Playground Equipment
V-PARK-FEAT	■ 9	Continuous	Park: Features
V-PARK-OTLN	■ 9	Continuous	Park: Playground outline, sport court
V-POND-ANNO	■ 46	Continuous	Ponds

V-POND-BOTB	■ 46	PHANTOM2	Ponds: Bottom of Bank
V-POND-EDGE	■ 46	HIDDEN2	Ponds: Edge of Water
V-POND-TOPB	■ 46	HIDDEN2	Ponds: Top Of Bank
V-POWR-ANNO	■ 1	Continuous	Power: Annotation
V-POWR-EQPM	■ 1	Continuous	Power: Equipment (Meters, Transformers, Pedestals, Handholes, etc.)
V-POWR-FENC	■ 1	Continuous	Power: Fence Enclosure
V-POWR-GUY	■ 1	Continuous	Power: Guy Wires
V-POWR-LITE	■ 1	Continuous	Power: Light Pole
V-POWR-MHOL	■ 1	Continuous	Power: Manholes
V-POWR-OVHD	■ 1	e-oe	Power: Overhead Lines
V-POWR-POLE	■ 1	Continuous	Power: Pole
V-POWR-STRC	■ 1	Continuous	Power: Structures
V-POWR-UNDR-BE	■ 1	e-be	Power: Underground: Buried Electric Lines
V-POWR-UNDR-SL	■ 1	e-sl	Power: Underground: Buried Street Lighting Lines
V-PRKG-ANNO	■ white	Continuous	Parking Lots: Annotation
V-PRKG-ASPH	■ blue	Continuous	Parking Lots: Asphalt Surface
V-PRKG-CNTR	■ 9	CENTER	Parking Lots: Centerline
V-PRKG-CONC	■ white	Continuous	Parking Lots: Concrete Surface
V-PRKG-DRAN	■ 9	HIDDEN	Parking Lots: Drainage Slope Indications
V-PRKG-FLNE	■ 8	HIDDEN	Parking Lots: Fire Lane
V-PRKG-GRVL	■ white	HIDDEN	Parking Lots: Gravel Surface
V-PRKG-MRKG	■ 8	Continuous	Parking Lots: Pavement Markings
V-PRKG-STRP	■ 8	HIDDEN	Parking Lots: Striping
V-PRKG-UPVD	■ white	HIDDEN	Parking Lots: Unpaved Surface
V-PROP-ANNO	■ magenta	PHANTOM	Property Boundary: Annotation
V-PROP-ANNO-BRNG	■ magenta	Continuous	Property Boundary: Bearing, Distance, Curve Data Labels
V-PROP-DIMS	■ 9	Continuous	Property Boundary: Dimensions, Ties
V-PROP-LINE	■ magenta	Continuous	Property Boundary: Property Lines
V-PROP-QTRS	■ blue	DASHED	Property Boundary: Quarter Section
V-PROP-RSRV	■ blue	HIDDEN	Property Boundary: Reserve
V-PROP-SBCK	■ blue	HIDDEN	Property Boundary: Setback Lines
V-PROP-SECT	■ blue	DASHED	Property Boundary: Section Boundary
V-PROP-SUBD	■ blue	HIDDEN	Property Boundary: Subdivision (Interior) Lines
V-PROP-SXTS	■ blue	HIDDEN	Property Boundary: Sixteenth Section
V-PROP-SYMB	■ white	Continuous	Property Boundary: Property Corner Symbol
V-PVMT-ANNO	■ white	Continuous	Pavement
V-PVMT-ASPH	■ blue	Continuous	Pavement: Asphalt Surface
V-PVMT-CONC	■ white	Continuous	Pavement: Concrete Surface

V-PVMT-GRVL	■ white	Continuous	Pavement: Gravel Surface
V-RAIL-ANNO	■ white	Continuous	Railroad: Annotation
V-RAIL-CNTR	■ 144	CENTER2	Railroad: Centerline
V-RAIL-EQPM	■ 144	Continuous	Railroad: Equipment (Gates, Signals, etc.)
V-RAIL-TRAK	■ 144	Continuous	Railroad: Track
V-ROAD-ANNO	■ white	Continuous	Roads, Streets and Highways
V-ROAD-ASPH	■ blue	Continuous	Roads, Streets and Highways: Asphalt Surface
V-ROAD-CNTR	■ cyan	CENTER2	Roads, Streets and Highways: Centerline
V-ROAD-CONC	■ white	Continuous	Roads, Streets and Highways: Concrete Surface
V-ROAD-GRVL	■ white	Continuous	Roads, Streets and Highways: Gravel Surface
V-ROAD-MRKG	■ 8	Continuous	Roads, Streets and Highways: Pavement Markings
V-ROAD-UPVD	■ white	Continuous	Roads, Streets and Highways: Unpaved Surface
V-RRAP-ANNO	■ white	Continuous	Riprap: Annotation
V-RRAP-LINE	■ 171	Continuous	Riprap
V-RWAY-ANNO	■ white	Continuous	Right-of-Way: Annotation
V-RWAY-CNTR	■ cyan	CENTER2	Right-of-Way: Centerline
V-RWAY-CTLA	■ 205	Continuous	Right-of-Way: Controlled Access
V-RWAY-LINE	■ cyan	Continuous	Right-of-Way: Lines
V-RWAY-LMTA	■ yellow	NVAL	Right-of-Way: Limited Access
V-RWAY-MRKR	■ 9	Continuous	Right-of-Way: Marker
V-SIGN-ANNO	■ 11	Continuous	Signs: Annotation
V-SIGN-MSS	■ 11	Continuous	Signs: Multi Support Sign
V-SIGN-SSS	■ 11	Continuous	Signs: Single Support
V-SIGN-WALL	■ 11	Continuous	Signs: Wall / Monument Sign
V-SITE-ANNO	■ 9	Continuous	Site Features: Annotation
V-SITE-BOLL	■ 135	Continuous	Site Features: Bollards
V-SITE-EWAT	■ 132	Continuous	Site Features: Edge of Water
V-SITE-MAIL	■ 53	Continuous	Mailbox
V-SITE-ROCK	■ 34	Continuous	Site Features: Rocks and Rock Outcroppings
V-SITE-RTWL	■ 9	Continuous	Site Features: Retaining Wall
V-SITE-VEGE	■ 72	Continuous	Site Features: Trees, Shrubs, and Other Vegetation
V-SITE-VEGE-ANNO	■ 72	Continuous	Site Features: Trees, Shrubs, and Other Vegetation: Annotation
V-SITE-VEGE-LINE	■ 72	Continuous	Site Features: Tree Line, Shrubs line, Ground Cover
V-SSWR-ANNO	■ 42	Continuous	Sanitary Sewer System: Annotation, Structure ID, As-built data
V-SSWR-CLEN	■ 42	Continuous	Sanitary Sewer System: Cleanout
V-SSWR-INST	■ 42	Continuous	Sanitary Sewer System: Valves
V-SSWR-MHOL	■ 42	Continuous	Sanitary Sewer System: Manhole

V-SSWR-PIPE	■ 42	Continuous	Sanitary Sewer System: Above-Ground Piping
V-SSWR-STRC	■ 42	Continuous	Sanitary Sewer System: Structures
V-SSWR-UNDR	■ 42	e-san	Sanitary Sewer System: Underground Piping
V-STEM	■ 54	Continuous	Steam System
V-STEM-INST	■ 54	Continuous	Steam System: Instrumentation (Meters, Valves, Pumps)
V-STEM-MHOL	■ 54	Continuous	Steam System: Manhole
V-STEM-PIPE	■ 54	Continuous	Steam System: Above-Ground Pipe
V-STEM-STRC	■ 54	Continuous	Steam System: Structures
V-STEM-UNDR	■ 54	Continuous	Steam System: Underground Piping
V-STRM-ANNO	■ 19	Continuous	Storm Drainage and Sewer System: Structure ID, As-built data
V-STRM-DTCH	■ 19	Continuous	Storm Drainage and Sewer System: Ditches and Swales
V-STRM-MHOL	■ 19	Continuous	Storm Drainage and Sewer System: Manhole
V-STRM-PIPE	■ 19	Continuous	Storm Drainage and Sewer System: Above-Ground Piping
V-STRM-POND	■ 19	Continuous	Storm Drainage and Sewer System: Retention Pond
V-STRM-STRC	■ 19	Continuous	Storm Drainage and Sewer System: Structures
V-STRM-UNDR	■ 19	e-strm	Storm Drainage and Sewer System: Underground
V-SURV-ANNO	■ white	Continuous	Survey: Annotation
V-SURV-BMRK	■ white	Continuous	Note: Survey Benchmark Points
V-SURV-DATA	■ white	Continuous	Survey: Data
V-SURV-LINE	■ white	Continuous	Survey: Control Line
V-SURV-TRAV	■ white	Continuous	Survey: Traverse Line
V-SWLK-ANNO	■ white	Continuous	Sidewalks: Annotation
V-SWLK-ASPH	■ cyan	Continuous	Sidewalks: Asphalt
V-SWLK-CONC	■ 9	Continuous	Sidewalks: Concrete
V-SWLK-PVRS	■ 40	Continuous	Sidewalks: Brick Pavers
V-TH-ANNO	■ 9	Continuous	Test Holes: Annotation
V-TH-LOC	■ 9	Continuous	Test Holes: Location
V-TOPO-ANNO	■ 9	Continuous	Topography: Annotation
V-TOPO-BARW	■ 9	Continuous	Topography: Barrier Wall
V-TOPO-BNCH	■ 9	Continuous	Topography: Park/Bus Bench
V-TOPO-BORE	■ 9	Continuous	Topography: Test Borings
V-TOPO-COLM	■ 9	Continuous	Topography: Column
V-TOPO-CSL	■ 9	Continuous	Topography: Concrete Slab/Pad/Ramp
V-TOPO-DOCK	■ 9	Continuous	Topography: Docks
V-TOPO-DUMP	■ 9	Continuous	Topography: Dumpster area, enclosure, wall. Bin
V-TOPO-EWAT	■ 150	DASHDOT2	Topography: Edge of Water
V-TOPO-FEAT	■ 9	Continuous	Topography: Other Features

V-TOPO-GRID	■ yellow	Continuous	Topography: Coordinate Grids
V-TOPO-MAJR	■ white	Continuous	Topography: Major Topographical Contours
V-TOPO-MINR	■ green	Continuous	Topography: Minor Topographical Contours
V-TOPO-PATT	■ 9	Continuous	Topography: Hatch Patterns
V-TOPO-PILE	■ 9	Continuous	Topography: Piles
V-TOPO-PLNT	■ 9	Continuous	Topography: Planters
V-TOPO-SEAW	■ 9	Continuous	Topography: Seawall
V-TOPO-SOUN	■ 9	Continuous	Topography: Soundings
V-TOPO-SPOT	■ 180	Continuous	Topography: Spot Elevations
V-TOPO-STEP	■ 9	Continuous	Topography: Steps, Stoop
V-TOPO-WALL	■ 9	Continuous	Topography: Walls, Retaining walls
V-TRAF-ANNO	■ 140	Continuous	Traffic: Annotation
V-TRAF-EQPM	■ 140	Continuous	Traffic: Equipment (Signals, Pedestals, Handholes, etc.)
V-TRAF-FLNE	■ 240	Continuous	Traffic: Fire Lane
V-TRAF-UNDR	■ 140	e-tc	Traffic: Underground Traffic Control Lines
V-UNID-ANNO	■ 43	Continuous	Unidentified Site Objects: Annotation
V-UNID-CABL	■ 43	Continuous	Unidentified Site Objects: Cable
V-UNID-MHOL	■ 43	Continuous	Unidentified Site Objects: Manhole
V-UNID-PIPE	■ 43	Continuous	Unidentified Site Objects: Above-Ground Piping
V-UNID-TANK	■ 43	Continuous	Unidentified Site Objects: Storage Tanks
V-UNID-UTIL	■ 43	Continuous	Unidentified Site Objects: Utility Lines
V-UNID-UTIL-OVHD	■ 43	Continuous	Unidentified Site Objects: Utility Lines: Overhead
V-UNID-UTIL-UNDR	■ 43	e-unk	Unidentified Site Objects: Utility Lines: Underground
V-WATR-ANNO	■ 5	Continuous	Water Supply: Annotation
V-WATR-INST	■ 5	Continuous	Water Supply: Instrumentation (Meters, Valves, Pumps)
V-WATR-MHOL	■ 5	Continuous	Water Supply: Manhole
V-WATR-PIPE	■ 5	Continuous	Water Supply: Above-Ground Piping
V-WATR-STRC	■ 5	Continuous	Water Supply: Structures
V-WATR-UNDR	■ 5	e-w	Water Supply: Underground Piping
V-WATR-CHILL	■ 5	e-cw	Water Supply: Underground Chilled Water Piping
V-WETL	■ 73	Continuous	Wetland

