

# COMMUNITY WIRELESS STRUCTURES

September 8, 2020

Ligon Webb  
County Planner  
P.O. Box 1206  
414 North Main Street  
Madison, VA 22727

RE: **Special Use Permit (SUP) Application and Site Plan Application for CWS Site 43: Uno**  
Proposed Telecommunications Structure  
Tax Map: 69-7  
GPS Coordinates: 38-14-25.770/ -78-13-14.841

Dear Mr. Webb:

I am enclosing 15 copies of the following items in connection with the above Special Use Permit and Site Plan application:

1. Completed Special Use Permit Application and Telecommunications Facility Fee (\$1,500.00)
2. Statement of Justification
3. Parcel Info & Deed
4. Memorandum of Lease Agreement
5. FAA 1-A Survey Certification & FAA Determination
6. Notices to Other Wireless Providers
7. Wireless Infrastructure in the Vicinity of CWS Site 43: Uno
8. Co-location Policy & Tower Profile
9. Shentel: Propagation Plots
10. List of Property Owners within 1,000 Feet of the Subject Property
11. Balloon Test Notice Ad in The Madison Eagle & Record of Weather During the Balloon Test
12. Photo-Simulations
13. Approval by VDHR: Section 106 Notification of No Adverse Effect
14. Survey and (2 sets of 24" X 36" & 17 sets of 11" X 17")
15. Site Plan Application and Review Fee (\$500.00)
16. Site Plan (2 sets of 24" X 36" & 17 sets of 11" X 17")

If you have any questions, please contact Hope McCreary at 703-728-7400 or [info@sharedsites.com](mailto:info@sharedsites.com).

Sincerely,



Queli Campos  
Project Manager

# **1. Completed Special Use Permit Application**

FOR OFFICE USE ONLY:

Zone:	Tax Map No:	By who?
Fee Amount:	Date Paid:	
Receipt #:	Check #:	



MADISON COUNTY  
APPLICATION FOR SPECIAL USE PERMIT

Date: 9/3/2020

The undersigned owner/applicant of the following described property hereby applies for a Special Use Permit as required by Article(s) 14-13 of the Zoning Ordinance of Madison County, Virginia.

Owner of Record:

Name: M&W Farm, LLC

Address: PO Box 476, Somerset, VA 22972

Phone No.: 540-229-2626

E-Mail: mike@mgm-glass.com

Applicant:

Name: CWS X, LLC

Address: 2800 Shirlington Road, Suite 802, Arlington, VA 22206

Phone No.: 703-845-1971

E-Mail: queli.campos@sharedsites.com

TAX MAP: 69-7 ZONE: A-1

# OF ACRES TO BE COVERED BY SPECIAL USE PERMIT: 1.18 AC

LOCATION/ADDRESS OF PROPERTY FOR SPECIAL USE PERMIT: 950 S. Blue Ridge Turnpike, Somerset, VA 22972

Is this an amendment to an existing Special Use Permit? If yes, provide that SP Number: N/A

PROPOSAL/REQUEST: To construct a 175' monopole structure with a 4' lightning rod (overall height of 179') within a fifty by hundred (50' x 100') fenced compound.

I hereby certify that I own the subject property, or have the legal power to act on behalf of the owner in filing this application. I also certify that the information provided on this application and accompanying information is accurate, true, and correct to the best of my knowledge.

[Signature]  
Signature of Owner or Agent

9-3-2020  
Date

Queli Campos  
Print Name

703-845-1971  
Daytime phone number of Signatory

Have all the necessary statements, plats, plans and other pertinent information been submitted?  Yes  No

Reviewed by Planning Commissioner: \_\_\_\_\_ Date: \_\_\_\_\_

Conditions, if any: \_\_\_\_\_

\_\_\_\_\_

Action Taken by Board of Supervisors: \_\_\_\_\_ Date: \_\_\_\_\_

Conditions, if any: \_\_\_\_\_

\_\_\_\_\_

APPROVED:  DENIED:  Betty C. Grayson, Zoning Administrator Date: \_\_\_\_\_

## **2. Statement of Justification**

**CWS Site 43: Uno**  
**Statement of Justification**

CWS is applying for a Special Use Permit to construct a 175' foot monopole (with a 4' lightning rod) in southern Madison County, south of Uno. The project will be located on a leased portion of tax parcel #69-7. The parcel is approximately 376 acres, zoned A-1. The monopole will be located in a fifty by one hundred foot (50' x 100') compound surrounded by an eight foot (8') high chain link fence.

The purpose of the proposed telecommunications facility is to provide wireless communications for the citizens, businesses, visitors and emergency personnel in this underserved area of the County. This infrastructure will also serve those traveling to and through the County along portions of two important transportation routes: Blue Ridge Turnpike (Route 231) and Constitution Highway (Route 20). In the near term we anticipate both Shentel and Verizon Wireless will utilize this infrastructure to provide service. The tower has been designed to accommodate the equipment and antennas of up to 6 wireless service providers.

CWS conducted an extensive search over a number of years to find a suitable location for this infrastructure. The challenge was to find a parcel (with a willing ground owner) that satisfies the coverage objective, meets zoning criteria (such as setbacks), is proximate to future fiber deployment and minimizes visual impact, particularly on the Madison-Barbour Rural Historic District. *Attachment 1: Site Selection History* summarizes the process.

The location selected has been vetted by the State Historic Preservation Officer (SHPO) and the proposed structure found to have **“No Adverse Impact”** on historic resources in the area. In order to receive the SHPO's concurrence, CWS agreed on several design changes: the height was lowered by 20 feet, the structure changed to a monopole from a lattice, and we agreed to paint the pole a light non-reflective gray. The structure will not be lit.

Although the area surrounding the site does include open fields, the transportation corridors (Route 20 and 231) are lined with trees and dense shrubbery that screen most of the views from the roadways (*Attachment 2*). Where there are views from the roads, they are mostly distant and unobtrusive, as the enclosed photo-simulations demonstrate.

The proposed telecommunications facility will have no impact on air quality, water quality, light pollution, noise pollution, traffic congestion or circulation. The facility will meet all safety requirements. This is an unmanned facility and once constructed, visits to the site will be minimal. There will be no customers at the site and thus traffic generation is minimal.

This proposal is consistent with the policies set forth in the Madison County Zoning Ordinance for Wireless Communications Facilities (WCF) and supports the stated goals:

**(A) Minimize the total number of freestanding antenna support structures throughout the County, by maximizing the use of existing support structures;**

*There are no existing structures which are suitable for the mounting of antennas to address the described service gap. The closest telecommunications structures are approximately three miles to the east and over 5 miles away in all other directions (Refer to the enclosed **Wireless Infrastructure in the Vicinity...**)*

**(B) Strongly encourage the joint use of new and existing WCF sites;**

*The proposed new WCF will accommodate up to six wireless service providers.*

**(C) Strongly encourage the owners and operators of WCFs to locate them, to the extent possible, in areas where the adverse impact on the County is minimal.**

*Numerous parcels were vetted. The transportation corridors (Route 20 and 231) are lined with trees and dense shrubbery that screen most of the views from the roadways. Where there are views from the roads, they are distant and unobtrusive, as the enclosed photo-simulations demonstrate. With agreed upon design changes, the SHPO found the structure to have “No Adverse Impact” on historic resources.*

**(D) Limit the location of freestanding antenna support structures that detract from the scenic qualities of Madison County;**

*Numerous parcels were vetted. The transportation corridors (Route 20 and 231) are lined with trees and dense shrubbery that screen most of the views from the roadways. Where there are views from the roads, they are distant and unobtrusive, as the enclosed photo-simulations demonstrate. With agreed upon design changes, the SHPO found the structure to have “No Adverse Impact” on historic resources.*

**(E) Encourage the owners and operators of WCFs to locate and configure them in a way that minimizes the adverse visual impact on the landscape and adjacent properties; and**

*Numerous parcels were vetted. The transportation corridors (Route 20 and 231) are lined with trees and dense shrubbery that screen most of the views from the roadways. Where there are views from the roads, they are distant and unobtrusive, as the enclosed photo-simulations demonstrate. With agreed upon design changes, the SHPO found the structure to have “No Adverse Impact” on historic resources.*

**(F) Enhance the ability of wireless communications providers to provide such services efficiently and effectively to residents and visitors of Madison County.**

*The proposed WCF will provide mobile wireless and fixed broadband service along and near two major transportation corridors: Blue Ridge Turnpike (Route 231) and Constitution Highway (Route 20), between Uno and Somerset.*

**WCF requirements in Sections 14-13-6 through 14-13-9 of the WCF Ordinance are addressed on the following pages.**

**14-13-6. General Requirements**

**(A)** *CWS will obtain all authorization and approvals specified in this section.*

**(B) Visibility.** Each WCF and related buildings, structures and equipment shall be configured and located in a manner that shall minimize adverse visual impacts on the landscape and adjacent properties.

*Numerous parcels were vetted. The transportation corridors (Route 20 and 231) are lined with trees and dense shrubbery that screen most of the views from the roadways. Where there are views from the roads, they are distant and unobtrusive, as the enclosed photo-simulations demonstrate. With agreed upon design changes, the SHPO found the structure to have “No Adverse Impact” on historic resources. The structure will be painted a non-reflective gray color.*

**(C) Height.** Each WCF shall be of the least height necessary to meet the needs of the geographic area to be served by the facility, not to exceed 199 feet. Height calculations shall include above-ground foundations, but shall exclude lightning rods and lights required by the FAA which do not provide any support for antennas.

*The proposed WCF is 179 feet, inclusive of a 4 foot lightning rod.*

**(D) Monopoles preferred.** Each freestanding, non-concealed WCF shall utilize a monopole support structure or utility pole.

*Applicant has proposed a painted monopole.*

**(E) (iii) Design for co-location.** Each freestanding WCF that is 151 or more feet in height shall be engineered and constructed to accommodate no fewer than 6 WCFs.

*The proposed WCF has been designed to accommodate up to six wireless service providers.*

**(F) Grading.** Grading shall be minimized and shall be limited to the area necessary for the new WCF and associated equipment compound and fencing.

*Grading will be limited to the area necessary for the new WCF.*

**(G) (i) Lighting.** There shall be no lighting of any WCF except as specifically required by federal statute or FAA regulations.

*FAA does not require lighting of this structure. Please refer to the enclosed **FAA Determination of No Hazard to Air Navigation**.*

**(H) (i) Setbacks.** If a freestanding support structure is to be constructed using breakpoint design technology, then the minimum setback shall be a distance equal to 110 percent of the distance from the highest point on the structure to the breakpoint level of the structure. Certification by an engineer of the breakpoint design and of the design's fall radius must be provided at the time of application, along with the other information required by this ordinance.

*The proposed monopole will utilize breakpoint design technology and will conform to the associated setback requirements. Please refer to the enclosed Site Plan for specifics.*

**(I) Equipment cabinets and compounds.**

(i) Equipment cabinets more than 3 feet in height shall not be visible from ground level. Cabinets may be located within a principal building, behind a screen on a rooftop, or on the ground within a fenced-in compound with landscape screening.

*Equipment cabinets and shelters will be located within a fifty by one hundred foot compound, surrounded by an eight foot high chain link fence with one foot (1') of barbed wire on top.*

(iii) Equipment compounds shall not be used for the storage of any excess equipment or hazardous materials.

*The compound will not be used for the storage of excess equipment or hazardous materials.*

**(J) Fencing.** All freestanding support structures and associated equipment compounds shall be enclosed by a fence adequate to preclude unauthorized access.

*The proposed site will be surrounded by an eight foot (8') high chain link fence with one foot (1') of barbed wire on top.*

**(K) Signs.** No signs shall be permitted on any WCF, other than the following:

- (i) Signs required by the FAA or FCC shall be permitted;
- (ii) Informational signs shall be permitted for the purpose of identifying the support structure (such as an ASR registration number), contact information for the party responsible for operation and maintenance of the facility, and contact information for the property manager (if applicable); and
- (iii) Warning signs shall be permitted, if more than 220 volts are necessary for the operation of the facility and such voltage is present in a ground grid or

in the antenna support structure. Any such signs shall be posted at 20-foot intervals on the fence or wall surrounding the facility and shall display in large, bold, high-contrast letters (minimum 4 inches in height) the words "DANGER-HIGH VOLTAGE".

*Applicant will confirm to signage restrictions.*

**(L) Federal standards for interference protection.** Each WCF shall comply with all applicable federal laws and regulations regarding interference protection, including but not limited to federal regulations regarding adjacent channel receiver (blanket) overload and inter-modulation distortion. Each applicant seeking an approval required by this ordinance shall provide a written certification at the time of application that the subject WCF shall comply with such regulations.

*Service providers co-locating on the WCF will comply with all pertinent federal laws and regulations.*

**(M) Federal standards for radio frequency emissions.** Each WCF shall comply with all applicable federal laws and regulations regarding radio frequency emissions. At the time of application, the applicant shall provide a certification that radio frequency emissions from the WCF comply with FCC standards, and that, individually and cumulatively, and together with any other facilities located on or immediately adjacent to the proposed WCF, the proposed WCF complies with FCC standards. The certification shall be accompanied by a statement of the qualifications of the person providing the certification

*Service providers co-locating on the WCF will comply with all pertinent federal laws and regulations.*

**(N) Compliance with ANSI standards.** Each WCF shall comply with American National Standards Institute (ANSI) standards, as adopted by the FCC, pertaining to electromagnetic radiation. Each applicant seeking an approval required by this ordinance shall provide a written certification at the time of application that the subject WCF shall comply with such standards.

*Service providers co-locating on the WCF will comply with ANSI standards.*

**(O) Safety.**

- (i) Each WCF and its accessory equipment shall be constructed in compliance with requirements of the Virginia Uniform Statewide Building Code.
- (ii) Any time an antenna is added to an existing WCF located on a support structure in excess of 100 feet, the owner or operator of the antenna shall provide the County with an engineer's certification that the WCF can structurally accommodate the total number of antenna to be located on the WCF.

*Applicant will comply with all safety guidelines and practices.*

**(P) Sounds.** No unusual sound emissions, such as alarms, bells, buzzers, etc. are permitted.

*There will be no impact on the noise level in surrounding area.*

**(Q) Abandonment.**

- (i) A WCF and its accessory equipment shall be removed, at the owner's expense, within 180 days of cessation of use, unless the abandonment is associated with a replacement support structure, in which case the removal shall occur within 90 days of cessation of use.
- (ii) A support structure which remains unoccupied by any antenna for a period of 180 consecutive days ("vacancy period") shall be removed within 60 days of the last day of the vacancy period, at the owner's expense.
- (iv) Upon removal of a WCF and its accessory equipment, the site shall be returned to its natural state and topography, and shall be vegetated consistent with the natural surroundings or the current uses of the surrounding or adjacent land at the time of the removal.

*Applicant agrees to demolish and remove the tower in accordance with these guidelines.*

**14-13-7. New freestanding WCF.**

(A) No new or mitigated freestanding WCF shall be permitted unless the applicant demonstrates that no existing WCF can accommodate the WCF facilities or is suitable, as to design or location.

*Please refer to the enclosed "Wireless Infrastructure in the Vicinity of CWS Site: 43: Uno". There are no other existing structures suitable for the mounting of antennas in this location.*

**14-13-8. Mitigation of existing freestanding WCF.**

N/A

**14-13-9. Interference with public safety communications.**

In order to facilitate the regulations, placement and construction of each WCF, and to ensure that all parties are complying to the fullest extent possible with the rules, regulations and guidelines of the FCC, each owner of a WCF, and each applicant (if different than the owner) shall agree in a signed written statement to the following:

- (1) Compliance with "Good Engineering Practices" as defined by the FCC in its rules and

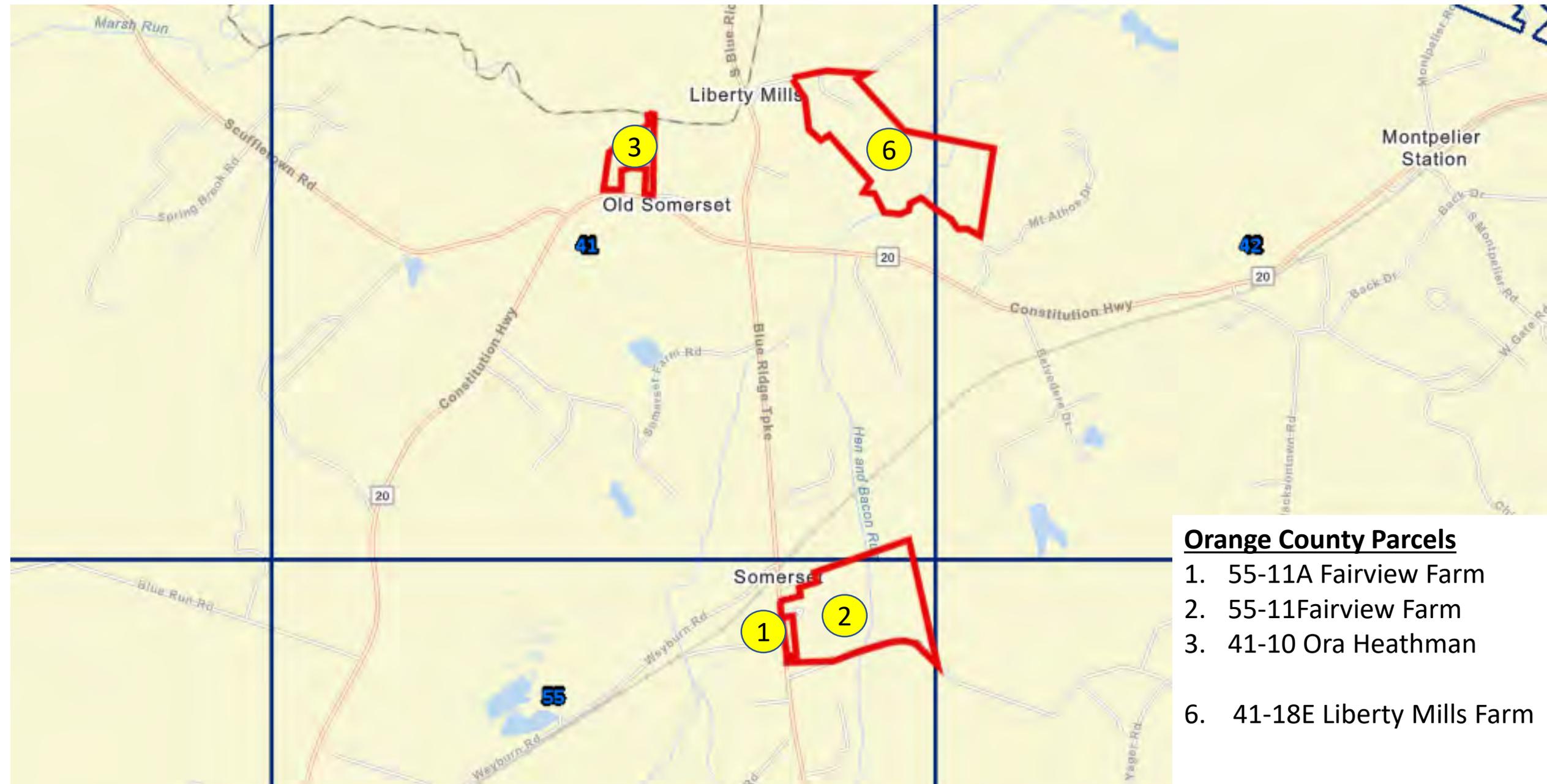
regulations.

(2) Compliance with FCC regulations regarding susceptibility to radio frequency interference, frequency coordination requirements, general technical standards for power, antenna, bandwidth limitations, frequency stability, transmitter measurements, operating requirements, and any and all other federal statutory and regulatory requirements relating to radio frequency interference (RFI).

*Service providers co-locating on the WCF will comply with all pertinent federal laws and regulations and provide a written statement certifying compliance.*

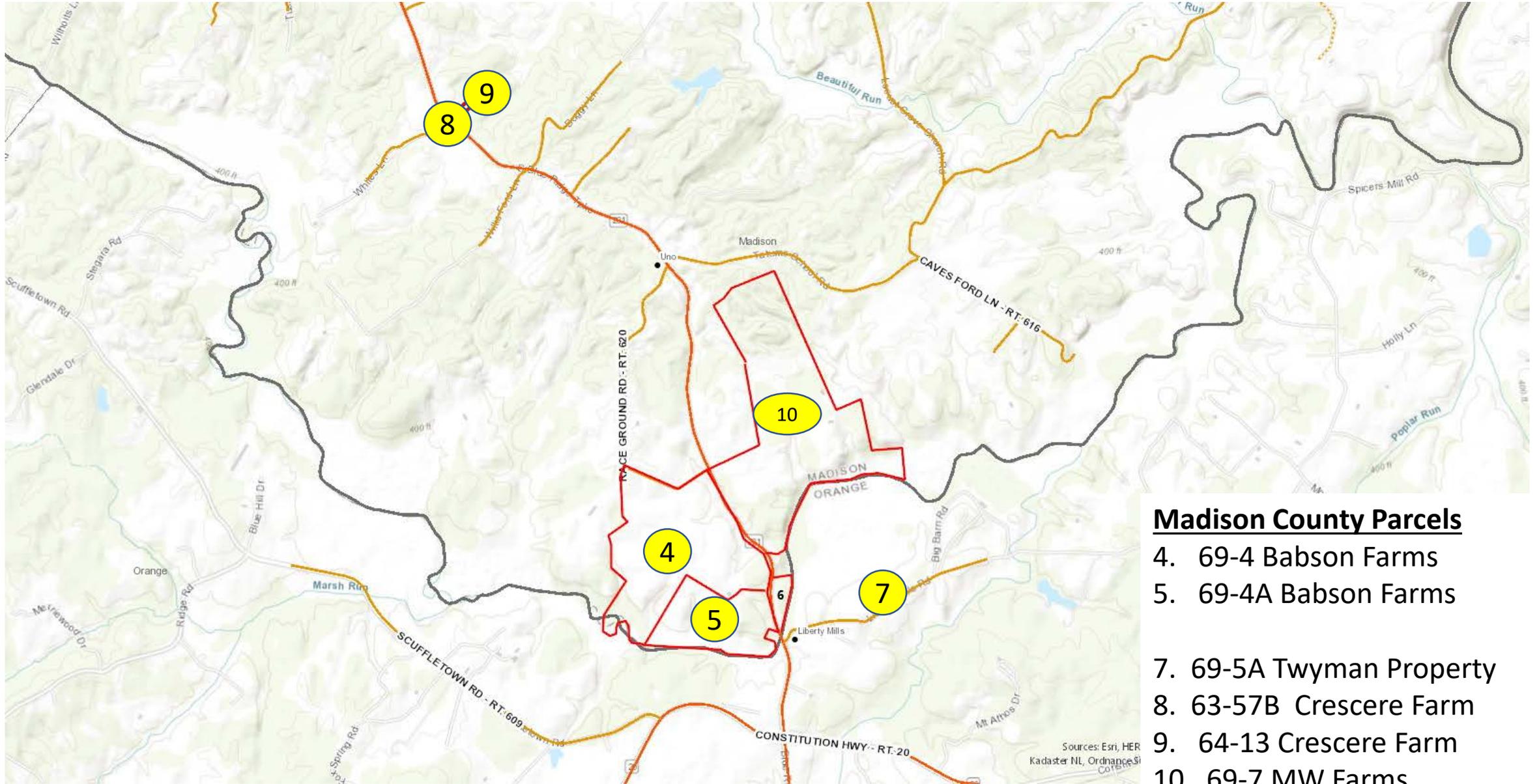
**Attachment 1**  
**Site 43- Uno**  
**Alternative Sites/Site Selection History**  
**(Map Attached)**

- 1 & 2 2001** Lease signed on at 14375 Blue Ridge Turnpike, Parcels 55-11/55-11A, approximately 1 mile south of intersection of Rt. 231 & Rt. 20. **Challenges:** Bill Roberts, owner (now deceased), or his estate, subsequently put property in Virginia Outdoor Foundation conservation easement thereby eliminating the candidate.
- 3 2016** Lease signed on Parcel 41-10 with Ora Heathman (now deceased), fronting Rt. 20 across from Somerset Plantation. **Challenges:** Close proximity to historic church, stated opposition from Somerset Plantation, and Heathman estate issues.
- 4 & 5 2016** Babson Farms property, Parcels 69-4/69-4A fronting on Rt. 231, north of Rt. 20, was considered for possible site next to existing silo. **Challenges:** Owner not interested in signing a cell tower lease; various parcels of the property were and continue to be marketed for sale. CWS monitored status of the property and owner interest periodically from 2016-2019.
- 6 2019** Discussion with Liberty Mills Farm Market owners regarding their interest in signing a lease on their property at 9278 Liberty Mills Road, Parcel 41-18E. **Challenges:** Open property with direct views from Liberty Hill on the north side of Liberty Mills Road; owners not interested in leasing area of property with enough elevation for a tower site.
- 7 2019** Performed due diligence on wooded 12 acre Parcel 69-5A along the north side of the Rapidan River. Owner (Twyman) was interested in signing a lease. **Challenges:** Floodplain, terrain & access issues.
- 8 & 9 2019** CWS was approached by Barbara Miller, new owner of Crescere Farm), Parcels 64-13 & 63-57B; **Challenges:** Too far from search ring.
- 10 Sept. 2019 Selected candidate.** CWS approached Mike Wills (MW Farm) owner of Parcel 69-7. Location covers the target search area, is set back from the roadway and offers an existing access road.



**Orange County Parcels**

- 1. 55-11A Fairview Farm
- 2. 55-11 Fairview Farm
- 3. 41-10 Ora Heathman
  
- 6. 41-18E Liberty Mills Farm



**Madison County Parcels**

- 4. 69-4 Babson Farms
- 5. 69-4A Babson Farms
- 7. 69-5A Twyman Property
- 8. 63-57B Crescere Farm
- 9. 64-13 Crescere Farm
- 10. 69-7 MW Farms

# Attachment 2



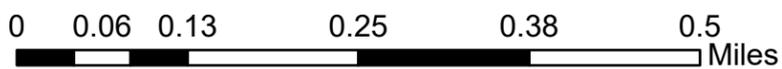
Commonwealth of Virginia, Microsoft, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

- Areas of potential visibility
- Visibility blocked by vegetation
- Project Site Location
- Project Radius at 1/2 Mile
- National Register of Historic Places District

Modeling based on surface elevation with land cover & 198' tower height

**Viewshed Analysis Including Land Cover**

**CWS 43 SOMERSET  
950 S. BLUE RIDGE TURNPIKE  
MADISON COUNTY  
SOMERSET, VA 2972**



This map depicts areas of POTENTIAL visibility  
This map accounts for elevation and derived canopy height.  
LiDAR sourced DSM at (2.5 ft) Print at 11x17

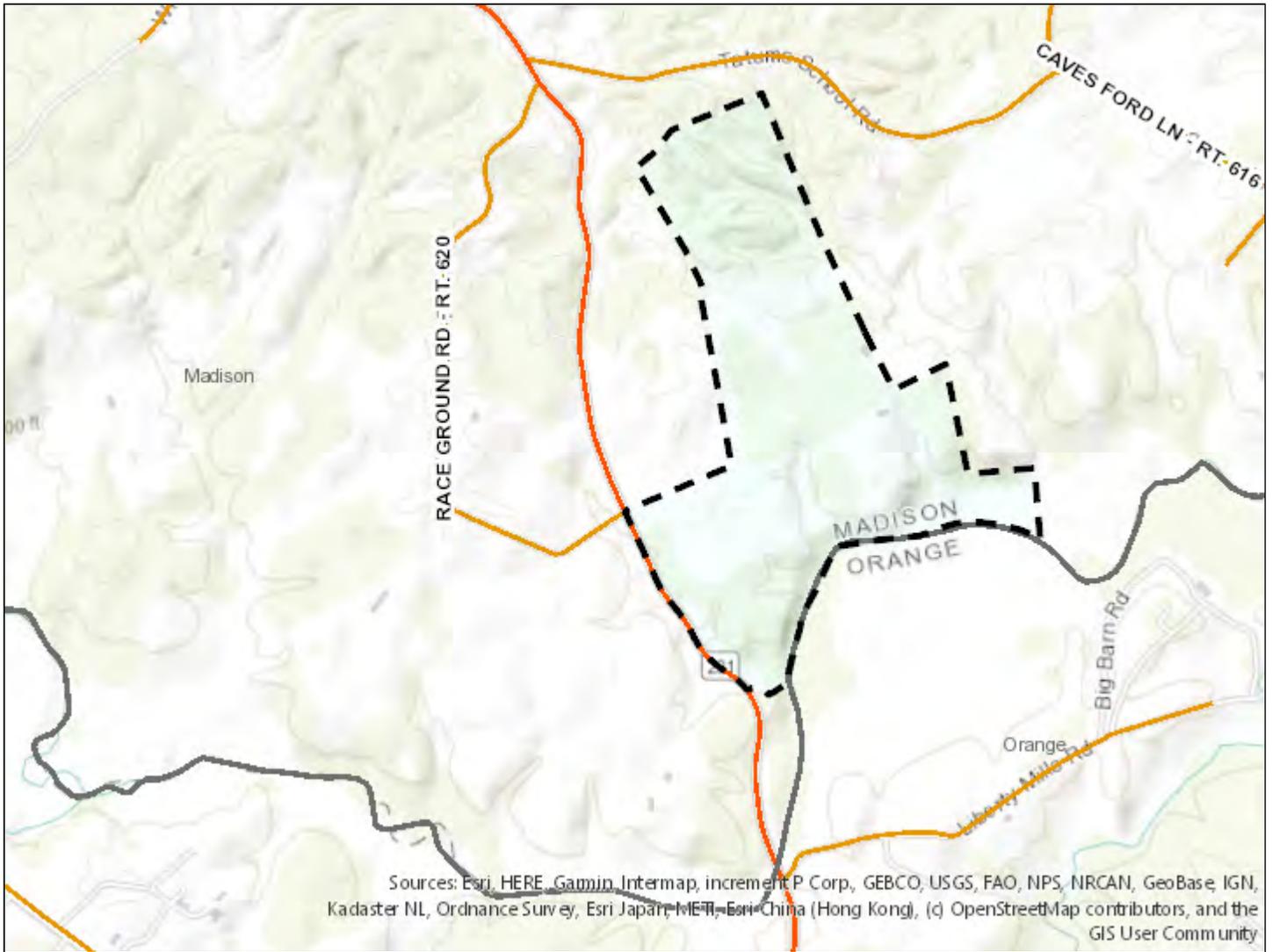
Source: Selected data from USGS, EBI, VITA

Date: 1/15/2020

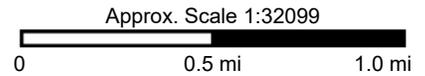


PN: 6119005246

## **3. Parcel Info & Deed**



**Disclaimer:** The information contained on this page is NOT to be construed or used as a survey or legal description. Map information is believed to be accurate but accuracy is not guaranteed.



**Layer: Parcels**

**Map Number:** 69-7  
**PIN:** 69 7  
**Owner:** M & W FARM LLC  
**Mailing Address 1:** PO BOX 476  
**Mailing City:** SOMERSET  
**Mailing State:** VA  
**Mailing Zip:** 22972  
**Acres:** 376.252  
**Land Class Code:** 6  
**Occupancy Code:** 12  
**Building Value:** 432900  
**Land Value:** 1946900  
**Improved Value:** 137100  
**Total Value:** 2379800  
**Year Built:** 1975  
**Year Sold:** 2017

**Sell Price:** 2400000  
**Location House Number:** 950  
**Location Street Name:** BLUE RIDGE  
**Location Street Direction:** S  
**Legal Description 3:** RT 231  
**RecNo:** 0000311  
**Account:** 311  
**Grantor:** BABSON FARMS INC  
**MDSEC2:** 69-7  
**Source:** Imagery  
**MDSEC1:** IN 170000003 376.252 AC  
**MDWELL:** 01  
**MMAP:** 69 7  
**UID:** 9360  
**Shape\_Length:** 23000.037894583  
**Shape\_Area:** 16270916.884152

Attributes at point: 11563498, 6773172

**Layer: Voting Districts**

**Name:** ROCHELLE PRECINCT  
**Polling Location:** MT. NEBO LUTHERAN CHURCH  
**Polling Address:** 3980 JACKS SHOP ROAD

Madison Co., VA

Inst. No. 170000003

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THIS DEED made and entered into this 21<sup>st</sup> day of December, 2016, by and between **BABSON FARMS, INC.**, an Illinois corporation, Grantor, and **M & W FARM LLC**, a Virginia limited liability company, Grantee, whose current address is P.O. Box 476, Somerset, Virginia 22972.

WITNESSETH

That for and in consideration of the sum of TEN DOLLARS (\$10.00), cash in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, Babson Farms, Inc., an Illinois corporation, Grantor, does hereby grant, bargain, sell and convey with GENERAL WARRANTY and ENGLISH COVENANTS of TITLE unto M & W Farm LLC, a Virginia limited liability company, Grantee, the following real property, to wit:

All that certain tract or parcel of land with all buildings and improvements thereon and the rights and appurtenances thereunto belonging, located in the former Locust Dale District of Madison County, Virginia, on the east side of Virginia State Route 231 and running to the center line of the Rapidan River, containing 376.252 acres, more or less, and being the residue of a certain tract or parcel of land containing 399.899 acres, more or less, shown and described on a plat of a survey thereof entitled "Survey of Theodore L. Landis, et ux Property", made by Stearns L. Coleman, Certified Land Surveyor on August 18, 1975, revised on September 10, 1975, and recorded in the Clerk's Office of the Circuit Court of Madison County, Virginia, in Plat Book 8, Page 69 and also in Deed Book 129, Page 461; LESS and EXCEPT a certain strip of land containing 0.3373 acre, more or less, conveyed to the Commonwealth of Virginia by deed of Christoph Ulrich Von Burgsdorff and Boni Von Burgsdorff, his wife, dated March 30, 1981, and recorded in said Clerk's Office in Deed Book 160, at Page 331; and further LESS and EXCEPT, a strip of land containing 5.0775 acres, more or less, conveyed to the Commonwealth of Virginia by deed of Christoph Ulrich Von Burgsdorff and Liesbeth Von Burgsdorff, his wife, dated October 18, 1983, and recorded in said Clerk's Office in Deed Book 171, at Page 108, and further LESS and EXCEPT a tract of land containing 18.232 acres, more or less, conveyed to George W. Hamm and Jessie C. Hamm, husband and wife, by deed of Christoph

*Return to: Sean Casey PLLC  
111 E. Main St.  
Orange, VA 22960*

Prepared by:  
V. R. Shackelford III (VSB #14198)  
147 West Davis Street  
Culpeper, VA 22701

Tax Map: 69-7  
Consideration: \$2,400,000.00  
Assessed Value: \$2,424,500.00  
Title Insurance Provider: Old Republic  
National Title Insurance Company

1 of 4

Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, dated November 6, 1984, and recorded in said Clerk's Office in Deed Book 174 at Page 50.

The aforesaid property is all and the same real property conveyed to Babson Farms, Inc., an Illinois corporation, by deed from Christoph Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, dated October 27, 1986, and recorded in said Clerk's Office in Deed Book 182, page 255.

The aforesaid property is conveyed subject to all rights of way, easements and restrictions of record insofar as they may legally apply.

This Deed is executed on behalf of Babson Farms Inc., an Illinois corporation, by Mark Stephenitch, Secretary, pursuant to a Resolution of Babson Farms Inc., adopted in accordance with law.

WITNESS the following signature and seal:

Babson Farms, Inc., an Illinois corporation

By: Mark Stephenitch (SEAL)  
Mark Stephenitch, Secretary

STATE OF Illinois  
CITY/COUNTY of Aurora/DuPage to-wit:

The foregoing instrument was acknowledged before me this 21<sup>st</sup> day of December, 2016 by Mark Stephenitch, Secretary of Babson Farms, Inc., an Illinois corporation.



Monica K. Nieling  
Notary Public  
My Commission Expires: 9-16-18  
My Registration Number: 308040

**SCHEDULE A**

**PARCEL 1:** All that certain tract or parcel of land with all buildings and improvements thereon and the rights and appurtenances thereunto belonging, located in the former Locust Dale District of Madison County, Virginia, on the east side of Virginia State Route 231 and running to the center line of the Rapidan River, containing 376.252 acres, more or less, and being the residue of a certain tract or parcel of land containing 399.899 acres, more or less, shown and described on a plat of a survey thereof entitled "Survey of Theodore L. Landis, et ux Property", made by Stearns L. Coleman, Certified Land Surveyor on August 18, 1975, revised on September 10, 1975, and recorded in the Clerk's Office of the Circuit Court of Madison County, Virginia, in Plat Book 8, Page 69 and also in Deed Book 129, Page 461; LESS and EXCEPT a certain strip of land containing 0.3373 acre, more or less, conveyed to the Commonwealth of Virginia by deed of Christoph Ulrich Von Burgsdorff and Boni Von Burgsdorff, his wife, dated March 30, 1981, and recorded in said Clerk's Office in Deed Book 160, at Page 331; and further LESS and EXCEPT, a strip of land containing 5.0775 acres, more or less, conveyed to the Commonwealth of Virginia by deed of Christoph Ulrich Von Burgsdorff and Liesbeth Von Burgsdorff, his wife, dated October 18, 1983, and recorded in said Clerk's Office in Deed Book 171, at Page 108, and further LESS and EXCEPT a tract of land containing 18.232 acres, more or less, conveyed to George W. Hamm and Jessie C. Hamm, husband and wife, by deed of Christoph Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, dated November 6, 1984, and recorded in said Clerk's Office in Deed Book 174 at Page 50.

The aforesaid property is all and the same real property conveyed to Babson Farms, Inc., an Illinois corporation, by deed from Christoph Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, dated October 27, 1986, and recorded in said Clerk's Office in Deed Book 182, page 255.

Being the same real property conveyed to M & W Farm LLC, a Virginia limited liability company by deed from Babson Farms, Inc., an Illinois corporation recorded immediately prior hereto in the Clerk's Office of Madison County, Virginia.

**PARCEL 2:** All that certain tract or parcel of land containing 91.33 acres, more or less, identified as Tract 5 on a survey entitled "SUBDIVISION PLAT TRACT 1, TRACT 2, TRACT 3, TRACT 4 & TRACT 5 BLOOMINGDALE FARM AND BOUNDARY SURVEY OF T.M. 41-15 (0.38 ACRE) ALSO BOUNDARY OVERLAP (0.67 ACRE) THE PROPERTIES OF MARVIN J. TUCKER AND SUE F. TUCKER AND CONTOUR CONSTRUCTION LLC LOCATED ON STATE ROUTE 231, STATE ROUTE 20, & STATE ROUTE 641 AT LIBERTY MILLS BARBOUR DISTRICT ORANGE COUNTY, VIRGINIA", dated January 14, 2005, recorded in the Clerk's Office of the Circuit Court of Orange County, Virginia in Plat Cabinet K, Slot 155-156.

LESS AND EXCEPT 14.00 acres, more or less, conveyed to T. Kinsey Marable by Instrument Number 070009248 recorded in the Clerk's Office of the Circuit Court of Orange County, Virginia, leaving a total of 77.33 acres.

Being the same real property conveyed to Michael L. Willis by deed from Marvin J. Tucker and Sue F. Tucker, dated November 12<sup>th</sup>, 2008 and recorded in the Clerk's Office of the Circuit Court of Orange County as Instrument Number 080008972

3 of 4

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INSTRUMENT #170000003  
RECORDED IN THE CLERK'S OFFICE OF  
MADISON ON  
JANUARY 3, 2017 AT 04:22PM  
\$2,424.50 GRANTOR TAX WAS PAID AS  
REQUIRED BY SEC 58.1-802 OF THE VA. CODE  
STATE: \$1,212.25 LOCAL: \$1,212.25  
*Cheryl B. Myers, Deputy Clerk*  
LEETA D LOUK, CLERK  
RECORDED BY: CBM

4 . of 4

SURVEY OF  
THEODORE L. LANDIS et ux PROPERTY

MADISON COUNTY, VIRGINIA

AUG. 18, 1975  
REV. SEPT. 10, 1975

ORANGE, VIRGINIA

SCALE: 1" = 400'



STEARNS L. COLEMAN, C.L.S.

Thomas J. Weaver et al  
DB 85 PG 166

BOOK 8 PAGE 69

See Deed Book 129 PAGE 461

J. A. Goffney Est.

Annie R. Clark Est.  
DB 80 PG 80 (Plat)

Charles A. Powell  
DB 94 PG 215  
DB 96 PG 6

AC  
399, 899  
DB 180 PG 31

George W. Hamm  
DB 66 PG 57  
DB 47 PG 447 (Plat)

George W. Hamm  
DB 118 PG 350



BOOK 8 PAGE 69

1099A



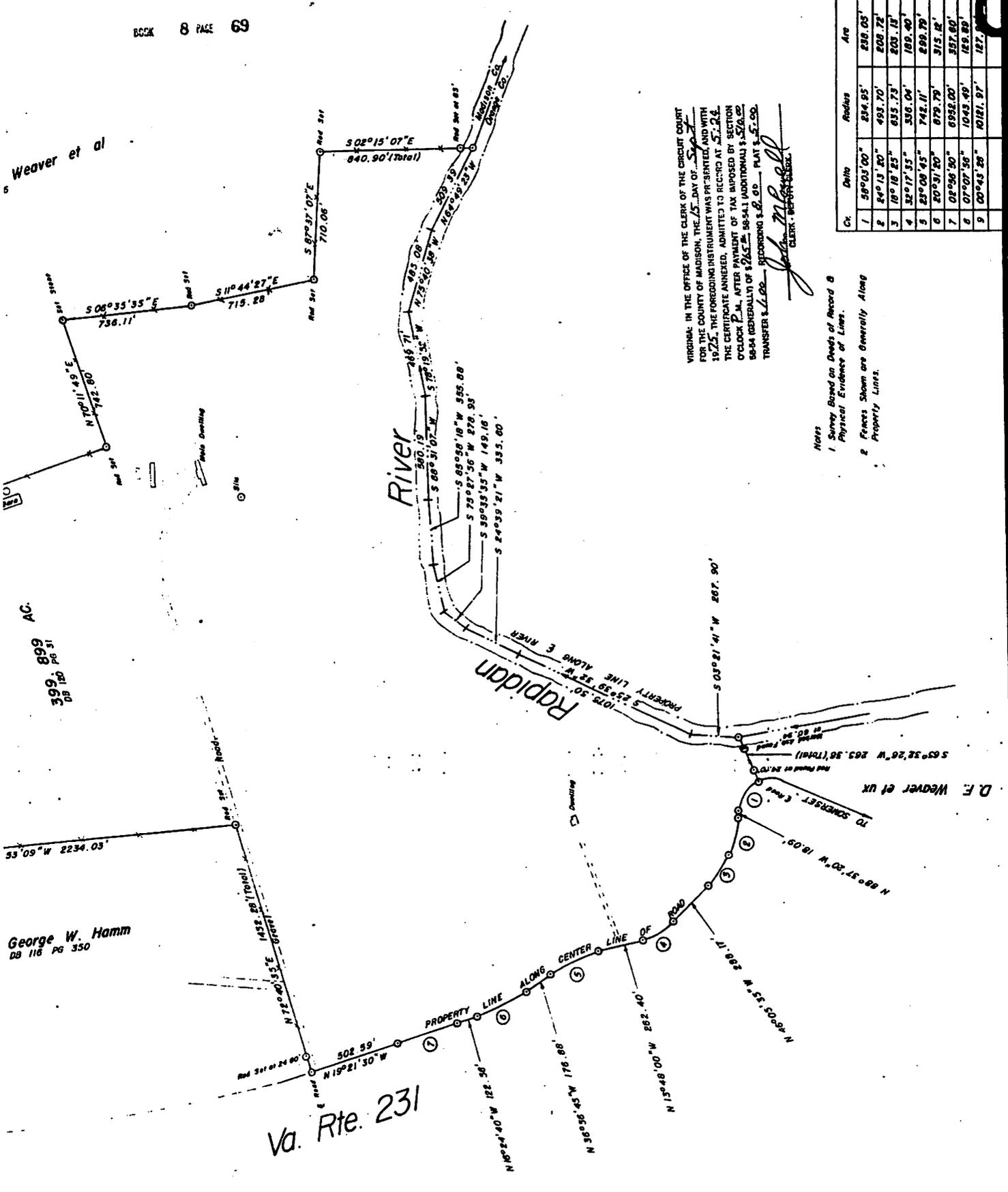
BUSINESS RECORDS CORPORATION

Weaver et al

AC.  
399, 899  
DB 120 PG 31

George W. Hamm  
DB 116 PG 350

Va. Rte. 231



VIRGINIA: IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT FOR THE COUNTY OF MADISON, THIS 15 DAY OF SEPTEMBER 1975, THE FOREGOING INSTRUMENT WAS PRESENTED AND WITH THE CERTIFICATE ANNEXED, ADMITTED TO RECORD AT 5:24 O'CLOCK P.M. AFTER PAYMENT OF TAX IMPOSED BY SECTION 59-54 GENERAL CODE OF VA. 59-54.1 ADDITIONAL \$ 528.00 TRANSFER \$ 2.00. RECORDING \$ 8.00. PLAT \$ 5.00.

*J. M. Bell*  
CLERK - SUPERVISOR

Notes:  
1 Survey Based on Deeds of Record & Physical Evidence of Lines.  
2 Fences Shown are Generally Along Property Lines.

Ch	Date	Radius	Area
1	59°03'00"	234.95'	236.03'
2	84°13'20"	493.70'	208.72'
3	18°18'25"	833.73'	203.18'
4	32°17'55"	336.04'	189.40'
5	82°08'45"	742.11'	229.79'
6	20°31'20"	879.79'	315.42'
7	05°56'50"	695.00'	357.60'
8	07°07'58"	1043.49'	125.89'
9	00°43'28"	1021.97'	127.17'



4e

MADE THIS  
DEED NO. 935

BOOK 160 PAGE 351

R/W-16  
Revised 8-1-76

**This Deed,** Made this 30th day of March, 19 81, by  
and between Christoph-Ulrich Von Burgsdorff ~~single~~ and Boni von Burgsdorff,  
husband and wife,

hereinafter designated as Grantor (even though more than one), and the COMMONWEALTH OF VIRGINIA, Grantee:

**Witnesseth;** In consideration of the sum of \$ 1.00 paid by the grantee to the grantor, receipt of which is  
hereby acknowledged, the said grantor hereby grants and conveys unto said grantee in fee simple, with general warranty, the  
land located in Locust Dale Magisterial District, in Madison

County, and described as follows:

Being as shown on Special Plat attached for Route 231, and lying on the southeast side  
of and adjacent to the center of present Route 231 from the lands of George W. Hamm to the  
lands of George W. Hamm, and containing 0.3373 acre, more or less, land, of which 0.2024 acre  
is included in the existing right of way and 0.1349 acre, more or less, is additional land;  
and being a part of the same land acquired by the grantor from \_\_\_\_\_  
\_\_\_\_\_ by Deed dated \_\_\_\_\_ and recorded in  
Deed Book 129, Page 459, in the Office of the Clerk of the Circuit Court of said County.

For a more particular description of the land herein conveyed, reference is made to  
said Special Plat, showing outlined in RED the land conveyed hereunder, which special plat  
is attached hereto as a part of this conveyance and recorded simultaneously herewith.

MAIL TO: District Right of Way Engineer  
Virginia Department of Highways,  
Bx 671, Culpeper, Virginia 22701



STATE OF VIRGINIA,

County of Orange, To-wit:

I, Jeanette H. Brown, a Notary Public in and for the County aforesaid, in the State of Virginia, do certify that Christoph-Ulrich von Burgsdorff and \_\_\_\_\_, whose names are signed to the foregoing writing bearing date on the 30th day of March, 1981, have each acknowledged the same before me in my County aforesaid.

My term of office expires March 26, 1983

Given under my hand this 22nd day of April, 1981.

Jeanette H. Brown  
Notary Public.

STATE OF VIRGINIA,

County of Orange, To-wit:

I, Jeanette H. Brown, a Notary Public in and for the County aforesaid, in the State of Virginia, do certify that Boni von Burgsdorff and \_\_\_\_\_, whose names are signed to the foregoing writing bearing date on the 30th day of March, 1981, have each acknowledged the same before me in my County aforesaid.

My term of office expires March 26, 1983

Given under my hand this 13th day of November, 1981.

Jeanette H. Brown  
Notary Public.

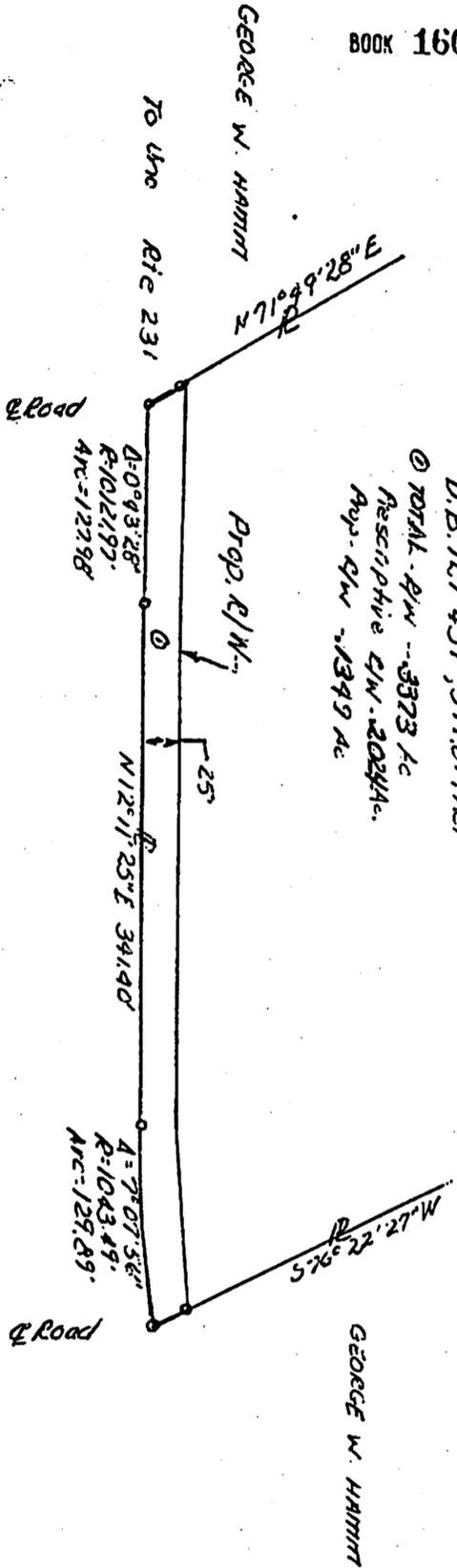


VIRGINIA: IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT  
FOR THE COUNTY OF ORANGE, NOV. 20 1981  
RECORDED WITH  
1:05 P.  
10.00 2.00

Jessie J. Nicholson  
CLERK DEPUTY CLERK

MADISON  
COUNTY, VA.  
BLD NO. 935

APPROVED 3-31-81  
*Henry Lee Carter*  
DISTRICT ENGINEER  
*HLC*



CHRISTOPH - ULRICH  
VON BURGSDORFF  
D.B. 129-459, 399,899 Ac.  
 TOTAL PW -- 3323 Ac  
 Rescriptive Q/W -- 2034 Ac.  
 App. Q/W -- 1349 Ac



VIRGINIA DEPARTMENT OF TRANSPORTATION  
 DISTRICT ENGINEER  
 80  
 1:05  
 10.00 2.00  
 Deputy Clerk

*Debbie Nickerson*  
DEPUTY CLERK

MAGISTERIAL DISTRICT  
 AUGUST DRALE  
 MADISON COUNTY

4e

MADISON  
COUNTY, VA.  
DEED No. 118

BOOK 171 PAGE 108

R/W-16  
Revised 8-1-76

**This Deed**, Made this 18th day of October, 19 83, by  
and between Christoph-Ulrich von Burgsdorff and Liesbeth von Burgsdorff, his wife

hereinafter designated as Grantor (even though more than one), and the COMMONWEALTH OF VIRGINIA, Grantee:

**Witnesseth;** In consideration of the sum of \$ 14,990.00 paid by the grantee to the grantor, receipt of which is hereby acknowledged, the said grantor hereby grants and conveys unto said grantee in fee simple, with general warranty, the land located in Madison Magisterial District, in Madison

County, and described as follows:

Being as shown on Sheet 4 of the plans for Route 231, State Highway Projects 0231-056-102, RW-202 and 0231-056-102, RW-203, but lying wholly on Project 0231-056-102, RW-202, and lying on the northeast (right) side of and adjacent to the northeast existing right of way line of Blue Ridge Turnpike (existing Route 231) from a point in the lands of the grantor opposite approximate Route 231 Survey Centerline Station 60+10 to the lands of George W. Hamm and Jessie C. Hamm opposite approximate Station 88+16 and containing 5.0775 acres, more or less, land; together with the permanent right and easement to use the additional area shown as being required for the proper construction and maintenance of drain outlet channel, right of approximate Route 231 Survey Centerline Station 61+25, containing 0.0344 acre, more or less; and being a part of the same land acquired by the grantor from Theodore L. Landis and Barbara W. Landis by Deed dated September 15, 1975 and recorded in Deed Book 129, page 459, in the Office of the Clerk of the Circuit Court of said County.

For a more particular description of the land herein conveyed, reference is made to photo copy of said Sheet No. 4, showing outlined in RED the land conveyed in fee simple and outlined in GREEN the land conveyed for the permanent easement, which photo copy is hereto attached as a part of this conveyance and recorded simultaneously herewith in the State Highway Plat Book No. 5, page 36.

ASSISTANT ATTORNEY GENERAL  
P. O. BOX 671  
CULPEPER, VIRGINIA 22701-0671

M. u. c.

BOOK 171 PAGE 109

*The grantor by the execution of this instrument acknowledges that the plans for the aforesaid project as they affect his property have been fully explained to him or his authorized representative.*

*The said grantor covenants that he is seized of the land in fee simple herein conveyed; that he has the right to convey the said land to the grantee; that he has done no act to encumber the said land; that the grantee shall have quiet possession of the land, free from all encumbrances, and that he will execute such further assurances of the said land as may be requisite.*

*The said grantor covenants and agrees for himself, his heirs, successors and assigns, that the consideration hereinabove mentioned and paid to him shall be in lieu of any and all claims to compensation for land, and for damages, if any, to the remaining lands of the grantor which may result by reason of the use to which the grantee will put the land to be conveyed, including such drainage facilities as may be necessary.*

**WITNESS the following signatures and seals:**

*C. G. O. [Signature]* [Seal]  
*[Signature]* [Seal]  
\_\_\_\_ [Seal]  
\_\_\_\_ [Seal]  
\_\_\_\_ [Seal]  
\_\_\_\_ [Seal]

STATE OF VIRGINIA,

County of Albemarle, To-wit:

I, Cindy Yazel, a Notary Public in and for the County aforesaid, in the State of Virginia, do certify that Christoph-Ulrich von Burgsdorff and Liesbeth von Burgsdorff, whose names are signed to the foregoing writing, bearing date on the 18th day of October, 1983, have each acknowledged the same before me in my County aforesaid.

My term of office expires August 31, 1987

Given under my hand this 18th day of November, 1983

Cindy Yazel  
Notary Public.

STATE OF VIRGINIA,

County of \_\_\_\_\_, To-wit:

I, \_\_\_\_\_, a Notary Public in and for the County aforesaid, in the State of Virginia, do certify that \_\_\_\_\_ and \_\_\_\_\_, whose names are signed to the foregoing writing, bearing date on the 18th day of October, 1983, have each acknowledged the same before me in my County aforesaid.

My term of office expires \_\_\_\_\_

Given under my hand this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_\_

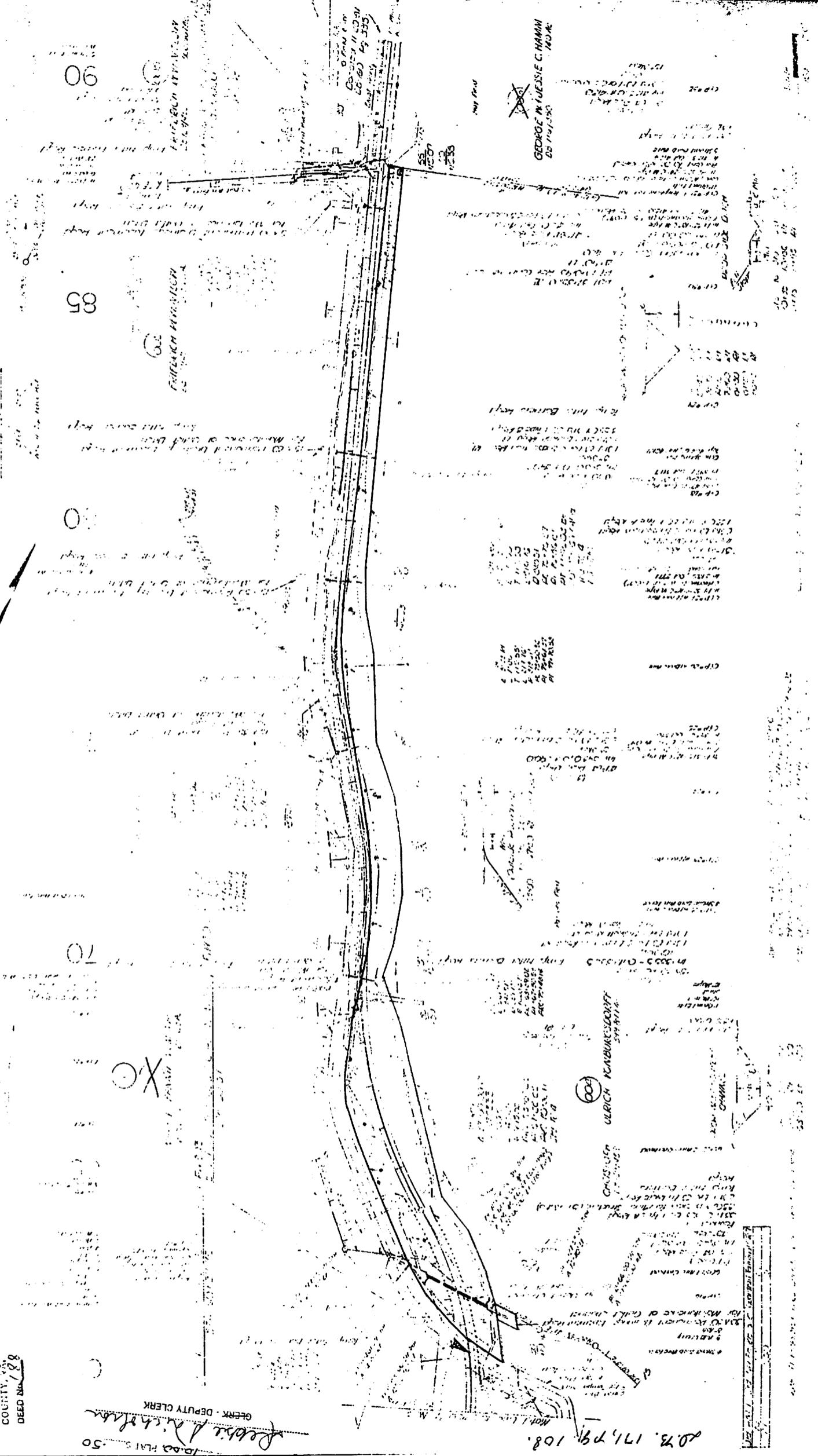
\_\_\_\_\_  
Notary Public.

VIRGINIA: IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT FOR THE COUNTY OF MADISON, THIS 22nd DAY OF Feb 1984, THE FOREGOING INSTRUMENT WAS PRESENTED TO THE CLERK WITH THE CERTIFICATE AFFIDAVIT, ADMITTED TO RECORD AT 9:32 O'CLOCK A.M., AFTER PAYMENT OF TAX IMPROVED BY 58-54 (GENERALLY) OF \$\_\_\_\_\_, 58-54.1 (ADDITIONAL) \$\_\_\_\_\_, 58-55 (LOCAL) \$\_\_\_\_\_.  
TRANSFER \$4.00, RECORDING \$10.00, PLAT \$.50

Debbie Nicholson  
CLERK- DEPUTY CLERK

Itzy Plat Bk. 5 pg. 36

STATE	PROJECT	ADJUST	REMARKS
VA.			
REC'D	3	VA.	
7-5-85			



MADISON COUNTY, VA DEED No. 88

Deed Plat 50  
Rebecca A. ...  
CLERK - DEPUTY CLERK

2073. 171, pg. 108.

4e

BOOK 174 : 50

ADISON  
UNTY, VA  
NO. 1293

Return: John G. Berry

THIS DEED made and entered into this the 6th day of November, 1984, by and between Christoph Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, parties of the first part; and George W. Hamm and Jessie C. Hamm, husband and wife, parties of the second part;

W I T N E S S E T H :

THAT for and in consideration of the sum of Ten Dollars and other good and valuable consideration, the receipt of which is hereby acknowledged, the parties of the first part do hereby grant and convey WITH GENERAL WARRANTY OF TITLE unto the parties of the second part, husband and wife, jointly as tenants by the entirety with right of survivorship as at common law, all that certain tract or parcel of land with all rights and appurtenances thereunto belonging, situate in Locust Dale District of Madison County, Virginia, between Liberty Mills and Uno fronting along state Route 231 adjoining the other lands of the parties of the second part and the other lands of Christoph Ulrich Von Burgsdorff containing 18.232 acres more or less and being as shown and described on a plat of a survey thereof made by Stearns L. Coleman, certified land surveyor, dated November 5, 1984 which is attached hereto and expressly made a part hereof and being a portion of the real estate which was conveyed to Christoph Ulrich Von Burgsdorff by Deed of Theodore L. Landis and Barbara W. Landis, husband and wife, dated September 15, 1975, and of record in the Clerk's Office of Madison County, Virginia, in deed book 129 at page 459.

SOMERVILLE, MOORE & SOMERVILLE, LTD.  
ATTORNEYS AT LAW  
ORANGE, VIRGINIA 22960

Grantees' address:  
SR 4, Box 285  
Somerset, VA 22972

This conveyance is made subject to an easement on electric transmission line this day granted to Potomac Edison Company and which is to be recorded in the Clerk's Office of Madison County, Virginia.

This conveyance is made with the usual ENGLISH CONVENANTS OF TITLE except as herein otherwise mentioned.

WITNESS the following signatures and seals this the day and year first above written.

C. U. Burgsdorff (SEAL)  
Christoph Ulrich Von Burgsdorff

E. v. Burgsdorff (SEAL)  
Elizabeth Von Burgsdorff

SOMERVILLE, MOORE & SOMERVILLE, LTD.  
ATTORNEYS AT LAW  
ORANGE, VIRGINIA 22960

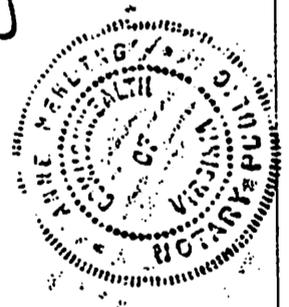
STATE OF VIRGINIA

County of Orange, to-wit:

The foregoing instrument was acknowledged before me this 6th day of November, 1984, by Christoph Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff.

Anne Mehling  
Notary Public

My commission expires: August 15, 1988



Virginia: Clerk's Office, Circuit Court of Madison County	
State	\$ <u>30.00</u>
Local	<u>10.00</u>
Transfer	<u>1.00</u>
Recording	<u>10.00</u>
Grantor	<u>24.00</u>
<b>TOTAL</b>	<b>\$ <u>76.00</u></b>

The 14 day of NOV, 1984, the foregoing instrument was presented, and with the certificate annexed, admitted to record at 3:25 o'clock P.M. after payment of costs as shown.

Teste: John M. Powell  
CLERK OF THE CLERK

1099A-1

BOOK 174 52

BOUNDARY SURVEY OF PORTION OF:

CHRISTOPHER U. Von BURGSDORF PROP.

MADISON COUNTY, VIRGINIA

STEARNS L. COLEMAN C.L.S.

114 BYRD STREET

ORANGE, VIRGINIA

SCALE: 1" = 200'

NOV. 5, 1984

MADISON  
COUNTY, VA.  
DEED No. 1243

MAGNETIC  
NORTH

$\Delta = 06^{\circ}04'10''$   
 $R = 1168.655'$   
 $L = 123.80'$

$N12^{\circ}04'21''E$   
 $311.59'$

$\Delta = 00^{\circ}56'40''$   
 $R = 10,104.495'$   
 $L = 166.57'$

VA. RT. 231 (50' R/W)

ROD SET

ROD SET

18.232 ac.

GEORGE W. HAMM  
D.B. 66-057



Virginia: Clerk's Office, Circuit Court of Madison County  
 State \$30.00  
 Local 10.00  
 Transfer 1.00  
 Recording 10.00  
 Grantor 20.00  
 TOTAL \$71.00

The 14 day of November, 1984  
 the foregoing instrument was presented, and  
 with the certificate annexed, returned to  
 record at 2:25 o'clock, P.M. after  
 payment of \$71.00 as shown after  
 Tests: *Chas. W. Stearns L. Coleman*

GEORGE W. HAMM  
D.B. 116-350

POTOMAC EDISON POWER LINE

586.13'  
S 76° 22' 28" W

N 71° 49' 28" E

1279.12'

S 69° 08' 11" W

1030.22'

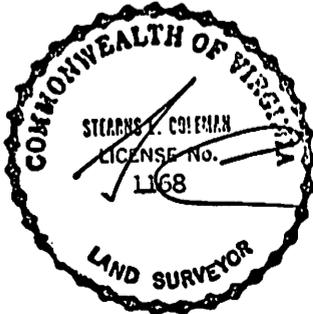
521.83'

S 22° 05' 55" E

SET STONE

RESIDUE OF: Von BURGSDORF  
D.B. 129-459

approved 11/14/84 as  
agricultural division  
Stephen J. W.  
County Administrator



## **4. Memorandum of Lease Agreement**

24

**EXHIBIT "C" TO LAND LEASE AGREEMENT**

**MEMORANDUM OF AGREEMENT**

**MEMORANDUM OF LAND LEASE AGREEMENT**  
**(CELLULAR TELECOMMUNICATIONS TOWER)**

Property Identification Number: 69-7

CLERK: Please return this document to: **CWS X, LLC**  
2800 Shirlington Road, Suite 802  
Arlington, Virginia 22206

Return to: Community Wireless Structures  
2800 Shirlington Rd. Suite 802  
Arlington, VA 22206

This Memorandum of Land Lease Agreement is entered into effective as of the 24<sup>th</sup> day of September, 2019, by and between M&W Farm, LLC with a mailing address of P.O. Box 476, Somerset, VA 22972 (hereinafter referred to as "Owner"), and CWS X, LLC with a mailing address at 2800 Shirlington Road, Suite 802, Arlington, VA 22206, (hereinafter referred to as "CWS").

1. Owner and CWS entered into a Land Lease Agreement ("Agreement") dated September 24, 2019, for the purpose of constructing, installing, removing, replacing, maintaining and operating a communications facility, subject to such modifications and alterations as required by CWS (collectively, the "Communications Facility"), all as more specifically set forth in the Agreement. In addition, CWS shall have the right to install and maintain, in and around the Property, any landscaping buffer required by any governmental agency having jurisdiction over the Owner's Property. The Communications Facility may include, without limitation, antenna arrays, dishes, cables, wires, temporary cell sites, equipment shelters and buildings, electronics equipment, generators, and other accessories. Owner shall provide CWS with twenty – four (24) hour, seven (7) day a week, access to the Property. CWS shall have the right to park its vehicles on Owner's Property when CWS is constructing, removing, replacing, and/or servicing its Communications Facility.
2. The term of this Agreement shall be ten (10) years commencing on the date ("Commencement Date") that CWS commences construction on the tower located on the Owner's Property and terminating on the tenth annual anniversary of the Commencement Date (the "Term"), unless otherwise terminated as provided in Paragraph 16. CWS shall have an eighteen (18) month due diligence period, from the date of lease execution, to obtain all governmental approvals needed to commence construction of the Communications Facility (as defined below). If after eighteen months CWS has not commenced construction, this Agreement shall terminate, except that CWS may extend the due diligence period for an additional eighteen (18) months by giving Owner written notice thereof

RETURN TO:  
TERRY'S TITLE

25

before the expiration of the first due diligence period. CWS shall have the right to extend the Term for four (4) successive ten (10) year periods (the "Renewal Terms") on the same terms and conditions as set forth herein. This Agreement shall automatically be extended for each successive Renewal Term unless CWS notifies Owner, in writing, of its intention not to renew prior to commencement of the succeeding Renewal Term.

3. The land which is the subject of the Agreement, is described as Madison County Parcel Number 69-7 ("Owner's Property"). The Owner's Property is described more particularly on **Exhibit A**. The Owner has leased a 10,000 square feet portion of the Owner's Property, exclusive of any landscaping buffer, ("Property") to CWS as further described on **Exhibit B**. The area leased includes a non-exclusive access easement for ingress and egress and a non-exclusive easement required to run utility lines and cables on the Owner's Property as depicted on **Exhibit B**.
4. The Agreement runs with the Owner's Property and is binding upon the successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Land Lease Agreement as of the day and year first above written.

4 7

Owner:

By: [Signature]  
Managing Member

COMMONWEALTH OF VIRGINIA)

COUNTY OF Orange )

BE IT REMEMBERED, that on this 23 day of September, 2019 before me, the subscriber, a person authorized to take oaths in the State of Virginia, personally appeared Michael L. Willis who, being duly sworn on his oath, deposed and made proof to my satisfaction that he is the person named in the within instrument; and I, having first made known to him the contents thereof, he did acknowledge that he signed, sealed and delivered the same as his voluntary act and deed for the purposes therein contained.

[Signature]  
Notary Public

Notary Public

My Commission Expires:

April 30, 2020



2.7

CWS X, LLC

By: [Signature]  
Hope P. McCreary  
Managing Member

COMMONWEALTH OF VIRGINIA)  
CITY OF ALEXANDRIA)

BE IT REMEMBERED, that on this 24<sup>th</sup> day of September, 2019, before me, the subscriber, a person authorized to take oaths in the Commonwealth of Virginia, personally appeared **Hope P. McCreary** who, being duly sworn on her oath, deposed and made proof to my satisfaction that she is the person named in the within instrument; and I, having first made known to her the contents thereof, she did acknowledge that she signed, sealed and delivered the same as her voluntary act and deed for the purposes therein contained.



[Signature]  
Notary Public  
My Commission Expires: 11/30/21

7 7



29

**EXHIBIT "B" TO LAND LEASE AGREEMENT  
PROPERTY**

The Property shall consist of approximately 10,000 square feet, exclusive of any landscaping buffer, as depicted in the sketch below.



Notes:

1. This Exhibit may be replaced by a land survey of the Property at CWS's sole cost and expense, together with non-exclusive easements for utility lines and cables to service the Property, and a non-exclusive easement for ingress and egress across Owner's Property to the Property.
2. Setback of the Property from the land's property lines shall be the distance required by the applicable governmental authorities.
3. Width of access road, if any, shall be the width required by the applicable governmental authorities, including police and fire departments.

7 7

30

INSTRUMENT 190001385  
RECORDED IN THE CLERK'S OFFICE OF  
MADISON CIRCUIT COURT ON  
SEPTEMBER 30, 2019 AT 02:19 PM  
LEETA D. LOUK, CLERK  
RECORDED BY: JJK

*Jamie M. Krensky, Dep. Clerk*

7

of

7

# **5. FAA 1-A Survey Certification & FAA Determination**

# Battlefield Land Surveying, PLLC

165 Blue Ridge Drive, Orange, VA 22960  
Phone: (540)406-2885 Fax: (866)402-0997

---

## FAA 1-A SURVEY CERTIFICATION

Applicant: Community Wireless Structures  
2800 Shirlington Road, Suite 802  
Arlington, VA 22206

Site Name: Uno  
Site Number: CWS 43

Site Address: 950 S. Blue Ridge Turnpike,  
Somerset, VA 22972

Horizontal Datum: NAD 83, (GPS Survey)  
Vertical Datum: NAVD 88, (GPS Survey)

Structure Type: PROPOSED (Self Support Tower)

Latitude: 38° 14' 25.770" N  
Longitude: 78° 13' 14.841" W  
Ground Elevation: 430' AMSL

Top of Proposed  
Structure:  
(Top of Tower) 175' AGL (605' AMSL)  
(Top of Lightning Rod) 179' AGL (609' AMSL)

### Certification:

I certify that the latitude and longitude shown hereon are accurate to within  $\pm$  20 feet horizontally and that the site elevation shown hereon is accurate to within  $\pm$  3 feet vertically.

The horizontal datum on which the coordinates are based is the North American Datum of 1983. The coordinates are expressed in degrees, minutes and seconds to the nearest one thousandth of a second.

The vertical datum on which the elevation information is based is the North American Vertical Datum of 1988. The elevation information is expressed in feet.

Company: Battlefield Land Surveying, PLLC

Commonwealth of Virginia  
Licensed Surveyor: \_\_\_\_\_

Shawn C. Duvall  
Lic. No.: 3177





Mail Processing Center  
Federal Aviation Administration  
Southwest Regional Office  
Obstruction Evaluation Group  
10101 Hillwood Parkway  
Fort Worth, TX 76177

Aeronautical Study No.  
2019-AEA-13345-OE

Issued Date: 12/04/2019

Queli Campos  
CWS X., LLC  
2800 S Shirlington Road  
Suite 802  
Arlington, VA 22206

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Antenna Tower CWS Site 43: Somerset  
Location: Somerset, VA  
Latitude: 38-14-25.77N NAD 83  
Longitude: 78-13-14.84W  
Heights: 430 feet site elevation (SE)  
199 feet above ground level (AGL)  
629 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/04/2021 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO**

**SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (817) 222-5922, or [debbie.cardenas@faa.gov](mailto:debbie.cardenas@faa.gov). On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AEA-13345-OE.

**Signature Control No: 423050926-424325827**

( DNE )

Debbie Cardenas  
Technician

Attachment(s)  
Frequency Data

cc: FCC

**Frequency Data for ASN 2019-AEA-13345-OE**

<b>LOW FREQUENCY</b>	<b>HIGH FREQUENCY</b>	<b>FREQUENCY UNIT</b>	<b>ERP</b>	<b>ERP UNIT</b>
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

## **6. Notices to Other Wireless Providers**

## COMMUNITY WIRELESS STRUCTURES

October 16, 2019

Stefanie M. Lewis  
Verizon Wireless  
1831 Rady Court  
Richmond, VA 23222

Re: CWS Site 43: Somerset  
S. Blue Ridge Turnpike  
Madison County, VA

Dear Ms. Lewis:

Pursuant to the requirements of the Madison County, Virginia Zoning Ordinance, we are hereby providing you with notice of our intent to meet with County staff in a pre-application conference to discuss the location of a free-standing wireless communication facility (WCF) that would be located at 950 S. Blue Ridge Turnpike, Somerset, VA 22942, Tax Map 69-7 (Latitude 38.240448, Longitude -78.220844).

In general, we plan to construct an antenna support structure approximately 195 feet in height for co-location of multiple wireless service providers.

Please inform County staff if you have any desire for placing additional WCF or equipment within 2 miles of our proposed facility. Please provide us with this information within 20 business days after the date of this letter.

If you have any questions, you can contact me at 703-845-1971 or at [queli.campos@sharedsites.com](mailto:queli.campos@sharedsites.com).

Sincerely,



Queli Campos  
Project Manager

## COMMUNITY WIRELESS STRUCTURES

October 16, 2019

William Brown  
T-Mobile  
12050 Baltimore Ave  
Beltsville, MD 20705

Re: CWS Site 43: Somerset  
S. Blue Ridge Turnpike  
Madison County, VA

Dear Mr. Brown:

Pursuant to the requirements of the Madison County, Virginia Zoning Ordinance, we are hereby providing you with notice of our intent to meet with County staff in a pre-application conference to discuss the location of a free-standing wireless communication facility (WCF) that would be located at 950 S. Blue Ridge Turnpike, Somerset, VA 22942, Tax Map 69-7 (Latitude 38.240448, Longitude -78.220844).

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If you have any questions, you can contact me at 703-845-1971 or at [queli.campos@sharedsites.com](mailto:queli.campos@sharedsites.com).

Sincerely,



Queli Campos  
Project Manager

## COMMUNITY WIRELESS STRUCTURES

October 16, 2019

Jesse Bird  
AT&T Mobility  
7150 Standard Drive  
Hanover, MD 21076

Re: CWS Site 43: Somerset  
S. Blue Ridge Turnpike  
Madison County, VA

Dear Mr. Bird:

Pursuant to the requirements of the Madison County, Virginia Zoning Ordinance, we are hereby providing you with notice of our intent to meet with County staff in a pre-application conference to discuss the location of a free-standing wireless communication facility (WCF) that would be located at 950 S. Blue Ridge Turnpike, Somerset, VA 22942, Tax Map 69-7 (Latitude 38.240448, Longitude -78.220844).

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If you have any questions, you can contact me at 703-845-1971 or at [queli.campos@sharedsites.com](mailto:queli.campos@sharedsites.com).

Sincerely,



Queli Campos  
Project Manager

## COMMUNITY WIRELESS STRUCTURES

October 16, 2019

Debbie Balsler  
Shentel  
1150 Shenandoah Village Drive  
Waynesboro, VA 22980

Re: CWS Site 43: Somerset  
S. Blue Ridge Turnpike  
Madison County, VA

Dear Ms. Balsler:

Pursuant to the requirements of the Madison County, Virginia Zoning Ordinance, we are hereby providing you with notice of our intent to meet with County staff in a pre-application conference to discuss the location of a free-standing wireless communication facility (WCF) that would be located at 950 S. Blue Ridge Turnpike, Somerset, VA 22942, Tax Map 69-7 (Latitude 38.240448, Longitude -78.220844).

In general, we plan to construct an antenna support structure approximately 195 feet in height for co-location of multiple wireless service providers.

Please inform County staff if you have any desire for placing additional WCF or equipment within 2 miles of our proposed facility. Please provide us with this information within 20 business days after the date of this letter.

If you have any questions, you can contact me at 703-845-1971 or at [queli.campos@sharedsites.com](mailto:queli.campos@sharedsites.com).

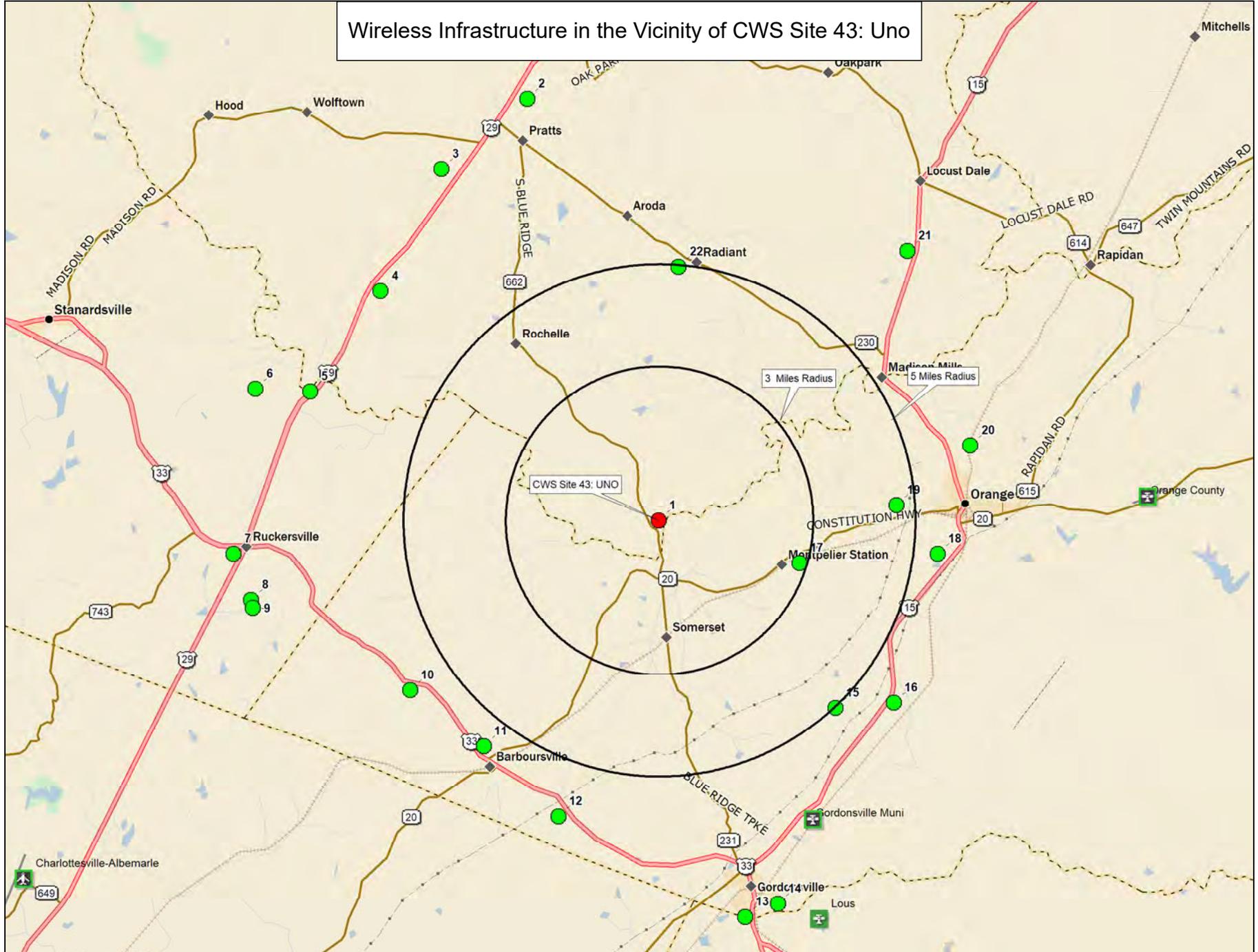
Sincerely,



Queli Campos  
Project Manager

**7. Wireless Infrastructure  
in the Vicinity of CWS Site  
43: Uno**

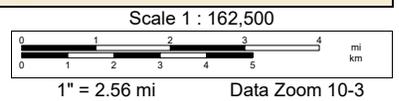
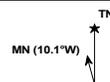
# Wireless Infrastructure in the Vicinity of CWS Site 43: Uno



Data use subject to license.

© DeLorme. DeLorme Street Atlas USA® 2015.

www.delorme.com



## **8. Co-location Policy & Tower Profile**

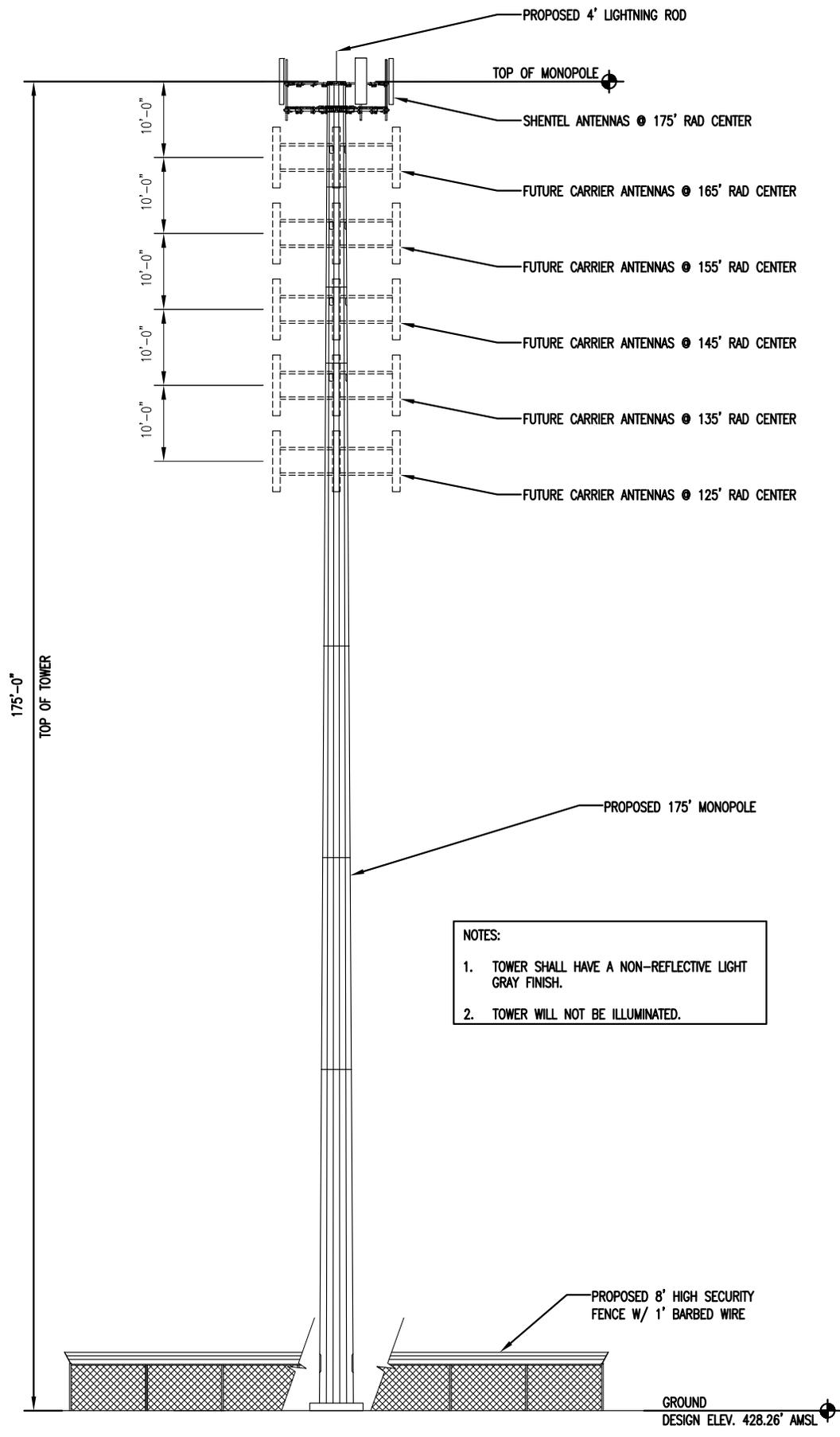
# **CWS Co-Location Policy**

**Community Wireless Structures (CWS)** develops wireless infrastructure in Northern and Central Virginia. CWS builds telecommunication structures designed for the co-location of multiple wireless service providers; all structures can accommodate a minimum of four (4) full service carriers. Since its inception in 1997, CWS has built in eleven Virginia counties: Culpeper, Fairfax, Fauquier, Louisa, Loudoun, Madison, Orange, Prince William, Stafford, Spotsylvania, Rappahannock and the Town of Front Royal. AT&T Wireless, Verizon Wireless, Sprint, T-Mobile, and Shentel have all entered into co-location agreements with CWS on one or more towers.

PROPOSED  
UNMANNED  
WIRELESS  
COMMUNICATION

UNO  
CWS 43

950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972



- NOTES:
1. TOWER SHALL HAVE A NON-REFLECTIVE LIGHT GRAY FINISH.
  2. TOWER WILL NOT BE ILLUMINATED.



08-24-20 GWLO 13:45:50 D:/Dropbox (BC)/Server/BC Files/Drawings - 2019/Community Wireless Structures/Uno - Site 43/\_LE's - Rev A - 2020-08-24 (Tower Elevations)/A1.dwg

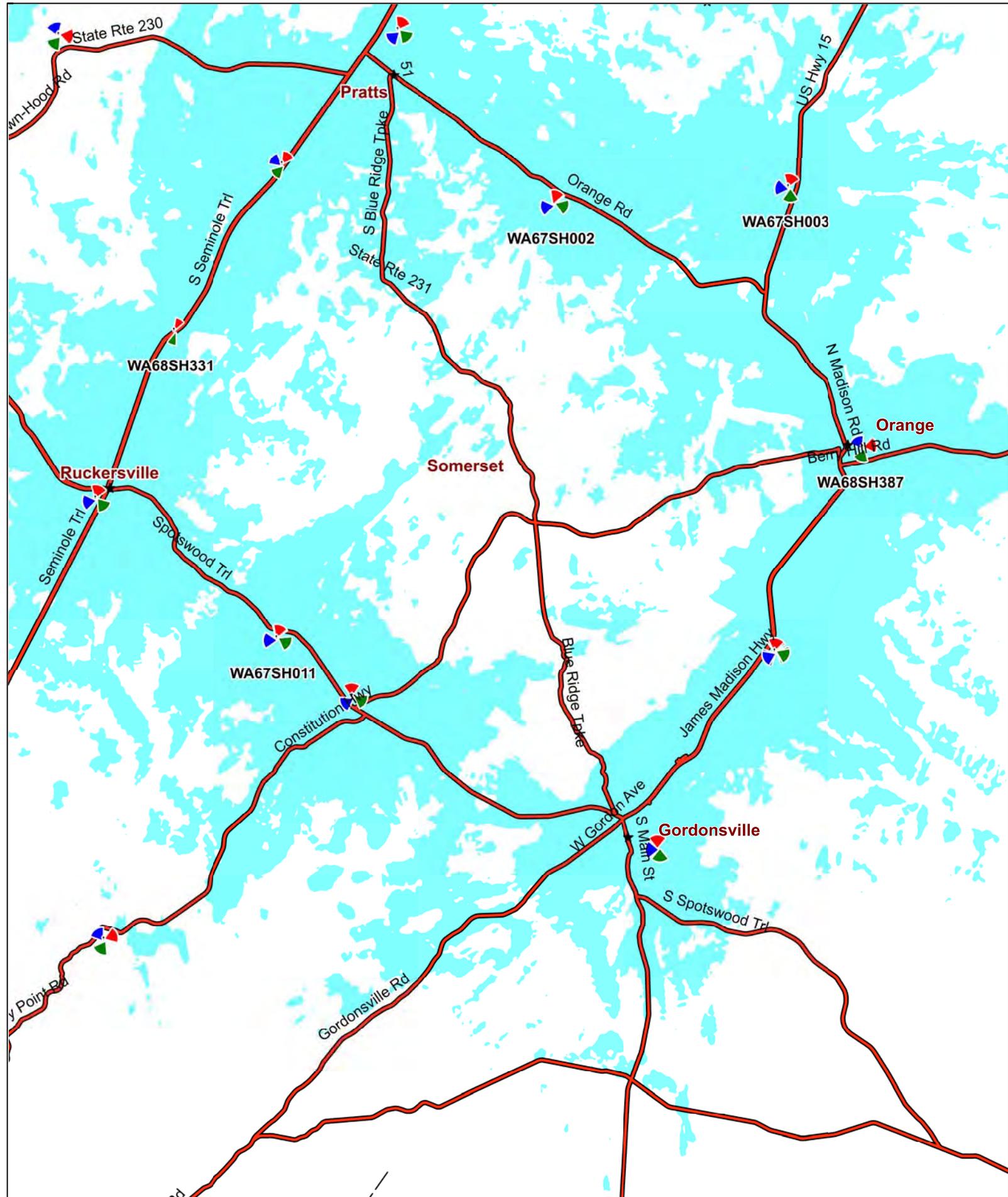
1"=20'

DATE: 08-24-20 SHEET: 1 OF 1 REV: A

LEASE EXHIBIT SS-1

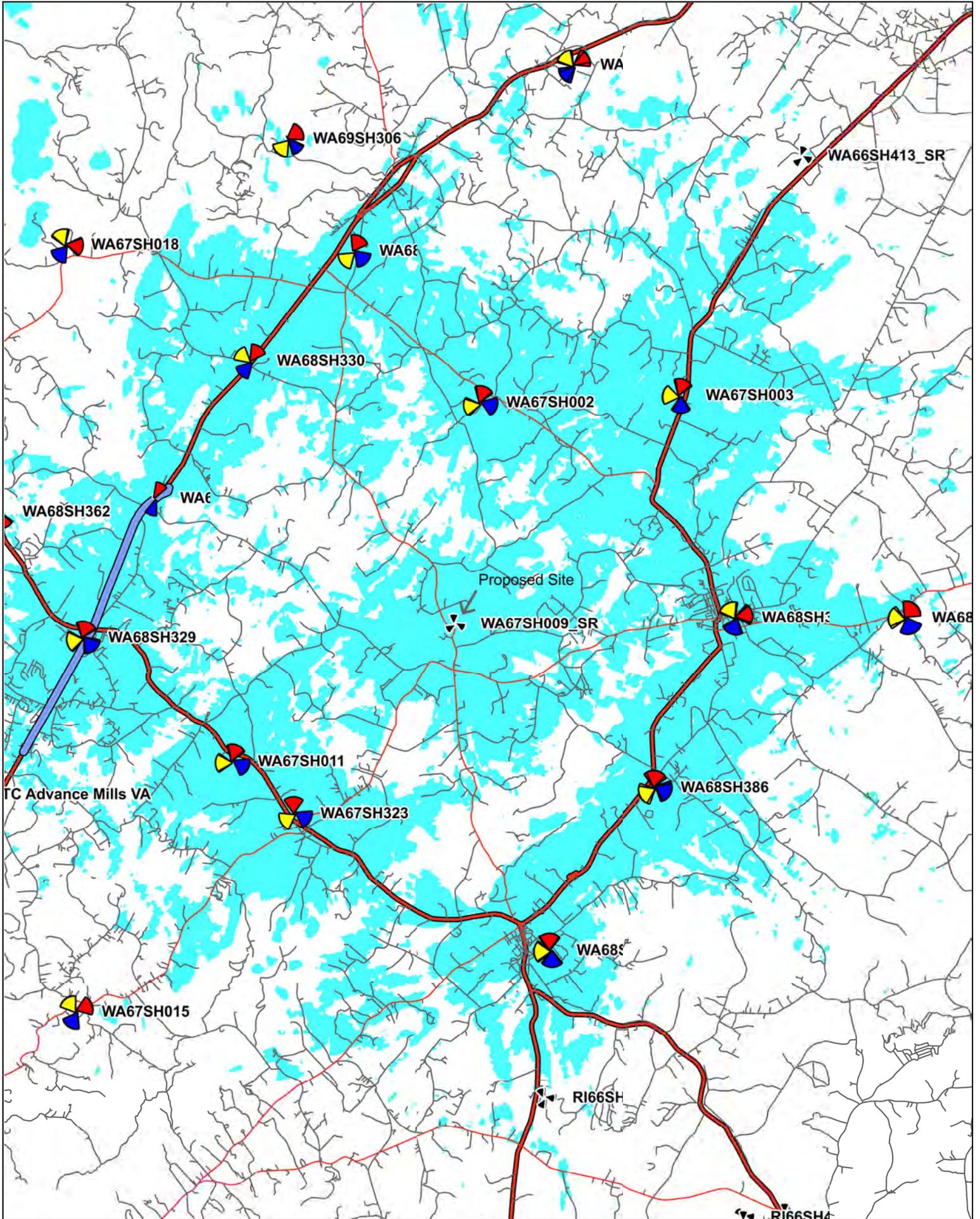
# **9. Shentel: Propagation Plots**

Existing vehicular coverage in Somerset



Vehicular coverage

WA67SH009 (Somerset) proposed and existing vehicular coverage



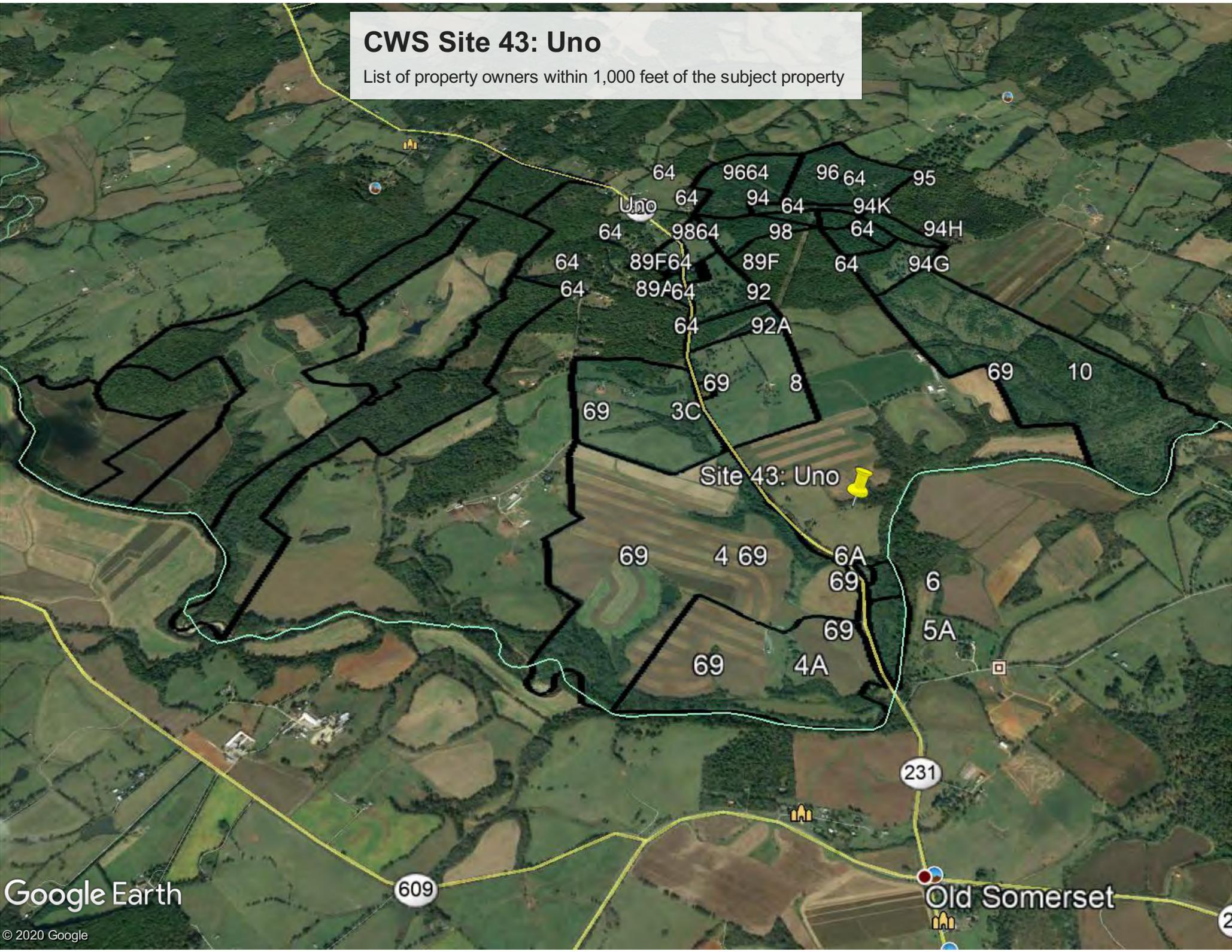
**10. List of Property Owners  
within 1,000 Feet of the  
Subject Property**

**CWS Site 43: Uno**  
**List of property owners within 1,000 feet of the subject property**

<b>PIN</b>	<b>MLNAM</b>	<b>MFNAM</b>	<b>MGRNTR</b>	<b>MADD1</b>	<b>MCITY</b>	<b>MSTATE</b>	<b>MZIP5</b>
64 89A	JENKINS, ROBERT GORDON		JENKINS, CHARLES WARREN	9853 HIDDEN ESTATES COVE	VIENNA	VA	22181
64 89B	MITCHELL, ELIZABETH WANHAFF		MITCHELL, JOHN W & ELIZABETH	1737 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 89F	MITCHELL, ELIZABETH WANHAFF		MITCHELL, JOHN W & ELIZABETH	1737 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 89H	MITCHELL, JOHN WILLIAM & ELIZABETH	HELEN		1737 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 89J	BROYLES, ERIC R OR JENNIFER L			1905 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 90	ODOM, SARAH J			1732 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 91	ODOM, SARAH J			1732 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 92	HAMM, GEORGE W TRUSTEE		HAMM, GEORGE W	1602 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 92A	HAMM, GEORGE W TRUSTEE		HAMM, GEORGE W	1602 S BLUE RIDGE TPKE	SOMERSET	VA	22972
64 94	SHIFFLETT, ERNEST T OR ANGELA D		POWELL, WILLIAM EDWARD OR TAMMIE	415 TATUMS SCHOOL RD	ROCHELLE	VA	22738
64 94A	DAVIS FARM AT UNO LLC		WEAVER, THOMAS G	346 CAVES FORD LN	ORANGE	VA	22960
64 94G	LIEBLER, DAVID OR BISHOP-LIEBLER	PAULA	WOOD, BRIAN W	948 TATUMS SCHOOL RD	ROCHELLE	VA	22738
64 94H	POWELL, ALLEN KENT			816 CHAPMAN MTN CIRCLE	STANARDSVILLE	VA	22973
64 94I	DAVIS FARM AT UNO LLC		WEAVER, THOMAS G	346 CAVES FORD LN	ORANGE	VA	22960
64 94J	MOUBRAY, DAVID A OR WENDY M		MOUBRAY, KAYES JR OR THELMA C	681 TATUMS SCHOOL RD	ROCHELLE	VA	22738
64 94K	POWELL, ALLEN KENT OR JANET W PITT			816 CHAPMAN MTN CIRCLE	STANARDSVILLE	VA	22973
64 94L	CAMILLUCCI, SCOTT R OR DEBORAH G			11 SHADY RIDGE RD	HARPSWELL	ME	4079
64 95	SUTTON, BETTY M			321 ROSEBROOK RD	STANARDSVILLE	VA	22973
64 96	JENKINS, ROBERT GORDON		JENKINS, C WARREN	9853 HIDDEN ESTATES COVE	VIENNA	VA	22181
64 97	JARRELL, LUCILLE C ET ALS		CLARK, MALVIN A &	13 BEVERLY ST	HAMPTON	VA	23669
64 98	JARRELL, LUCILLE C ET ALS		CLARK, MALVIN A &	13 BEVERLY ST	HAMPTON	VA	23669
69 3C	BELLE MONT FARM LLC		ERRIGAL FARMS LLC	736 RACE GROUND RD	ROCHELLE	VA	22738
69 4	MAMMEN, NATHAN S OR JENNIFER M K		BABSON FARMS INC	5815 MAGNOLIA LN	FALLS CHURCH	VA	22041
69 4A	MAMMEN, NATHAN S OR JENNIFER M K		BABSON FARMS INC	5815 MAGNOLIA LN	FALLS CHURCH	VA	22041
69 5A	TWYMAN, WILLIAM NOEL OR PATRICIA B		TWYMAN, WILLIAM NOEL	PO BOX 180	MONTPELIER STATION	VA	22957
69 6	DURAND, COLETTE ELAINE		JACOBS, JASON P	344 S BLUE RIDGE TPKE	SOMERSET	VA	22972
69 6A	DURAND, COLETTE ELAINE		JACOBS, JASON P	344 S BLUE RIDGE TPKE	SOMERSET	VA	22972
69 8	HAMM, GEORGE W TRUSTEE		HAMM, GEORGE W	1602 S BLUE RIDGE TPKE	SOMERSET	VA	22972
69 10	WEAVER, THOMAS G			346 CAVES FORD LN	ORANGE	VA	22960

# CWS Site 43: Uno

List of property owners within 1,000 feet of the subject property



**11. Balloon Test Notice Ad  
in The Madison Eagle &  
Record of Weather  
During the Balloon Test**

Advertising Affidavit

P.O. Box 589  
Orange, Virginia 22960  
(540) 672-1266

Account Number

6110576

Date

November 21, 2019

COMMUNITY WIRELESS STRUCTURES  
2800 SHIRLINGTON ROAD  
SUITE 802  
ARLINGTON, VA 22206

Date	Category	Description	Ad Size	Total Cost
12/01/2019	Legal Notices	BALLOON TEST NOTICE	2 x 5.00 IN	308.12

**Publisher of the  
Madison Co Eagle**

This is to certify that the attached BALLOON TEST NOTICE was published by the in Madison Co Eagle the county of Madison, in the State of Virginia, on the following dates:

11/14, 11/21/2019

The First insertion being given ... 11/14/2019

Newspaper reference: 0001022310

Sworn to and subscribed before me this

5<sup>th</sup> day of December, 2019

Cynthia Gallihugh Anderson  
Notary Public Supervisor

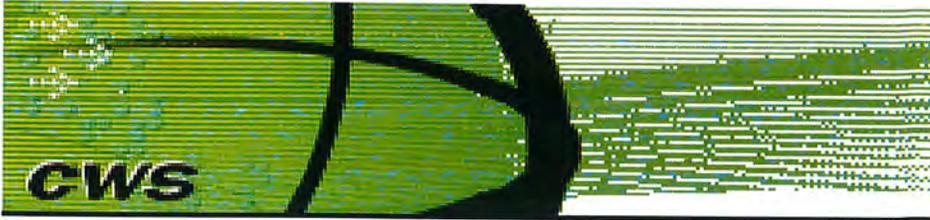


Cynthia Gallihugh Anderson  
Commonwealth of Virginia  
Notary Public  
Commission No. 7195442  
My Commission Expires 10/31/2021

State of Virginia

My Commission expires 10/31/21

see attached  
on back



Community Wireless Structures  
2800 Shirlington Road, Suite 802  
Arlington, VA 22206  
Phone: 703-845-1971  
Fax: 703-845-1953

## **CWS: Uno: Balloon Flight Confirmation**

1. Height of Top of Balloon: 199'
2. Location: 950 S. Blue Ridge Turnpike, Somerset
3. Date: Saturday, November 23<sup>rd</sup> from 8 am to noon
4. Weather: Clear and calm.  
Temp: 30's Fahrenheit at 8am, approx. 40's Fahrenheit by midday.  
Winds Light 0-5mph

CWS

---

Queli Campos

**Balloon Test for  
Proposed Telecommunications Structure  
Saturday, November 23rd  
8:00 a.m. – 12:00 p.m.**

CWS is applying for a Special Use Permit to construct a 199' foot lattice tower at 950 S. Blue Ridge Turnpike, Somerset (Tax Map #69-7). The telecom facility will enhance public safety for those living and traveling in the area, and provide citizens much needed access to mobile wireless and broadband services. To allow neighbors and other interested parties to assess the proposed installation, CWS will fly a balloon on site at the proposed height of the tower. We value your input, and hope that you will view the balloon and reach out with any questions or feedback. In the event of inclement weather, the balloon test will be rescheduled for Saturday, December 7th from 8 AM to Noon. If you have any questions, please contact Hope McCreary at 703-728-7400 or at [info@sharedsites.com](mailto:info@sharedsites.com).

# **12. Photo-Simulations**



#5

CWS Somerset

#4

#3

#2

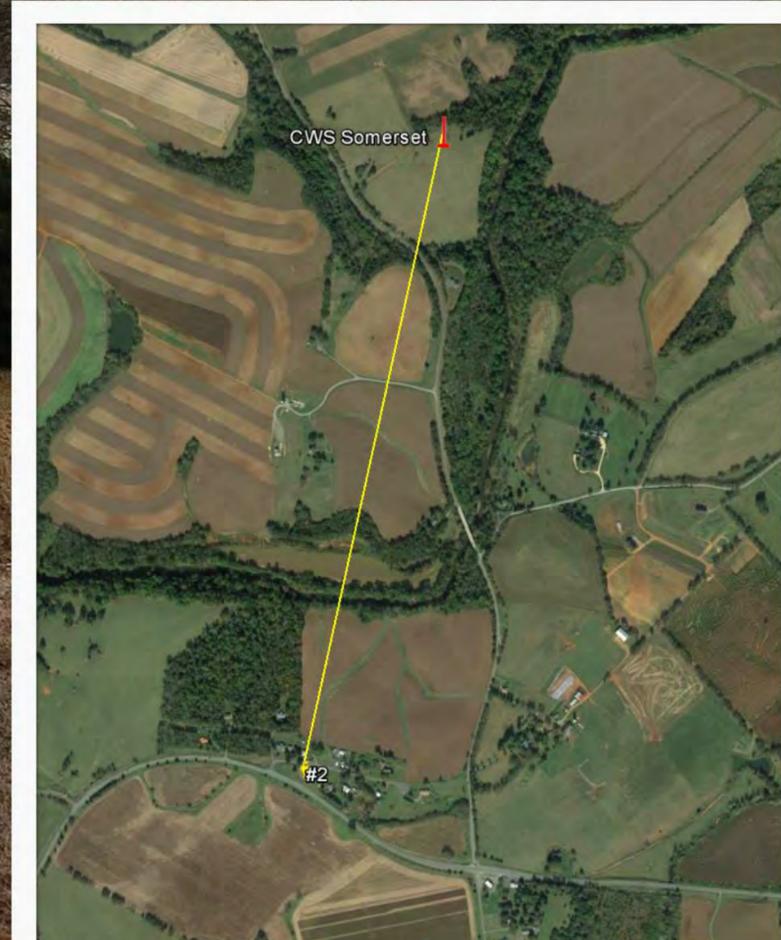
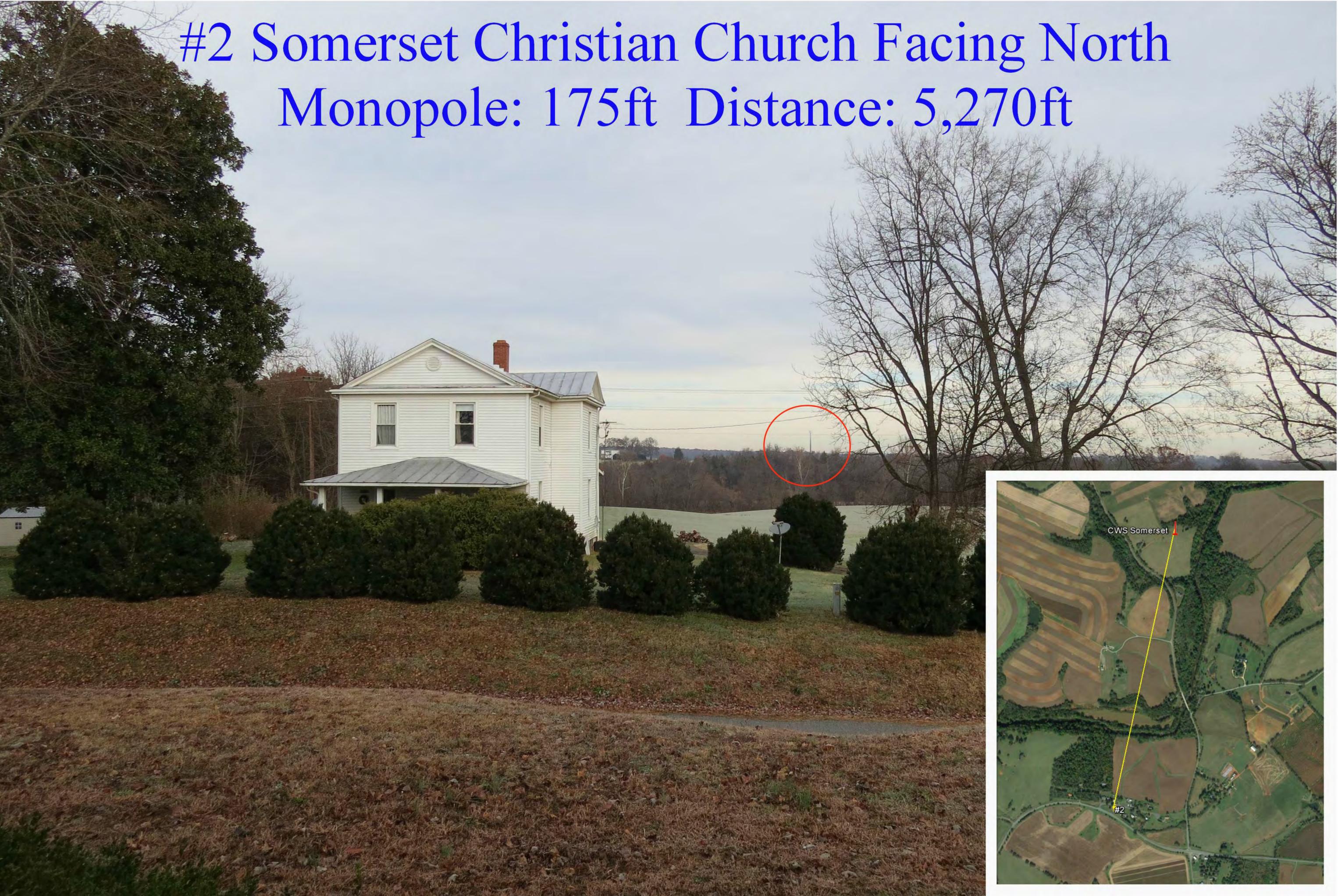
#1

#1 Rt20 Facing North  
Monopole: 175ft Distance: 6,660ft



# #2 Somerset Christian Church Facing North

Monopole: 175ft Distance: 5,270ft



#3 SR 231 Facing North  
Monopole: 175ft Distance: 3,360ft

Tower not visible  
behind trees



# #4 Liberty Mills Road Facing North

Monopole: 175ft Distance: 3,250ft



# #5 Across SR 231 Facing East

Monopole: 175ft Distance: 2,620ft



**13. Approval by VDHR:  
Section 106 Notification  
of No Adverse Effect**

## Queli Campos

---

**From:** towernotifyinfo@fcc.gov  
**Sent:** Friday, July 17, 2020 10:16 AM  
**To:** Queli Campos  
**Subject:** Section 106 Notification of SHPO/THPO Concurrence- Email ID #4800908

This is to notify you that the Lead SHPO/THPO has concurred with the following filing:

Date of Action: 07/17/2020

Direct Effect: No Historic Properties in Area of Potential Effects (APE)

Visual Effect: No Adverse Effect on Historic Properties in APE

Comment Text: We believe that this undertaking will have No Adverse Effect to historic properties provided that the height is reduced 20 feet 175' as previously discussed; provided the design is changed from a lattice to a monopole design; and provided that the tower is painted a non-reflective light gray.

Chris Novelli

Virginia Dept. of Historic Resources

File Number: 0008974336

TCNS Number: 193558

Purpose: New Tower Submission Packet

Notification Date: 7AM EST 02/13/2020

Applicant: CWS X, LLC

Consultant: EnviroBusiness, Inc. d/b/a EBI Consulting (EBI 6119005246)

Positive Train Control Filing Subject to Expedited Treatment Under Program Comment: No

Site Name: UNO/ CWS 43

Site Address: 950 S Blue Ridge Turnpike

Detailed Description of Project: 6119005246 Proposed construction of a new telecommunications self-support tower and compound resulting in ground disturbance Please see Attachment 4 of this filing for project design details

Site Coordinates: 38-14-25.6 N, 78-13-15.0 W

City: Somerset

County: MADISON

State:VA

Lead SHPO/THPO: Virginia Department of Historic Resources

### NOTICE OF FRAUDULENT USE OF SYSTEM, ABUSE OF PASSWORD AND RELATED MISUSE

Use of the Section 106 system is intended to facilitate consultation under Section 106 of the National Historic Preservation Act and may contain information that is confidential, privileged or otherwise protected from disclosure under applicable laws. Any person having access to Section 106 information shall use it only for its intended purpose. Appropriate action will be taken with respect to any misuse of the system.

# 14. Survey

**PARENT PARCEL  
LEGAL DESCRIPTION**

All that certain tract or parcel of land with all buildings and improvements thereon and the rights and appurtenances thereto belonging, located in the former Locust Dale District of Madison County, Virginia, on the east side of Virginia State Route 231 and running to the center line of the Rapidan River, containing 376.252 acres, more or less, and being the residue of a certain tract or parcel of land containing 399.899 acres, more or less, shown and described on a plat of a survey thereof entitled "Survey of Theodore L. Lanais, et ux Property", made by Stearns L. Coleman, Certified Land Surveyor on August 18, 1975, revised on September 10, 1975, and recorded in the Clerk's Office of the Circuit Court of Madison County, Virginia, in Plat Book 8, Page 69 and also in Deed Book 129, Page 461; LESS and EXCEPT a certain strip of land containing 0.375 acres, more or less, conveyed to the Commonwealth of Virginia by deed of Christopher Ulrich Von Burgsdorff and Beate Von Burgsdorff and Beate Von Burgsdorff and Beate Von Burgsdorff, dated and recorded in Deed Book 160, at Page 331; and further LESS and EXCEPT a strip of land containing 5.0775 acres, more or less, conveyed to the Commonwealth of Virginia by deed of Christopher Ulrich Von Burgsdorff and Leshbeth Von Burgsdorff, his wife, dated October 18, 1983, and recorded in said Clerk's Office in Deed Book 171, at Page 108; and further LESS and EXCEPT a tract of land containing 18.232 acres, more or less, conveyed to George W. Hamm and Jessie C. Hamm, husband and wife, by deed of Christopher Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, dated November 6, 1984, and recorded in said Clerk's Office in Deed Book 174 at Page 30.

**PARENT PARCEL  
LINE TABLE**

LINE	BEARING	DISTANCE
L1	N 67°00'32" E	1397.24'
L2	N 10°33'12" W	2234.03'
L3	N 27°45'36" W	521.83'
L4	N 27°44'06" W	1266.34'
L5	N 50°18'29" E	321.53'
L6	N 38°44'23" E	290.07'
L7	N 71°11'38" E	1204.03'
L8	N 64°31'46" E	742.80'
L9	S 12°15'38" E	736.11'
L10	S 17°24'30" E	715.28'
L11	N 86°42'50" E	710.06'
L12	S 07°55'10" E	840.90'
L13	N 70°29'26" W	509.39'
L14	N 81°20'41" W	485.08'
L15	S 72°38'46" W	469.71'
L16	S 82°51'04" W	580.19'
L17	S 80°18'15" W	355.89'
L18	S 69°47'53" W	278.93'
L19	S 33°53'32" W	148.16'
L20	S 18°59'18" W	335.80'
L21	S 19°58'29" W	1075.50'
L22	S 02°18'22" E	267.90'
L23	S 58°52'23" W	285.36'
L24	S 85°42'37" W	3.65'
L25	N 54°04'17" W	109.51'
L26	N 68°49'18" W	98.10'
L27	N 43°58'50" W	425.76'
L28	N 49°39'43" W	97.64'
L29	N 19°31'47" W	76.36'
L30	N 20°21'27" W	128.73'
L31	N 50°13'06" W	118.78'
L32	N 48°58'59" W	102.37'
L33	N 19°05'24" W	118.67'
L34	N 41°24'05" W	89.44'
L35	N 30°38'06" W	104.45'
L36	N 25°08'28" W	915.07'

**100' X 100'  
LEASE AREA  
LINE TABLE**

LINE	BEARING	DISTANCE
L37	N 23°05'17" W	100.00'
L38	N 68°54'43" E	100.00'
L39	S 23°05'17" E	100.00'
L40	S 68°54'43" W	100.00'

**25' ACCESS &  
UTILITY ESM'T.  
LINE TABLE**

LINE	BEARING	DISTANCE
L41	S 68°54'43" W	17.50'
L42	S 68°54'43" W	91.39'
L43	N 28°37'13" W	204.13'
L44	N 21°03'58" W	504.27'
L45	N 21°19'32" W	1024.16'
L46	S 67°00'32" W	762.20'
L47	N 25°08'28" W	25.02'
L48	N 67°00'32" E	768.88'
L49	S 21°19'32" E	1049.93'
L50	S 21°03'58" E	503.11'
L51	S 28°37'13" E	202.91'
L52	N 68°54'43" E	91.39'
L53	N 23°05'17" E	20.00'
L54	N 68°54'43" E	37.50'
L55	S 23°05'17" E	50.00'

**PARENT PARCEL  
CURVE TABLE**

CURVE	RADIUS	ARC LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	234.95'	248.05'	58°03'06"	142.87'	N 65°15'50" W	228.00'
C2	898.51'	245.14'	15°37'36"	111.73'	N 40°08'36" W	244.38'
C3	1227.94'	223.38'	10°25'23"	112.00'	N 35°18'47" W	223.08'

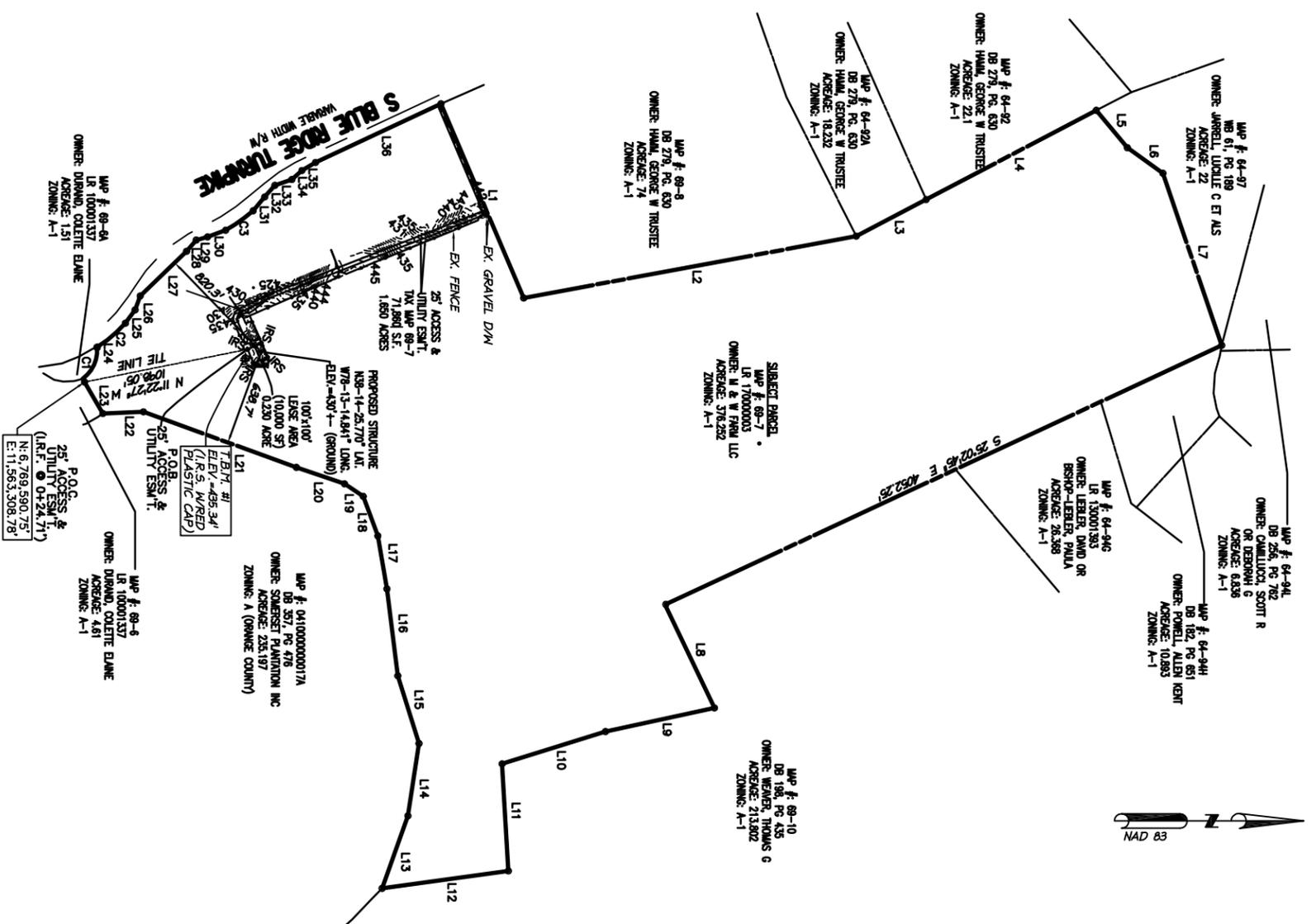
**25' ACCESS &  
UTILITY ESM'T.  
CURVE TABLE**

CURVE	RADIUS	ARC LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C4	82.50'	114.75'	71°04'31"	66.07'	S 31°22'27" W	107.53'
C5	72.50'	109.41'	86°28'04"	68.16'	N 69°51'15" W	99.32'
C6	47.50'	71.68'	88°28'04"	44.48'	S 69°51'15" E	65.07'
C7	67.50'	106.03'	90°00'00"	67.50'	N 21°34'43" E	95.46'

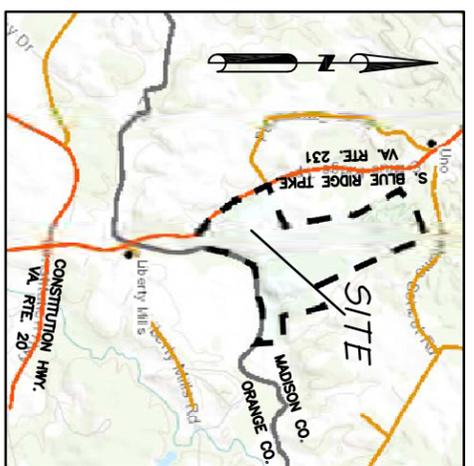
SCALE: 1" = 2000' (11"X17" PLOT)

SCALE: 1" = 1000' (24"X36" PLOT)

0' 1000' 2000' 3000'



**VICINITY MAP**  
SCALE: 1" = 6000'



**SITE INFORMATION:**

TAX PARCEL # 69-7  
DEED REFERENCE: 170000003  
ZONING: "A-1" - AGRICULTURAL  
JURISDICTION: MADISON COUNTY  
DISTRICT: LOCUST DALE

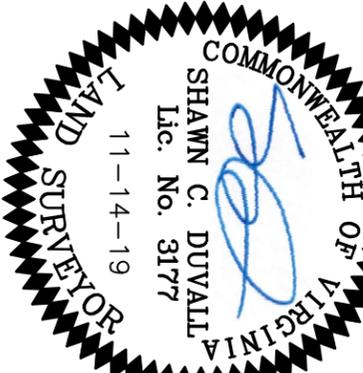
THIS PROPOSED TELECOMMUNICATIONS SITE IS LOCATED ON F.E.M.A. MAP NUMBER 51113C0330C, DATED 01/05/2007 AND APPEARS TO BE WITHIN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN).

**PROJECT INFORMATION:**

SITE NAME: UNO  
SITE NUMBER: CWS 43  
SITE ADDRESS: 950 S. BLUE RIDGE TURNPIKE, SOMERSET, VA 22872  
OWNERS NAME: M & W FARM LLC  
TOWER CENTER:  
Latitude: 38° 14' 25.770" N  
Longitude: 78° 13' 14.841" W  
Ground Elevation: 430' AMSL

**GENERAL NOTES:**

1. THE LAND BOUNDARIES SHOWN HEREIN ARE BASED UPON A COMPILATION OF PLATS OF RECORD AND PHYSICAL EVIDENCE FOUND IN THE FIELD.
2. THE PLAT MERIDIAN IS BASED UPON NAD 83.
3. ELEVATION INFORMATION IS BASED UPON NAVD 88.
4. I.R.F. DENOTES AN IRON ROD FOUND.
5. I.R.S. DENOTES AN IRON ROD SET.
6. A TITLE REPORT WAS FURNISHED. ALL PLOTTABLE EASEMENTS ARE SHOWN.



NOVEMBER 14, 2019

SCALE: 1" = 1000'

SHEET 1 OF 2

**BATTLEFIELD  
LAND SURVEYING, PLLC**  
165 Blue Ridge Drive, Orange, VA 22960  
Ph: (540)406-2885 Fax: (866)402-0997

SITE NAME:  
**CWS 43  
UNO**

SITE ADDRESS:  
950 S. Blue Ridge Turnpike,  
Somerset, VA 22872

DATE	REVISION DESC:
12-10-19	EDIT SITE NAME

**25' Access & Utility Easement Tax Parcel 20-13**

Shaded on that parcel of land acquired by H & W Farms LLC as recorded among the land records of Madison County, Virginia as Instrument Number 1700000003, being tax parcel 69-7.

Commencing at an iron rod found N 59°52'23" E, 24.71' from a boundary corner to parcel 69-7 and tax parcel 69-6 at the South end of the Subject parcel; thence N 11°22'27" W, 1098.05' along a tie line to an iron rod set said from rod being the Southwestern corner of the 100'x100' Lease Area; thence N 23°05'17" W, 50.00' to THE POINT OF BEGINNING;

thence departing the 100' x 100' Lease Area and running along the Southern and Western boundary of the 25' Access & Utility Easement the following courses:

S 66°54'43" W, 17.50'

along the arc of a curve to the right, having a radius of 92.50 feet, an interior angle of 71 degrees 04 minutes 31 seconds, a chord bearing of S 31°22'27" W, a chord distance of 107.53 feet; and an arc length of 114.75 feet.

S 66°54'43" W, 91.39'

along the arc of a curve to the right, having a radius of 72.50 feet, an interior angle of 86 degrees 28 minutes 04 seconds, a chord bearing of N 69°51'15" W, a chord distance of 99.32 feet; and an arc length of 109.41 feet.

N 26°37'13" W, 204.13'

N 21°03'58" W, 504.27'

N 21°19'32" W, 1024.16'

S 67°00'32" W, 762.20' to the right-of-way line of S. Blue Ridge Turnpike;

thence along the right-of-way line of S. Blue Ridge Turnpike N 25°08'28" W, 25.02' to the boundary corner of the Subject parcel and tax parcel 69-8;

thence departing the right-of-way line of S. Blue Ridge Turnpike and running with the common boundary of the Subject parcel and tax parcel 69-8 N 67°40'32" E, 788.88';

thence departing the common boundary of the Subject parcel and tax parcel 69-8 and running along the Northern and Eastern side of the 25' Access & Utility Easement the following courses:

S 21°19'32" E, 1049.95'

S 21°03'58" E, 503.11'

S 26°37'13" E, 202.91'

along the arc of a curve to the left, having a radius of 47.50 feet, an interior angle of 86 degrees 28 minutes 04 seconds, a chord bearing of S 69°51'15" E, a chord distance of 65.07 feet; and an arc length of 71.68 feet.

N 66°54'43" E, 91.39'

along the arc of a curve to the left, having a radius of 67.50 feet, an interior angle of 69 degrees 00 minutes 00 seconds, a chord bearing of N 21°54'43" E, a chord distance of 95.46 feet; and an arc length of 106.63 feet.

N 23°05'17" W, 20.00'

N 66°54'43" E, 37.50' to an iron rod set, said iron rod being the Northwestern corner of the 100' x 100' Lease Area;

thence along the boundary of the Lease Area S 23°05'17" E, 50.00' to THE POINT OF BEGINNING; having an area of 71,860 square feet, 1.650 acres.

**100'x100' Lease Area Tax Parcel 69-7**

Shaded on that parcel of land acquired by H & W Farms LLC as recorded among the land records of Madison County, Virginia as Instrument Number 1700000003, being tax parcel 69-7.

Commencing at an iron rod found N 59°52'23" E, 24.71' from a boundary corner to parcel 69-7 and tax parcel 69-6 at the South end of the Subject parcel; thence N 11°22'27" W, 1098.05' along a tie line to an iron rod set, said from rod being the Southwestern corner of the 100'x100' Lease Area and THE POINT OF BEGINNING;

thence along the boundary of the 100'x100' Lease Area the following courses:

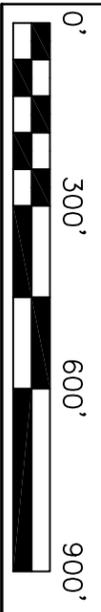
N 23°05'17" W, 100.00' to an iron rod set,

N 66°54'43" E, 100.00' to an iron rod set,

S 23°05'17" E, 100.00' to an iron rod set,

S 66°54'43" W, 100.00' to THE POINT OF BEGINNING;

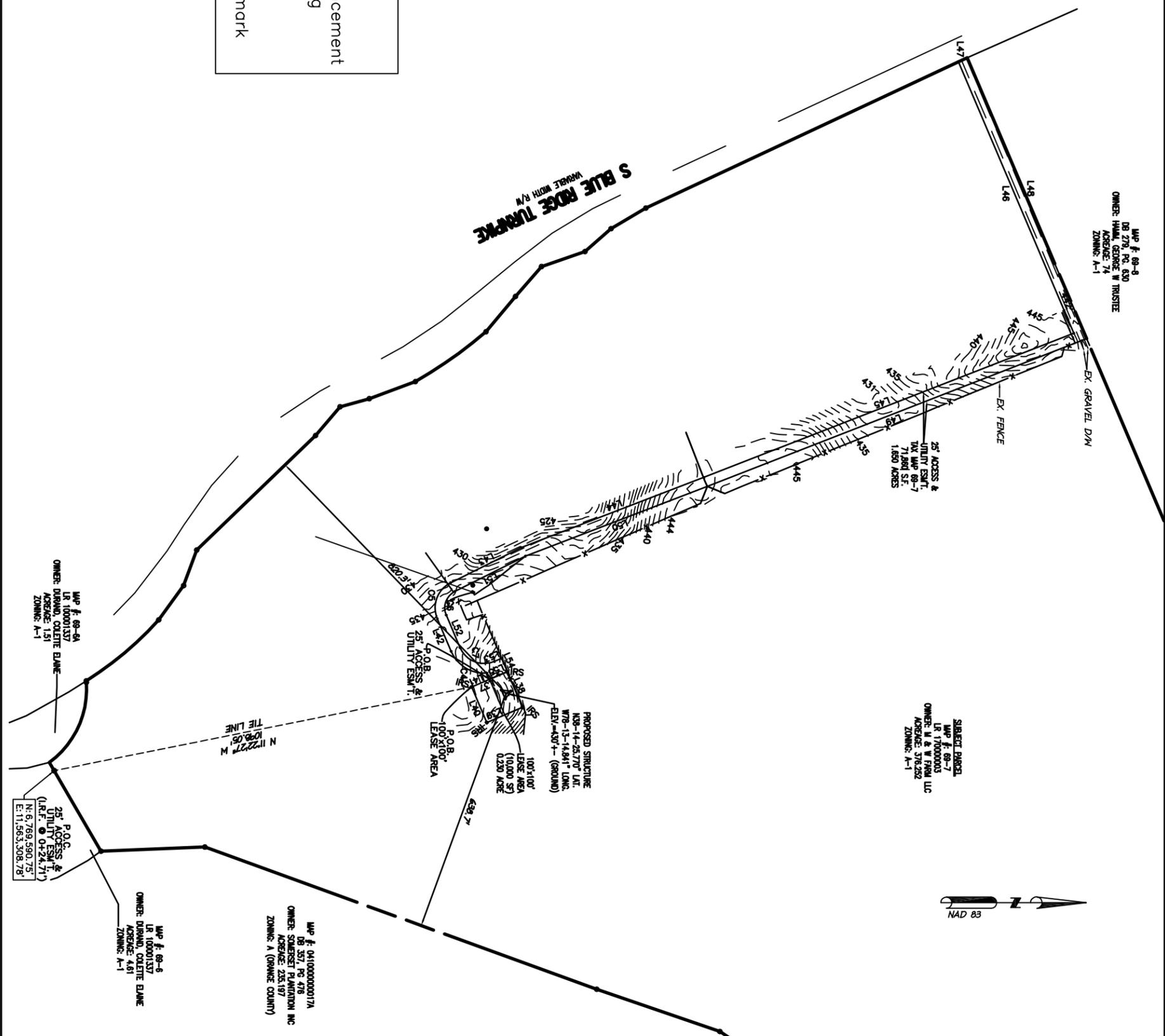
having an area of 10,000 square feet, 0.230 of an acre.



SCALE: 1" = 300' (11"X17" PLOT)  
SCALE: 1" = 300' (24"X36" PLOT)

**LEGEND**

- P.O.C. Point Of Commencement
- P.O.B. Point Of Beginning
- I.R.S. Iron Rod Set
- I.R.F. Iron Rod Found
- ESM'T. Easement
- T.B.M. Temporary Benchmark



DATE	REVISION DESC:
12-10-19	EDIT SITE NAME

**BATTLEFIELD LAND SURVEYING, PLLC**  
 165 Blue Ridge Drive, Orange, VA 22960  
 Ph: (540)406-2885 Fax: (866)402-0997

SITE NAME:  
**CWS 43 UNO**

SITE ADDRESS:  
950 S. Blue Ridge Turnpike,  
Somerset, VA 22872

COMMONWEALTH OF VIRGINIA  
 SHAWN C. DUVALL  
 Lic. No. 3177  
 11-14-19  
 LAND SURVEYOR

NOVEMBER 14, 2019

SCALE: 1" = 300'

SHEET 2 OF 2

# **15.Site Plan Application**

<b>FOR OFFICE USE ONLY:</b>		
Zone:	Tax Map No:	By who?
Fee Amount:	Date Paid:	
Receipt #:	Check #:	



**MADISON COUNTY  
APPLICATION FOR A SITE PLAN REQUEST**

Date: 9/3/2020

Property Owner:

Name: M&W Farm, LLC

Address: PO Box 476, Somerset, VA 22972

Phone No.: 540-229-2626

E-Mail: mike@mgm-glass.com

Applicant:     Owner     Agent     Surveyor

Name: CWS X, LLC

Address: 2800 Shirlington Road, Suite 802, Arlington, VA 22206

Phone No.: 703-845-1971

E-Mail: queli.campos@sharedsites.com

TAX MAP: 69-7    ZONING: A-1    EXISTING ACREAGE: 376.252 (disturbing 51,750 SF/ 1.18 acres)

LOCATION/ADDRESS OF PROPERTY OF SITE PLAN REQUEST: 950 S. Blue Ridge Turnpike, Somerset, VA 22972

Is Soil and Erosion Plan needed for disturbing 10,000 sq. ft. of earth?     Yes     No

PURPOSE OF SITE PLAN: To construct a 175' monopole structure with a 4' lightning rod (overall height of 179') within a fifty by hundred (50' x 100') fenced compound.

I hereby certify that I have the authority to make the foregoing application for a site plan request and that the information given is correct and will conform to all applicable state and county regulations.

  
Signature of Owner (Agent) / Surveyor

9-3-2020  
Date

Queli Campos  
Print Name

703-845-1971  
Daytime phone number of Signatory

Surveyor or Engineer:

Name: BC Architects Engineers

Address: 5661 Columbia Pike, Suite 200, Falls Church, VA 22041-2882

Phone No.: 703-671-6000

E-Mail: cmorin@bcplc.com

APPROVAL DATE: \_\_\_\_\_

# 16. Site Plan

SITE NAME:  
**UNO**  
 SITE NUMBER:  
**CWS 43**



**CWS**  
 CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF CWS VII, LLC AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR IN PART, IS PROHIBITED EXCEPT BY WRITTEN PERMISSION FROM CWS VII, LLC. TITLE TO THESE PLANS AND/OR SPECIFICATIONS SHALL REMAIN WITH CWS VII, LLC WITHOUT PREJUDICE AND VISUAL CONTACT WITH THEM SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

**BC**  
**architects**  
**engineers**  
 5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
 FAX: (703) 671-6300

PROJECT DESCRIPTION:  
**PROPOSED 175' MONOPOLE TOWER FACILITY**

**811** CALL VIRGINIA 811 FOR UNDERGROUND UTILITIES PRIOR TO DIGGING-811 OR (800) 552-7001  
 Know what's below.  
 Call before you dig.

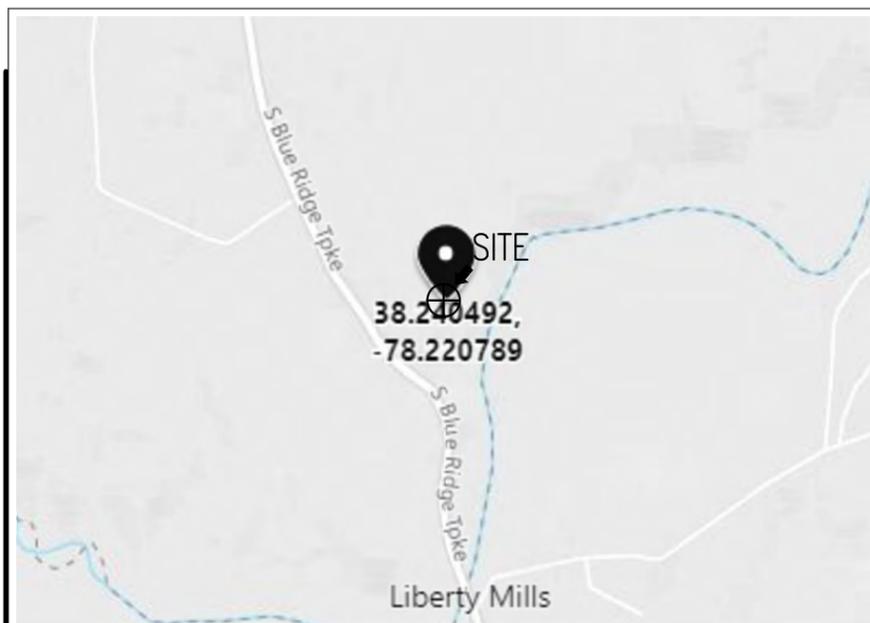
DIG ALERT:

EMERGENCY:  
 CALL 911



**VICINITY MAP**

SCALE: 1" = 30 MILES NORTH



**LOCAL MAP**

SCALE: 1" = 2000' NORTH

**DIRECTIONS TO SITE:**

FROM 2800 SHIRLINGTON ROAD, ARLINGTON, VA 22206: DEPART RAMP FOR I-395 S TOWARD RICHMOND 6.1 MI. ROAD NAME CHANGES TO I-95 S 39.9 MI. AT EXIT 130B, TAKE RAMP RIGHT FOR VA-3 WEST TOWARD CULPEPER / GERMANNA COMMUNITY COLLEGE / LOCUST GROVE CAMPUS 12.9 MI. TURN LEFT ONTO VA-20 / CONSTITUTION HWY 22.3 MI TURN RIGHT ONTO US-15 / VA-20 / CAROLINE ST 0.3 MI. TURN LEFT ONTO VA-20 / W MAIN ST 6.2 MI. TURN RIGHT ONTO VA-231 / BLUE RIDGE TPKE 1.5 MI. ARRIVE AT VA-231 / S BLUE RIDGE TPKE ON THE RIGHT

SET NO.	DESCRIPTION	BY	DATE	SET NO.	DESCRIPTION	BY	DATE
1	CLIENT COMMENTS	AGT	01-16-20	5	T-1 EDIT	AGT	07-27-20
2	CLIENT COMMENTS	JG	05-14-20	6	E&S PLAN CHGS.	AGT	08-12-20
3	CLIENT COMMENTS	JG	05-15-20	7			
4	CLIENT COMMENTS	AGT	07-20-20	8			

**ARCHITECTURAL AND ENGINEERING FIRM:**  
 BC ARCHITECTS ENGINEERS, PLC  
 5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000 CONTACT: BRIAN M. QUINN  
 FAX: (703) 671-6300 PRINCIPAL

**SURVEYOR:**  
 BATTLEFIELD LAND SURVEYING, PLLC  
 165 BLUE RIDGE DRIVE,  
 ORANGE, VA 22960  
 TEL: (540) 406-2885 CONTACT: SHAWN C. DUVALL  
 FAX: (866) 402-0997 LIC. NO. 3177

**UTILITIES:**  
**POWER COMPANY:**  
 COMPANY NAME: ALLEGHENY POWER  
 CONTACT: CUSTOMER SERVICE  
 TEL: (800) 255-3443

**TELEPHONE COMPANY:**  
 COMPANY NAME: VERIZON  
 CONTACT: CUSTOMER SERVICE  
 TEL: (800) 483-5000

**CONSULTING TEAM**

**SITE NAME:** UNO  
**PARCEL OWNER:** M & W FARM LLC  
**SITE NUMBER:** 43  
**SITE ADDRESS:** 950 S. BLUE RIDGE TURNPIKE SOMERSET, VA 22972  
 CONTACT: -  
 TEL: -

**APPLICANT BUILDING INFO:**  
 CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 TEL: (703) 845-1971 ATTN: QUELI CAMPOS  
 FAX: (703) 845-1953 TEL: (703) 845-1971

**PROJECT DESCRIPTION:**  
 AN UNMANNED RADIO TELECOMMUNICATIONS FACILITY CONSISTING OF A PROPOSED 175' MONOPOLE IN A NEW FENCED COMPOUND

**ADA COMPLIANCE:**  
 FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

**PROJECT DATA:**  
 COUNTY: MADISON  
 JURISDICTION: MADISON COUNTY  
 PARCEL#: 69-7  
 DEED REFERENCE: 170000003  
 ZONING: A-1 (AGRICULTURAL)  
 DISTRICT: LOCUST DALE

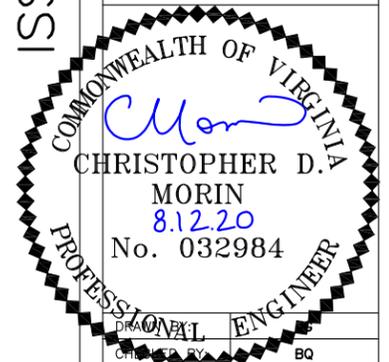
**GEOGRAPHIC COORDINATES:**  
 LATITUDE: N 38° 14' 25.770" (NAD 83)  
 LONGITUDE: W 78° 13' 14.841" (NAD 83)  
 GROUND ELEVATION: 430.0' AMSL (NAVD 88)

**CODE COMPLIANCE**  
 2015 VIRGINIA UNIFORM STATEWIDE BUILDING CODE (USBC)  
 NEC 2014

**PROJECT SUMMARY**

SHEET NUMBER:	DESCRIPTION:
T-1	TITLE SHEET, VICINITY MAP AND GENERAL INFORMATION
2 SHEETS	SURVEY
A-0	SITE PLAN
A-0A	ENLARGED SITE PLAN
A-1	COMPOUND PLAN & TOWER ELEVATION
A-2	FENCE & GATE DETAILS
A-3	CIVIL DETAILS
E&S-1 TO -9	EROSION & SEDIMENT CONTROL PLANS
E&S-10 TO -13	ACCESS ROAD PROFILES
E&S-14	SILT FENCE DETAIL & NOTES
E&S-15	TEMPORARY CONSTRUCTION ENTRANCE DETAIL & NOTES
E&S-16	EROSION & SEDIMENT CONTROL DETAILS
E&S-17 TO -18	BLANKET MATTING DETAILS & NOTES
E&S-19	TEMPORARY SEEDING NOTES
E&S-20 -A -B	PERMANENT SEEDING NOTES

ISSUED FOR ZONING



SITE NAME:  
**UNO**  
 SITE NUMBER:  
**CWS 43**  
 SITE ADDRESS:  
**950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972**

DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING
SHEET TITLE: <b>VICINITY MAP      AND GENERAL      INFORMATION</b>	
SHEET NUMBER:	REV. #
<b>T-1</b>	<b>6</b>

FOR BC INTERNAL USE ONLY: 08-12-20 ATECS: 11-18-20 C:\Users\jrcy\Dropbox (85)\Survey\BC Files\Drawings - 2019\Community Wireless Structures\Uno - Site 43\FD15 - Rev 6 - 2020-08-12\F1.dwg

**PARENT PARCEL LEGAL DESCRIPTION**

All that certain tract or parcel of land with all buildings and improvements thereon and the rights and appurtenances thereto belonging, located in the former Locust Dale District of Madison County, Virginia, on the east side of Virginia State Route 231 and running to the center line of the Rapidan River, containing 376.252 acres, more or less, and being the residue of a certain tract or parcel of land containing 399.899 acres, more or less, shown and described on a plat of a survey thereof entitled "Survey of Theodore L. Landis, et ux Property", made by Stearns L. Coleman, Certified Land Surveyor on August 18, 1975, revised on September 10, 1975, and recorded in the Clerk's Office of the Circuit Court of Madison County, Virginia, in Plat Book 8, Page 69 and also in Deed Book 129, Page 461; LESS and EXCEPT a certain strip of land containing 0.3373 acre, more or less, conveyed to the Commonwealth of Virginia by deed of Christoph Ulrich Von Burgsdorff and Bani Von Burgsdorff, his wife, dated March 30, 1981, and recorded in said Clerk's Office in Deed Book 160, at Page 331; and further LESS and EXCEPT, a strip of land containing 5.0775 acres, more or less, conveyed to the Commonwealth of Virginia by deed of Christoph Ulrich Von Burgsdorff and Liesbeth Von Burgsdorff, his wife, dated October 18, 1983, and recorded in said Clerk's Office in Deed Book 171, at Page 108, and further LESS and EXCEPT a tract of land containing 18.232 acres, more or less, conveyed to George W. Hamm and Jessie C. Hamm, husband and wife, by deed of Christoph Ulrich Von Burgsdorff and Elizabeth Von Burgsdorff, husband and wife, dated November 6, 1984, and recorded in said Clerk's Office in Deed Book 174 at Page 50.

**PARENT PARCEL LINE TABLE**

LINE	BEARING	DISTANCE
L1	N 67°00'32" E	1397.24'
L2	N 10°33'12" W	2234.03'
L3	N 27°45'38" W	521.83'
L4	N 27°44'08" W	1269.34'
L5	N 50°18'29" E	321.53'
L6	N 35°44'23" E	290.07'
L7	N 71°11'38" E	1204.03'
L8	N 64°31'48" E	742.80'
L9	S 12°15'38" E	736.11'
L10	S 17°24'30" E	715.28'
L11	N 86°42'50" E	710.06'
L12	S 07°55'10" E	840.90'
L13	N 70°29'26" W	509.39'
L14	N 81°20'41" W	485.08'
L15	S 72°39'49" W	469.71'
L16	S 82°51'04" W	580.19'
L17	S 80°18'15" W	355.88'
L18	S 69°47'53" W	278.93'
L19	S 33°53'32" W	149.16'
L20	S 18°59'18" W	335.80'
L21	S 19°59'29" W	1075.50'
L22	S 02°18'22" E	267.90'
L23	S 59°52'23" W	265.36'
L24	S 85°42'37" W	3.65'
L25	N 54°04'17" W	109.51'
L26	N 69°49'18" W	98.10'
L27	N 43°59'50" W	425.76'
L28	N 49°39'43" W	97.64'
L29	N 15°31'47" W	78.38'
L30	N 20°21'27" W	128.73'
L31	N 50°13'06" W	118.78'
L32	N 48°56'59" W	102.37'
L33	N 19°05'24" W	118.67'
L34	N 41°24'05" W	89.44'
L35	N 30°38'06" W	104.45'
L36	N 25°08'28" W	915.07'

**100' X 100' LEASE AREA LINE TABLE**

LINE	BEARING	DISTANCE
L37	N 23°05'17" W	100.00'
L38	N 66°54'43" E	100.00'
L39	S 23°05'17" E	100.00'
L40	S 66°54'43" W	100.00'

**25' ACCESS & UTILITY ESM'T. LINE TABLE**

LINE	BEARING	DISTANCE
L41	S 66°54'43" W	17.50'
L42	S 66°54'43" W	91.39'
L43	N 26°37'13" W	204.13'
L44	N 21°03'58" W	504.27'
L45	N 21°19'32" W	1024.16'
L46	S 67°00'32" W	762.20'
L47	N 25°08'28" W	25.02'
L48	N 67°00'32" E	788.88'
L49	S 21°19'32" E	1049.95'
L50	S 21°03'58" E	503.11'
L51	S 26°37'13" E	202.91'
L52	N 66°54'43" E	91.39'
L53	N 23°05'17" W	20.00'
L54	N 66°54'43" E	37.50'
L55	S 23°05'17" E	50.00'

**PARENT PARCEL CURVE TABLE**

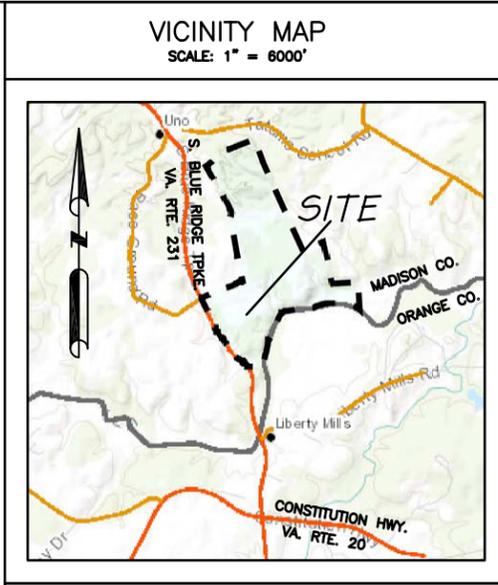
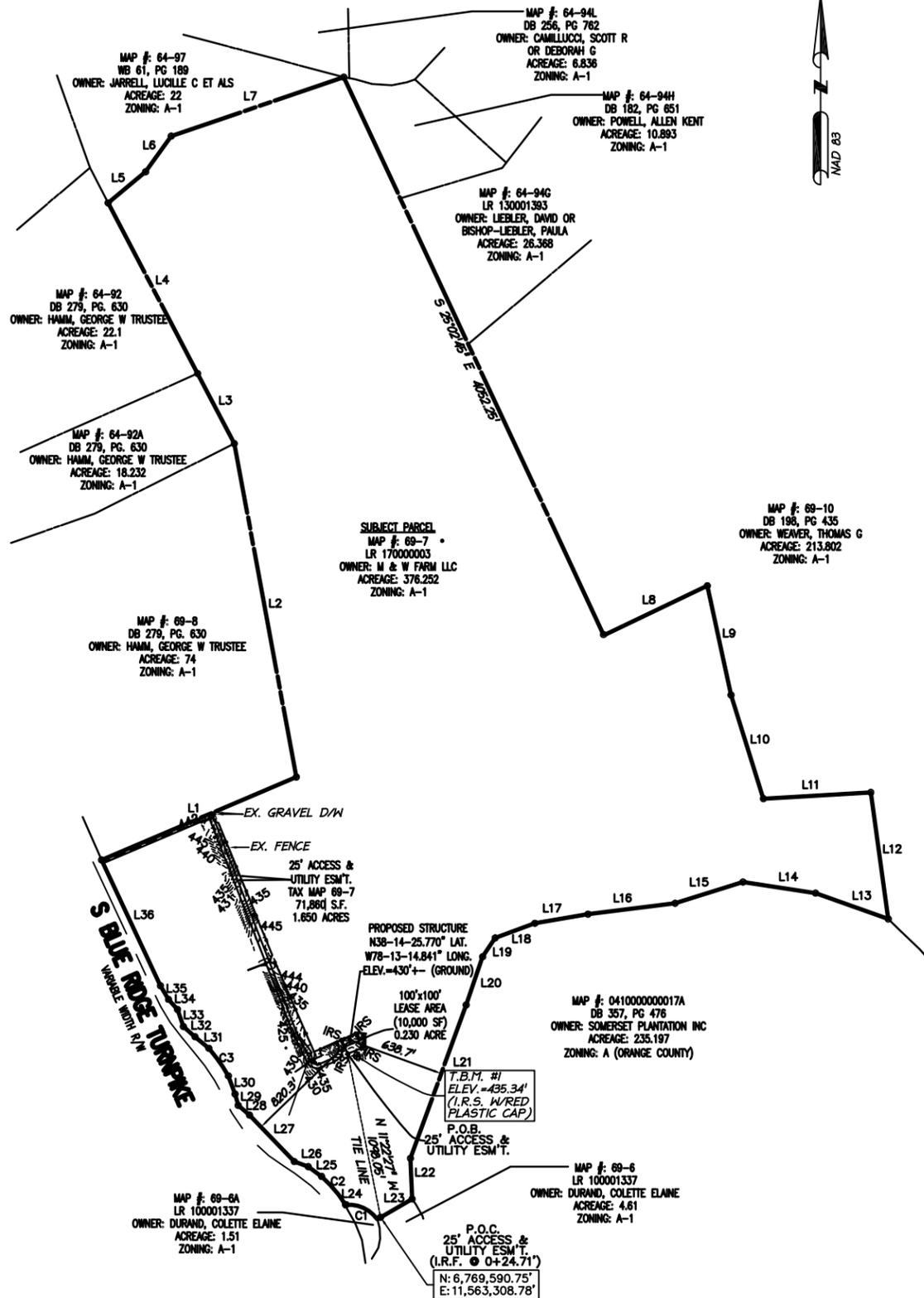
CURVE	RADIUS	ARC LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	234.95'	238.05'	58°03'06"	142.87'	N 65°15'50" W	228.00'
C2	898.51'	245.14'	15°37'56"	111.73'	N 40°08'36" W	244.38'
C3	1227.94'	223.38'	10°25'23"	112.00'	N 35°18'47" W	223.08'

**25' ACCESS & UTILITY ESM'T. CURVE TABLE**

CURVE	RADIUS	ARC LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C4	92.50'	114.75'	71°04'31"	66.07'	S 31°22'27" W	107.53'
C5	72.50'	109.41'	86°28'04"	68.16'	N 69°51'15" W	99.32'
C6	47.50'	71.68'	86°28'04"	44.66'	S 69°51'15" E	65.07'
C7	67.50'	108.03'	90°00'00"	67.50'	N 21°54'43" E	95.46'

SCALE: 1"=2000' (11"X17" PLOT)

SCALE: 1"=1000' (24"X36" PLOT)



**SITE INFORMATION:**  
 TAX PARCEL # 69-7  
 DEED REFERENCE: 1700000003  
 ZONING: "A-1" - AGRICULTURAL  
 JURISDICTION: MADISON COUNTY  
 DISTRICT: LOCUST DALE

THIS PROPOSED TELECOMMUNICATIONS SITE IS LOCATED ON F.E.M.A. MAP NUMBER 51113C0330C, DATED 01/05/2007 AND APPEARS TO LIE WITHIN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN).

**PROJECT INFORMATION:**  
 SITE NAME: UNO  
 SITE NUMBER: CWS 43  
 SITE ADDRESS: 950 S. BLUE RIDGE TURNPIKE, SOMERSET, VA 22972  
 OWNERS NAME: M & W FARM LLC  
 TOWER CENTER:  
 Latitude: 38° 14' 25.770" N  
 Longitude: 78° 13' 14.841" W  
 Ground Elevation: 430' AMSL

**GENERAL NOTES:**  
 1. THE LAND BOUNDARIES SHOWN HEREON ARE BASED UPON A COMPILATION OF PLATS OF RECORD AND PHYSICAL EVIDENCE FOUND IN THE FIELD.  
 THE PLAT MERIDIAN IS BASED UPON NAD 83.  
 2. ELEVATION INFORMATION IS BASED UPON NAVD 88.  
 3. I.R.F. DENOTES AN IRON ROD FOUND. I.R.S. DENOTES AN IRON ROD SET.  
 4. A TITLE REPORT HAS FURNISHED. ALL PLOTTABLE EASEMENTS ARE SHOWN.

DATE	REVISION DESC:
12-10-19	EDIT SITE NAME

**BATTLEFIELD LAND SURVEYING, PLLC**  
 165 Blue Ridge Drive, Orange, VA 22960  
 Ph: (540)406-2885 Fax: (866)402-0997

SITE NAME:  
**CWS 43 UNO**  
 SITE ADDRESS:  
 950 S. Blue Ridge Turnpike, Somerset, VA 22972



NOVEMBER 14, 2019  
 SCALE: 1" = 1000'  
 SHEET 1 OF 2

**25' Access & Utility Easement  
Tax Parcel 20-13**

Situated on that parcel of land acquired by M & W Farms LLC as recorded among the land records of Madison County, Virginia as Instrument Number 170000003, being tax parcel 69-7.

Commencing at an iron rod found N 59°52'23" E, 24.71' from a boundary corner to parcel 69-7 and tax parcel 69-6 at the South end of the Subject parcel; thence N 11°22'27" W 1098.05' along a tie line to an iron rod set, said iron rod being the Southwestern corner of the 100'x100' Lease Area, thence N 23°05'17" W 50.00' to THE POINT OF BEGINNING;

thence departing the 100' x 100' Lease Area and running along the Southern and Western boundary of the 25' Access & Utility Easement the following courses:

S 66°54'43" W, 17.50'  
along the arc of a curve to the right, having a radius of 92.50 feet, an interior angle of 71 degrees 04 minutes 31 seconds, a chord bearing of S 31°22'27" W, a chord distance of 107.53 feet, and an arc length of 114.75 feet.

S 66°54'43" W, 91.39'  
along the arc of a curve to the right, having a radius of 72.50 feet, an interior angle of 86 degrees 28 minutes 04 seconds, a chord bearing of N 69°51'15" W, a chord distance of 99.32 feet, and an arc length of 109.41 feet.

N 26°37'13" W, 204.13'  
N 21°03'58" W, 504.27'  
N 21°19'32" W, 1024.16'  
S 67°00'32" W, 762.20' to the right-of-way line of S. Blue Ridge Turnpike,

thence along the right-of-way line of S. Blue Ridge Turnpike N 25°08'28" W, 25.02' to the boundary corner of the Subject parcel and tax parcel 69-8,

thence departing the right-of-way line of S. Blue Ridge Turnpike and running with the common boundary of the Subject parcel and tax parcel 69-8 N 67°00'32" E, 788.88',

thence departing the common boundary of the Subject parcel and tax parcel 69-8 and running along the Northern and Eastern side of the 25' Access & Utility Easement the following courses:

S 21°19'32" E, 1049.95'  
S 21°03'58" E, 503.11'  
S 26°37'13" E, 202.91'

along the arc of a curve to the left, having a radius of 47.50 feet, an interior angle of 86 degrees 28 minutes 04 seconds, a chord bearing of S 69°51'15" E, a chord distance of 65.07 feet, and an arc length of 71.68 feet,

N 66°54'43" E, 91.39'  
along the arc of a curve to the left, having a radius of 67.50 feet, an interior angle of 90 degrees 00 minutes 00 seconds, a chord bearing of N 21°54'43" E, a chord distance of 95.46 feet, and an arc length of 106.03 feet,

N 23°05'17" W, 20.00'  
N 66°54'43" E, 37.50' to an iron rod set, said iron rod being the Northwestern corner of the 100' x 100' Lease Area,

thence along the boundary of the Lease Area S 23°05'17" E, 50.00' to THE POINT OF BEGINNING, having an area of 71,860 square feet, 1.650 acres.

**100'x100' Lease Area  
Tax Parcel 69-7**

Situated on that parcel of land acquired by M & W Farms LLC as recorded among the land records of Madison County, Virginia as Instrument Number 170000003, being tax parcel 69-7.

Commencing at an iron rod found N 59°52'23" E, 24.71' from a boundary corner to parcel 69-7 and tax parcel 69-6 at the South end of the Subject parcel; thence N 11°22'27" W 1098.05' along a tie line to an iron rod set, said iron rod being the Southwestern corner of the 100'x100' Lease Area and THE POINT OF BEGINNING;

thence along the boundary of the 100'x100' Lease Area the following courses:

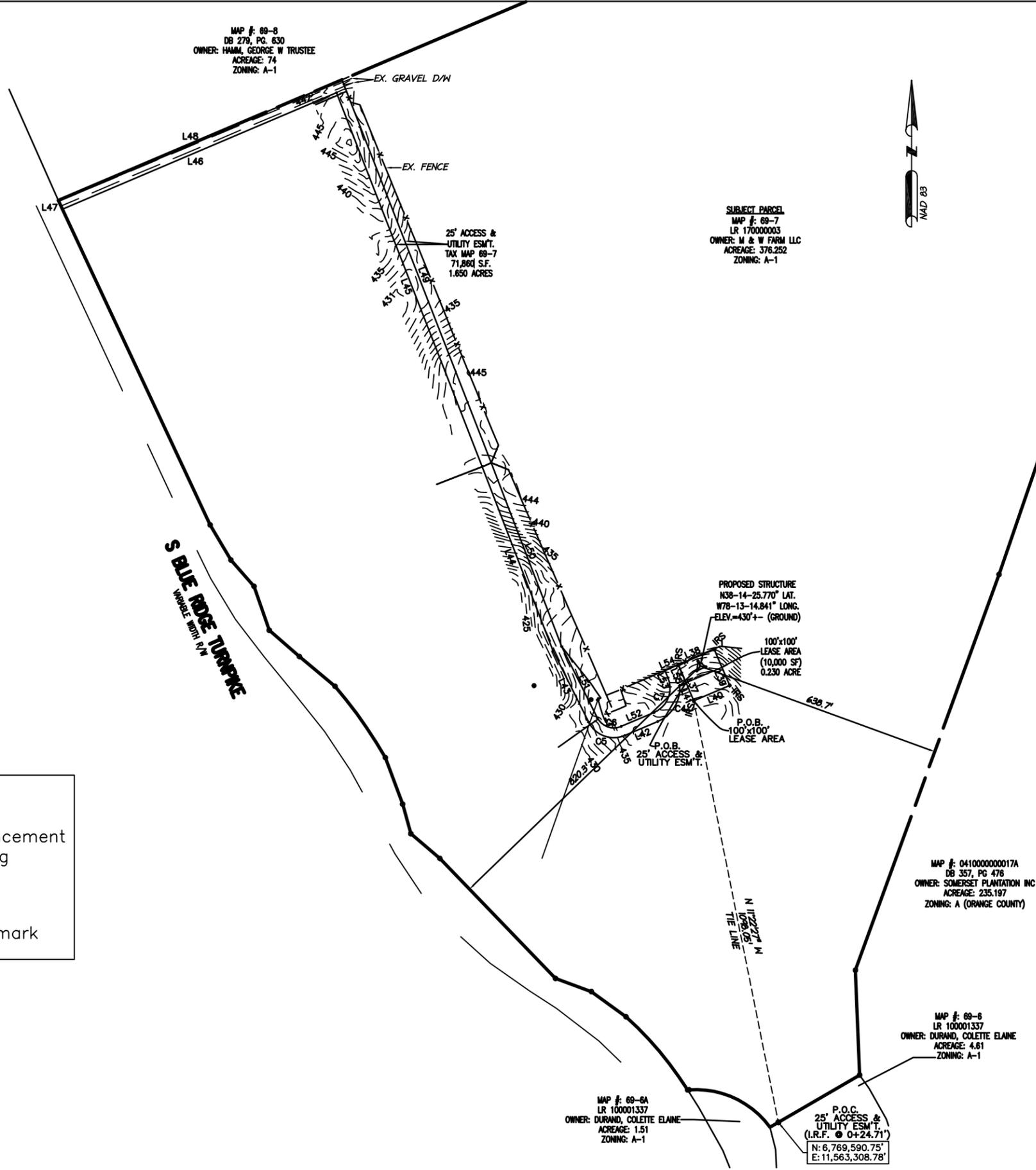
N 23°05'17" W 100.00' to an iron rod set,  
N 66°54'43" E 100.00' to an iron rod set,  
S 23°05'17" E 100.00' to an iron rod set,  
S 66°54'43" W, 100.00' to THE POINT OF BEGINNING  
having an area of 10,000 square feet, 0.230 of an acre.

**LEGEND**

- P.O.C. Point Of Commencement
- P.O.B. Point Of Beginning
- I.R.S. Iron Rod Set
- I.R.F. Iron Rod Found
- ESM'T. Easement
- T.B.M. Temporary Benchmark

SCALE: 1"=600' (11"X17" PLOT)

SCALE: 1"=300' (24"X36" PLOT)



MAP #: 69-8  
DB 279, PG. 630  
OWNER: HAMM, GEORGE W TRUSTEE  
ACREAGE: 74  
ZONING: A-1

SUBJECT PARCEL  
MAP #: 69-7  
LR 170000003  
OWNER: M & W FARMS LLC  
ACREAGE: 376.252  
ZONING: A-1

PROPOSED STRUCTURE  
N38-14-25.770" LAT.  
W78-13-14.841" LONG.  
ELEV. = 430' ± (GROUND)

MAP #: 041000000017A  
DB 357, PG 476  
OWNER: SOMERSET PLANTATION INC  
ACREAGE: 235.197  
ZONING: A (ORANGE COUNTY)

MAP #: 69-6  
LR 100001337  
OWNER: DURAND, COLETTE ELAINE  
ACREAGE: 4.61  
ZONING: A-1

MAP #: 69-6A  
LR 100001337  
OWNER: DURAND, COLETTE ELAINE  
ACREAGE: 1.51  
ZONING: A-1

P.O.C.  
25' ACCESS & UTILITY ESM'T.  
(I.R.F. @ 0+24.71')  
N: 6,769,590.75'  
E: 11,563,308.78'

DATE	REVISION DESC:
12-10-19	EDIT SITE NAME

**BATTLEFIELD  
LAND SURVEYING, PLLC**  
165 Blue Ridge Drive, Orange, VA 22960  
Ph: (540)406-2885 Fax: (866)402-0997

SITE NAME:  
**CWS 43  
UNO**

SITE ADDRESS:  
950 S. Blue Ridge Turnpike,  
Somerset, VA 22972



NOVEMBER 14, 2019

SCALE: 1" = 300'

SHEET 2 OF 2

C:/Users/atecs/Dropbox (BC)/Server/BC Files/Drawings - 2019/Community Wireless Structures/Uno - Site 43/\_EFD's - Rev 4 - 2020-07-20/A0.dwg

07-20-20 ATECS 12:23:05

SETBACKS	WIDTH
STRUCTURE	50 FT FROM STREET R-O-W IN WIDTH
FRONT	250 FT. AT SETBACK LINE
REAR	50 FT. FROM PROPERTY LINE



1"=800' (11" x 17")  
1"=400' (24" x 36")

**LEGEND**

NEW FENCE	
EXISTING FENCE	
SETBACK	
EASEMENT	
LEASE	
PROPERTY LINE	
EXIST. CONTOUR	
NEW CONTOUR	
TYP. BUILDING	
TYP. ROAD	



CWS X, LLC  
2800 SHIRLINGTON ROAD, SUITE 802  
ARLINGTON, VA 22206  
MAIN (703) 845-1971  
FAX (703) 845-1953

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architects  
engineers

5661 COLUMBIA PIKE, SUITE 200  
FALLS CHURCH, VA 22041-2868  
TEL: (703) 671-6000  
FAX: (703) 671-6300

**SET REVISION**

NO.	DESCRIPTION	BY	DATE
1	ADDRESS CHANGE	AGT	01-16-20
2	COMMENTS	JG	05-14-20
3	COMMENTS	JG	05-15-20
4	COMMENTS	AGT	07-20-20
5	T1 EDIT	AGT	07-27-20
6	EAS PLAN CHGS.	AGT	08-12-20

**SITE NAME:**

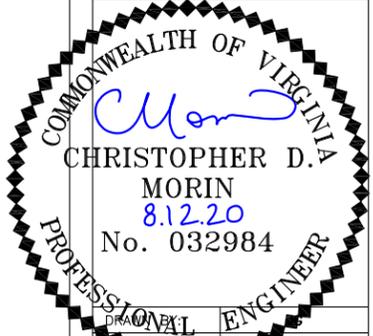
**UNO**

**SITE NUMBER:**

**CWS 43**

**SITE ADDRESS:**

950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972



DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

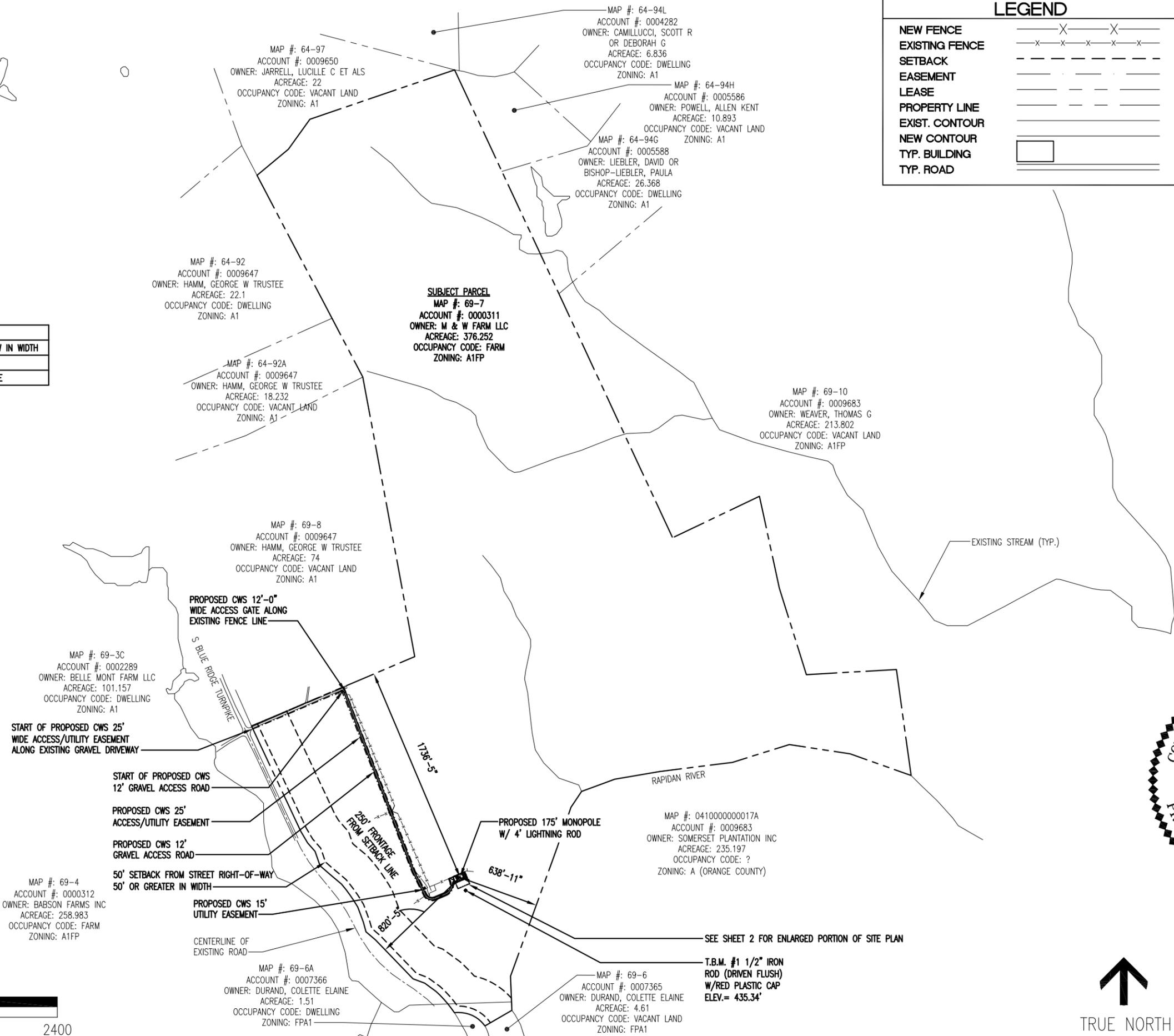
**SITE PLAN**

SHEET NUMBER: A-0

REV. # 6



TRUE NORTH



**SITE PLAN**

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 07-20-20 ATECS 11:54:56

LEGEND	
NEW FENCE	
EXISTING FENCE	
SETBACK	
EASEMENT	
LEASE	
PROPERTY LINE	
EXIST. CONTOUR	
NEW CONTOUR	
TYP. BUILDING	
TYP. ROAD	

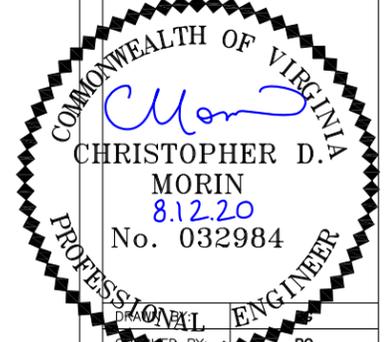
**CWS**  
 CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

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**BC**  
**architects**  
**engineers**  
 5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
 FAX: (703) 671-6300

SET REVISION		
NO.	DESCRIPTION	BY DATE
1	ADDRESS CHANGE	AGT 01-16-20
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3	COMMENTS	JG 05-15-20
4	COMMENTS	AGT 07-20-20
5	T1 EDIT	AGT 07-27-20
6	EAS PLAN CHGS.	AGT 08-12-20

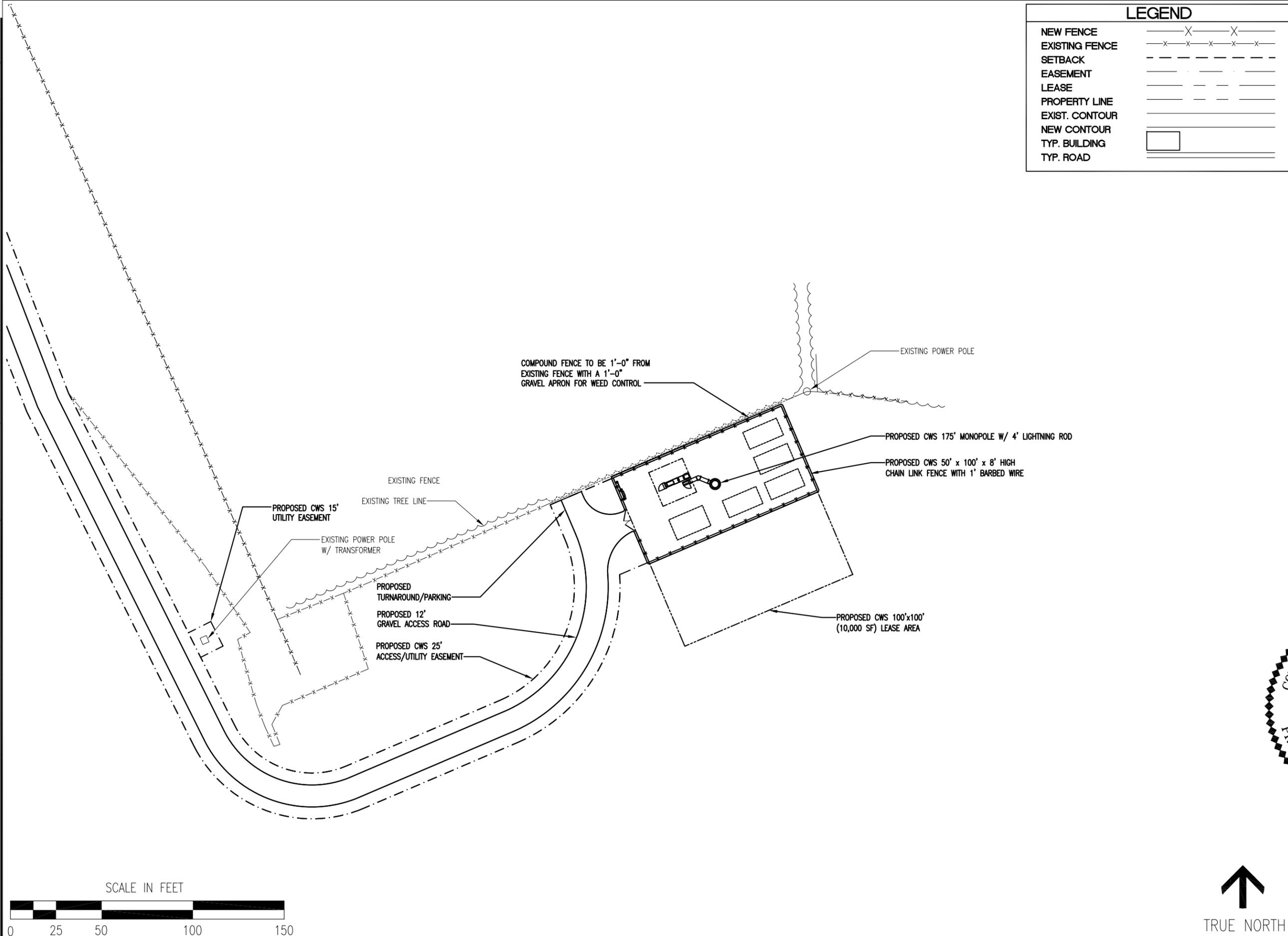
SITE NAME:  
**UNO**  
 SITE NUMBER:  
**CWS 43**  
 SITE ADDRESS:  
 950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING
SHEET TITLE:	

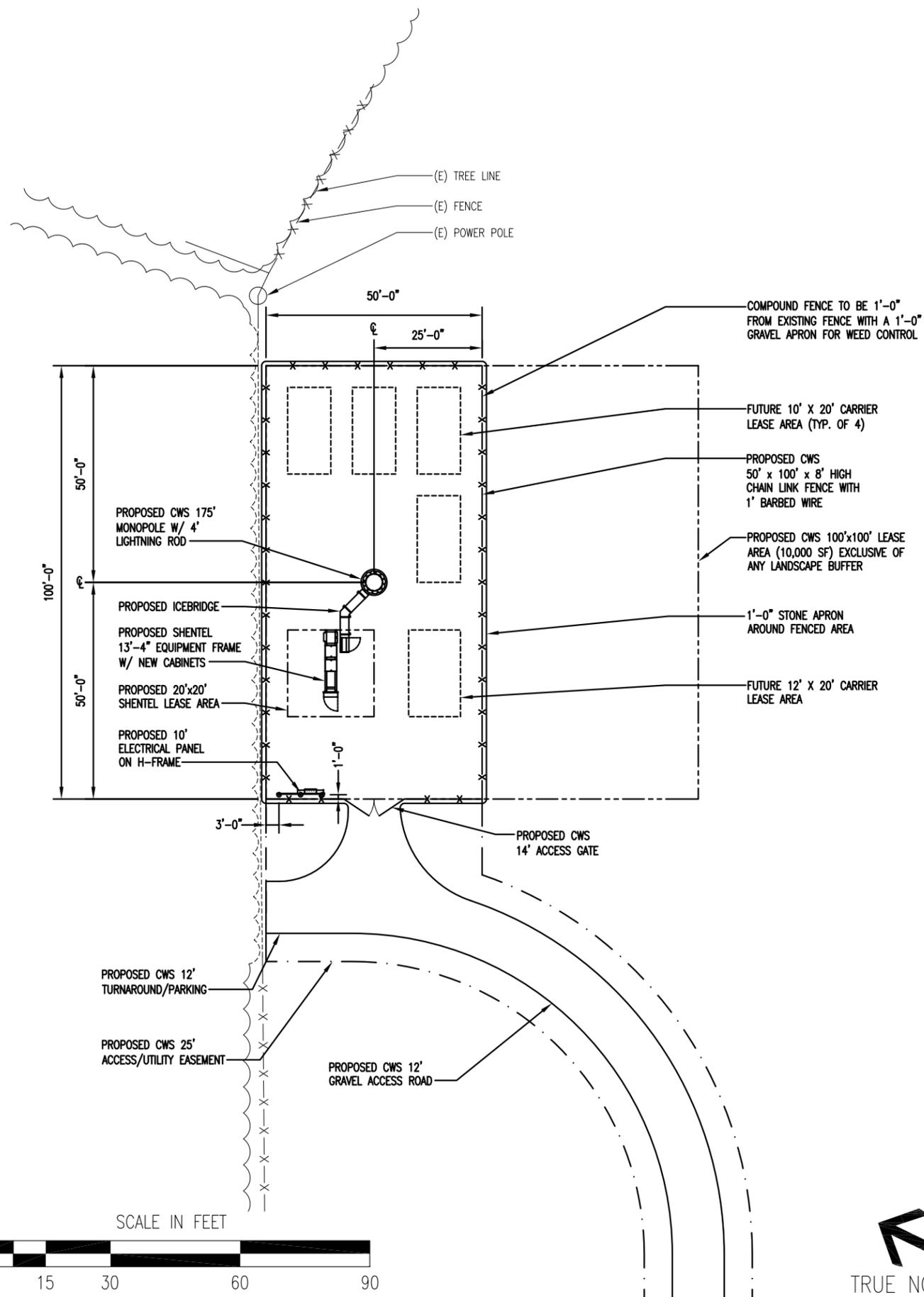
**ENLARGED SITE PLAN**

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<b>A-0A</b>	<b>6</b>

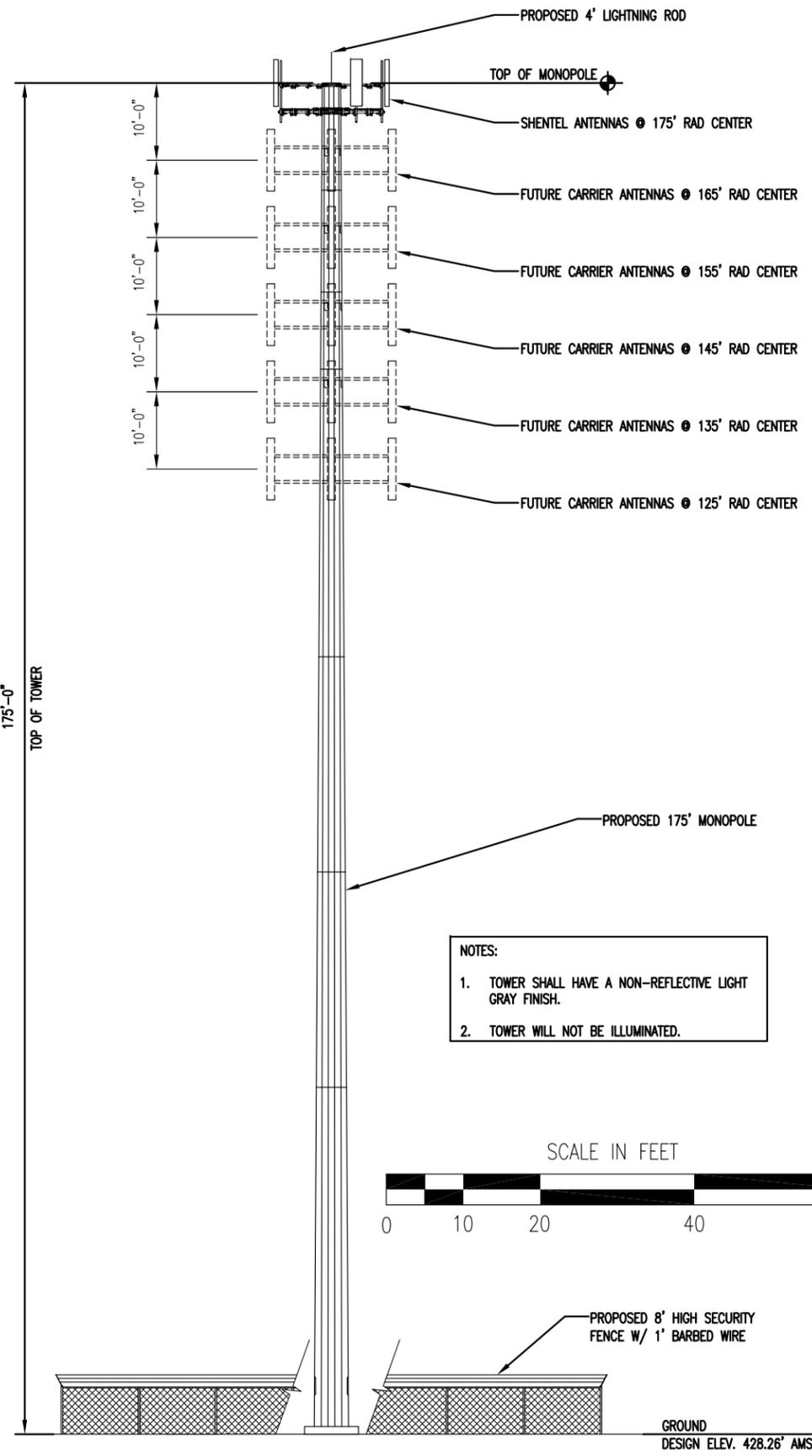


**ENLARGED SITE PLAN**

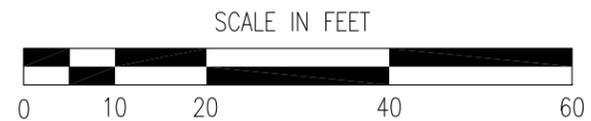
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 08-25-20 ADIARS 09:49:23



PROPOSED COMPOUND PLAN



NOTES:  
 1. TOWER SHALL HAVE A NON-REFLECTIVE LIGHT GRAY FINISH.  
 2. TOWER WILL NOT BE ILLUMINATED.



PROPOSED TOWER ELEVATION

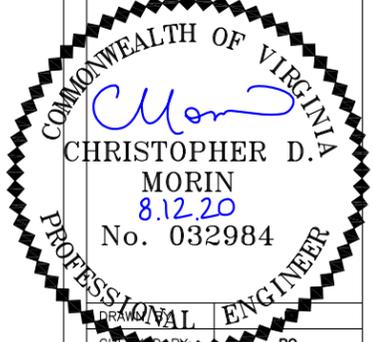
**CWS**  
 CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
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6	EAS PLAN CHGS.	AGT 08-12-20

SITE NAME:  
**UNO**  
 SITE NUMBER:  
**CWS 43**  
 SITE ADDRESS:  
 950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972

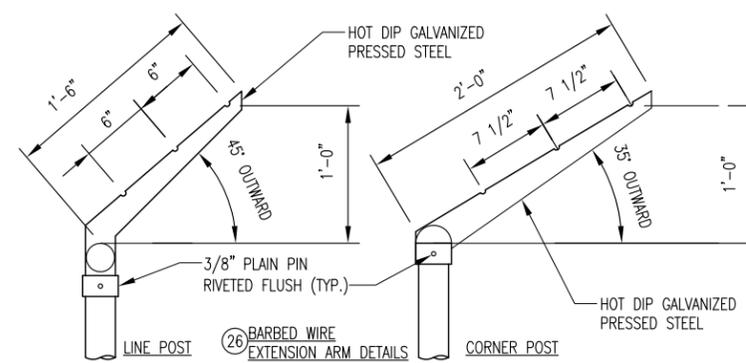
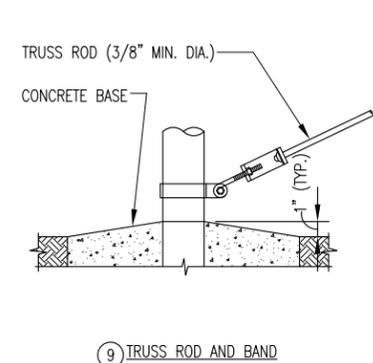
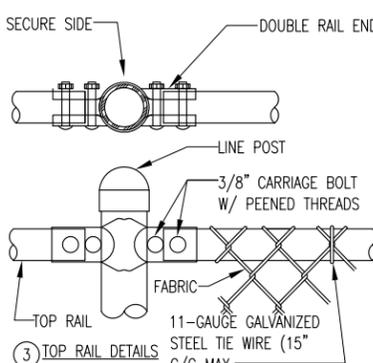
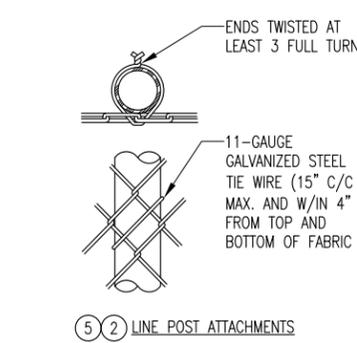
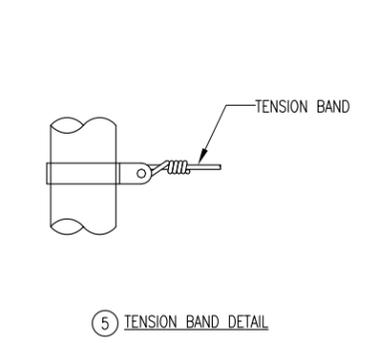
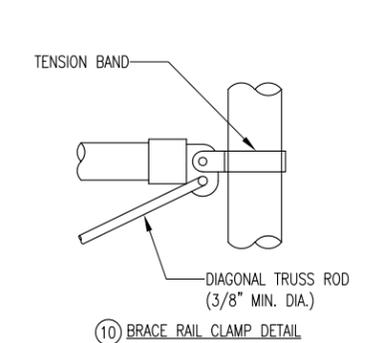
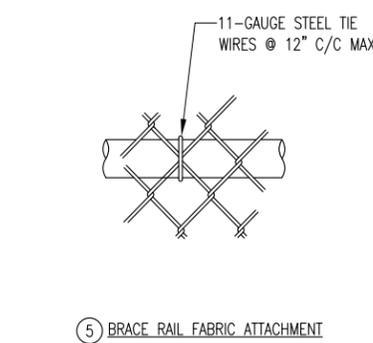
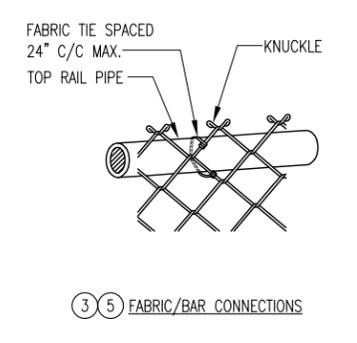
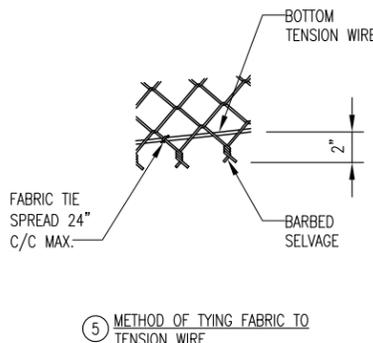
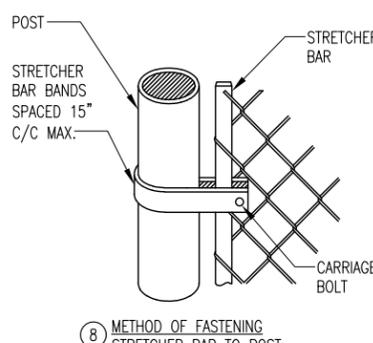
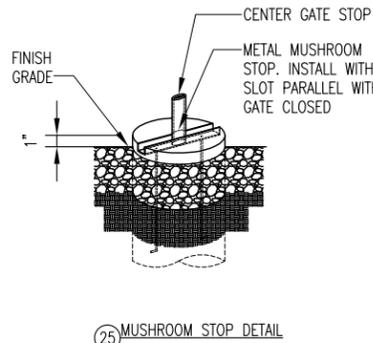
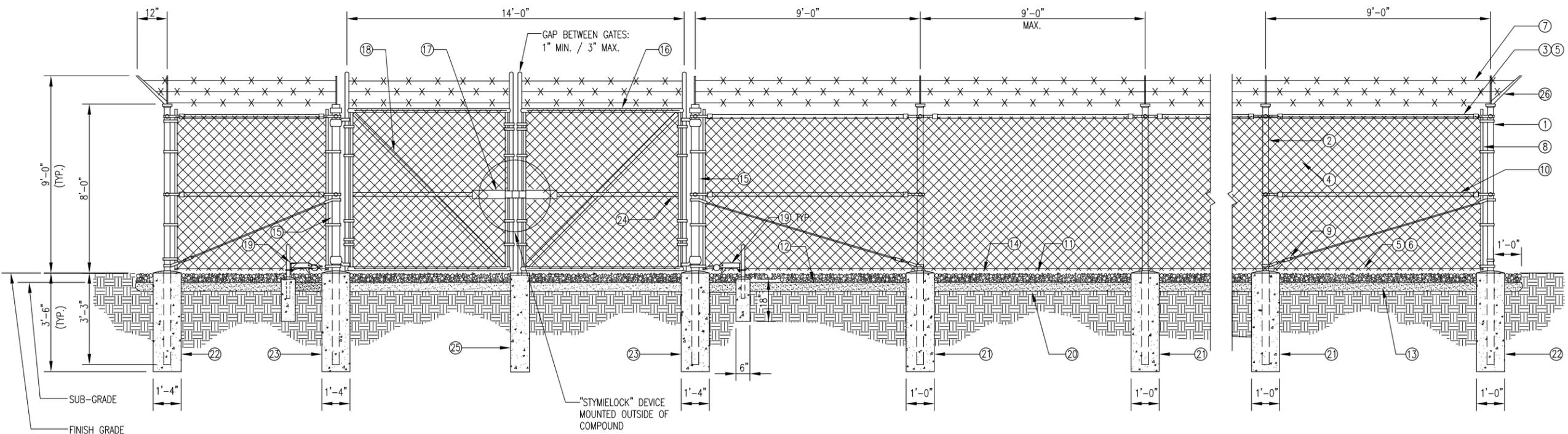


DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING
SHEET TITLE:	

**COMPOUND PLAN & TOWER ELEVATION**

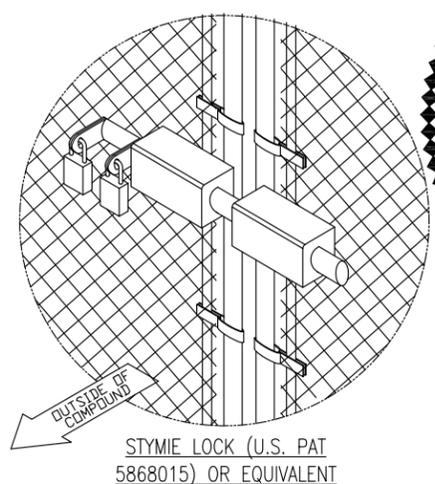
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<b>A-1</b>	<b>6</b>

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 07-20-20 ATECS 11:56:06



- REFERENCE NOTES:**
- CORNER, END OR PULL POST 4" SCHEDULE 40 PIPE.
  - LINE POST: 3" SCHEDULE 40 PIPE, PER ASTM-F1083. LINE POSTS SHALL BE EQUALLY SPACED AT MAXIMUM 8'-0" O.C.
  - TOP RAIL & BRACE RAIL: 1 1/2" PIPE, PER ASTM-F1083.
  - FABRIC: 9 GA CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A392.
  - TIE WIRE: MINIMUM 11 GA GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX. 15" INTERVALS.
  - TENSION WIRE: 9 GA. GALVANIZED STEEL.
  - BARBED WIRE: DOUBLE STRAND 12-1/2" O.D. TWISTED WIRE TO MATCH WITH FABRIC 14 GA, 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.
  - STRETCHER BAR.
  - 3/8" DIAGONAL TRUSS ROD WITH GALVANIZED STEEL TURNBUCKLE OR DIAGONAL THREADED ROD.
  - FENCE CORNER POST BRACE: 1 5/8" DIA. EACH CORNER EACH WAY.
  - 1 1/2" MAXIMUM CLEARANCE FROM GRADE.
  - 2" FINISH OR AS DETERMINED BY CONSTRUCTION MANAGER DURING BID WALK.
  - 4" COMPACTED 95% BASE MATERIAL OR AS DETERMINED BY CONSTRUCTION MANAGER DURING BID WALK.
  - FINISH GRADE SHALL BE UNIFORM AND LEVEL.
  - GATE POST 4" SCHEDULE 40 PIPE, FOR GATE WIDTHS UP THRU 10 FEET OR 20 FEET FOR DOUBLE SWING GATE, PER ASTM-F1083.
  - GATE FRAME: 1 1/2" PIPE SCH. 40, PER ASTM-F1083.
  - "STYMILOCK" OR EQUIVALENT PROVIDED BY OWNER.
  - GATE DIAGONAL GALVANIZED STEEL 1 1/2" PIPE.
  - DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD PRIOR TO INSTALLATION.
  - GEOTEXTILE FABRIC.
  - LINE POST: CONCRETE FOUNDATION (3000 PSI).
  - CORNER POST: CONCRETE FOUNDATION (3000 PSI).
  - GATE POST: CONCRETE FOUNDATION (3000 PSI).
  - GATE FRAME BRACE: 1 5/8" DIAMETER.
  - MUSHROOM STOP
  - EXTENSION ARM

- GENERAL NOTES:**
- INSTALL FENCING PER ASTM F-567
  - INSTALL SWING GATES PER ASTM F- 900
  - LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED IF REQUIRED.
  - POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. (HOT DIP, ASTM A120 GRADE "A" STEEL). ALL GATE FRAMES SHALL BE WELDED. ALL WELDING SHALL BE COATED WITH (3) COATS OF COLD GALV. (OR EQUAL).
  - ALL OPEN POSTS SHALL HAVE END-CAPS.
  - USE GALVANIZED HOG-RING WIRE TO MOUNT ALL SIGNS.
  - ALL SIGNS TO BE MOUNTED PER CM INSTRUCTIONS.



**CWS**  
 CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

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 FAX: (703) 671-6300

SET REVISION			
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4	COMMENTS	AGT	07-20-20
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6	EAS PLAN CHGS.	AGT	08-12-20

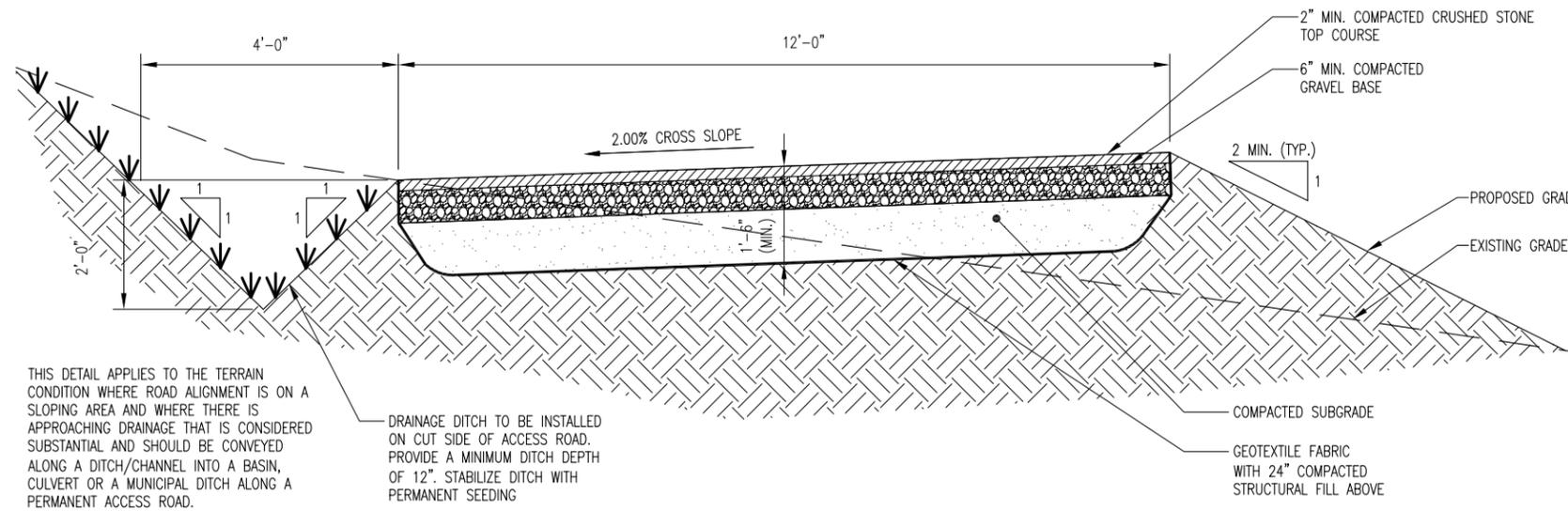
SITE NAME:  
**UNO**  
 SITE NUMBER:  
**CWS 43**  
 SITE ADDRESS:  
**950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972**

COMMONWEALTH OF VIRGINIA  
*Christopher D. Morin*  
**CHRISTOPHER D. MORIN**  
 8.12.20  
 No. 032984  
 PROFESSIONAL ENGINEER

DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING
SHEET TITLE: <b>FENCE, GATE AND COMPOUND CROSS SECTION DETAIL</b>	

SHEET NUMBER: **A-2**      REV. # **6**

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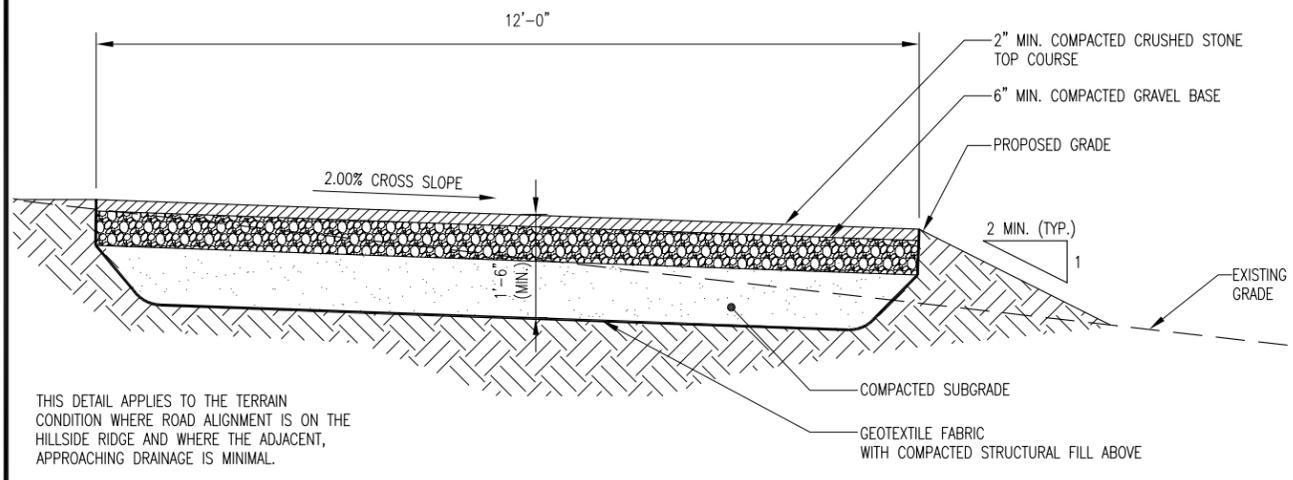


THIS DETAIL APPLIES TO THE TERRAIN CONDITION WHERE ROAD ALIGNMENT IS ON A SLOPING AREA AND WHERE THERE IS APPROACHING DRAINAGE THAT IS CONSIDERED SUBSTANTIAL AND SHOULD BE CONVEYED ALONG A DITCH/CHANNEL INTO A BASIN, CULVERT OR A MUNICIPAL DITCH ALONG A PERMANENT ACCESS ROAD.

DRAINAGE DITCH TO BE INSTALLED ON CUT SIDE OF ACCESS ROAD. PROVIDE A MINIMUM DITCH DEPTH OF 12". STABILIZE DITCH WITH PERMANENT SEEDING

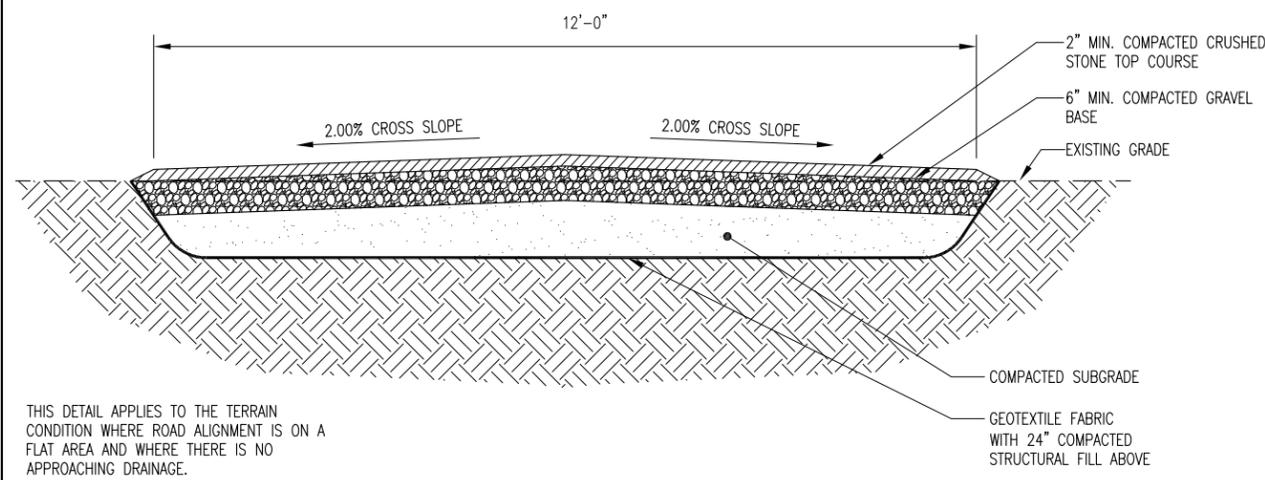
2" MIN. COMPACTED CRUSHED STONE TOP COURSE  
 6" MIN. COMPACTED GRAVEL BASE  
 2 MIN. (TYP.)  
 PROPOSED GRADE  
 EXISTING GRADE  
 COMPACTED SUBGRADE  
 GEOTEXTILE FABRIC WITH 24" COMPACTED STRUCTURAL FILL ABOVE

N.T.S. **TYPICAL ROAD SECTION DETAIL (DITCH TO BE ADDED ON CUT SIDE/S)** 1



THIS DETAIL APPLIES TO THE TERRAIN CONDITION WHERE ROAD ALIGNMENT IS ON THE HILLSIDE RIDGE AND WHERE THE ADJACENT, APPROACHING DRAINAGE IS MINIMAL.

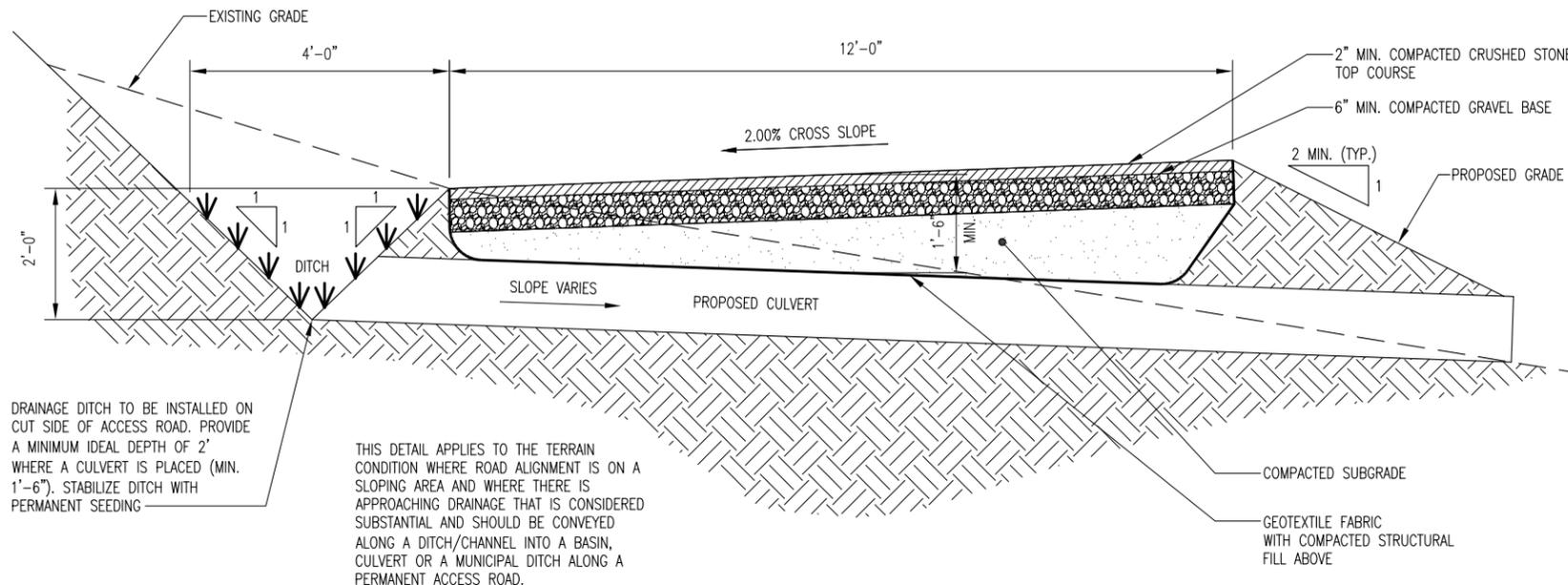
COMPACTED SUBGRADE  
 GEOTEXTILE FABRIC WITH COMPACTED STRUCTURAL FILL ABOVE



THIS DETAIL APPLIES TO THE TERRAIN CONDITION WHERE ROAD ALIGNMENT IS ON A FLAT AREA AND WHERE THERE IS NO APPROACHING DRAINAGE.

COMPACTED SUBGRADE  
 GEOTEXTILE FABRIC WITH 24" COMPACTED STRUCTURAL FILL ABOVE

N.T.S. **TYPICAL SLOPED ROAD SECTION DETAIL W/ NO DITCH** 2 N.T.S. **TYPICAL CROWNED ROAD SECTION DETAIL W/ NO DITCH** 3



DRAINAGE DITCH TO BE INSTALLED ON CUT SIDE OF ACCESS ROAD. PROVIDE A MINIMUM IDEAL DEPTH OF 2' WHERE A CULVERT IS PLACED (MIN. 1'-6"). STABILIZE DITCH WITH PERMANENT SEEDING

THIS DETAIL APPLIES TO THE TERRAIN CONDITION WHERE ROAD ALIGNMENT IS ON A SLOPING AREA AND WHERE THERE IS APPROACHING DRAINAGE THAT IS CONSIDERED SUBSTANTIAL AND SHOULD BE CONVEYED ALONG A DITCH/CHANNEL INTO A BASIN, CULVERT OR A MUNICIPAL DITCH ALONG A PERMANENT ACCESS ROAD.

2" MIN. COMPACTED CRUSHED STONE TOP COURSE  
 6" MIN. COMPACTED GRAVEL BASE  
 2 MIN. (TYP.)  
 PROPOSED GRADE  
 COMPACTED SUBGRADE  
 GEOTEXTILE FABRIC WITH COMPACTED STRUCTURAL FILL ABOVE

N.T.S. **TYPICAL ROAD SECTION DETAIL W/ DITCH & CULVERT** 4



CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

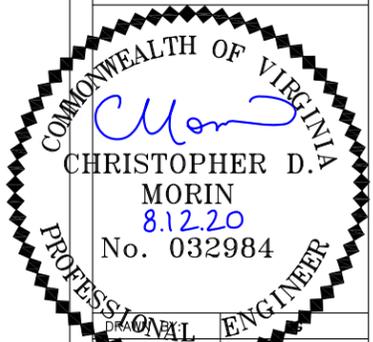
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5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
 FAX: (703) 671-6300

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1	ADDRESS CHANGE	AGT	01-16-20
2	COMMENTS	JG	05-14-20
3	COMMENTS	JG	05-15-20
4	COMMENTS	AGT	07-20-20
5	T1 EDIT	AGT	07-27-20
6	E&S PLAN CHGS.	AGT	08-12-20

SITE NAME:  
**UNO**  
 SITE NUMBER:  
**CWS 43**  
 SITE ADDRESS:  
 950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING
SHEET TITLE: <b>CIVIL DETAILS</b>	
SHEET NUMBER: <b>A-3</b>	REV. # <b>6</b>



CWS X, LLC  
2800 SHIRLINGTON ROAD, SUITE 802  
ARLINGTON, VA 22206  
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architects  
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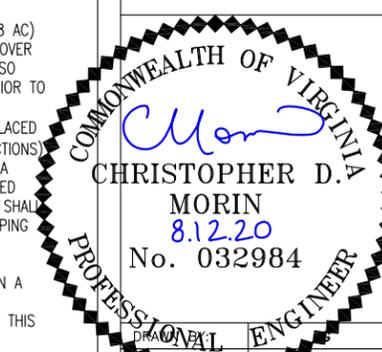
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SITE NUMBER:

**CWS 43**

SITE ADDRESS:

**950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972**



DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

**OVERALL EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER: **E&S-1**

REV. # **6**

LEGEND

- X X CHAIN LINK FENCE
- PROPERTY LINE
- LEASE AREA
- OHT/OHP OVERHEAD TELEPHONE/OVERHEAD POWER
- UNDERGROUND UTILITY LINES
- LOD LIMITS OF DISTURBANCE
- SF SF SF SILT FENCE
- → → DRAINAGE DITCH
- ○ ○ SAFETY FENCE ENCLOSING BMP'S

STRUCTURAL PRACTICES

SF	SEDIMENT BARRIER	SILT FENCE AND SUPER SILT FENCE VA E&S HANDBOOK STD & SPEC 3.05
CE	CONSTRUCTION ENTRANCE	TEMPORARY STONE CONSTRUCTION ENTRANCE VA E&S HANDBOOK STD & SPEC 3.02
OP	OUTLET PROTECTION	CULVERT OUTLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.18
CIP	CULVERT INLET PROTECTION	CULVERT INLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.08
RR	RIPRAP	PERMANENT, EROSION-RESISTANT GROUND COVER OF LARGE, LOOSE, ANGULAR STONE WITH FILTER FABRIC OR GRANULAR UNDERLINING. VA E&S HANDBOOK STD & SPEC 3.19

VEGETATIVE PRACTICES

TS	DISTURBED AREA STABILIZATION	SEEDING FOR TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 30 DAYS VA E&S HANDBOOK STD & SPEC 3.31
PS	DISTURBED AREA STABILIZATION	PERMANENT VEGETATIVE COVER AFTER FINE GRADING VA E&S HANDBOOK STD & SPEC 3.32
E/M	SOIL STABILIZATION BLANKETS & MATTING	PROTECTIVE COVERING (BLANKET) OR A SOIL STABILIZATION MAT ON A PREPARED PLANTING AREA OF A STEEP SLOPE, CHANNEL OR SHORELINE VA E&S HANDBOOK STD & SPEC 3.36

E&S QUANTITIES:

IMPERVIOUS AREA (ROAD & COMPOUND):

VDOT STD. 21A STONE-TOP COURSE (ROAD)	156 CU. YARDS
#3 STONE - BASE COURSE (ROAD)	467 CU. YARDS
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FILTER CLOTH UNDERLINER (ROAD)	25,169 SQ. FT.
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CONSTRUCTION ROAD STABILIZATION	25,169 SQ. FT.

SILT FENCE:

FABRIC:	2,007 LN. FT.
2"x2" STAKES (5' LONG, 6' APART)	336 PCS. 5 FT. LONG

CONSTRUCTION ENTRANCE:

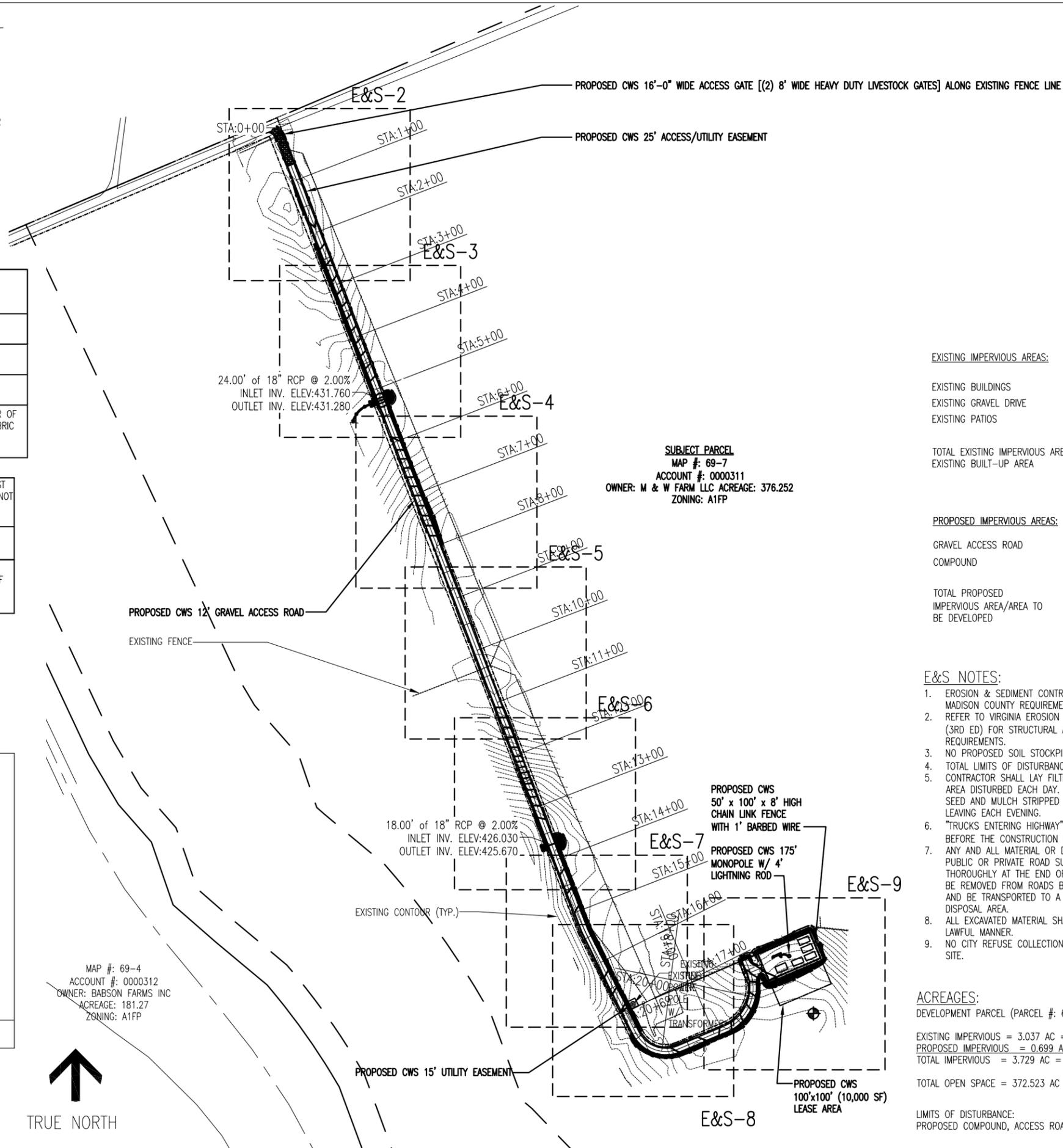
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PERMANENT SEEDING	21,278 SQ. FT.
TEMPORARY SEEDING	21,278 SQ. FT.
BLANKET MATTING	4,128 SQ. FT.

E&S QUANTITIES

SCALE IN FEET



TRUE NORTH



SUBJECT PARCEL  
MAP #: 69-7  
ACCOUNT #: 0000311  
OWNER: M & W FARM LLC ACREAGE: 376.252  
ZONING: A1FP

EXISTING IMPERVIOUS AREAS:

EXISTING BUILDINGS	27,575 SF/0.633 AC
EXISTING GRAVEL DRIVE	97,963.052 SF/2.248 AC
EXISTING PATIOS	6,770.7467 SF/0.155 AC

TOTAL EXISTING IMPERVIOUS AREA/  
EXISTING BUILT-UP AREA 132,309 SF/3.037 AC

PROPOSED IMPERVIOUS AREAS:

GRAVEL ACCESS ROAD	25,169 SF/0.577 AC
COMPOUND	5,303 SF/0.12 AC

TOTAL PROPOSED  
IMPERVIOUS AREA/AREA TO  
BE DEVELOPED 30,472 SF/0.699 AC

E&S NOTES:

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2. REFER TO VIRGINIA EROSION & SEDIMENT CONTROL MANUAL (3RD ED) FOR STRUCTURAL AND VEGETATIVE PRACTICE REQUIREMENTS.
3. NO PROPOSED SOIL STOCKPILE AREAS.
4. TOTAL LIMITS OF DISTURBANCE = ±51,750 SF (1.18 AC)
5. CONTRACTOR SHALL LAY FILTER CLOTH AND STONE OVER AREA DISTURBED EACH DAY. CONTRACTOR SHALL ALSO SEED AND MULCH STRIPPED & SPREAD TOPSOIL PRIOR TO LEAVING EACH EVENING.
6. "TRUCKS ENTERING HIGHWAY" SIGNS NEED TO BE PLACED BEFORE THE CONSTRUCTION ENTRANCE (BOTH DIRECTIONS)
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8. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN A LAWFUL MANNER.
9. NO CITY REFUSE COLLECTION WILL BE PROVIDED TO THIS SITE.

ACREAGES:

DEVELOPMENT PARCEL (PARCEL #: 69-7) = 376.252 AC

EXISTING IMPERVIOUS = 3.037 AC = 0.805%  
PROPOSED IMPERVIOUS = 0.699 AC = 0.185%  
TOTAL IMPERVIOUS = 3.729 AC = 0.991%

TOTAL OPEN SPACE = 372.523 AC = 99.009%

LIMITS OF DISTURBANCE:  
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OVERALL EROSION & SEDIMENT CONTROL PLAN

1

11'X17" - 1"=200'  
24'X36" - 1"=100'

C:\Users\cnc\OneDrive - 2019\Community Wireless Structures\Draw - Site 43\F70's - Rev. 6 - 2020-08-12\F&S-13.dwg

**LEGEND**

X X	CHAIN LINK FENCE
---	PROPERTY LINE
- - - -	LEASE AREA
---	OHT/OHP OVERHEAD TELEPHONE/OVERHEAD POWER
- - - -	UNDERGROUND UTILITY LINES
---	LOD LIMITS OF DISTURBANCE
SF SF SF	SILT FENCE
→ → →	DRAINAGE DITCH
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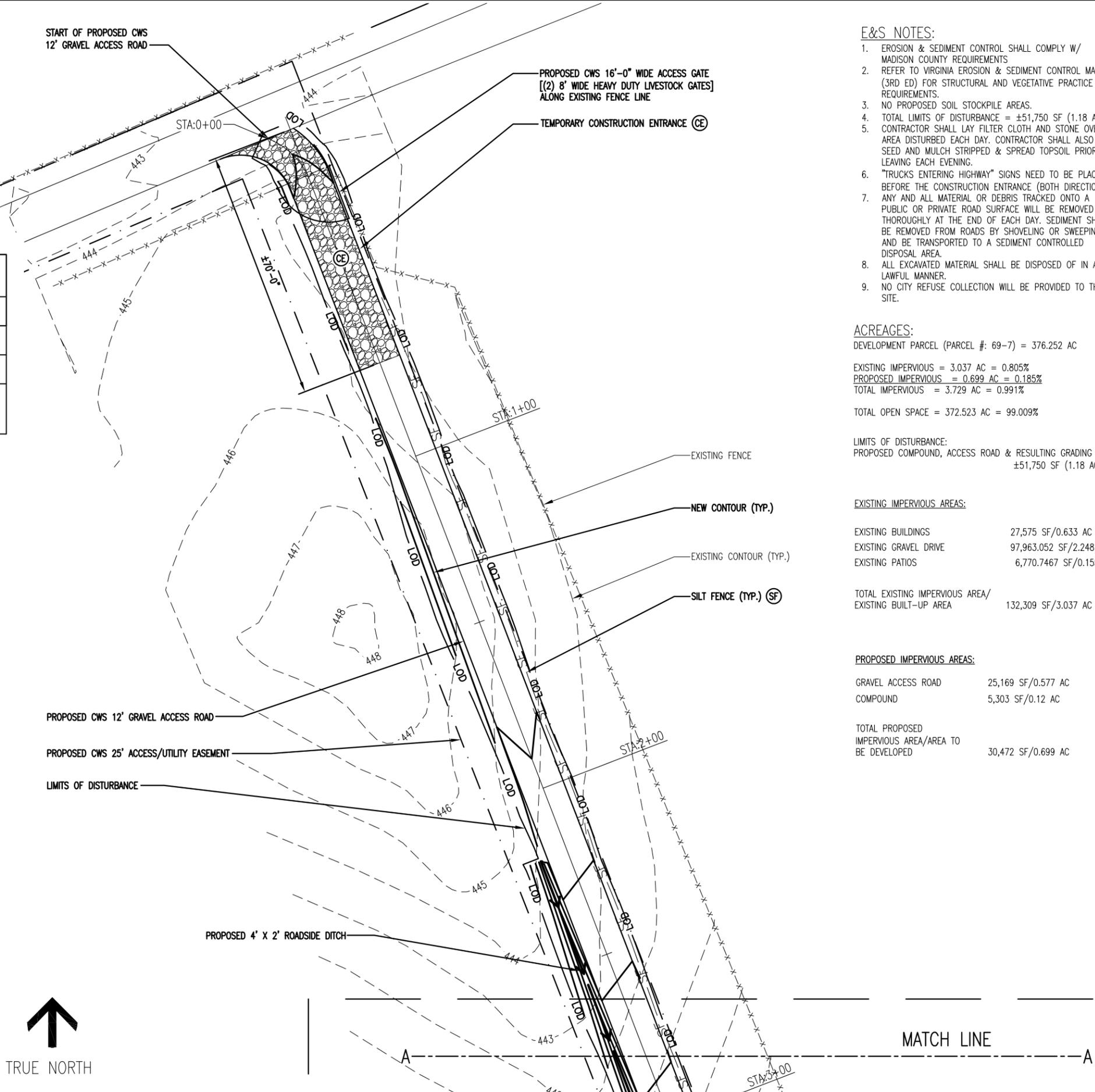
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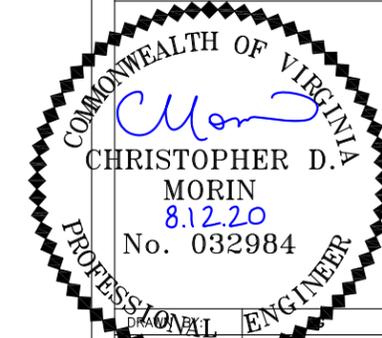
UNO

**SITE NUMBER:**

CWS 43

**SITE ADDRESS:**

950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972



DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

**SHEET TITLE:**

EROSION  
 & SEDIMENT  
 CONTROL PLAN

SHEET NUMBER: E&S-2

REV. # 6

**EROSION & SEDIMENT CONTROL PLAN**

**LEGEND**

X — X	CHAIN LINK FENCE
---	PROPERTY LINE
- - -	LEASE AREA
— OHT/OHP —	OVERHEAD TELEPHONE/OVERHEAD POWER
- - - - -	UNDERGROUND UTILITY LINES
— LOD —	LIMITS OF DISTURBANCE
— SF — SF — SF —	SILT FENCE
→ → → →	DRAINAGE DITCH
○ ○ ○ ○	SAFETY FENCE ENCLOSING BMP'S

**STRUCTURAL PRACTICES**

(SF)	SEDIMENT BARRIER	SILT FENCE AND SUPER SILT FENCE VA E&S HANDBOOK STD & SPEC 3.05
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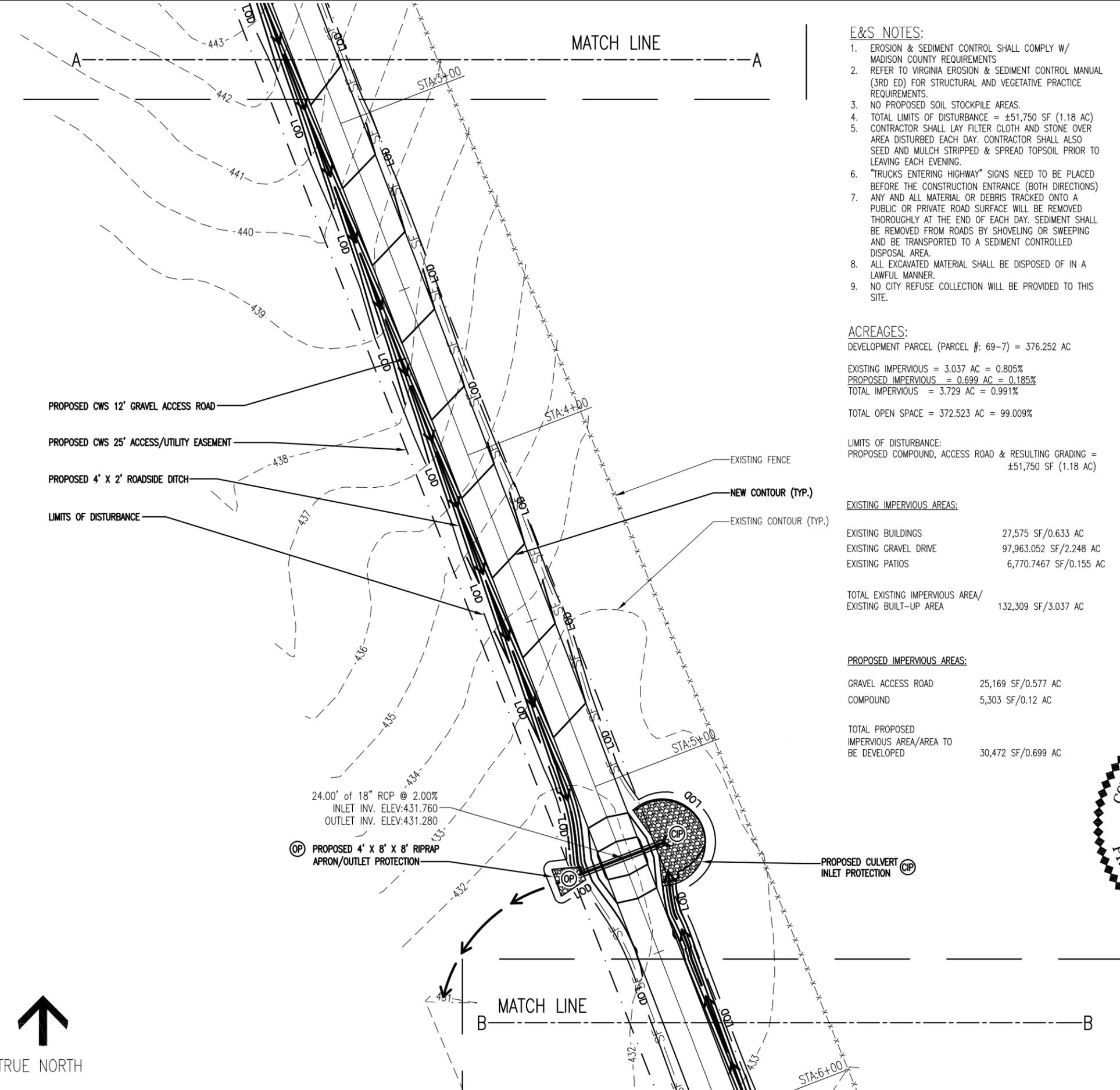
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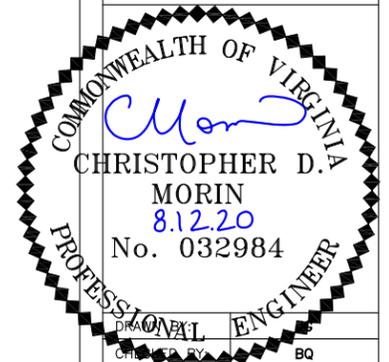
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DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

**EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER:	E&S-3
REV. #	6

**EROSION & SEDIMENT CONTROL PLAN**

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OP	OUTLET PROTECTION	CULVERT OUTLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.18
CIP	CULVERT INLET PROTECTION	CULVERT INLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.08
RR	RIPRAP	PERMANENT, EROSION-RESISTANT GROUND COVER OF LARGE, LOOSE, ANGULAR STONE WITH FILTER FABRIC OR GRANULAR UNDERLINING. VA E&S HANDBOOK STD & SPEC 3.19

**VEGETATIVE PRACTICES**

TS	DISTURBED AREA STABILIZATION	SEEDING FOR TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 30 DAYS VA E&S HANDBOOK STD & SPEC 3.31
PS	DISTURBED AREA STABILIZATION	PERMANENT VEGETATIVE COVER AFTER FINE GRADING VA E&S HANDBOOK STD & SPEC 3.32
E/M	SOIL STABILIZATION BLANKETS & MATTING	PROTECTIVE COVERING (BLANKET) OR A SOIL STABILIZATION MAT ON A PREPARED PLANTING AREA OF A STEEP SLOPE, CHANNEL OR SHORELINE VA E&S HANDBOOK STD & SPEC 3.36

**E&S QUANTITIES:**

**IMPERVIOUS AREA (ROAD & COMPOUND):**

VDOT STD. 21A STONE-TOP COURSE (ROAD)	156 CU. YARDS
#3 STONE - BASE COURSE (ROAD)	467 CU. YARDS
#57 STONE (COMPOUND)	99 CU. YARDS
FILTER CLOTH UNDERLINER (ROAD)	25,169 SQ. FT.
FILTER CLOTH UNDERLINER (COMP.)	5,303 SQ. FT.
CONSTRUCTION ROAD STABILIZATION	25,169 SQ. FT.

**SILT FENCE:**

FABRIC:	2,007 LN. FT.
2"x2" STAKES (5' LONG, 6' APART)	336 PCS. 5 FT. LONG

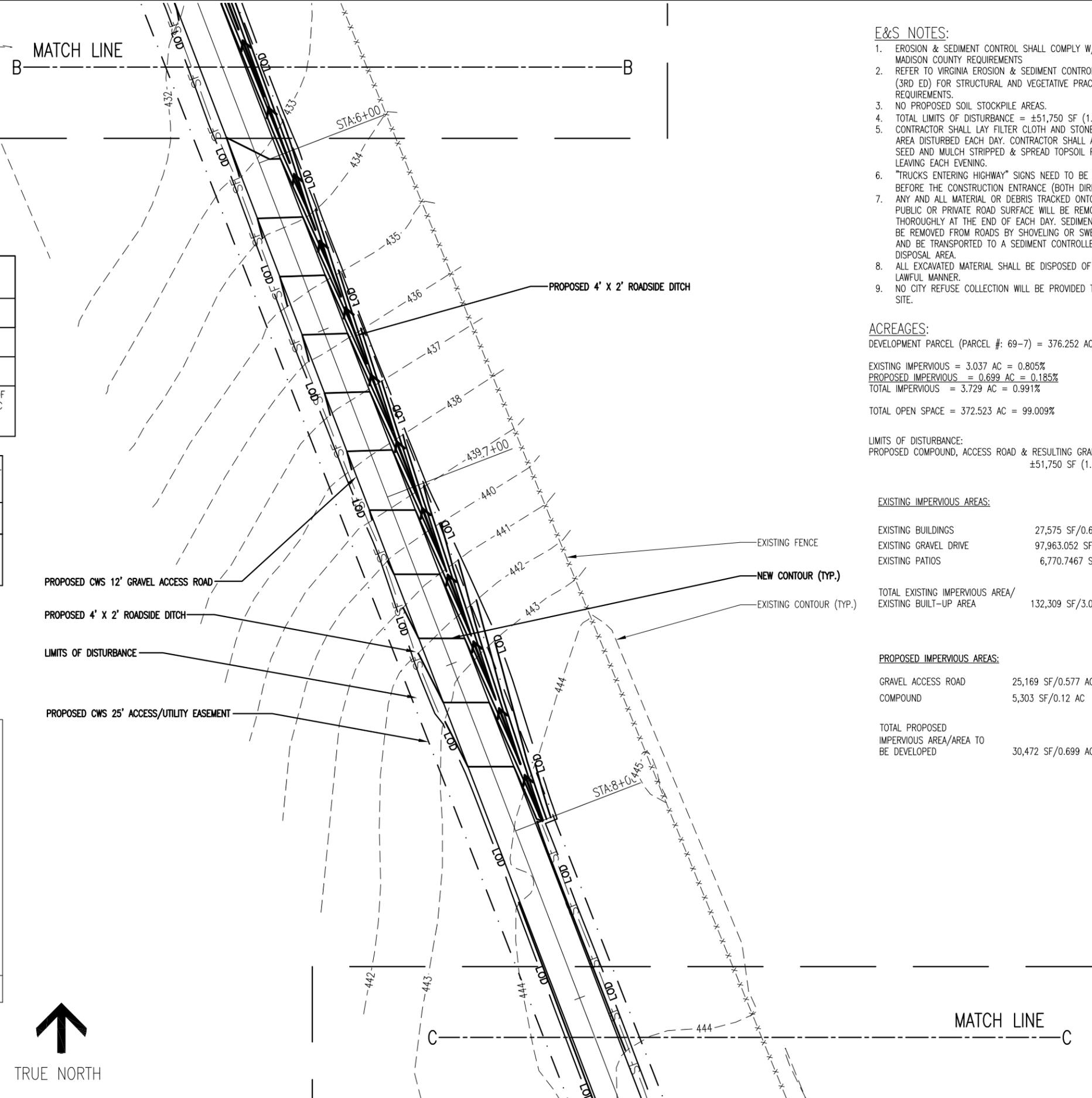
**CONSTRUCTION ENTRANCE:**

VDOT #1 COARSE AGGREGATE	18 CU. YARDS
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**DISTURBED AREA STABILIZATION (AFTER SITE DEVELOPMENT)**

PERMANENT SEEDING	21,278 SQ. FT.
TEMPORARY SEEDING	21,278 SQ. FT.
BLANKET MATTING	4,128 SQ. FT.

**E&S QUANTITIES**



**E&S NOTES:**

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3. NO PROPOSED SOIL STOCKPILE AREAS.
4. TOTAL LIMITS OF DISTURBANCE = ±51,750 SF (1.18 AC)
5. CONTRACTOR SHALL LAY FILTER CLOTH AND STONE OVER AREA DISTURBED EACH DAY. CONTRACTOR SHALL ALSO SEED AND MULCH STRIPPED & SPREAD TOPSOIL PRIOR TO LEAVING EACH EVENING.
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8. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN A LAWFUL MANNER.
9. NO CITY REFUSE COLLECTION WILL BE PROVIDED TO THIS SITE.

**ACREAGES:**

DEVELOPMENT PARCEL (PARCEL #: 69-7) = 376.252 AC

EXISTING IMPERVIOUS = 3.037 AC = 0.805%  
 PROPOSED IMPERVIOUS = 0.699 AC = 0.185%  
 TOTAL IMPERVIOUS = 3.729 AC = 0.991%

TOTAL OPEN SPACE = 372.523 AC = 99.009%

**LIMITS OF DISTURBANCE:**

PROPOSED COMPOUND, ACCESS ROAD & RESULTING GRADING = ±51,750 SF (1.18 AC)

**EXISTING IMPERVIOUS AREAS:**

EXISTING BUILDINGS	27,575 SF/0.633 AC
EXISTING GRAVEL DRIVE	97,963.052 SF/2.248 AC
EXISTING PATIOS	6,770.7467 SF/0.155 AC

**TOTAL EXISTING IMPERVIOUS AREA/ EXISTING BUILT-UP AREA**

132,309 SF/3.037 AC

**PROPOSED IMPERVIOUS AREAS:**

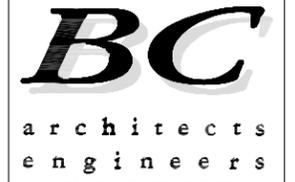
GRAVEL ACCESS ROAD	25,169 SF/0.577 AC
COMPOUND	5,303 SF/0.12 AC

**TOTAL PROPOSED IMPERVIOUS AREA/AREA TO BE DEVELOPED**

30,472 SF/0.699 AC



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5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
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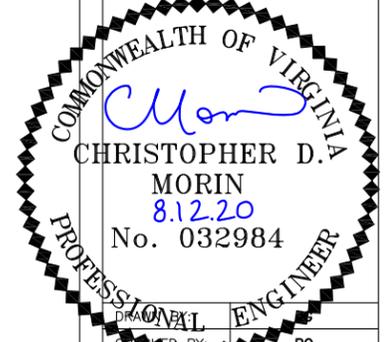
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SITE NAME:  
**UNO**

SITE NUMBER:  
**CWS 43**

SITE ADDRESS:  
**950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972**



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

**EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER:	E&S-4
REV. #	6

**EROSION & SEDIMENT CONTROL PLAN**

**LEGEND**

X X	CHAIN LINK FENCE
---	PROPERTY LINE
- - - -	LEASE AREA
— OHT/OHP —	OVERHEAD TELEPHONE/OVERHEAD POWER
- - - - -	UNDERGROUND UTILITY LINES
— LOD —	LIMITS OF DISTURBANCE
— SF — SF — SF —	SILT FENCE
→ → → →	DRAINAGE DITCH
○ ○ ○ ○	SAFETY FENCE ENCLOSING BMP'S

**STRUCTURAL PRACTICES**

(SF)	SEDIMENT BARRIER	SILT FENCE AND SUPER SILT FENCE VA E&S HANDBOOK STD & SPEC 3.05
(CE)	CONSTRUCTION ENTRANCE	TEMPORARY STONE CONSTRUCTION ENTRANCE VA E&S HANDBOOK STD & SPEC 3.02
(OP)	OUTLET PROTECTION	CULVERT OUTLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.18
(CIP)	CULVERT INLET PROTECTION	CULVERT INLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.08
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**VEGETATIVE PRACTICES**

(TS)	DISTURBED AREA STABILIZATION	SEEDING FOR TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 30 DAYS VA E&S HANDBOOK STD & SPEC 3.31
(PS)	DISTURBED AREA STABILIZATION	PERMANENT VEGETATIVE COVER AFTER FINE GRADING VA E&S HANDBOOK STD & SPEC 3.32
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**E&S QUANTITIES:**

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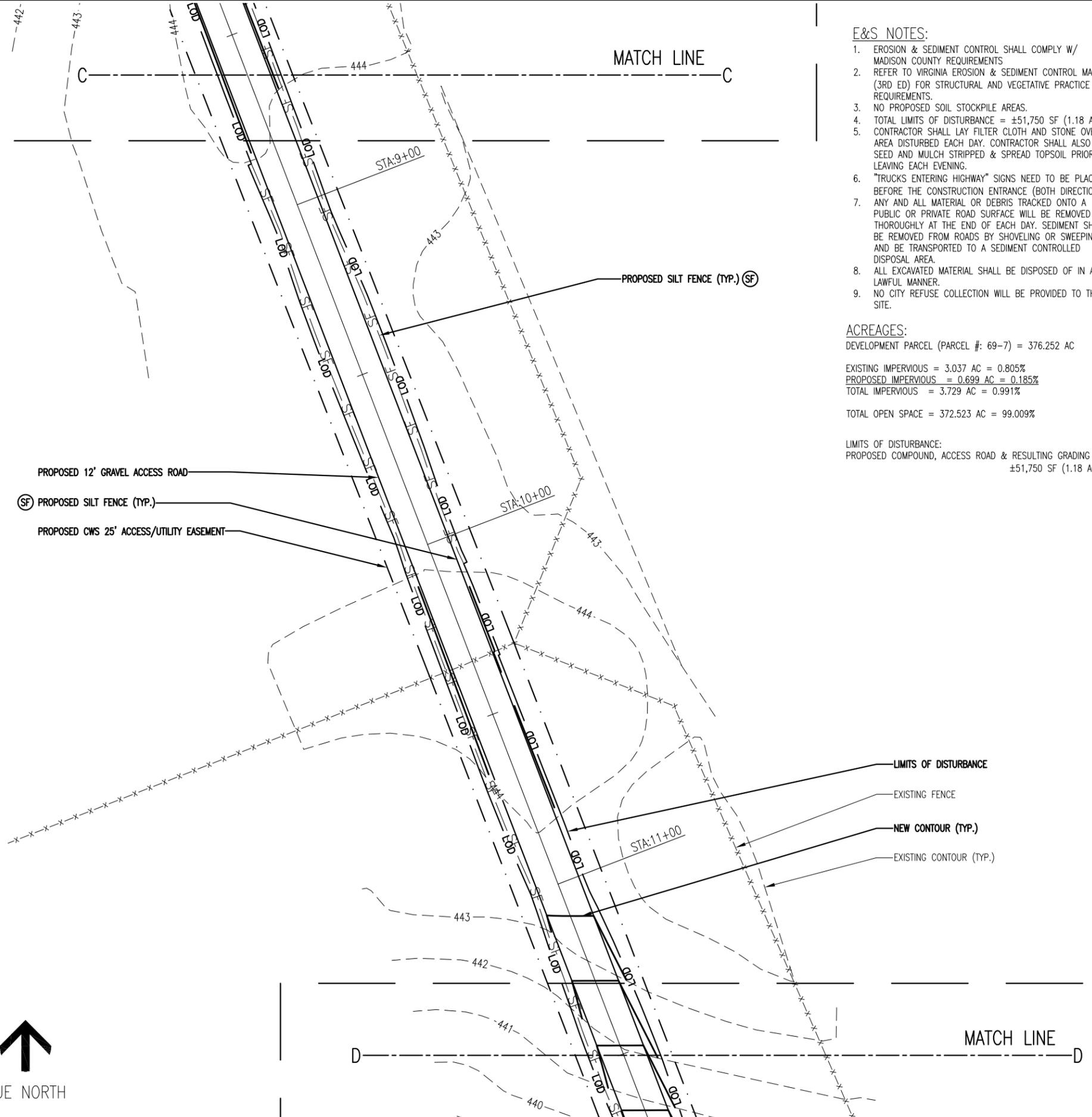
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FABRIC UNDERLINER	940 SQ. FT.

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**E&S QUANTITIES**



**E&S NOTES:**

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**ACREAGES:**

DEVELOPMENT PARCEL (PARCEL #: 69-7) = 376.252 AC  
 EXISTING IMPERVIOUS = 3.037 AC = 0.805%  
 PROPOSED IMPERVIOUS = 0.699 AC = 0.185%  
 TOTAL IMPERVIOUS = 3.729 AC = 0.991%  
 TOTAL OPEN SPACE = 372.523 AC = 99.009%  
 LIMITS OF DISTURBANCE:  
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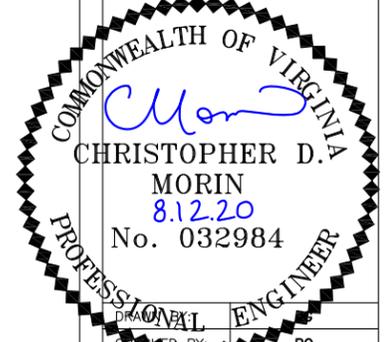
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SITE NAME:  
**UNO**

SITE NUMBER:  
**CWS 43**

SITE ADDRESS:  
**950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972**



DATE DRAWN: 01-13-20  
 SUBMISSION: FINAL ZONING

**EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER: **E&S-5** REV. #: **6**

**EROSION & SEDIMENT CONTROL PLAN**

**LEGEND**

X — X	CHAIN LINK FENCE
---	PROPERTY LINE
- - - -	LEASE AREA
— OHT/OHP —	OVERHEAD TELEPHONE/OVERHEAD POWER
- - - - -	UNDERGROUND UTILITY LINES
— LOD —	LIMITS OF DISTURBANCE
— SF — SF — SF —	SILT FENCE
→ → → →	DRAINAGE DITCH
○ ○ ○ ○	SAFETY FENCE ENCLOSING BMP'S

**STRUCTURAL PRACTICES**

(SF)	SEDIMENT BARRIER	SILT FENCE AND SUPER SILT FENCE VA E&S HANDBOOK STD & SPEC 3.05
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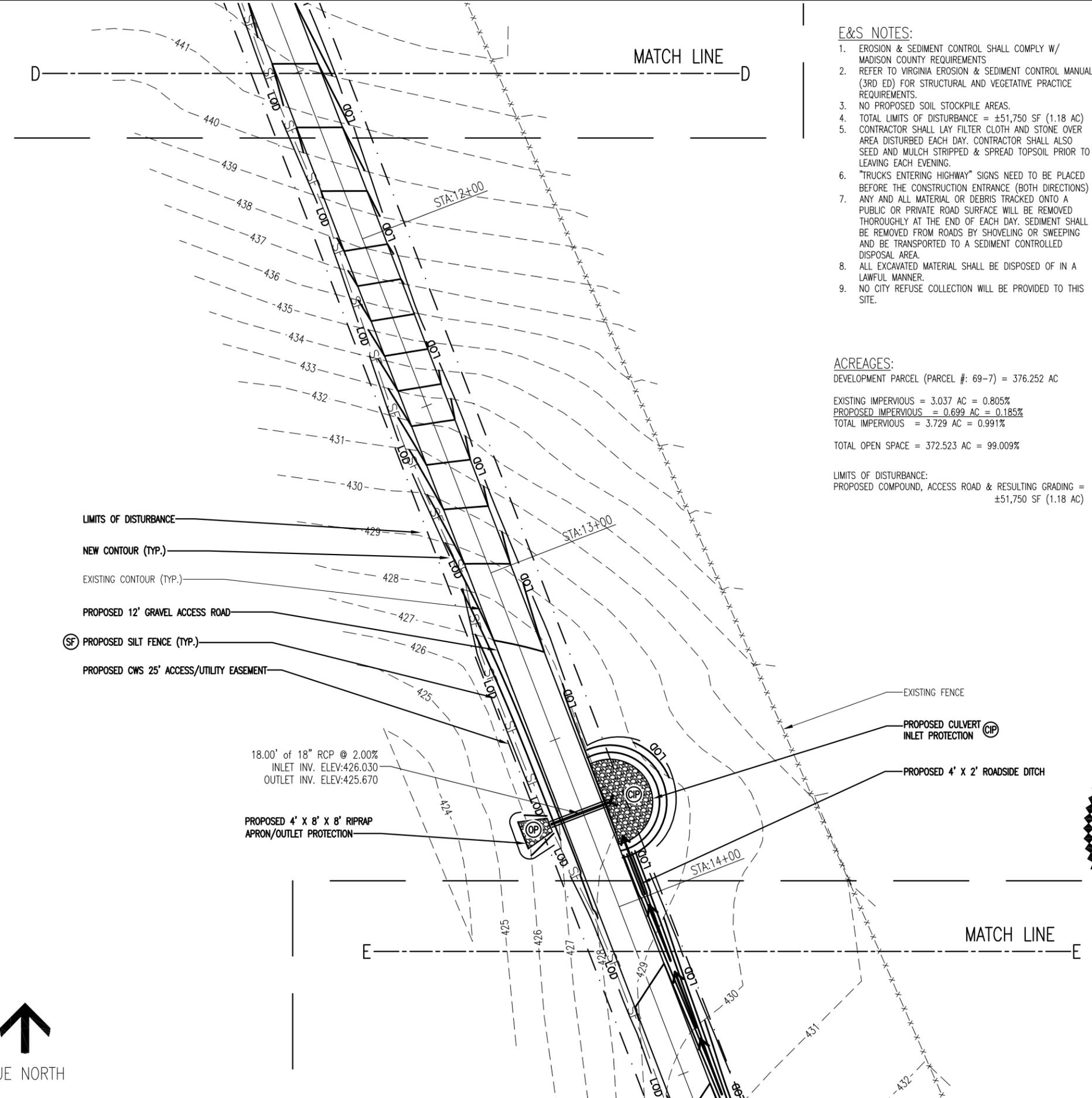
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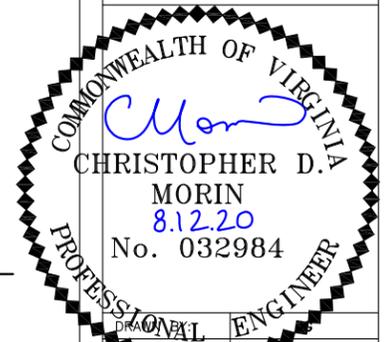
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SITE ADDRESS:  
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SOMERSET, VA 22972**



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

**EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER:	E&S-6
REV. #	6

**EROSION & SEDIMENT CONTROL PLAN**

**LEGEND**

X — X	CHAIN LINK FENCE
---	PROPERTY LINE
- - - -	LEASE AREA
— OHT/OHP —	OVERHEAD TELEPHONE/OVERHEAD POWER
- - - -	UNDERGROUND UTILITY LINES
— LOD —	LIMITS OF DISTURBANCE
— SF — SF — SF —	SILT FENCE
→ → → →	DRAINAGE DITCH
○ ○ ○ ○	SAFETY FENCE ENCLOSING BMP'S

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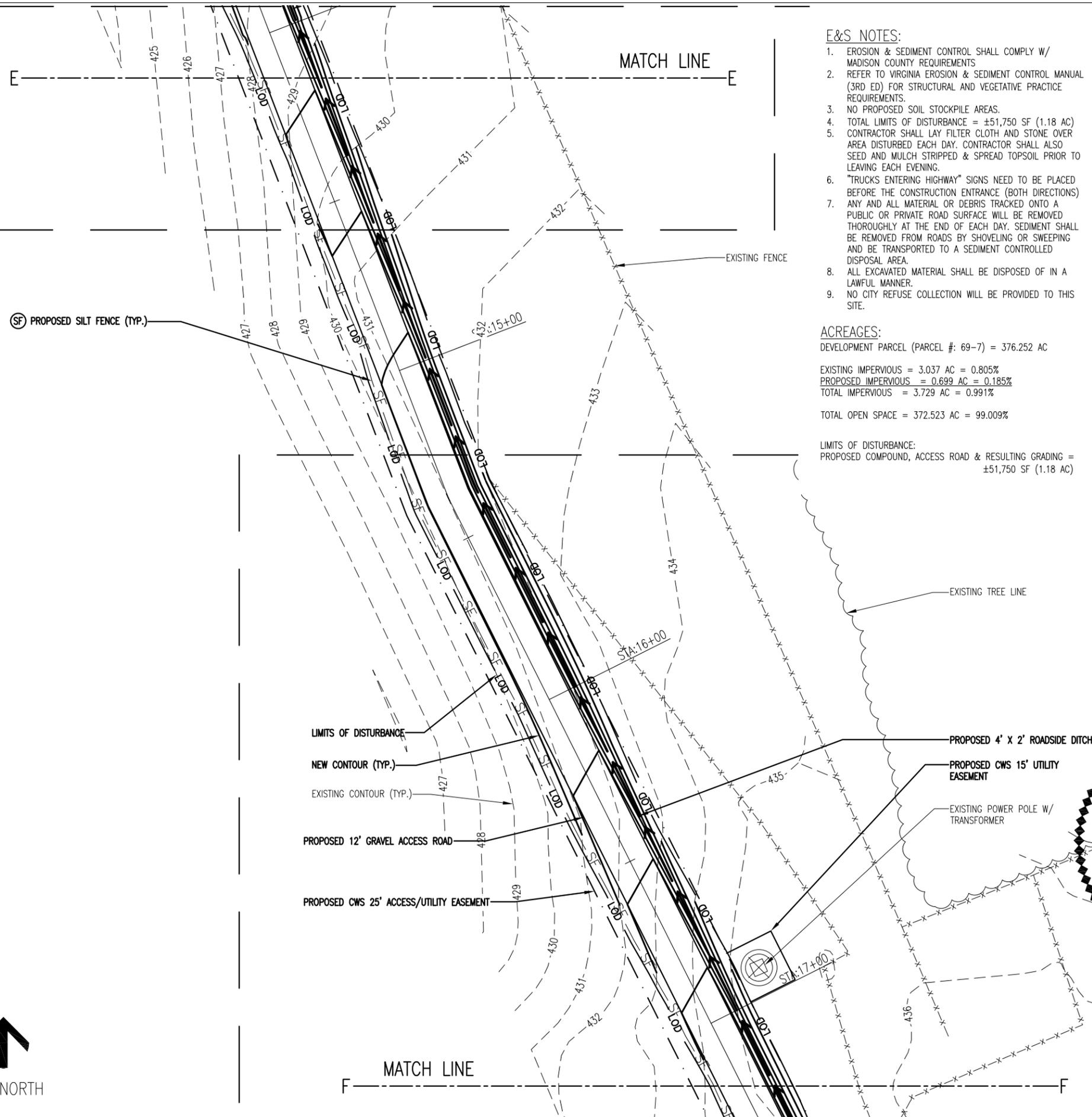
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CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

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architects  
 engineers

5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
 FAX: (703) 671-6300

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6	E&S PLAN CHGS.	AGT	08-12-20

**SITE NAME:**

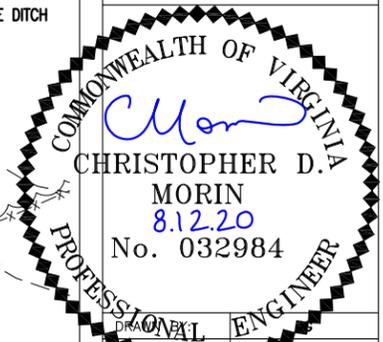
UNO

**SITE NUMBER:**

CWS 43

**SITE ADDRESS:**

950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972



DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

**EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER: E&S-7

REV. # 6

**EROSION & SEDIMENT CONTROL PLAN**

**LEGEND**

X X	CHAIN LINK FENCE
---	PROPERTY LINE
- - -	LEASE AREA
---	OHT/OHP
- - -	OVERHEAD TELEPHONE/OVERHEAD POWER
- - -	UNDERGROUND UTILITY LINES
---	LOD
---	LIMITS OF DISTURBANCE
SF SF SF	SILT FENCE
→ → →	DRAINAGE DITCH
○ ○ ○	SAFETY FENCE ENCLOSING BMP'S

**STRUCTURAL PRACTICES**

SF	SEDIMENT BARRIER	SILT FENCE AND SUPER SILT FENCE VA E&S HANDBOOK STD & SPEC 3.05
CE	CONSTRUCTION ENTRANCE	TEMPORARY STONE CONSTRUCTION ENTRANCE VA E&S HANDBOOK STD & SPEC 3.02
OP	OUTLET PROTECTION	CULVERT OUTLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.18
CIP	CULVERT INLET PROTECTION	CULVERT INLET PROTECTION VA E&S HANDBOOK STD & SPEC 3.08
RR	RIPRAP	PERMANENT, EROSION-RESISTANT GROUND COVER OF LARGE, LOOSE, ANGULAR STONE WITH FILTER FABRIC OR GRANULAR UNDERLINING. VA E&S HANDBOOK STD & SPEC 3.19

**VEGETATIVE PRACTICES**

TS	DISTURBED AREA STABILIZATION	SEEDING FOR TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 30 DAYS VA E&S HANDBOOK STD & SPEC 3.31
PS	DISTURBED AREA STABILIZATION	PERMANENT VEGETATIVE COVER AFTER FINE GRADING VA E&S HANDBOOK STD & SPEC 3.32
E/M	SOIL STABILIZATION BLANKETS & MATTING	PROTECTIVE COVERING (BLANKET) OR A SOIL STABILIZATION MAT ON A PREPARED PLANTING AREA OF A STEEP SLOPE, CHANNEL OR SHORELINE VA E&S HANDBOOK STD & SPEC 3.36

**E&S QUANTITIES:**

**IMPERVIOUS AREA (ROAD & COMPOUND):**

VDOT STD. 21A STONE-TOP COURSE (ROAD)	156 CU. YARDS
#3 STONE - BASE COURSE (ROAD)	467 CU. YARDS
#57 STONE (COMPOUND)	99 CU. YARDS
FILTER CLOTH UNDERLINER (ROAD)	25,169 SQ. FT.
FILTER CLOTH UNDERLINER (COMP.)	5,303 SQ. FT.
CONSTRUCTION ROAD STABILIZATION	25,169 SQ. FT.

**SILT FENCE:**

FABRIC:	2,007 LN. FT.
2"x2" STAKES (5' LONG, 6' APART)	336 PCS. 5 FT. LONG

**CONSTRUCTION ENTRANCE:**

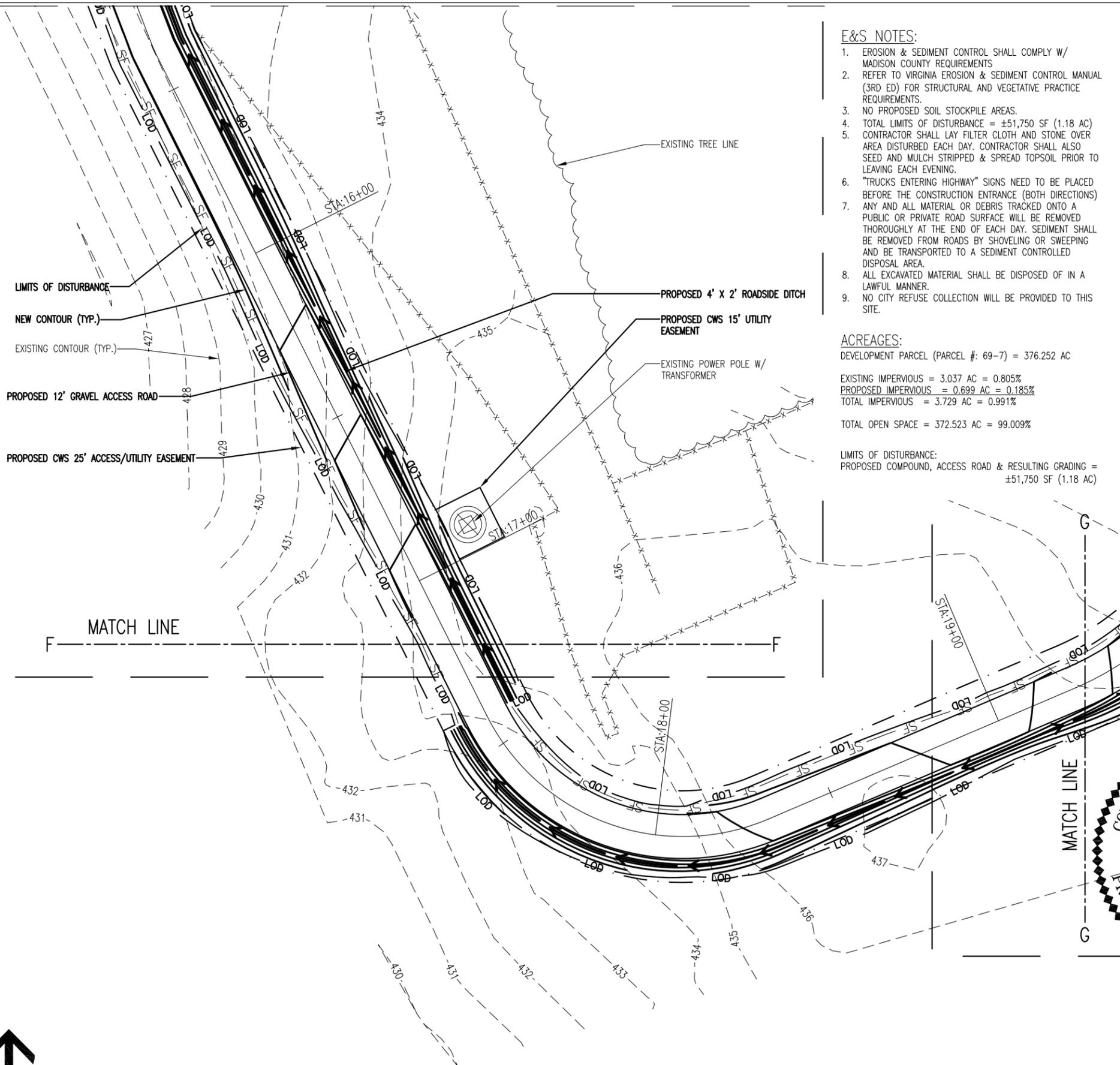
VDOT #1 COARSE AGGREGATE	18 CU. YARDS
(2" TO 3") STONE	940 SQ. FT.

**DISTURBED AREA STABILIZATION (AFTER SITE DEVELOPMENT)**

PERMANENT SEEDING	21,278 SQ. FT.
TEMPORARY SEEDING	21,278 SQ. FT.
BLANKET MATTING	4,128 SQ. FT.

**E&S QUANTITIES**

SCALE IN FEET



**E&S NOTES:**

1. EROSION & SEDIMENT CONTROL SHALL COMPLY W/ MADISON COUNTY REQUIREMENTS
2. REFER TO VIRGINIA EROSION & SEDIMENT CONTROL MANUAL (3RD ED) FOR STRUCTURAL AND VEGETATIVE PRACTICE REQUIREMENTS.
3. NO PROPOSED SOIL STOCKPILE AREAS.
4. TOTAL LIMITS OF DISTURBANCE = ±51,750 SF (1.18 AC) CONTRACTOR SHALL LAY FILTER CLOTH AND STONE OVER AREA DISTURBED EACH DAY. CONTRACTOR SHALL ALSO SEED AND MULCH STRIPPED & SPREAD TOPSOIL PRIOR TO LEAVING EACH EVENING.
5. "TRUCKS ENTERING HIGHWAY" SIGNS NEED TO BE PLACED BEFORE THE CONSTRUCTION ENTRANCE (BOTH DIRECTIONS) ANY AND ALL MATERIAL OR DEBRIS TRACKED ONTO A PUBLIC OR PRIVATE ROAD SURFACE WILL BE REMOVED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA.
6. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN A LAWFUL MANNER.
7. NO CITY REFUSE COLLECTION WILL BE PROVIDED TO THIS SITE.

**ACREAGES:**

DEVELOPMENT PARCEL (PARCEL #: 69-7) = 376.252 AC

EXISTING IMPERVIOUS = 3.037 AC = 0.805%  
 PROPOSED IMPERVIOUS = 0.699 AC = 0.185%  
 TOTAL IMPERVIOUS = 3.729 AC = 0.991%

TOTAL OPEN SPACE = 372.523 AC = 99.009%

**LIMITS OF DISTURBANCE:**

PROPOSED COMPOUND, ACCESS ROAD & RESULTING GRADING = ±51,750 SF (1.18 AC)



CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

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architects  
 engineers

5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
 FAX: (703) 671-6300

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6	E&S PLAN CHGS.	AGT	08-12-20

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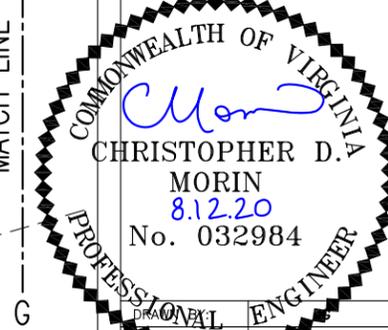
**UNO**

**SITE NUMBER:**

**CWS 43**

**SITE ADDRESS:**

950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972



DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

**EROSION  
 & SEDIMENT  
 CONTROL PLAN**

SHEET NUMBER: REV. #

**E&S-8 6**



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2800 SHIRLINGTON ROAD, SUITE 802  
ARLINGTON, VA 22206  
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architects  
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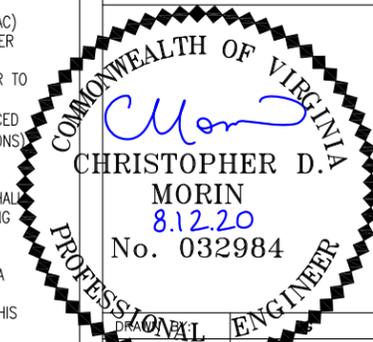
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**CWS 43**

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SOMERSET, VA 22972**



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

SHEET TITLE:  
**EROSION  
& SEDIMENT  
CONTROL PLAN**

SHEET NUMBER:	REV. #
<b>E&amp;S-9</b>	<b>6</b>

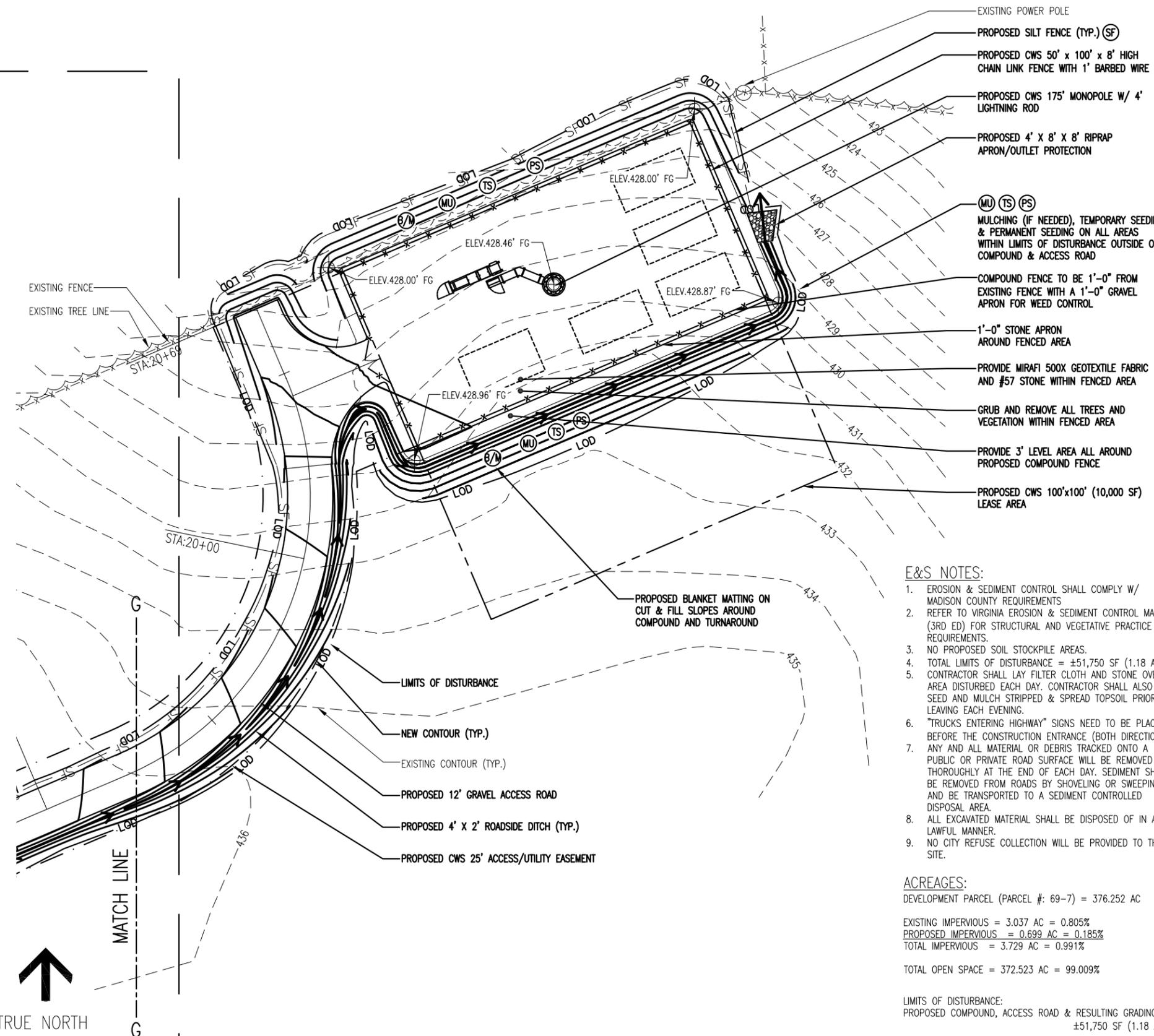
LEGEND	
X X	CHAIN LINK FENCE
---	PROPERTY LINE
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---	LOD LIMITS OF DISTURBANCE
SF SF SF	SILT FENCE
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(2" TO 3") STONE	18 CU. YARDS
FABRIC UNDERLINER	940 SQ. FT.
<b>DISTURBED AREA STABILIZATION (AFTER SITE DEVELOPMENT)</b>	
PERMANENT SEEDING	21,278 SQ. FT.
TEMPORARY SEEDING	21,278 SQ. FT.
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**E&S QUANTITIES**



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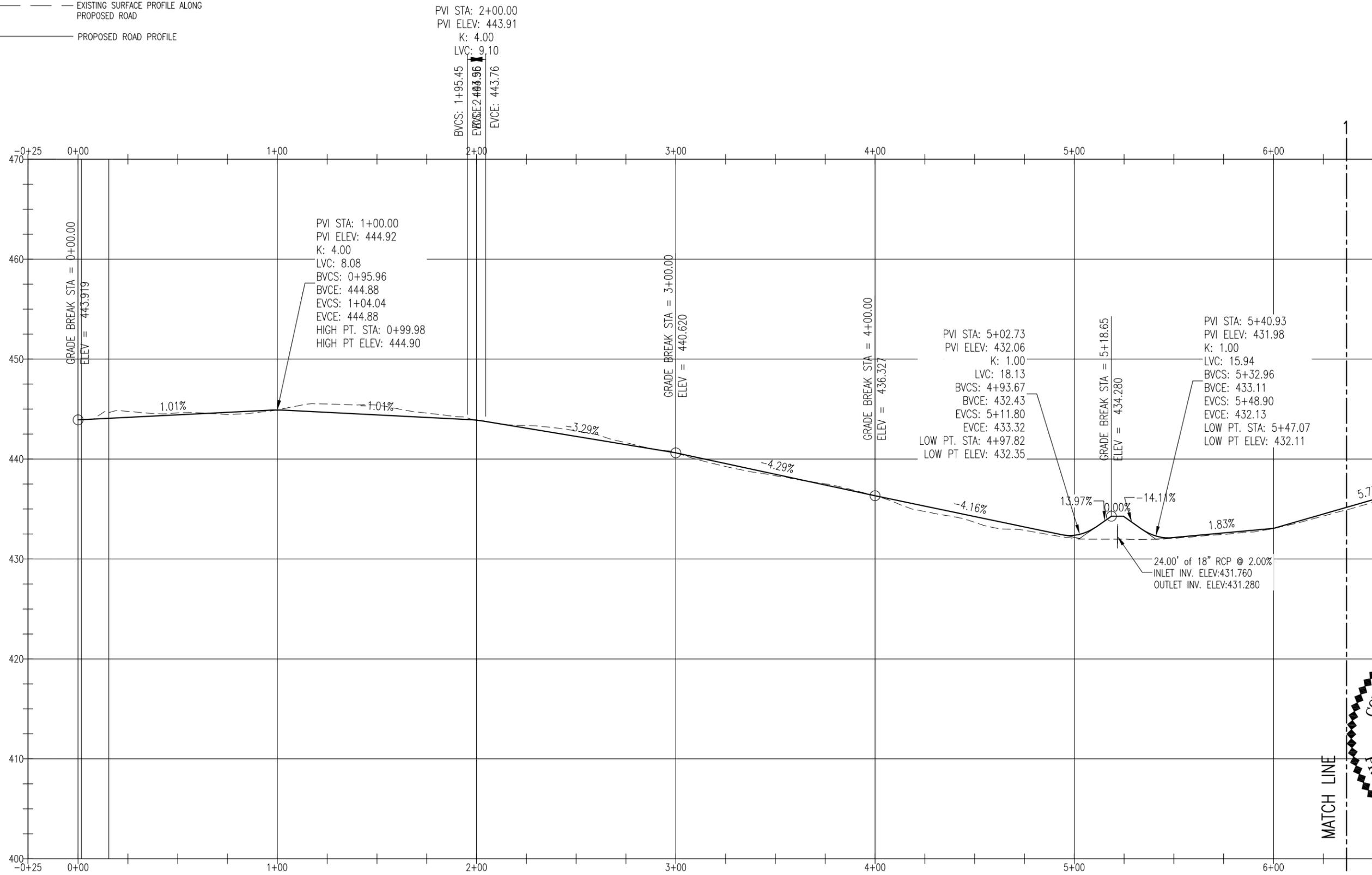
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LIMITS OF DISTURBANCE:  
PROPOSED COMPOUND, ACCESS ROAD & RESULTING GRADING = ±51,750 SF (1.18 AC)

**EROSION & SEDIMENT CONTROL PLAN**

LEGEND

- - - - - EXISTING SURFACE PROFILE ALONG PROPOSED ROAD
- PROPOSED ROAD PROFILE



PVI STA: 2+00.00  
 PVI ELEV: 443.91  
 K: 4.00  
 LVC: 9.10  
 BVCS: 1+95.45  
 BVCE: 2+06.96  
 EVCS: 2+06.96  
 EVCE: 443.76

PVI STA: 1+00.00  
 PVI ELEV: 444.92  
 K: 4.00  
 LVC: 8.08  
 BVCS: 0+95.96  
 BVCE: 444.88  
 EVCS: 1+04.04  
 EVCE: 444.88  
 HIGH PT. STA: 0+99.98  
 HIGH PT ELEV: 444.90

GRADE BREAK STA = 3+00.00  
 ELEV = 440.620

GRADE BREAK STA = 4+00.00  
 ELEV = 436.327

PVI STA: 5+02.73  
 PVI ELEV: 432.06  
 K: 1.00  
 LVC: 18.13  
 BVCS: 4+93.67  
 BVCE: 432.43  
 EVCS: 5+11.80  
 EVCE: 433.32  
 LOW PT. STA: 4+97.82  
 LOW PT ELEV: 432.35

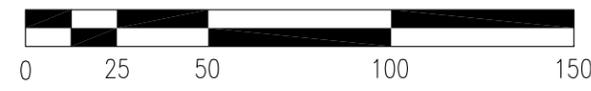
GRADE BREAK STA = 5+18.65  
 ELEV = 434.280

PVI STA: 5+40.93  
 PVI ELEV: 431.98  
 K: 1.00  
 LVC: 15.94  
 BVCS: 5+32.96  
 BVCE: 433.11  
 EVCS: 5+48.90  
 EVCE: 432.13  
 LOW PT. STA: 5+47.07  
 LOW PT ELEV: 432.11

24.00' of 18" RCP @ 2.00%  
 INLET INV. ELEV: 431.760  
 OUTLET INV. ELEV: 431.280

MATCH LINE

SCALE IN FEET



11-19-19 ATCS 182713 Y:\Drawings - 2019\Recon Towers\Drawings - VA120\430's - Rev. 6 - 2019-11-05\EAS1-6 & 15 SERIES - Geotechnical.dwg

11"X17" - 1"=50'  
 24"X36" - 1"=25' 1 HOR./5 VERT. EXAGGERATION

ACCESS ROAD PROFILE

CWS X, LLC  
 2800 SHIRLINGTON ROAD, SUITE 802  
 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
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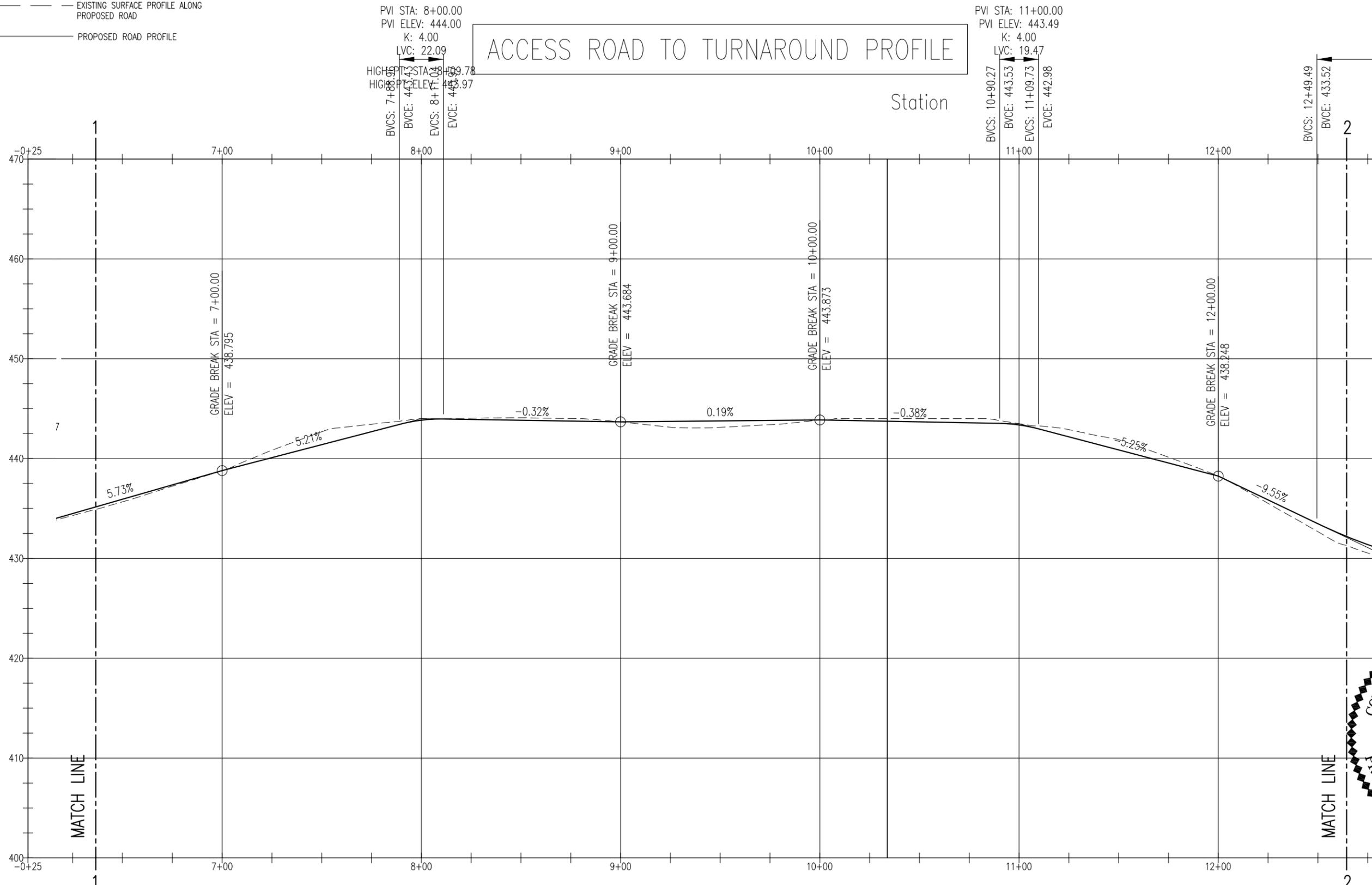
DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

SHEET TITLE:  
**ACCESS ROAD PROFILE**

SHEET NUMBER:	REV. #
<b>E&amp;S-10</b>	<b>6</b>

LEGEND

- - - - - EXISTING SURFACE PROFILE ALONG PROPOSED ROAD
- PROPOSED ROAD PROFILE



SCALE IN FEET



Y:\Drawings - 2019\Bacon Towers\Drawings - VA120\CD's - Rev. 6 - 2019-11-05\EAS1-6 & 15 SERIES - Geotechnical.dwg  
 11-19-19 ATECS 162713



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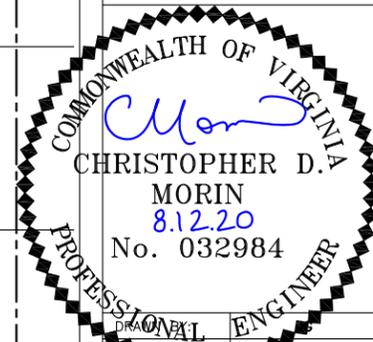
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**UNO**

SITE NUMBER:  
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 950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

SHEET TITLE:  
**ACCESS ROAD PROFILE**

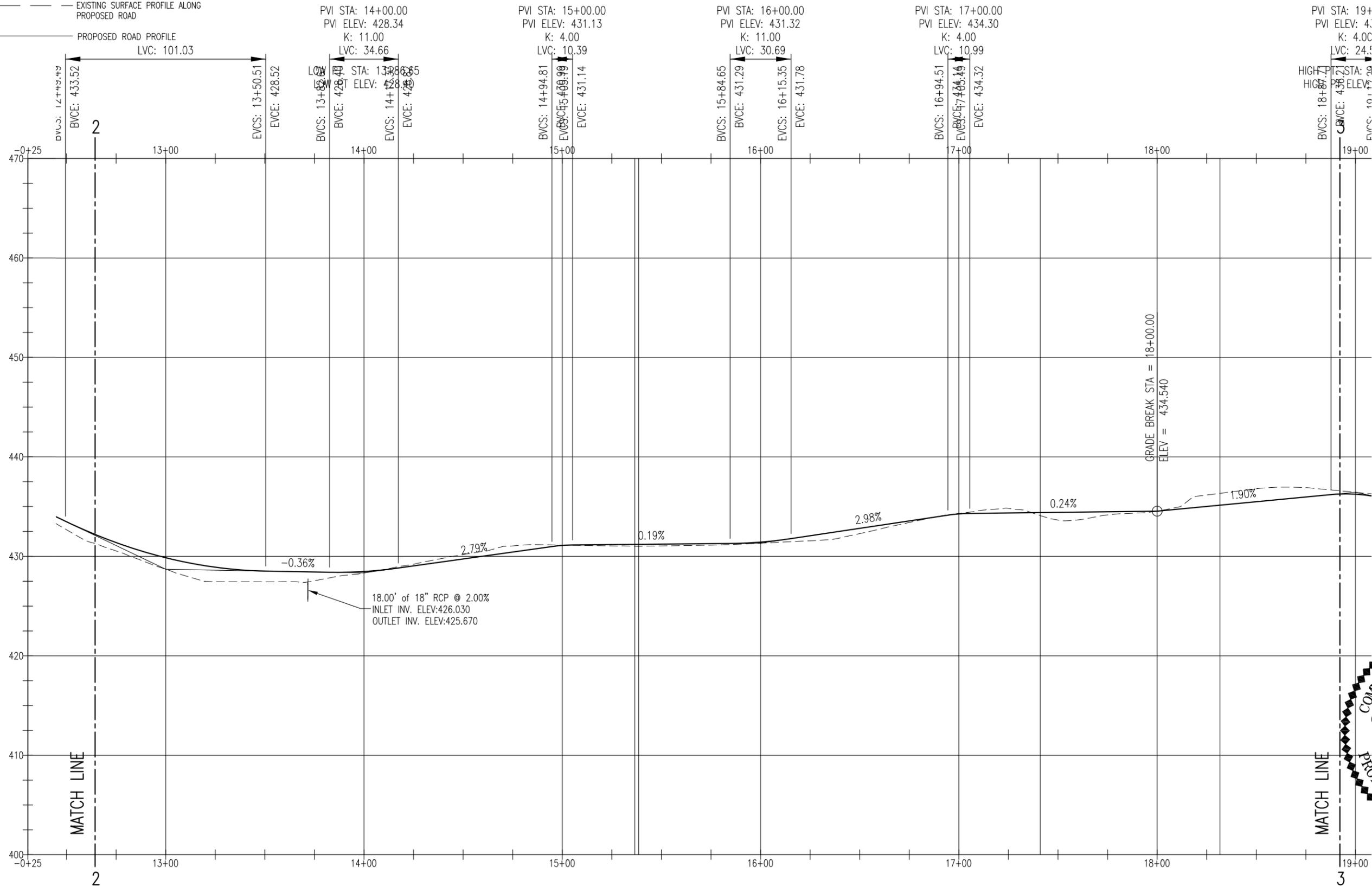
SHEET NUMBER:	REV. #
<b>E&amp;S-11</b>	<b>6</b>

11"X17" - 1"=50'  
 24"X36" - 1"=25' 1 HOR./5 VERT. EXAGGERATION

ACCESS ROAD PROFILE

LEGEND

--- EXISTING SURFACE PROFILE ALONG PROPOSED ROAD  
 — PROPOSED ROAD PROFILE  
 LVC: 101.03



SCALE IN FEET



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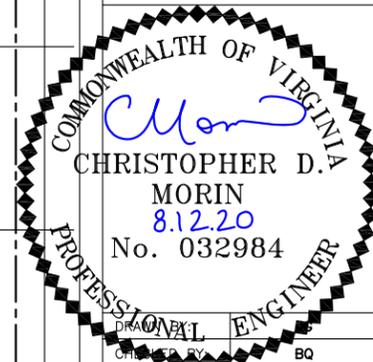
**UNO**

SITE NUMBER:

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SITE ADDRESS:

**950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972**



DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

**ACCESS  
ROAD  
PROFILE**

SHEET NUMBER: REV. #

**E&S-12 6**

11"X17" - 1"=50'  
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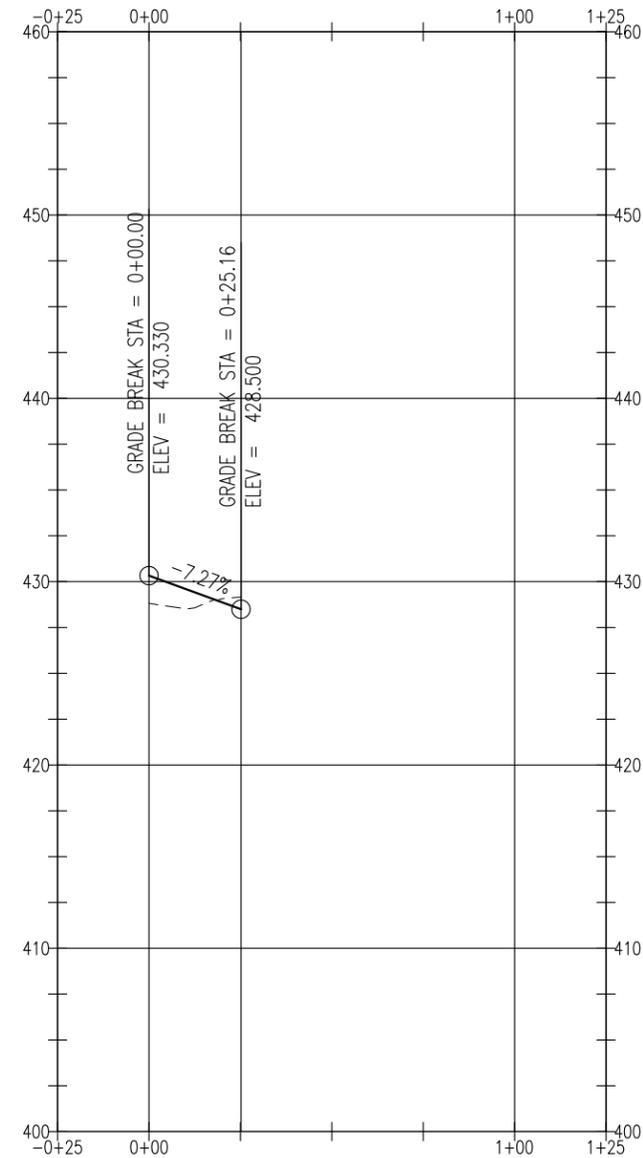
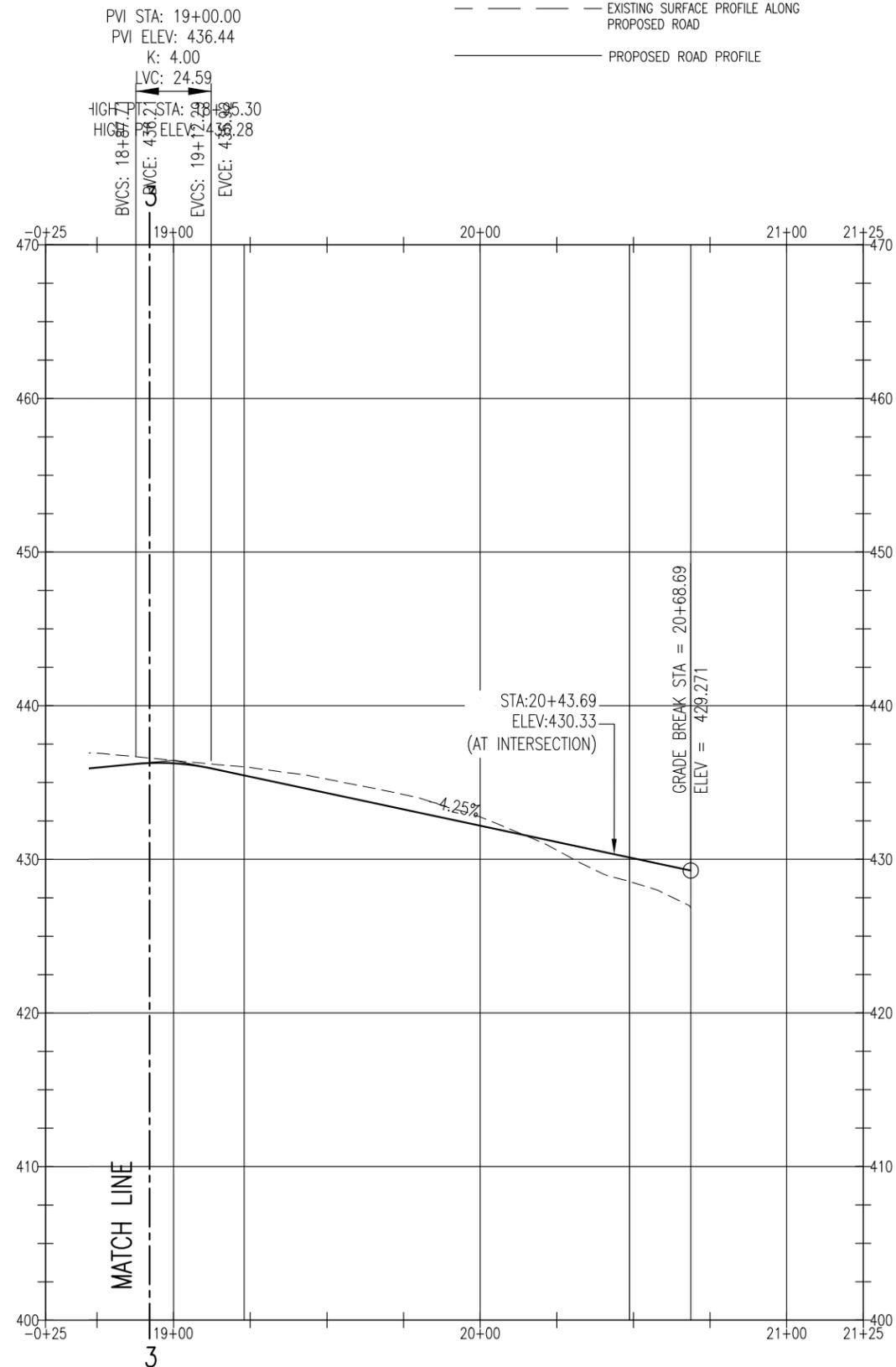
ACCESS ROAD PROFILE

LEGEND

- EXISTING SURFACE PROFILE ALONG PROPOSED ROAD
- PROPOSED ROAD PROFILE

ACCESS ROAD TO COMPOUND PROFILE

Station



Elevation



CWS X, LLC  
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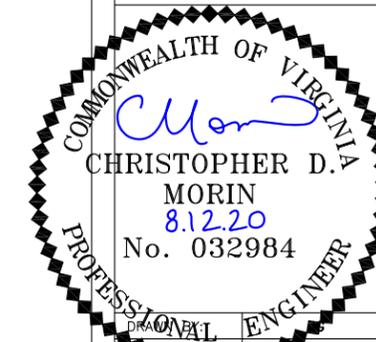
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SITE NUMBER:

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DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

ACCESS  
ROAD  
PROFILES

SHEET NUMBER: REV. #

E&S-13 6

Y:\Drawings - 2019\Bacon Towers\Drawings - V1120\ACD's - Rev. 6 - 2019-11-05\E&S-6 & 15 SERIES - Geotechnical.dwg 1697213

11"X17" - 1"=50'  
24"X36" - 1"=25' 1 HOR./5 VERT. EXAGGERATION

ACCESS ROAD PROFILES

Y:/Drawings - 2019/Community Wireless Structures/Uno - Site 43/FZD's - Rev 0 - 2019-12-23/E&S14.dwg

CONSTRUCTION OF A SILT FENCE  
(WITHOUT WIRE SUPPORT)

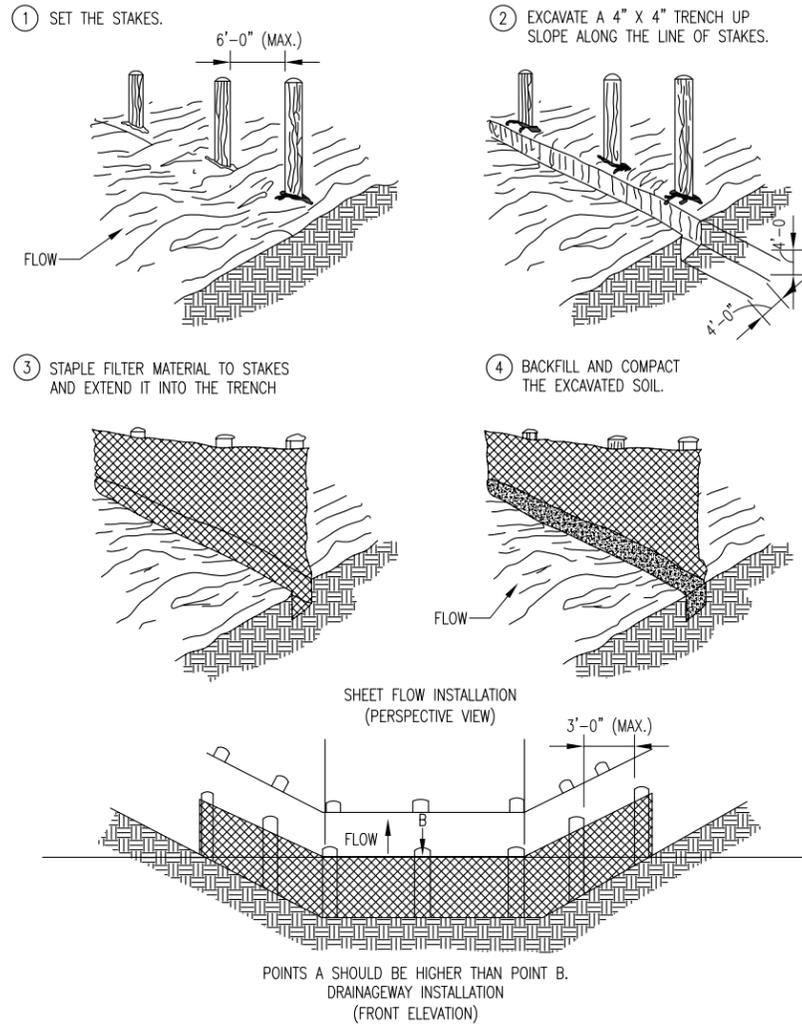


PLATE 3.05-2

**SF** SILT FENCE STD 3.05  
SOURCE: ADAPTED FROM INSTALLATION OF STRAW AND FABRIC FILTER BARRIERS FOR SEDIMENT CONTROL, SHERWOOD AND WYANT

**DEFINITION**

A TEMPORARY SEDIMENT BARRIER CONSISTING OF A SYNTHETIC FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED.

**PURPOSES**

1. TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS IN ORDER TO PREVENT SEDIMENT FROM LEAVING THE SITE.
2. TO DECREASE THE VELOCITY OF SHEET FLOWS AND LOW-TO-MODERATE LEVEL CHANNEL FLOWS.

**CONDITIONS WHERE PRACTICE APPLIES**

1. BELOW DISTURBED AREAS WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION.
2. WHERE THE SIZE OF THE DRAINAGE AREA IS NO MORE THAN ONE QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; THE MAXIMUM SLOPE LENGTH BEHIND THE BARRIER IS 100 FEET; AND THE MAXIMUM GRADIENT BEHIND THE BARRIER IS 50 PERCENT (2:1).
3. IN MINOR SWALES OR DITCH LINES WHERE THE MAXIMUM CONTRIBUTING DRAINAGE AREA IS NO GREATER THAN 1 ACRE AND FLOW IS NO GREATER THAN 1 CFS.
4. SILT FENCE WILL NOT BE USED IN AREAS WHERE ROCK OR SOME OTHER HARD SURFACE PREVENTS THE FULL AND UNIFORM DEPTH ANCHORING OF THE BARRIER.

**PLANNING CONSIDERATIONS**

LABORATORY WORK AT THE VIRGINIA HIGHWAY AND TRANSPORTATION RESEARCH COUNCIL (VHTRC) HAS SHOWN THAT SILT FENCES CAN TRAP A MUCH HIGHER PERCENTAGE OF SUSPENDED SEDIMENTS THAN STRAW BALES, THOUGH SILT FENCE PASSES THE SEDIMENT-LADEN WATER SLOWER. SILT FENCES ARE PREFERABLE TO STRAW BARRIERS IN MANY CASES BECAUSE OF THEIR DURABILITY AND POTENTIAL COST SAVINGS. WHILE THE FAILURE RATE OF SILT FENCES IS LOWER THAN THAT OF STRAW BARRIERS, MANY INSTANCES HAVE BEEN OBSERVED WHERE SILT FENCES ARE IMPROPERLY INSTALLED, INVITING FAILURE AND SEDIMENT LOSS. THE INSTALLATION METHODS OUTLINED HERE CAN IMPROVE PERFORMANCE AND REDUCE FAILURES.

AS NOTED, FLOW RATE THROUGH SILT FENCE IS SIGNIFICANTLY LOWER THAN THE FLOW RATE FOR STRAW BALE BARRIERS. THIS CREATES MORE PONDING AND HENCE MORE TIME FOR SEDIMENT TO FALL OUT. TABLE 3.05-A DEMONSTRATES THESE RELATIONSHIPS.

BOTH WOVEN AND NON-WOVEN SYNTHETIC FABRICS ARE COMMERCIALY AVAILABLE. THE WOVEN FABRICS GENERALLY DISPLAY HIGHER STRENGTH THAN THE NON-WOVEN FABRICS AND, IN MOST CASES, DO NOT REQUIRE ANY ADDITIONAL REINFORCEMENT. WHEN TESTED UNDER ACID AND ALKALINE WATER CONDITIONS, MOST OF THE WOVEN FABRICS INCREASE IN STRENGTH, WHILE THE REACTIONS OF NON-WOVEN FABRICS TO THESE CONDITIONS ARE VARIABLE. THE SAME IS TRUE OF TESTING UNDER EXTENSIVE ULTRAVIOLET RADIATION. PERMEABILITY RATES VARY REGARDLESS OF FABRIC TYPE. WHILE ALL OF THE FABRICS DEMONSTRATE VERY HIGH FILTERING EFFICIENCIES FOR SANDY SEDIMENTS, THERE IS CONSIDERABLE VARIATION AMONG BOTH WOVEN AND NON-WOVEN FABRICS WHEN FILTERING THE FINER SILT AND CLAY PARTICLES.

**DESIGN CRITERIA**

1. NO FORMAL DESIGN IS REQUIRED. AS WITH STRAW BALE BARRIERS, AN EFFORT SHOULD BE MADE TO LOCATE SILT FENCE AT LEAST 5 FEET TO 7 FEET BEYOND THE BASE OF DISTURBED SLOPES WITH GRADES GREATER THAN 7%.
2. THE USE OF SILT FENCES, BECAUSE THEY HAVE SUCH A LOW PERMEABILITY, IS LIMITED TO SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED AND WHERE CONCENTRATED FLOWS ORIGINATE FROM DRAINAGE AREAS OF 1 ACRE OR LESS.
3. FIELD EXPERIENCE HAS DEMONSTRATED THAT, IN MANY INSTANCES, SILT FENCE IS INSTALLED TOO SHORT (LESS THAN 16 INCHES ABOVE GROUND ELEVATION). THE SHORT FENCE IS SUBJECT TO BREACHING DURING EVEN SMALL STORM EVENTS AND WILL REQUIRE MAINTENANCE "CLEAN OUTS" MORE OFTEN. PROPERLY SUPPORTED SILT FENCE WHICH STANDS 24 TO 34 INCHES ABOVE THE EXISTING GRADE TENDS TO PROMOTE MORE EFFECTIVE SEDIMENT CONTROL.

TABLE 3.05-A  
TYPICAL FLOW RATES AND FILTERING EFFICIENCIES OF PERIMETER CONTROL

MATERIAL	FLOW RATE (GAL./SQ.FT./MIN)	FILTER EFFICIENCY (%)
STRAW	5.6	67
SYNTHETIC FABRIC	0.3	97

**CONSTRUCTION SPECIFICATIONS**

**MATERIALS**

1. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS NOTED IN TABLE 3.05-B.
2. SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF SIX MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0° F TO 120° F.
3. IF WOODEN STAKES ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A DIAMETER OF 2 INCHES WHEN OAK IS USED AND 4 INCHES WHEN PINE IS USED. WOODEN STAKES MUST HAVE A MINIMUM LENGTH OF 5 FEET.
4. IF STEEL POSTS (STANDARD "U" OR "T" SECTION) ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5 FEET.
5. WIRE FENCE REINFORCEMENT FOR SILT FENCES USING STANDARD-STRENGTH FILTER CLOTH SHALL BE A MINIMUM OF 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6 INCHES.

TABLE 3.05-B  
PHYSICAL PROPERTIES OF FILTER FABRIC IN SILT FENCE

PHYSICAL PROPERTY	TEST	REQUIREMENTS
FILTERING EFFICIENCY	ASTM 5141	75% (MINIMUM)
TENSILE STRENGTH AT 20% (MAX.) ELONGATION*	VTM-52	EXTRA STRENGTH - 50 LBS./LINEAR INCH (MINIMUM)  STANDARD STRENGTH - 30 LBS./LINEAR INCH (MINIMUM)
FLOW RATE	ASTM 5141	0.2 GAL./SQ. FT./MINUTE (MINIMUM)
ULTRAVIOLET RADIATION STABILITY %	ASTM-G-26	90% (MINIMUM)

\* REQUIREMENTS REDUCED BY 50% AFTER SIX MONTHS OF INSTALLATION.

SOURCE: VHTRC

**INSTALLATION**

1. THE HEIGHT OF A SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE GROUND ELEVATION.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4-INCHES WIDE AND 4-INCHES DEEP ON THE SLOPE SIDE OF THE PROPOSED LOCATION OF THE MEASURE.
4. WHEN WIRE SUPPORT IS USED, STANDARD-STRENGTH FILTER CLOTH MAY BE USED. POSTS FOR THIS TYPE OF INSTALLATION SHALL BE PLACED A MAXIMUM OF 10- FEET APART (SEE PLATE 3.05-1). THE WIRE MESH FENCE MUST BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST ONE INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF TWO INCHES AND SHALL NOT EXTEND MORE THAN 34 INCHES ABOVE THE ORIGINAL GROUND SURFACE. THE STANDARD-STRENGTH FABRIC SHALL BE STAPLED OR WIRED TO THE WIRE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
5. WHEN WIRE SUPPORT IS NOT USED, EXTRA-STRENGTH FILTER CLOTH SHALL BE USED. POSTS FOR THIS TYPE OF FABRIC SHALL BE PLACED A MAXIMUM OF 6- FEET APART (SEE PLATE 3.05-2). THE FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING ONE INCH LONG (MINIMUM) HEAVY-DUTY WIRE STAPLES OR TIE WIRES AND EIGHT INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. THIS METHOD OF INSTALLATION HAS BEEN FOUND TO BE MORE COMMONPLACE THAN #4.
6. IF A SILT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, THE MEASURE MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE (SEE PLATE 3.05-2). EXTRA-STRENGTH FILTER FABRIC SHALL BE USED FOR THIS APPLICATION WITH A MAXIMUM 3-FOOT SPACING OF POSTS. ALL OTHER INSTALLATION REQUIREMENTS NOTED IN #5 APPLY.
7. THE 4-INCH BY 4-INCH TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
8. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

**MAINTENANCE**

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.



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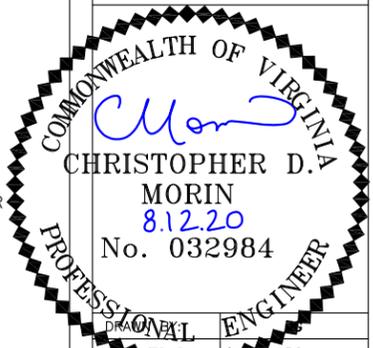
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NOTES

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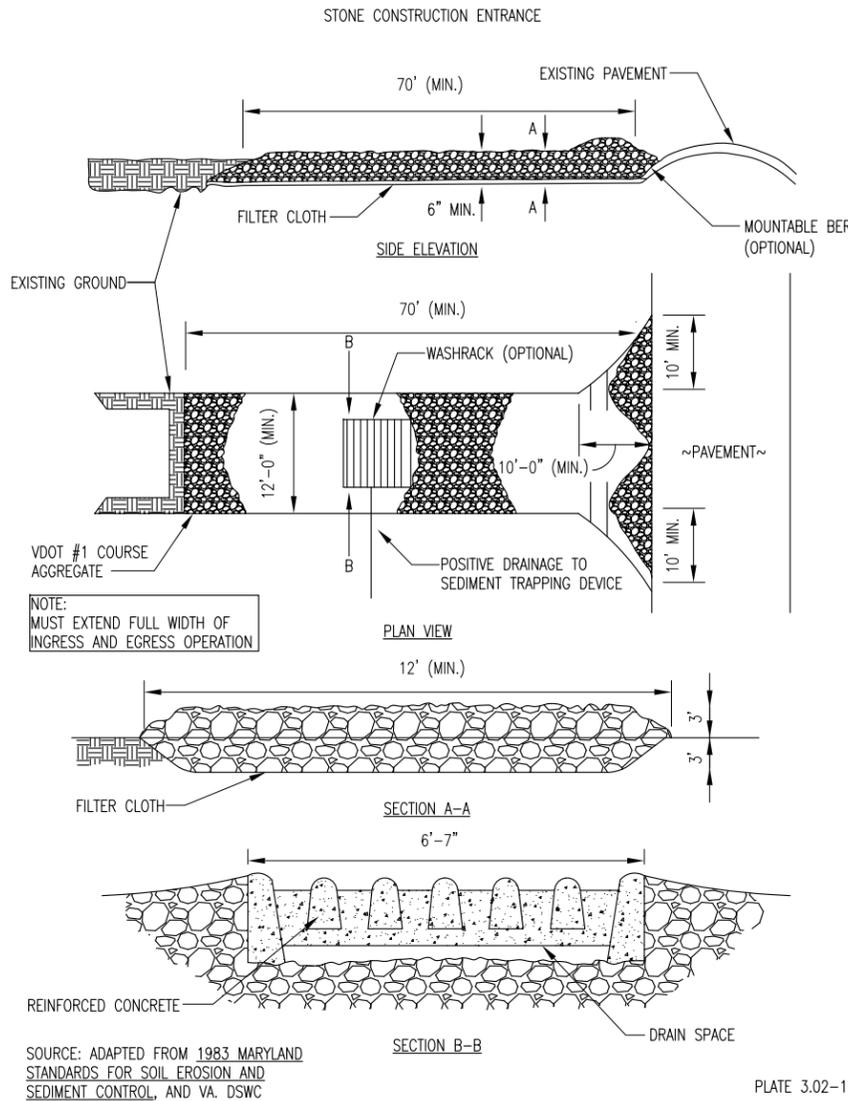
E&S-14 6

NOTE: ALL DETAILS ARE REFERENCED FROM THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992  
SEE E&S DRAWINGS FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL STRUCTURAL PRACTICES

N.T.S.

SILT FENCE DETAILS & NOTES

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**CE CONSTRUCTION ENTRANCE STD 3.02**

**DEFINITION**

A STABILIZED STONE PAD WITH A FILTER FABRIC UNDERLINER LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

**PURPOSE**

TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PAVED PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.

**CONDITIONS WHERE PRACTICE APPLIES**

WHEREVER TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVE DIRECTLY ONTO A PUBLIC ROAD OR OTHER PAVED AREA.

**PLANNING CONSIDERATIONS**

MINIMUM STANDARD # 17 (MS # 17) REQUIRES THAT PROVISIONS BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRAFFIC ONTO A PAVED SURFACE. CONSTRUCTION ENTRANCES PROVIDE AN AREA WHERE A SIGNIFICANT AMOUNT OF MUD CAN BE REMOVED FROM CONSTRUCTION VEHICLE TIRES BEFORE THEY ENTER A PUBLIC ROAD AND, JUST AS IMPORTANT, THE SOIL ADJACENT TO THE PAVED SURFACE CAN BE KEPT INTACT. A FILTER FABRIC LINER IS USED AS A "SEPARATOR" TO MINIMIZE THE DISSIPATION OF AGGREGATE INTO THE UNDERLYING SOIL DUE TO CONSTRUCTION TRAFFIC LOADS. IF THE ACTION OF THE VEHICLES TRAVELING OVER THE GRAVEL PAD IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF THE MUD OR THERE EXISTS AN ESPECIALLY SENSITIVE TRAFFIC SITUATION ON THE ADJACENT PAVED ROAD, THE TIRES MUST BE WASHED BEFORE THE VEHICLE ENTERS THE PUBLIC ROAD. IF WASHING IS NECESSARY, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT SO IT CAN BE COLLECTED AND STABILIZED. CONSTRUCTION ENTRANCES SHOULD BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS (SEE STD. & SPEC. 3.03, CONSTRUCTION ROAD STABILIZATION) TO REDUCE THE AMOUNT OF MUD PICKED UP BY CONSTRUCTION VEHICLES AND TO DO A BETTER JOB OF MUD REMOVAL. OTHER INNOVATIVE TECHNIQUES FOR ACCOMPLISHING THE SAME PURPOSE (SUCH AS A BITUMINOUS ENTRANCE) CAN BE UTILIZED, BUT ONLY AFTER SPECIFIC PLANS AND DETAILS ARE SUBMITTED TO AND APPROVED BY THE APPROPRIATE PLAN-APPROVING AUTHORITY.

**DESIGN CRITERIA**

**AGGREGATE SIZE**

VDOT #1 COARSE AGGREGATE (2- TO 3-INCH STONE) SHOULD BE USED.

**ENTRANCE DIMENSIONS**

THE AGGREGATE LAYER MUST BE AT LEAST 6 INCHES THICK; A MINIMUM THREE INCHES OF AGGREGATE SHOULD BE PLACED IN A CUT SECTION TO GIVE THE ENTRANCE ADDED STABILITY AND TO HELP SECURE FILTER CLOTH SEPARATOR. IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS AREA AND HAVE A MINIMUM 12-FOOT WIDTH. THE LENGTH OF THE ENTRANCE MUST BE AT LEAST 70 FEET (SEE PLATE 3.02-1)

**WASHING**

IF CONDITIONS ON THE SITE ARE SUCH THAT THE MAJORITY OF THE MUD IS NOT REMOVED BY THE VEHICLES TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO A APPROVED SETTLING AREA TO REMOVE SEDIMENT. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERCOURSES. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE (SEE PLATE 3.02-1).

**LOCATION**

THE ENTRANCE SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILIZATION BY ALL CONSTRUCTION VEHICLES.

**CONSTRUCTION SPECIFICATIONS**

THE AREA OF THE ENTRANCE MUST BE EXCAVATED A MINIMUM OF 3 INCHES AND MUST BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE FILTER FABRIC UNDERLINER WILL THEN BE PLACED THE FULL WIDTH AND LENGTH OF THE ENTRANCE.

FOLLOWING THE INSTALLATION OF THE FILTER CLOTH, THE STONE SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. IF WASH RACKS ARE USED, THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE, THROUGH CULVERTS, SHALL BE PROVIDED AS REQUIRED. IF SUCH CONVEYANCE IS IMPOSSIBLE, THE CONSTRUCTION OF A "MOUNTABLE" BERM WITH 5:1 SLOPES WILL BE PERMITTED.

THE FILTER CLOTH UTILIZED SHALL BE A WOVEN OR NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, BE MILDEW AND ROT RESISTANT, AND CONFORM TO THE PHYSICAL PROPERTIES NOTED IN TABLE 3.02-A.

**MAINTENANCE**

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/ OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

TABLE 3.02-A  
CONSTRUCTION SPECIFICATIONS  
FOR FILTER CLOTH UNDERLINER

FABRIC PROPERTIES <sup>1</sup>	LIGHT-DUTY ENTRANCE <sup>2</sup> (GRADED SUBGRADE)	HEAVY-DUTY ENTRANCE <sup>3</sup> (ROUGH GRADED)	TEST METHOD
GRAB TENSILE STRENGTH (LBS.)	200	220	ASTM D1682
ELONGATION AT FAILURE (%)	50	220	ASTM D1682
MULLEN BURST STRENGTH (LBS.)	190	430	ASTM D3786
PUNCTURE STRENGTH (LBS.)	40	125	ASTM D751 (MODIFIED)
EQUIVALENT OPENING SIZE (MM)	40-80	40-80	U.S. STANDARD SIEVE CW-02215

1 FABRICS NOT MEETING THESE SPECIFICATIONS MAY BE USED ONLY WHEN DESIGN PROCEDURE AND SUPPORTING DOCUMENTATION ARE SUPPLIED TO DETERMINE AGGREGATE DEPTH AND FABRIC STRENGTH.

2 LIGHT DUTY ENTRANCE: SITES THAT HAVE BEEN GRADED TO SUBGRADE AND WHERE MOST TRAVEL WOULD BE SINGLE AXLE VEHICLES AND AN OCCASIONAL MULTI-AXLE TRUCK. EXAMPLES OF FABRICS WHICH CAN BE USED ARE: TREVIRA SPUNBOND 1115, MIRAFI LOOX, TYPAR 3401, OR EQUIVALENT.

3 HEAVY DUTY ENTRANCE: SITES WITH ONLY ROUGH GRADING AND WHERE MOST TRAVEL WOULD BE MULTI-AXLE VEHICLES. EXAMPLES OF FABRICS WHICH CAN BE USED ARE: TREVIRA SPUNBOND 1135, MIRAFI 600X, OR EQUIVALENT.

NOTE: ALL DETAILS ARE REFERENCED FROM THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992 AND FIELD MANUAL, SECOND EDITION, 1995  
SEE E&S DRAWINGS FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL STRUCTURAL PRACTICES



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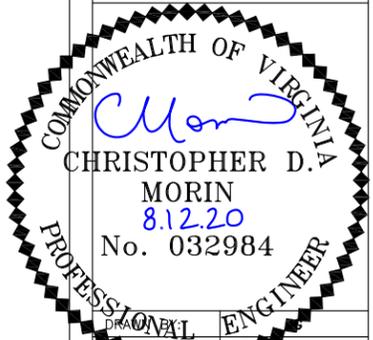
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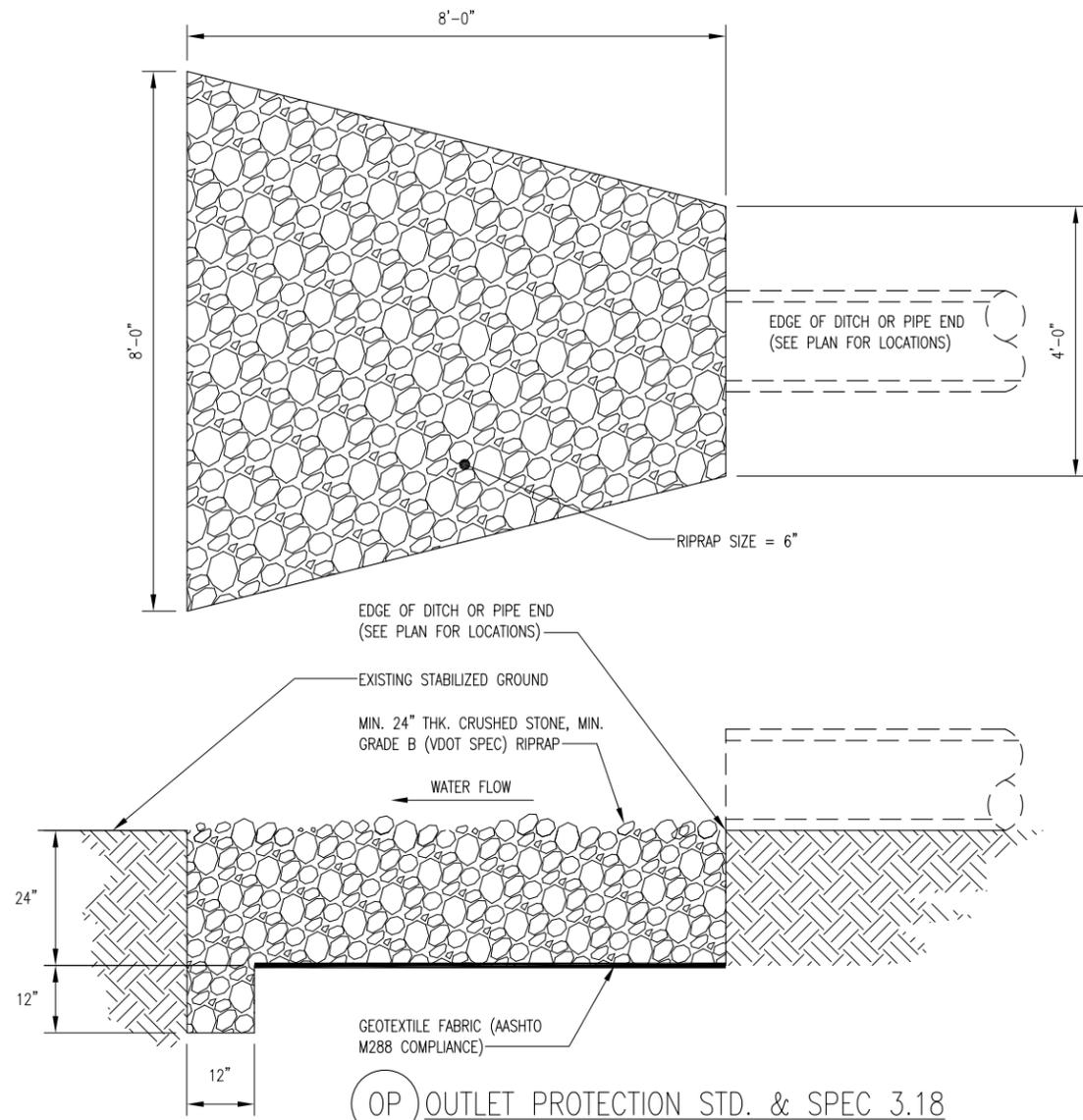
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SHEET **TEMPORARY CONSTRUCTION ENTRANCE DETAIL & NOTES**

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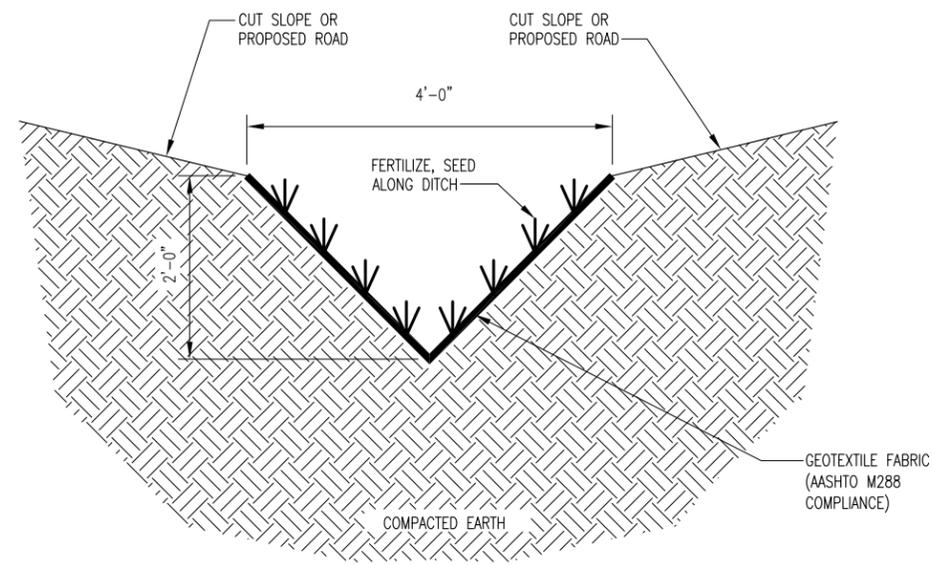
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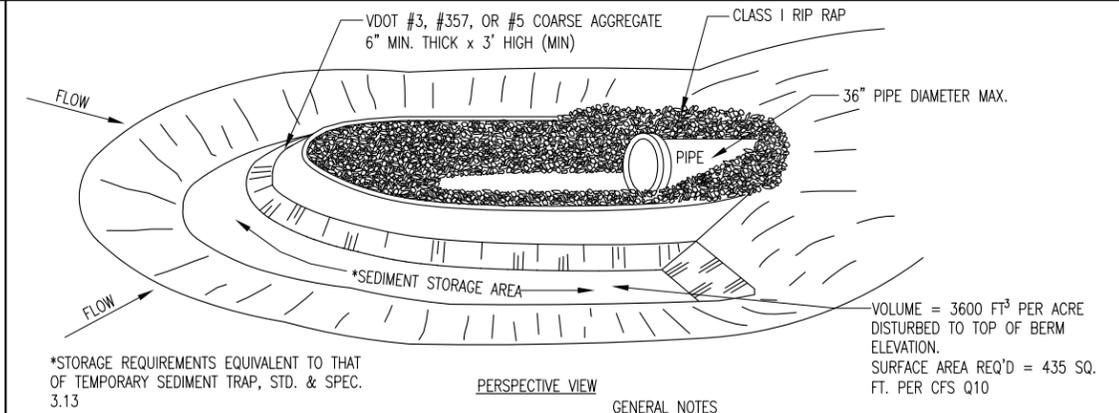
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N.T.S. RIPRAP APRON DETAIL 1



DITCH DETAIL

N.T.S. 2



\*STORAGE REQUIREMENTS EQUIVALENT TO THAT OF TEMPORARY SEDIMENT TRAP, STD. & SPEC. 3.13

67 C.Y./ACRE WET STORAGE (BELOW BASE OF STONE)

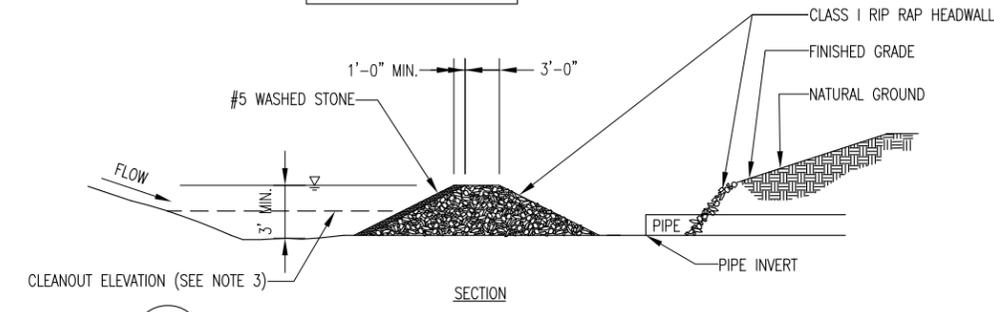
67 C.Y./ACRE DRY STORAGE (BASE OF STONE TO TOP OF STONE BERM)

NOTE:  
 DETAIL COURTESY OF CITY OF CHARLOTTE, NC LAND DEVELOPMENT STANDARDS, AND EDITED TO BE SIMILAR TO VIRGINIA STD. & SPEC. 3.08 - CULVERT INLET SEDIMENT TRAP

GENERAL NOTES

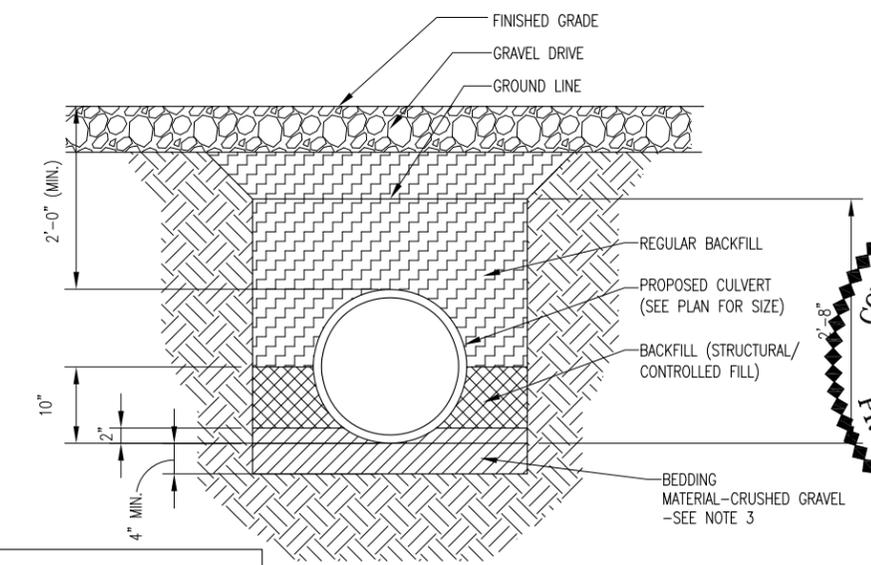
- GRAVEL AND RIP RAP FILTER BERM BASIN SHOULD BE USED TO PROTECT EXISTING PIPE INVERTS THAT DRAIN 5 ACRES OR LESS.
- DIMENSIONS SHOWN ARE THE MINIMUM ACCEPTED UNLESS OTHERWISE NOTED.
- CLEANOUT PRIOR TO SEDIMENT REACHING HALF OF BERM HEIGHT.
- MAY BE USED AT PIPES WITH MAX. DIAMETER OF 36".

VOLUME = 3600 FT<sup>3</sup> PER ACRE  
 DISTURBED TO TOP OF BERM ELEVATION.  
 SURFACE AREA REQ'D = 435 SQ. FT. PER CFS Q10



CIP CULVERT INLET PROTECTION STD. & SPEC 3.08

N.T.S. CULVERT INLET PROTECTION DETAIL 3



NOTES:

- DETAIL SHOWN IS BASED ON VDOT "NORMAL EARTH FOUNDATION" PIPE BEDDING DETAIL.
- CRUSHED GRAVEL SHALL CONSIST OF PARTICLES OF WHICH AT LEAST 90 PERCENT BY WEIGHT OF MATERIAL RETAINED ON THE NO. 10 SIEVE SHALL HAVE AT LEAST ONE FACE FRACTURED BY ARTIFICIAL CRUSHING. TESTS WILL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF VTM-15.
- BRING BEDDING MATERIAL TO THE FLOW LINE AS PER VDOT ROAD & BRIDGE SPECIFICATIONS SECTION 302.

LEGEND:

- BEDDING MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD OF THE VDOT ROAD & BRIDGE SPECIFICATIONS
- CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD & BRIDGE SPECIFICATIONS
- REGULAR BACKFILL IN ACCORDANCE WITH SECTION 302 OF THE ROAD OF THE VDOT ROAD & BRIDGE SPECIFICATIONS
- EMBANKMENT (FOR THIS SITE, GRAVEL ACCESS ROAD)

N.T.S. CULVERT INSTALLATION DETAIL 4

**CWS**  
 CWS X, LLC  
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 ARLINGTON, VA 22206  
 MAIN (703) 845-1971  
 FAX (703) 845-1953

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**BC**  
 architects  
 engineers  
 5661 COLUMBIA PIKE, SUITE 200  
 FALLS CHURCH, VA 22041-2868  
 TEL: (703) 671-6000  
 FAX: (703) 671-6300

SET REVISION			
NO.	DESCRIPTION	BY	DATE
1	ADDRESS CHANGE	AGT	01-16-20
2	COMMENTS	JG	05-14-20
3	COMMENTS	JG	05-15-20
4	COMMENTS	AGT	07-20-20
5	T1 EDIT	AGT	07-27-20
6	E&S PLAN CHGS.	AGT	08-12-20

SITE NAME:  
**UNO**

SITE NUMBER:  
**CWS 43**

SITE ADDRESS:  
 950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972

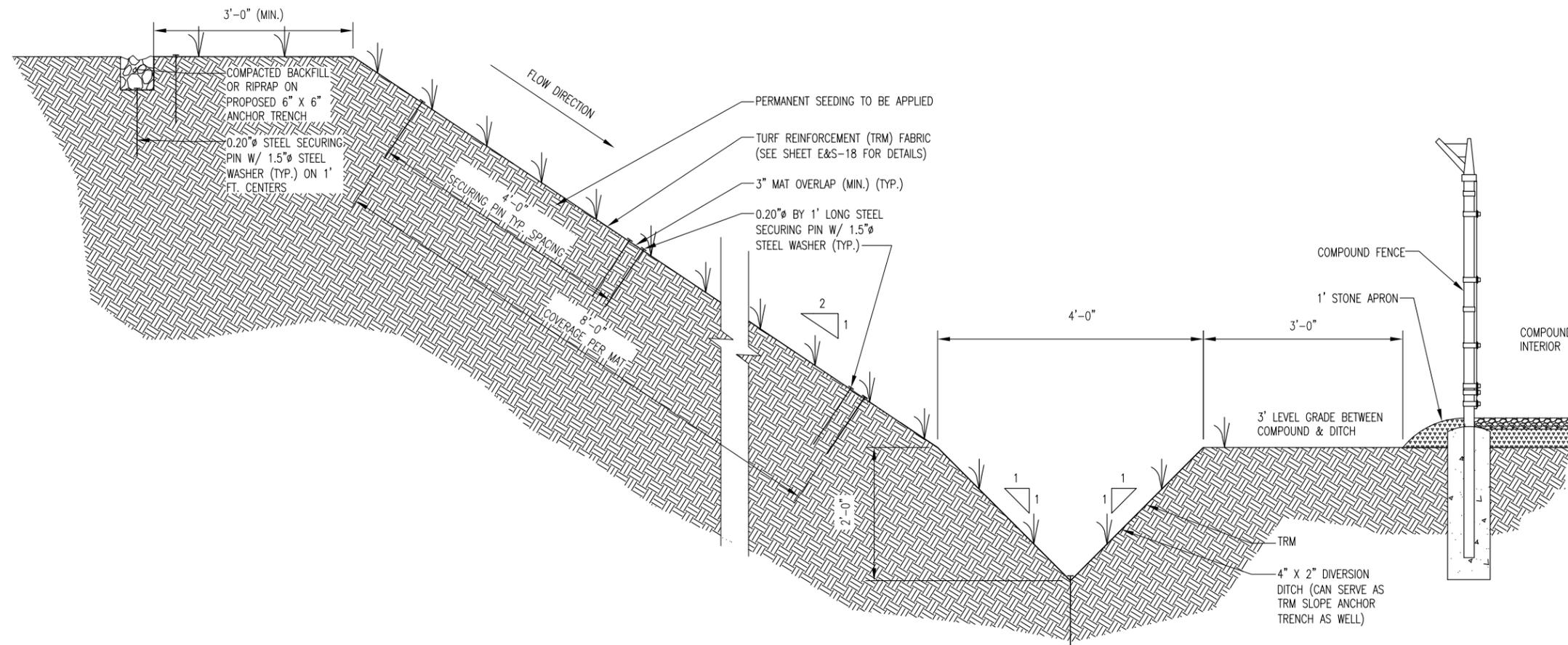
COMMONWEALTH OF VIRGINIA  
*Christopher D. Morin*  
**CHRISTOPHER D. MORIN**  
 8.12.20  
 No. 032984  
 PROFESSIONAL ENGINEER

DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING
SHEET TITLE:	

**DETAILS**

SHEET NUMBER:	REV. #
<b>E&amp;S-16</b>	<b>6</b>

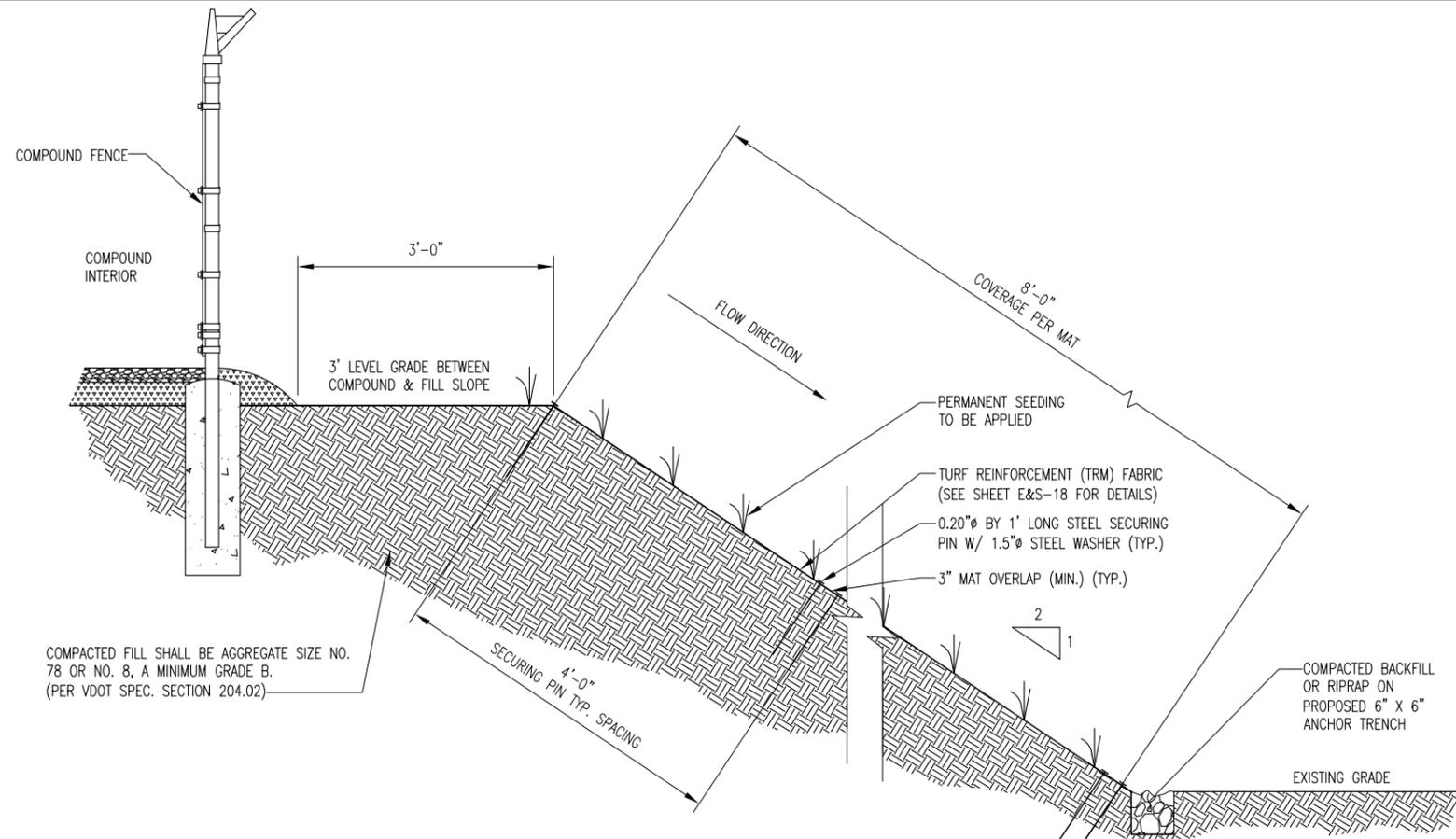
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N.T.S.

TRM ON CUT SLOPE DETAIL

1



N.T.S.

TRM ON FILL SLOPE DETAIL

2



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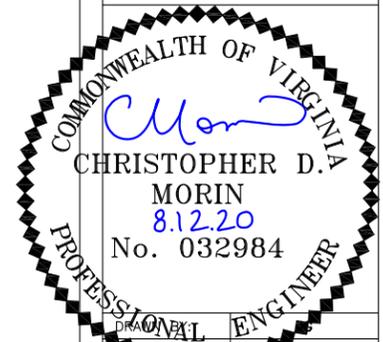


**architects**  
**engineers**

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**UNO**  
  
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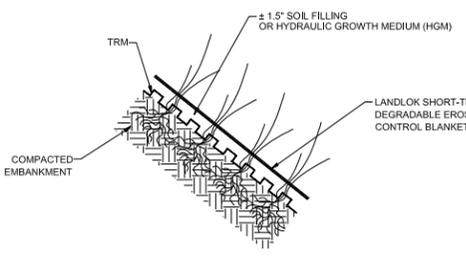
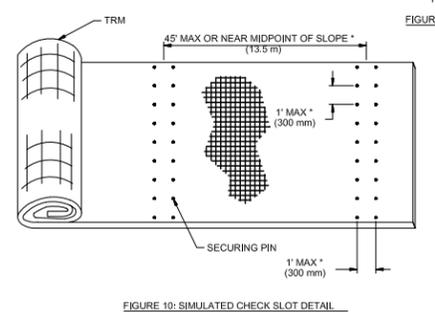
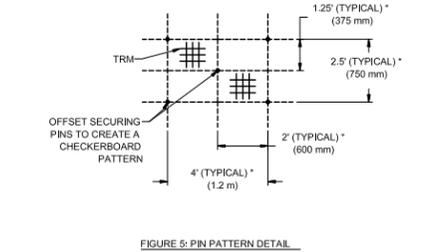
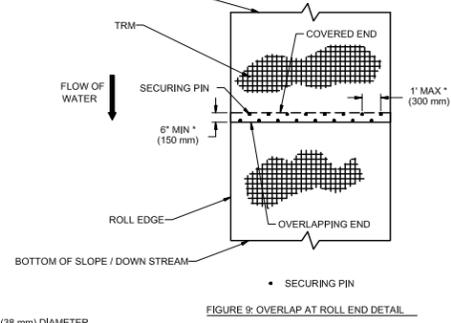
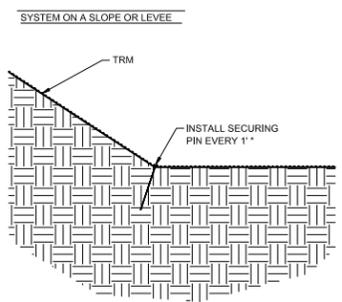
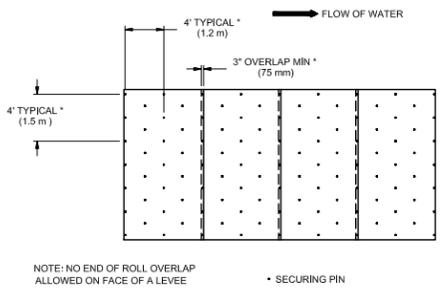
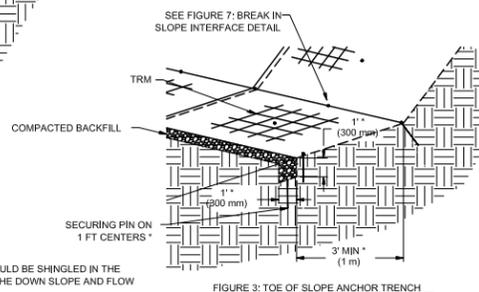
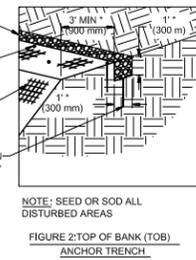
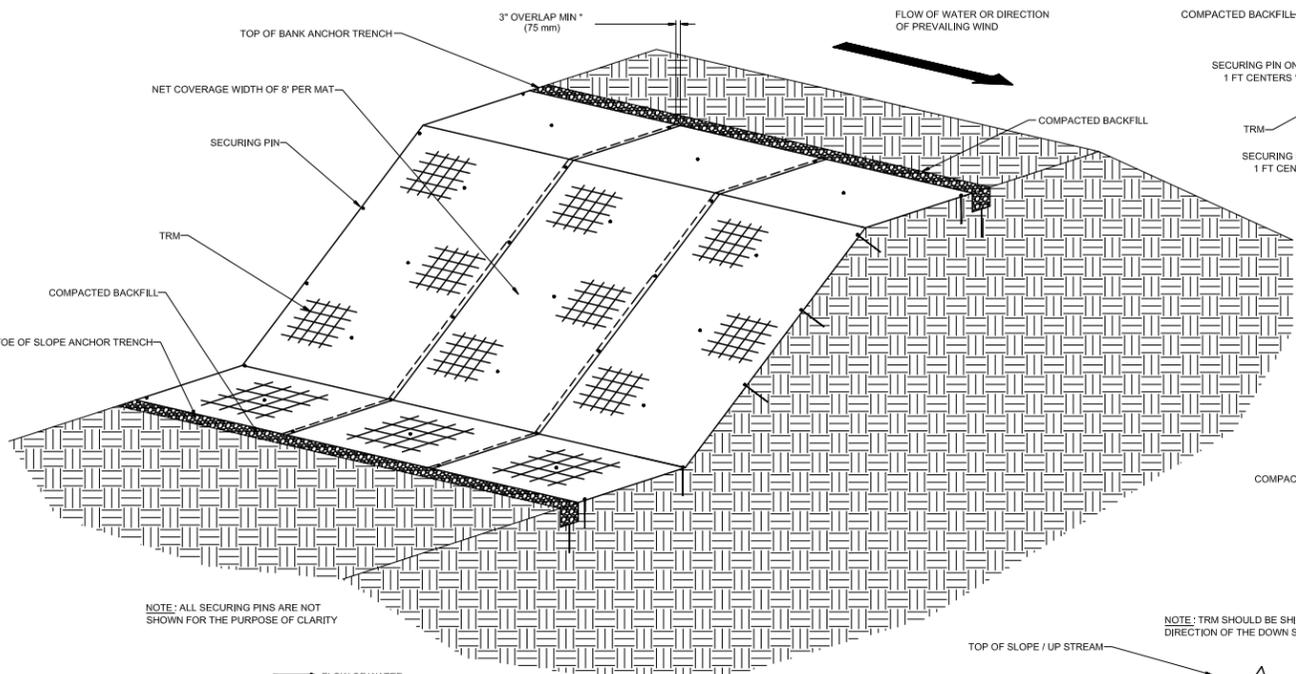


DATE DRAWN: 01-13-20  
 SUBMISSION: FINAL ZONING

SHEET TITLE:  
**BLANKET MATTING  
 DETAILS  
 & NOTES**

SHEET NUMBER: **E&S-17**  
 REV. #: **6**

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NOTES:  
 1) These installation details are for slope applications and are not to scale. For channels, please consult the Propex Website for the Channel Drawing C100.  
 2) Please consult the Propex Website for the most up to date details.

Please note that the information presented herein is general information only. It is for conceptual use only and not intended to be used for construction. While every effort has been made to ensure its accuracy, this information should not be used for a specific application without independent professional examination and verification of its suitability, applicability, and accuracy.

△					
△	S300	Date:	02	Drawn By:	D.LOIZEAUX
△		Scale:	NTS		
Rev					"ALL DIMENSIONS ARE TO BE VERIFIED BY THE ENGINEER"

**TURF REINFORCEMENT MAT (TRM) ON A SLOPE**  
**GENERAL INSTALLATION GUIDELINES**

**PRE-CONSTRUCTION**  
 A pre-construction meeting shall be held with the construction team and a representative from Propex®. This meeting shall be scheduled by the contractor with at least two weeks notice. Also, Propex suggests that installation monitoring of the TRM be performed by a qualified independent third party.

- SITE PREPARATION**
- Grade and compact area of TRM installation as directed and approved by Engineer. Subgrade shall be uniform and smooth. Remove all rocks, clods, vegetation or other objects so the installed TRM will have direct contact with soil surface.
  - Prepare seeded by loosening the top 3-2 in (75-50 mm) minimum of soil. This may be accomplished with rotary tiller on slopes 3:1 or flatter.
  - Perform a site specific soil test to determine what amendments such as lime and fertilizer to incorporate.
  - Do not mulch areas where mat is to be placed.

- SEEDING**
- Keep seeded areas moist as necessary to establish vegetation. When watering seeded areas, use fine spray to prevent erosion of seeds or soil. If as a result of a rain, prepared seeded becomes crusted or eroded, or if eroded places, ruts or depressions exist for any reason, rework soil until smooth and reseed such areas.
  - Apply an amount equivalent to %50 of the total seed mixture required to be installed on the soil surface before installing the TRM.
  - Disturbed areas shall be reseeded.
  - Consult project plans and/or specifications for seed types and application rates.

- GENERAL INSTALLATION GUIDELINES FOR A SLOPE**
- Figure 1 shows general installation layout and details for the TRM on a slope.
  - Excavate an Top of Bank (TOB) Anchor Trench 12 in wide x 12 in deep (300 mm x 300 mm) minimum of 3 ft (900 mm) over the crest of the slope (see Figure 2). Deeper TOB Anchor Trench and/or hard armoring may be required for slopes that have the potential for scour.
  - Beginning at the downwind end of the prevailing winds on a slope, place TRM roll end into the TOB Anchor Trench and secure with Securing Pins on 2 ft (0.6 m) centers (see Figure 2). Position adjacent TRM rolls and secure in trench in same manner. Backfill and compact soil into trench as directed and approved by Engineer.
  - Unroll TRM down the slope.
  - Secure TRM longitudinal edge with Securing Pins on 12 in (300 mm) centers (see Figure 4). When required, the Engineer is to create project details for transition to structures along the longitudinal edge or to address water flowing perpendicular to the seams.
  - Continue installation as described above, overlapping adjacent rolls as follows:
    - A. TRM roll edge overlap: 3 in (75 mm) minimum overlap with upslope TRM on top. Secure with one row of Securing Pins on 12 in (300 mm) centers as seen on the designed anchor pin pattern detail in Figure 4.
    - B. TRM roll end overlap for slopes: 6 in (150 mm) minimum overlap with upslope TRM on top. Secure with two rows of Securing Pins staggered 6 in (150 mm) apart on 12 in (300 mm) centers (see Figure 9).
  - Secure TRM using Securing Pins. For appropriate frequency and pattern, see the typical Pin Pattern Detail (see Figure 4) and the Pin Pattern Detail (see Figure 5).
  - For slope heights greater than 45 ft (13.7 m), install simulated check slots per Figure 10. This method includes placing two rows of Securing Pins staggered 6 in (150 mm) apart on 12 in (300 mm) centers at 45 ft (13.7 m) maximum intervals (see Figure 10) or across the midpoint of the slope for slope lengths less than 60 ft (18.2 m).
  - Excavate Toe of Slope (TOS) Anchor Trench 12 in wide x 12 in deep (300 x 300 mm) minimum at least 5 ft (1.5 m) from the toe of the slope. (see Figure 3). Deeper TOS Anchor Trench and/or hard armoring may be required when slopes have scour potential at their toes. See Toe Interface Detail (Figure 7) for special anchoring patterns for breaks in slope.
  - Anchor, backfill and compact end of TRM in terminal trench (see Figure 3).

- GROUND PINNING DEVICES**
- Metal Securing Pins should be at least 0.20 in (5 mm) diameter steel with a 2/1 1 in (38 mm) steel washer at the head of the pin (see Figure 8). Metal pins should be driven flush to the soil surface. Securing Pins should be between 24-12 in (600-300 mm) long and have sufficient ground penetration to resist pullout. Longer pins may be required for looser soils. Heavier metal stakes may be required in rocky soils. Depending on soil pH and design life of the pin, galvanized or stainless steel pins may be required. Consult project plans and/or specifications for tie down device details.

- SPECIAL TRANSITIONS**
- For applications that require special transitions (i.e. connections to riprap, concrete, T-Walls, etc.), refer to the project specific drawings or consult with Propex Engineering Service at 2450-553-423.

- VEGETATION ESTABLISHMENT**
- Installed TRM shall be re-seeded and soil-filled or sodded as is required by the project documents.
  - After seeding, spread and lightly rake 4/3 - 2/1 in (19-12 mm) of fine site soil or topsoil into the TRM and completely fill the voids using backside of rake or other flat tool. For slopes 3:1 or flatter, roll the entire TRM installation with a drum roller to compact seed and soil tightly into the matrix.
  - Smooth soil-fill in order to just expose the top of the TRM. Do not place excessive soil above the mat.
  - If equipment must operate on the mat, make sure it is of the rubber-tired type. No tracked equipment or sharp turns are allowed on the mat.
  - Avoid any traffic over the mat if loose or wet soil conditions exist.
  - Broadcast additional seed and install a Landlok® Erosion Control Blanket (ECB) above the soil-filled mat as required by the Engineer (See Figure 11). For slopes steeper than 3:1, the addition of the ECB may be required or alternate methods of retaining the soil fill may be considered. Please contact the project engineer or Propex Engineering Services at (2450-553)423.
  - Irrigate as necessary to establish and maintain vegetation. Frequent, light irrigation will need to be applied to seeded areas if no natural rain events have occurred within two weeks of seeding and shall continue until 75% of vegetation has established and has reached a height of 2 inches. Do not over irrigate.

**CONTRACTORS MAINTENANCE AND GUARANTEE PERIOD**

It shall be the responsibility of the Owner to maintain all seed and TRM areas after Engineer's acceptance. Maintenance shall consist of watering and weeding, repair of all erosion and any re-seeding as necessary to establish a uniform stand of the specified grasses. A minimum of 70% of the area seed shall be covered with no bare or dead spots greater than 10 ft<sup>2</sup> (m<sup>2</sup>). Seeded areas shall not be mowed prior to establishment of 70% vegetative density and a minimum grass growth of 4 inches (100 mm). Mower height shall not be set lower than 4 inches (100 mm). Throughout the duration of the project, the contractor shall be responsible for mowing to facilitate growth and shall not let the vegetation in the seeded areas exceed 18 inches (450 mm). In addition, the Contractor shall water all grassed areas as often as necessary to establish satisfactory growth and to maintain its growth throughout the duration of the project. Replanting is to be performed within 14 calendar days of notification by the Engineer.

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3	COMMENTS	JG	05-15-20
4	COMMENTS	AGT	07-20-20
5	T1 EDIT	AGT	07-27-20
6	E&S PLAN CHGS.	AGT	08-12-20

SITE NAME:  
**UNO**

SITE NUMBER:  
**CWS 43**

SITE ADDRESS:  
 950 S BLUE RIDGE TURNPIKE  
 SOMERSET, VA 22972

DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

SHEET TITLE:  
**BLANKET MATTING  
 DETAILS &  
 NOTES**

SHEET NUMBER:	REV. #
<b>E&amp;S-18</b>	<b>6</b>

**TYPE 4 TRM INSTALLATION ON SLOPES DETAILS & MAINTENANCE NOTES**

N.T.S.

DESCRIPTION

THE ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS BY SEEDING WITH APPROPRIATE RAPIDLY GROWING ANNUAL PLANTS; EMPLOYED TO REDUCE EROSION AND SEDIMENTATION BY STABILIZING DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 14 DAYS, TO REDUCE DAMAGE FROM SEDIMENT AND RUNOFF TO DOWNSTREAM OR OFF-SITE AREAS, AND TO PROVIDE PROTECTION TO BARE SOILS EXPOSED DURING CONSTRUCTION UNTIL PERMANENT VEGETATION OR OTHER EROSION CONTROL MEASURES CAN BE ESTABLISHED.

CONDITIONS WHERE PRACTICE APPLIES

WHERE EXPOSED SOIL SURFACES ARE NOT TO BE FINE-GRADED FOR PERIODS LONGER THAN 30 DAYS. SUCH AREAS INCLUDE DENUDED AREAS, SOIL STOCKPILES, DIKES, DAMS, SIDES OF SEDIMENT BASINS, TEMPORARY ROADBANKS, ETC. (SEE MS #1 AND MS #2). A PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO AREAS THAT WILL BE LEFT DORMANT FOR A PERIOD OF MORE THAN 1 YEAR.

SPECIFICATIONS

PRIOR TO SEEDING, INSTALL NECESSARY EROSION CONTROL PRACTICES SUCH AS DIKES, WATERWAYS, AND BASINS.

PLANT SELECTION

SELECT PLANTS THAT ARE APPROPRIATE TO THE SEASON AND SITE CONDITIONS. AN EXTENSIVE DESCRIPTION OF SOME OF THE PLANTS THAT ARE COMMONLY UTILIZED FOR TEMPORARY SEEDING CAN BE FOUND IN APPENDIX 3.31-A.

SEEDBED PREPARATION: TO CONTROL EROSION ON BARE SOIL SURFACES, PLANTS MUST BE ABLE TO GERMINATE AND SEEDBED PREPARATION IS ESSENTIAL.

1. **LIMING:** AN EVALUATION SHOULD BE CONDUCTED TO DETERMINE IF LIME IS NECESSARY FOR TEMPORARY SEEDING. IN MOST SOILS, IT TAKES UP TO 6 MONTHS FOR A PH ADJUSTMENT TO OCCUR FOLLOWING THE APPLICATION OF LIME. THEREFORE, IT MAY BE DIFFICULT TO JUSTIFY THE COST OF LIMING A TEMPORARY SITE, ESPECIALLY WHEN THE SOIL WILL LATER BE MOVED AND REGRADED. THE FOLLOWING TABLE MAY BE USED TO DETERMINE THE ACTUAL NEED ALONG WITH SUGGESTED APPLICATION RATES.

TABLE 3.31-A LIMING REQUIREMENTS FOR TEMPORARY SITES

PH TEST	RECOMMENDED APPLICATION OF AGRICULTURAL LIMESTONE
BELOW 4.2	3 TONS PER ACRE
4.2 TO 5.2	2 TONS PER ACRE
5.2 TO 6	1 TON PER ACRE
SOURCE: VA. DSWC	

2. **FERTILIZER:** SHALL BE APPLIED AS 600 LBS./ACRE OF 10-20-10 (14 LBS./1,000 SQ. FT.) OR EQUIVALENT NUTRIENTS. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF THE SOIL IF POSSIBLE.
3. **SURFACE ROUGHENING:** IF THE AREA HAS BEEN RECENTLY LOOSENED OR DISTURBED, NO FURTHER ROUGHENING IS REQUIRED. WHEN THE AREA IS COMPACTED, CRUSTED, OR HARDENED, THE SOIL SURFACE SHALL BE LOOSENED BY DISCING, RAKING, HARROWING, OR OTHER ACCEPTABLE MEANS (SEE SURFACE ROUGHENING, STD. & SPEC. 3.29).
4. **TRACKING:** TRACKING WITH BULLDOZER CLEATS IS MOST EFFECTIVE ON SANDY SOILS. THIS PRACTICE OFTEN CAUSES UNDUE COMPACTION OF THE SOIL SURFACE, ESPECIALLY IN CLAYEY SOILS, AND DOES NOT AID PLANT GROWTH AS EFFECTIVELY AS OTHER METHODS OF SURFACE ROUGHENING.

**SEEDING:** SEED SHALL BE EVENLY APPLIED WITH A BROADCAST SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER. SMALL GRAINS SHALL BE PLANTED NO MORE THAN 1 1/2 INCHES DEEP. SMALL SEEDS, SUCH AS KENTUCKY BLUEGRASS, SHOULD BE PLANTED NO MORE THAN 1/4 INCH DEEP. OTHER GRASSES AND LEGUMES SHOULD BE PLANTED FROM 1/4 INCH TO 1/2 INCH DEEP.

MULCHING:

1. SEEDINGS MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED ACCORDING TO MULCHING, STD. & SPEC. 3.35, EXCEPT THAT HYDROMULCHES (FIBER MULCH) WILL NOT BE CONSIDERED ADEQUATE. STRAW MULCH SHOULD BE USED DURING THESE PERIODS.
2. TEMPORARY SEEDINGS MADE UNDER FAVORABLE SOIL AND SITE CONDITIONS DURING OPTIMUM SPRING AND FALL SEEDING DATES MAY NOT REQUIRE MULCH.

**RE-SEEDING:** AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION WILL BE RE-SEEDED AS SOON AS SUCH AREAS ARE IDENTIFIED.

TABLE 3.31-B  
ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS  
"QUICK REFERENCE FOR ALL REGIONS"

PLANTING DATES	SPECIES	RATE (LBS./ACRE)
SEPT. 1 - FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50 - 100
FEB. 16 - APR. 30	ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60 - 100
MAY 1 - AUG. 31	GERMAN MILLET (SETARIA ITALICA)	50
SOURCE: VA. DSWC		

APPENDIX 3.31 - A  
PLANT INFORMATION SHEETS

1. **OATS (AVENASATIVA):** A COOL SEASON ANNUAL GRASS PRIMARILY GROWN FOR ANIMAL FEED AND HUMAN CONSUMPTION, BUT ALSO USED FOR SOIL STABILIZATION. OATS ARE SEEDING IN EARLY SPRING IN THE WESTERN PART OF THE STATE (WINTER OATS MAY BE SOWN IN THE COASTAL PLAIN). SEEDING RATES ARE 3 BUSHELS (100 LBS.) PER ACRE BARE GROUND OR 2-1/2 LBS. PER 1000 SQUARE FEET.

2. **RYE (SECALE CEREALE):** OFTEN REFERRED TO AS WINTER RYE BECAUSE OF ITS WINTER HARDINESS, RYE IS THE MOST COMMON SMALL GRAIN USED FOR SOIL STABILIZATION. IT IS ALSO THE MOST PRODUCTIVE GRAIN ON DRY, INFERTILE, ACID OR SANDY SOILS. IT MAY BE SEEDING IN THE FALL FOR WINTER GROUND COVER. BY MATURING EARLY, IT OFFERS LESS COMPETITION DURING THE LATE SPRING PERIOD, A CRITICAL TIME IN THE ESTABLISHMENT OF PERENNIAL SPECIES. RYE GRAIN GERMINATES QUICKLY AND IS TOLERANT OF POOR SOILS.

INCLUDING RYE GRAIN IN FALL-SEEDED MIXTURES IS ALMOST ALWAYS ADVANTAGEOUS, BUT IT IS PARTICULARLY HELPFUL ON DIFFICULT AND ERODIBLE SOILS, ERODIBLE SLOPES OR WHEN SEEDING IS LATE. RATES UP TO 100 LBS. PER ACRE FOR BARE GROUND. OVERLY THICK STANDS OF RYE GRAIN WILL SUPPRESS THE GROWTH OF PERENNIAL SEEDLINGS. APPROXIMATELY 50 LBS. PER ACRE IS THE MAXIMUM FOR THIS PURPOSE AND, WHERE LUSH GROWTH IS EXPECTED, THAT RATE SHOULD EITHER BE CUT IN HALF OR TOTALLY ELIMINATED FROM THE MIXTURE.

3. **FOXTAIL MILLET (SETARIA ITALICA):** A WARM SEASON ANNUAL GRASS WHICH MAY BE USED FOR TEMPORARY COVER. GERMAN MILLET (VARIETY COMMONLY USED IN VIRGINIA) GERMINATES QUICKLY AND GOES TO SEED QUICKLY. THESE FEATURES MAKE IT AN EXCELLENT COMPANION GRASS FOR SUMMER SEEDINGS. IT DIES AT FIRST FROST. SEEDING RATES ARE UP TO 50 LBS. PER ACRE FOR TEMPORARY COVER. USE 10 TO 20 LBS. PER ACRE IN MIXES.

4. **ANNUAL RYE (LOLIUM MULTIFLORUM):** A COOL SEASON ANNUAL GRASS USED FOR TEMPORARY COVER OR AS A NURSE GRASS TO ALLOW FOR GERMINATION OF PERMANENT STANDS. MOST COMMONLY USED IN MIXES FOR EROSION CONTROL. PERFORMS WELL THROUGHOUT THE STATE IN NEUTRAL TO SLIGHTLY ACID SOILS. RATES UP TO 100 LBS. PER ACRE FOR TEMPORARY COVER. USE 10 TO 20 LBS. PER ACRE IN MIXES.

5. **ANNUAL LESPEDEZAS (LESPEDEZA STRIATA)**

**USES:** PASTURE, HAY, EROSION CONTROL, SOIL IMPROVEMENT, WILDLIFE FOOD.

**DESCRIPTION:** ANNUAL WARM SEASON LEGUMES. KOREAN LESPEDEZA IS LARGER AND COARSER THAN COMMON LESPEDEZA AND GROWS TO ABOUT 12 INCHES. SEED OF KOREAN IS SHINY AND BLACK, WHILE SEED OF COMMON IS STIPPLED. KOBE IS THE MOST DESIRABLE VARIETY OF COMMON LESPEDEZA.

**ADAPTATION:** THROUGHOUT VIRGINIA. OPTIMUM PH RANGE IS 6.0 TO 6.5; WILL GROW FROM 5.5 TO 7.0. WILL GROW IN SOIL TEXTURES RANGING FROM SANDS TO CLAYS AND THOUGH A WIDE RANGE OF FERTILITY CONDITIONS.

**ESTABLISHMENT:** SEED SHOULD ALWAYS BE INOCULATED. MAY BE SEEDING ALONE OR MIXED WITH GRASSES OR SMALL REQUIRES A FIRM SEEDBED; MAY BE BROADCAST OR DRILLED. SHOULD BE SEEDING IN EARLY SPRING AT 25 TO 40 LBS. PER ACRE OR ONE-HALF TO 1 LB. PER 1000 SQUARE FEET, DEPENDING ON USE. (USE LOWER FIGURE AS HALF THE SEEDING RATE OF ANY SPRING SEEDING WITH GRASS OR GRAIN). SHOULD NOT BE MOWED AT LESS THAN THREE INCHES. LESPEDEZA WILL NOT MAKE A LARGE CONTRIBUTION IN SOD GRASSES LIKE BLUEGRASS; THEY DO BEST IN OPEN SOD GRASSES LIKE TALL FESCUE.

**SOURCES:** SEED OF COMMON VARIETY (KOBE) AND KOREAN VARIETIES (CLIMAX, HARBIN AND ROWAN) ARE COMMERCIALY AVAILABLE.

6. **WEeping LOVEGRASS (ERAGROSTIS CURVULA)**

**USES:** FAST-GROWING COVER FOR EROSION CONTROL. IN THE NORTHEAST, WEeping LOVEGRASS ACTS AS A SUMMER THE NORMAL LIFE OF 3 TO 5 YEARS MAY BE FORESHORTENED BY LOW WINTER TEMPERATURES. MAY PROVIDE PERMANENT COVER ON SOUTHERN EXPOSURE.

**DESCRIPTION:** A RAPID-GROWING, WARM SEASON BUNCH GRASS INTRODUCED FROM EAST AFRICA. THE LONG, NARROW LEAVES ARE NUMEROUS, VERY FINE, AND DROOP OVER TO THE GROUND, HENCE THE NAME. LEAF HEIGHT IS RARELY ABOVE 12 INCHES.

**ADAPTATION:** PREFERS LIGHT-TEXTURED, WELL-DRAINED SOIL; WILL THRIVE ON SOIL OF LOW FERTILITY. LOW WINTER TEMPERATURES MAY DEplete STAND.

**ESTABLISHMENT:** EASY TO ESTABLISH BY SEED; GERMINATES RAPIDLY AND GROWS QUICKLY. LIME AND FERTILIZER NEEDS ARE SIMILAR TO THOSE OF TALL FESCUE AND RYEGRASS. REQUIRES PH OF 5.5 OR HIGHER. MAY BE PLANTED ANY TIME AFTER DANGER OF FROST AND THROUGHOUT THE SUMMER. VERY FINE SEED, COMMONLY ADDED TO EROSION CONTROL SEED MIXTURES. USE OF HYDROSEEDERS IS SUCCESSFUL IF THE SEEDING RATE IS INCREASED TO COMPENSATE FOR THE LACK OF A FIRM SEEDBED. NORMAL SEEDING RATES ARE 5 TO 20 LBS. PER ACRE IN MIXES.

SOURCES: READILY AVAILABLE FROM LARGE SEED COMPANIES.

TS STD & SPEC 3.31 - TEMPORARY SEEDING

NOTE: ALL DETAILS ARE REFERENCED FROM THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992 AND FIELD MANUAL, SECOND EDITION, 1995  
SEE E&S DRAWINGS FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL STRUCTURAL PRACTICES



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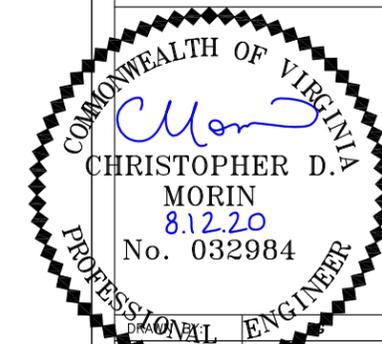
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CWS 43

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SOMERSET, VA 22972



DRAWN BY BQ

DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

SHEET TITLE:

TEMPORARY SEEDING NOTES

SHEET NUMBER: E&S-19

REV. # 6

Y:\Drawings - 2019\Community Wireless Structures\Uno - Site 43\F20's - Rev. 0 - 2019-12-29\6319.dwg 01-02-20 ATECS 145441

DESCRIPTION

THE ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER ON DISTURBED AREAS BY PLANTING SEED. IT IS UTILIZED FOR THE FOLLOWING:

- TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS.
- TO PERMANENTLY STABILIZE DISTURBED AREAS IN A MANNER THAT IS ECONOMICAL, ADAPTABLE TO SITE CONDITIONS, AND ALLOWS SELECTION OF THE MOST APPROPRIATE PLANT MATERIALS.
- TO IMPROVE WILDLIFE HABITAT.
- TO ENHANCE NATURAL BEAUTY.

CONDITIONS WHERE PRACTICE APPLIES

- DISTURBED AREAS WHERE PERMANENT, LONG-LIVED VEGETATIVE COVER IS NEEDED TO STABILIZE THE SOIL.
- ROUGH-GRADED AREAS WHICH WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE.

SPECIFICATIONS

SELECTION OF PLANT MATERIALS

- SELECTION OF PLANT MATERIALS IS BASED ON CLIMATE, TOPOGRAPHY, SOILS, LAND USE, AND PLANTING SEASON.
- AN EXTENSIVE DESCRIPTION OF SOME OF THE PLANTS WHICH ARE COMMONLY UTILIZED FOR PERMANENT SEEDING CAN BE FOUND IN APPENDIX 3.32-C. PLATE 3.32-1 SHOWS PLANT HARDINESS ZONES FOR GRASSES AND LEGUMES FOR VIRGINIA'S TWO MAJOR CLIMATE REGIONS.
- APPROPRIATE SEEDING MIXTURES FOR VARIOUS SITE CONDITIONS IN VIRGINIA ARE GIVEN IN TABLES 3.32-A, 3.32-B AND 3.32-C. THESE MIXTURES ARE DESIGNED FOR GENERAL USE, AND ARE KNOWN TO PERFORM WELL ON THE SITES DESCRIBED.
- WHEN USING SOME VARIETIES OF TURFGRASSES, THE VIRGINIA CROP IMPROVEMENT ASSOCIATION (VCA) RECOMMENDED TURFGRASS MIXTURES MAY ALSO BE USED. CONSUMER PROTECTION PROGRAMS HAVE BEEN DEvised TO IDENTIFY QUALITY SEED OF THE VARIETIES RECOMMENDED BY THE VIRGINIA COOPERATIVE EXTENSION SERVICE. THESE WILL BEAR A LABEL INDICATING THAT THEY ARE APPROVED BY THE ASSOCIATION. MIXTURES MAY BE DESIGNED FOR A SPECIFIC PHYSIOGRAPHIC REGION OR BASED ON INTENDED USE. SPECIAL CONSIDERATION IS GIVEN TO PLANT CHARACTERISTICS, PERFORMANCE, ETC.

TABLE 3.32-A  
SITE SPECIFIC SEEDING MIXTURES  
FOR APPALACHIAN/MOUNTAIN AREA

MINIMUM CARE LAWN	TOTAL LBS. PER ACRE
- COMMERCIAL OR RESIDENTIAL	200-250 LBS.
- KENTUCKY 31 OR TURF-TYPE TALL FESCUE	90-100%
- IMPROVED PERENNIAL RYEGRASS	0-10%
- KENTUCKY BLUEGRASS	0-10%
<b>HIGH-MAINTENANCE LAWN</b>	
MINIMUM OF THREE (3) UP TO FIVE (5) VARIETIES OF BLUEGRASS FROM APPROVED LIST FOR USE IN VIRGINIA.	125 LBS.
<b>GENERAL SLOPE (3:1 OR LESS)</b>	
- KENTUCKY 31 FESCUE	128 LBS.
- RED TOP GRASS	2 LBS.
- SEASONAL NURSE CROP **	20 LBS.
	150 LBS.
<b>LOW-MAINTENANCE SLOPE (STEEPER THAN 3:1)</b>	
- KENTUCKY 31 FESCUE	108 LBS.
- RED TOP GRASS	2 LBS.
- SEASONAL NURSE CROP **	20 LBS.
- CROWN VETCH ***	20 LBS.
	150 LBS.

TABLE 3.32-B  
SITE SPECIFIC SEEDING MIXTURES FOR  
PIEDMONT AREA

MINIMUM CARE LAWN	TOTAL LBS. PER ACRE
- COMMERCIAL OR RESIDENTIAL	175-200 LBS.
- KENTUCKY 31 OR TURF-TYPE TALL FESCUE	95-100%
- IMPROVED PERENNIAL RYEGRASS	0-5%
- KENTUCKY BLUEGRASS	0-5%
<b>HIGH-MAINTENANCE LAWN</b>	200-250 LBS.
- KENTUCKY 31 OR TURF-TYPE TALL FESCUE	100%
<b>GENERAL SLOPE (3:1 OR LESS)</b>	
- KENTUCKY 31 FESCUE	128 LBS.
- RED TOP GRASS	2 LBS.
- SEASONAL NURSE CROP *	20 LBS.
<b>LOW-MAINTENANCE SLOPE (STEEPER THAN 3:1)</b>	
- KENTUCKY 31 FESCUE	108 LBS.
- RED TOP GRASS	2 LBS.
- SEASONAL NURSE CROP *	20 LBS.
- CROWN VETCH **	20 LBS.
	150 LBS.

\*USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:  
FEBRUARY 16TH THROUGH APRIL..... ANNUAL RYE  
MAY 1ST THROUGH AUGUST 15TH..... FOXTAIL MILLET  
AUGUST 16TH THROUGH OCTOBER..... ANNUAL RYE  
NOVEMBER THROUGH FEBRUARY 15TH..... WINTER RYE  
\*\*SUBSTITUTE SERICEA LESPEDEZA FOR CROWN VETCH EAST OF FARMVILLE, VA.  
(MAY THROUGH SEPTEMBER USE HULLED SERICEA, ALL OTHER PERIODS, USE UNHULLED SERICEA).  
IF FLATPEA IS USED IN LIEU OF CROWN VETCH, INCREASE RATE TO 30 LBS./ACRE. ALL LEGUME SEED MUST BE PROPERLY INOCULATED. WEEPING LOVEGRASS MAY BE ADDED TO ANY SLOPE OR LOW-MAINTENANCE MIX DURING WARMER SEEDING PERIODS; ADD 10-20 LBS./ACRE IN MIXES.

TABLE 3.32-C  
SITE SPECIFIC SEEDING MIXTURES FOR  
COASTAL PLAIN AREA

MINIMUM CARE LAWN	TOTAL LBS. PER ACRE
- COMMERCIAL OR RESIDENTIAL	175-200 LBS.
- KENTUCKY 31 OR TURF-TYPE TALL FESCUE OR	
- COMMON BLUEGRASS**	75 LBS.
<b>HIGH-MAINTENANCE LAWN</b>	200-250 LBS.
- KENTUCKY 31 OR TURF-TYPE TALL FESCUE	
OR	
- HYBRID BERMUDAGRASS (SEED)**	40 LBS. (UNHULLED)
OR	
- HYBRID BERMUDAGRASS (BY OTHER VEGETATIVE ESTABLISHMENT METHOD, SEE STD. & SPEC. 3.34)	30 LBS. (UNHULLED)
<b>GENERAL SLOPE (3:1 OR LESS)</b>	
- KENTUCKY 31 FESCUE	128 LBS.
- RED TOP GRASS	2 LBS.
- SEASONAL NURSE CROP *	20 LBS.
	150 LBS.
<b>LOW MAINTENANCE SLOPE (STEEPER THAN 3:1)</b>	
- KENTUCKY 31 TALL FESCUE	93-108 LBS.
- COMMON BERMUDAGRASS **	0-15 LBS.
- RED TOP GRASS	2 LBS.
- SEASONAL NURSE CROP *	20 LBS.
- SERICEA LESPEDEZA **	20 LBS.
	150 LBS.

\* USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:  
FEBRUARY, MARCH THROUGH APRIL..... ANNUAL RYE  
MAY 1ST THROUGH AUGUST..... FOXTAIL MILLET  
SEPTEMBER, OCTOBER THROUGH NOVEMBER 15TH..... ANNUAL RYE  
NOVEMBER 16TH THROUGH JANUARY..... WINTER RYE

\*\* MAY THROUGH OCTOBER, USE HULLED SEED. ALL OTHER SEEDING PERIODS, USE UNHULLED SEED. WEEPING LOVEGRASS MAY BE ADDED TO ANY SLOPE OR LOW-MAINTENANCE MIX DURING WARMER SEEDING PERIODS; ADD 10-20 LBS./ACRE IN MIXES.

\*PERENNIAL RYEGRASS WILL GERMINATE FASTER AND AT LOWER SOIL TEMPERATURES THAN FESCUE, THEREBY PROVIDING COVER AND EROSION RESISTANCE FOR SEEDBED.

\*\* USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:

MARCH, APRIL THROUGH MAY 15TH..... ANNUAL RYE  
MAY 16TH THROUGH AUGUST 15TH..... FOXTAIL MILLET  
AUGUST 16TH THROUGH SEPTEMBER, OCTOBER..... ANNUAL RYE  
NOVEMBER THROUGH FEBRUARY..... WINTER RYE

\*\*\*IF FLATPEA IS USED, INCREASE TO 30 LBS./ACRE. ALL LEGUME SEED MUST BE PROPERLY INOCULATED. WEEPING LOVEGRASS MAY ALSO BE INCLUDED IN ANY SLOPE OR LOW-MAINTENANCE MIXTURE DURING WARMER SEEDING PERIODS; ADD 10-20 LBS./ACRE IN MIXES.

SEEDBED REQUIREMENTS: VEGETATION SHOULD NOT BE ESTABLISHED ON SLOPES THAT ARE UNSUITABLE DUE TO INAPPROPRIATE SOIL TEXTURE, POOR INTERNAL STRUCTURE OR INTERNAL DRAINAGE, VOLUME OF OVERLAND FLOW, OR EXCESSIVE STEEPNESS, UNTIL MEASURES HAVE BEEN TAKEN TO CORRECT THESE PROBLEMS.

TO MAINTAIN A GOOD STAND OF VEGETATION, THE SOIL MUST MEET CERTAIN MINIMUM REQUIREMENTS AS A GROWTH MEDIUM. THE EXISTING SOIL MUST HAVE THESE CHARACTERISTICS:

- ENOUGH FINE-GRAINED MATERIAL TO MAINTAIN ADEQUATE MOISTURE AND NUTRIENT SUPPLY.
- SUFFICIENT PORE SPACE TO PERMIT ROOT PENETRATION. A BULK DENSITY OF 1.2 TO 1.5 INDICATES THAT SUFFICIENT PORE SPACE IS PRESENT. A FINE GRANULAR OR CRUMB-LIKE STRUCTURE IS ALSO FAVORABLE.
- SUFFICIENT DEPTH OF SOIL TO PROVIDE AN ADEQUATE ROOT ZONE. THE DEPTH TO ROCK OR IMPERMEABLE LAYERS SUCH AS HARDPANS SHALL BE 12 INCHES OR MORE, EXCEPT ON SLOPES STEEPER THAN 2:1 WHERE THE ADDITION OF SOIL IS NOT FEASIBLE.
- A FAVORABLE PH RANGE FOR PLANT GROWTH. IF THE SOIL IS SO ACIDIC THAT A PH RANGE OF 6.0-7.0 CANNOT BE ATTAINED BY ADDITION OF PH-MODIFYING MATERIALS, THEN THE SOIL IS CONSIDERED AN UNSUITABLE ENVIRONMENT FOR PLANT ROOTS AND FURTHER SOIL MODIFICATION WOULD BE REQUIRED.
- FREEDOM FROM TOXIC AMOUNTS OF MATERIALS HARMFUL TO PLANT GROWTH.
- FREEDOM FROM EXCESSIVE QUANTITIES OF ROOTS, BRANCHES, LARGE STONES, LARGE CLOUDS OF EARTH, OR TRASH OF ANY KIND. CLOUDS AND STONES MAY BE LEFT ON SLOPES STEEPER THAN 3:1 IF THEY DO NOT SIGNIFICANTLY IMPEDE GOOD SEED SOIL CONTACT.

IF ANY OF THE ABOVE CRITERIA CANNOT BE MET, I.E., IF THE EXISTING SOIL IS TOO COARSE, DENSE, SHALLOW, ACIDIC, OR CONTAMINATED TO FOSTER VEGETATION, THEN TOPSOIL SHALL BE APPLIED IN ACCORDANCE WITH TOPSOILING, STD. & SPEC. 3.30.

NECESSARY STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSTALLED PRIOR TO SEEDING. GRADING WILL BE CARRIED OUT ACCORDING TO THE APPROVED PLAN. SURFACES WILL BE ROUGHENED IN ACCORDANCE WITH SURFACE ROUGHENING, STD. & SPEC. 3.29.

SOIL CONDITIONERS

IN ORDER TO MODIFY THE TEXTURE, STRUCTURE, OR DRAINAGE CHARACTERISTICS OF A SOIL, THE FOLLOWING MATERIALS MAY BE ADDED TO THE SOIL:

- PEAT:** IS A VERY COSTLY CONDITIONER, BUT WORKS WELL. IF ADDED, IT SHALL BE SPHAGNUM MOSS PEAT, HYPNUM MOSS PEAT, REED-SEDGE PEAT OR PEAT HUMUS, FROM FRESH-WATER SOURCES. PEAT SHALL BE SHREDDED AND CONDITIONED IN STORAGE PILES FOR AT LEAST SIX MONTHS AFTER EXCAVATION.
- SAND:** SHALL BE CLEAN AND FREE OF TOXIC MATERIALS. SAND MODIFICATION IS INEFFECTIVE UNLESS YOU ARE ADDING 80 TO 90% SAND ON A VOLUME BASIS. THIS IS EXTREMELY DIFFICULT TO DO ON-SITE. IF THIS PRACTICE IS CONSIDERED, CONSULT A PROFESSIONAL AUTHORITY TO ENSURE THAT IT IS DONE PROPERLY.
- VERMICULITE:** SHALL BE HORTICULTURAL GRADE AND FREE OF TOXIC SUBSTANCES. IT IS AN IMPRACTICAL MODIFIER FOR LARGER ACREAGE DUE TO EXPENSE.
- RAW MANURE:** IS MORE COMMONLY USED IN AGRICULTURAL APPLICATIONS. HOWEVER, WHEN STORED PROPERLY AND ALLOWED TO COMPOST, IT WILL STABILIZE NITROGEN AND OTHER NUTRIENTS. MANURE, IN ITS COMPOSTED FORM, IS A VIABLE SOIL CONDITIONER; HOWEVER, ITS USE SHOULD BE BASED ON SITE-SPECIFIC RECOMMENDATIONS OFFERED BY A PROFESSIONAL IN THIS FIELD.
- THOROUGHLY ROTTED SAWDUST** SHALL HAVE 6 POUNDS OF NITROGEN ADDED TO EACH CUBIC YARD AND SHALL BE FREE OF STONES, STICKS, AND TOXIC SUBSTANCES.
- THE USE OF **TREATED SEWAGE SLUDGE** HAS BENEFITED FROM CONTINUING ADVANCEMENTS IN ITS APPLICATIONS IN THE AGRICULTURAL COMMUNITY. WHEN COMPOSTED, IT OFFERS AN ALTERNATIVE SOIL AMENDMENT. LIMITATIONS INCLUDE A POTENTIALLY UNDESIRABLE PH (BECAUSE OF LIME ADDED DURING THE TREATMENT PROCESS) AND THE POSSIBLE PRESENCE OF HEAVY METALS. THIS PRACTICE SHOULD BE THOROUGHLY EVALUATED BY A PROFESSIONAL AND BE USED IN ACCORDANCE WITH ANY LOCAL, STATE, AND FEDERAL REGULATIONS.

**LIME AND FERTILIZER:** LIME AND FERTILIZER NEEDS SHOULD BE DETERMINED BY SOIL TESTS. SOIL TESTS MAY BE PERFORMED BY THE COOPERATIVE EXTENSION SERVICE SOIL TESTING LABORATORY AT VPI & SU, OR BY A REPUTABLE COMMERCIAL LABORATORY. INFORMATION CONCERNING THE STATE SOIL TESTING LABORATORY IS AVAILABLE FROM COUNTY EXTENSION AGENTS.

UNDER UNUSUAL CONDITIONS WHERE IT IS NOT POSSIBLE TO OBTAIN A SOIL TEST, THE FOLLOWING SOIL AMENDMENTS WILL BE APPLIED:

**LIME:**  
COASTAL PLAIN: 2 TONS/ACRE PULVERIZED AGRICULTURAL GRADE LIMESTONE (90 LBS./1000 SQ. FT.).

**PIEDMONT AND APPALACHIAN REGION:** 2 TONS/ACRE PULVERIZED AGRICULTURAL GRADE LIMESTONE (90 LBS./1000 SQ. FT.).

NOTE: AN **AGRICULTURAL GRADE** OF LIMESTONE SHOULD ALWAYS BE USED.

**FERTILIZER:**  
**MIXED GRASSES AND LEGUMES:** 1000 LBS./ACRE 10-20-10 OR EQUIVALENT NUTRIENTS (23 LBS./1000 SQ. FT.).

**LEGUME STANDS ONLY:** 1000 LBS./ACRE 5-20-10 (23 LBS./1000 SQ. FT.) IS PREFERRED; HOWEVER, 1000 LBS./ACRE OF 10-20-10 OR EQUIVALENT MAY BE USED.

**GRASS STANDS ONLY:** 1000 LBS./ACRE 10-20-10 OR EQUIVALENT NUTRIENTS, (23 LBS./1000 SQ. FT.). OTHER FERTILIZER FORMULATIONS, INCLUDING SLOW-RELEASE SOURCES OF NITROGEN (PREFERRED FROM A WATER QUALITY STANDPOINT), MAY BE USED PROVIDED THEY CAN SUPPLY THE SAME AMOUNTS AND PROPORTIONS OF PLANT NUTRIENTS.

INCORPORATION: LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 4-6 INCHES OF THE SOIL BY DISCING OR OTHER MEANS WHENEVER POSSIBLE. FOR EROSION CONTROL, WHEN APPLYING LIME AND FERTILIZER WITH A HYDROSEEDER, APPLY TO A ROUGH, LOOSE SURFACE.

NOTE: ALL DETAILS ARE REFERENCED FROM THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992 AND FIELD MANUAL, SECOND EDITION, 1995  
SEE E&S DRAWINGS FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL STRUCTURAL PRACTICES



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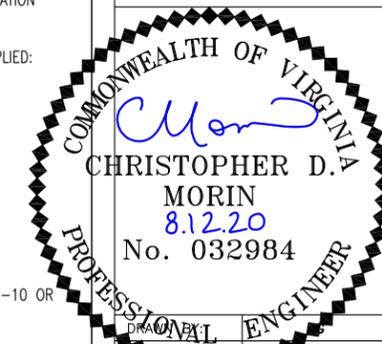
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DATE DRAWN: 01-13-20

SUBMISSION: FINAL ZONING

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PERMANENT  
SEEDING  
NOTES  
(1 OF 3)

SHEET NUMBER: E&S-20

REV. # 6

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SEEDING:

- CERTIFIED SEED:** WILL BE USED FOR ALL PERMANENT SEEDING WHENEVER POSSIBLE. CERTIFIED SEED IS INSPECTED BY THE VIRGINIA CROP IMPROVEMENT ASSOCIATION OR THE CERTIFYING AGENCY IN OTHER STATES. THE SEED MUST MEET PUBLISHED STATE STANDARDS AND BEAR AN OFFICIAL "CERTIFIED SEED" LABEL (SEE APPENDIX 3.32-A).
- LEGUME SEED:** SHOULD BE INOCULATED WITH THE INOCULANT APPROPRIATE TO THE SPECIES. SEED OF THE LESPEDEZAS, THE CLOVERS AND CROWN VETCH SHOULD BE SCARIFIED TO PROMOTE UNIFORM GERMINATION.
- APPLY SEED:** UNIFORMLY WITH A BROADCAST SEEDER, DRILL, CULTI-PACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE SEEDBED. SEEDING DEPTH SHOULD BE 1/4 TO 1/2 INCH.
- TO AVOID POOR GERMINATION RATES AS A RESULT OF SEED DAMAGE DURING HYDROSEEDING, IT IS RECOMMENDED THAT IF A MACHINERY BREAKDOWN OF 30 MINUTES TO 2 HOURS OCCURS, 50% MORE SEED BE ADDED TO THE TANK, BASED ON THE PROPORTION OF THE SLURRY REMAINING IN THE TANK. BEYOND 2 HOURS, A FULL RATE OF NEW SEED MAY BE NECESSARY.

OFTEN HYDROSEEDING CONTRACTORS PREFER NOT TO APPLY LIME IN THEIR RIGS AS IT IS ABRASIVE. IN INACCESSIBLE AREAS, LIME MAY HAVE TO BE APPLIED SEPARATELY IN PELLETTIZED OR LIQUID FORM. SURFACE ROUGHENING IS PARTICULARLY IMPORTANT WHEN HYDROSEEDING, AS A ROUGHENED SLOPE WILL PROVIDE SOME NATURAL COVERAGE OF LIME, FERTILIZER AND SEED.

**LEGUME INOCULANTS:** SHOULD BE APPLIED AT FIVE TIMES THE RECOMMENDED RATE WHEN INOCULANT IS INCLUDED IN THE HYDROSEEDER SLURRY.

**MULCHING:** ALL PERMANENT SEEDING MUST BE MULCHED IMMEDIATELY UPON COMPLETION OF SEED APPLICATION. REFER TO MULCHING, STD. & SPEC. 3.35.

MAINTENANCE OF NEW SEEDINGS

IN GENERAL, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL IT HAS BEEN MAINTAINED FOR ONE FULL YEAR AFTER PLANTING.

**IRRIGATION:** NEW SEEDINGS SHOULD BE SUPPLIED WITH ADEQUATE MOISTURE. SUPPLY WATER AS NEEDED, ESPECIALLY LATE IN THE SEASON, IN ABNORMALLY HOT OR DRY WEATHER, OR ON ADVERSE SITES. WATER APPLICATION RATES SHOULD BE CONTROLLED TO PREVENT EXCESSIVE RUNOFF. INADEQUATE AMOUNTS OF WATER MAY BE MORE HARMFUL THAN NO WATER.

**RE-SEEDING:** INSPECT SEEDING AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RE-SEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

A. IF VEGETATIVE COVER IS INADEQUATE TO PREVENT RILL EROSION, OVER-SEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS.

B. IF A STAND HAS LESS THAN 40% COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. THE SOIL MUST BE TESTED TO DETERMINE IF ACIDITY OR NUTRIENT IMBALANCES ARE RESPONSIBLE. RE-ESTABLISH THE STAND FOLLOWING SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS.

**FERTILIZATION:** COOL SEASON GRASSES SHOULD BEGIN TO BE FERTILIZED 90 DAYS AFTER PLANTING TO ENSURE PROPER STAND AND DENSITY. WARM SEASON FERTILIZATION SHOULD BEGIN AT 30 DAYS AFTER PLANTING.

APPLY MAINTENANCE LEVELS OF FERTILIZER AS DETERMINED BY SOIL TEST. IN THE ABSENCE OF A SOIL TEST, FERTILIZATION SHOULD BE AS FOLLOWS:

COOL SEASON GRASSES

- 4 LBS. NITROGEN (N)
- 1 LB. PHOSPHORUS (P)????/1000 SQ. FT. PER YEAR
- 2 LBS. POTASH (K)

SEVENTY-FIVE PERCENT OF THE TOTAL REQUIREMENTS SHOULD BE APPLIED BETWEEN SEPTEMBER 1 AND DECEMBER 31ST. THE BALANCE SHOULD BE APPLIED DURING THE REMAINDER OF THE YEAR.

MORE THAN 1 LB. OF SOLUBLE NITROGEN PER 1000 SQ. FT. SHOULD NOT BE APPLIED AT ANY ONE TIME.

WARM SEASON GRASSES:

- APPLY 4-5 LBS. NITROGEN (N) BETWEEN MAY 1 AND AUGUST 15TH PER 1000 SQ. FT. PER YEAR.
- PHOSPHORUS (P) AND POTASH (K) SHOULD ONLY BE APPLIED ACCORDING TO SOIL TEST.

NOTE: THE USE OF SLOW-RELEASE FERTILIZER FORMULATIONS FOR MAINTENANCE OF TURF IS ENCOURAGED TO REDUCE THE NUMBER OF APPLICATIONS AND THE IMPACT ON GROUNDWATER.

ADDITIONAL INFORMATION ON THE SUCCESSFUL ESTABLISHMENT OF GRASSES AND LEGUMES SEE APPENDIX 3.32-B FOR "HELPFUL HINTS" IN ACHIEVING HIGH SUCCESS RATES IN GRASS OR LEGUME PLANTINGS.

PS STD & SPEC 3.32 - PERMANENT SEEDING

NOTE: ALL DETAILS ARE REFERENCED FROM THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992 AND FIELD MANUAL, SECOND EDITION, 1995  
SEE E&S DRAWINGS FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL STRUCTURAL PRACTICES

APPENDIX 3.32-A  
SEED QUALITY CRITERIA

WHERE CERTIFIED SEED IS NOT AVAILABLE, THE MINIMUM REQUIREMENTS FOR GRASS AND LEGUME SEED USED IN VEGETATIVE ESTABLISHMENT ARE AS FOLLOWS:

A. ALL TAGS ON CONTAINERS OF SEED SHALL BE LABELED TO MEET THE REQUIREMENTS OF THE STATE SEED LAW.

B. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY THAT EMPLOYS A REGISTERED SEED TECHNOLOGIST OR BY A STATE SEED LAB.

C. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN TWELVE (12) MONTHS.

D. INOCULANT - THE INOCULANT ADDED TO LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. TWICE THE SUPPLIER'S RECOMMENDED RATE OF INOCULANT WILL BE USED ON DRY SEEDINGS; FIVE TIMES THE RECOMMENDED RATE IF HYDROSEEDING.

E. THE QUALITY OF THE SEED USED SHALL BE SHOWN ON THE BAG TAGS TO CONFORM TO THE GUIDELINES IN TABLE 3.32-E.

TABLE 3.32-E  
QUALITY OF SEED\*

LEGUMES	MINIMUM SEED PURITY(%)	MINIMUM GERMINATION(%)
CROWN VETCH	98	65**
LESPEDEZA, KOREAN	97	85**
LESPEDEZA, SERICEA	98	85**
<b>GRASSES</b>		
BLUEGRASS, KENTUCKY	97	85
FESCUE, TALL (IMPROVED, TURF-TYPE CULTIVARS)	98	85
FESCUE, TALL (KY-31)	97	85
FESCUE, RED	98	85
REDTOP	94	80
REED CANARYGRASS	98	80
PERENNIAL RYEGRASS	98	90
WEeping LOVEGRASS	98	87
<b>ANNUALS</b>		
ANNUAL RYEGRASS	97	90
GERMAN MILLET	98	85
OATS	98	80
CEREAL RYE	98	85

\* SEED CONTAINING PROHIBITED OR RESTRICTED NOXIOUS WEEDS SHOULD NOT BE ACCEPTED. SEED SHOULD NOT CONTAIN IN EXCESS OF 0.5% WEED SEED. TO CALCULATE PERCENT PURE, LIVE SEED, MULTIPLY GERMINATION TIMES PURITY AND DIVIDE BY 100.

**EXAMPLE:** KY-31 TALL FESCUE WITH A GERMINATION OF 85 PERCENT AND A PURITY OF 97%.  
97 x 85 = 8245. 8245 ? 100 = 82.45% PURE LIVE SEED.

\*\*INCLUDES "HARD SEED"

APPENDIX 3.32-B  
KEYS TO SUCCESSFUL ESTABLISHMENT  
OF GRASSES AND LEGUMES

**PLANNING:** WHERE FEASIBLE, GRADING OPERATIONS SHOULD BE PLANNED AROUND OPTIMAL SEEDING DATES FOR THE PARTICULAR REGION. THE MOST EFFECTIVE TIMES FOR ESTABLISHING PERENNIAL GRASS IN VIRGINIA GENERALLY EXTEND FROM MARCH THROUGH MAY AND FROM AUGUST THROUGH OCTOBER. OUTSIDE THESE DATES, THE PROBABILITY OF FAILURE IS MUCH HIGHER. IF THE TIME OF YEAR IS NOT SUITABLE FOR SEEDING A PERMANENT COVER (PERENNIAL SPECIES), A TEMPORARY COVER CROP SHOULD BE PLANTED. TEMPORARY SEEDING OF ANNUAL SPECIES (SMALL GRAINS, RYEGRASSES OR MILLETS) OFTEN SUCCEEDS DURING PERIODS OF THE YEAR THAT ARE UNSUITABLE FOR SEEDING PERMANENT (PERENNIAL) SPECIES. VARIATIONS IN WEATHER AND LOCAL SITE CONDITIONS CAN MODIFY THE EFFECTS OF REGIONAL CLIMATE ON SEEDING SUCCESS. FOR THIS REASON, MIXTURES INCLUDING BOTH COOL AND WARM SEASON SPECIES ARE PREFERRED FOR LOW-MAINTENANCE COVER, PARTICULARLY IN THE COASTAL PLAIN. SUCH MIXTURES PROMOTE COVER WHICH CAN ADAPT TO A RANGE OF CONDITIONS. MANY OF THESE MIXTURES ARE NOT DESIRABLE, HOWEVER, FOR HIGH QUALITY LAWNS, WHERE VARIATION IN TEXTURE OF THE TURF IS INAPPROPRIATE. IT IS IMPORTANT TO NOTE THAT IN VIRGINIA THE ESTABLISHMENT OF 100% WARM SEASON GRASSES IN A HIGH QUALITY LAWN IS LIMITED TO THE EXTREME EASTERN PORTIONS OF THE COASTAL PLAIN.

**SELECTION:** SPECIES SELECTION SHOULD BE CONSIDERED EARLY IN THE PROCESS OF PREPARING AN EROSION AND SEDIMENT CONTROL PLAN. A VARIETY OF VEGETATION CAN BE ESTABLISHED IN VIRGINIA DUE TO THE DIVERSITY IN BOTH SOILS AND CLIMATE. HOWEVER, FOR PRACTICAL, ECONOMICAL STABILIZATION AND LONG-TERM PROTECTION OF DISTURBED SITES, SPECIES SELECTION SHOULD BE MADE JUDICIOUSLY. SEASONALITY MUST BE CONSIDERED WHEN SELECTING SPECIES. GRASSES AND LEGUMES ARE USUALLY CLASSIFIED AS WARM OR COOL SEASON IN REFERENCE TO THEIR SEASON OF GROWTH.

COOL SEASON PLANTS REALIZE MOST OF THEIR GROWTH DURING THE SPRING AND FALL AND ARE RELATIVELY INACTIVE OR DORMANT DURING THE HOT SUMMER MONTHS. THEREFORE, FALL IS THE MOST FAVORABLE TIME TO PLANT THEM. WARM SEASON PLANTS "GREEN-UP" LATE IN THE SPRING, GROW MOST ACTIVELY DURING THE SUMMER, AND GO DORMANT AT THE TIME OF THE FIRST FROST IN FALL. SPRING AND EARLY SUMMER ARE PREFERRED PLANTING TIMES FOR WARM SEASON PLANTS.

**SEED MIXTURES:** AS PREVIOUSLY NOTED, THE ESTABLISHMENT OF HIGH QUALITY TURF FREQUENTLY INVOLVES PLANTING ONE SINGLE SPECIES. HOWEVER, IN SEEDINGS FOR EROSION CONTROL PURPOSES, THE INCLUSION OF MORE THAN ONE SPECIES SHOULD ALWAYS BE CONSIDERED. MIXTURES NEED NOT BE EXCESSIVE IN POUNDAGE OR SEED COUNT. THE ADDITION OF A QUICK-GROWING ANNUAL PROVIDES EARLY PROTECTION AND FACILITATES ESTABLISHMENT OF ONE OR TWO PERENNIALS IN A MIX. MORE COMPLEX MIXTURES MIGHT INCLUDE A QUICK-GROWING ANNUAL, ONE OR TWO LEGUMES AND MORE THAN ONE PERENNIAL GRASS. THE ADDITION OF A "NURSE" CROP (QUICK-GROWING ANNUALS ADDED TO PERMANENT MIXTURES) IS A SOUND PRACTICE FOR SOIL STABILIZATION, PARTICULARLY ON DIFFICULT SITES - THOSE WITH STEEP SLOPES; POOR, ROCKY, EROSION SOILS; THOSE SEEDING OUT THE OPTIMUM SEEDING PERIODS; OR IN ANY SITUATION WHERE THE DEVELOPMENT OF PERMANENT COVER IS LIKELY TO BE SLOW. THE NURSE CROP GERMINATES AND GROWS RAPIDLY, HOLDING THE SOIL UNTIL THE SLOWER-GROWING PERENNIAL SEEDLINGS BECOME ESTABLISHED.

APPENDIX 3.32 - C  
PLANT INFORMATION SHEETS

1. TALL FESCUE (FESTUCA ARUNDINACEA)

**USES:** PASTURE, HAY, RECREATION AREAS, LAWNS AND STABILIZATION OF WATERWAYS, BANKS, SLOPES, CUTS, FILLS, AND SPOILS. IT IS THE MOST WIDELY USED GRASS AT THIS TIME FOR STABILIZING LARGE DISTURBED AREAS.

**DESCRIPTION:** A ROBUST, COOL SEASON, LONG-LIVED, DEEP-ROOTED BUNCHY GRASS WHICH MAY HAVE SHORT RHIZOMES (UNDERGROUND STEMS). KENTUCKY 31 IS THE BEST-KNOWN VARIETY. A NUMBER OF NEW VARIETIES OF TALL FESCUE ARE BECOMING AVAILABLE FOR LAWN AND OTHER FINE- TURF USES, AND SEVERAL OFFER DEFINITE IMPROVEMENTS. HOWEVER, THEIR HIGHER COST OVER THE OLD STANDBY, KY 31, IS SELDOM JUSTIFIED WHEN USED FOR PURPOSES OF STABILIZATION AND EROSION CONTROL. TALL FESCUE TOLERATES A WIDE RANGE OF SEEDING DATES; HOWEVER, WITH THE POSSIBLE EXCEPTION OF HIGH MOUNTAIN ELEVATIONS, IT IS MOST DEPENDABLE WHEN PLANTED IN FALL.

**ADAPTATION:** ADAPTS WELL TO BOTH HIGH AND LOW MAINTENANCE USES THROUGHOUT VIRGINIA. ADAPTED TO A WIDE RANGE OF CLIMATIC CONDITIONS. OPTIMUM PH RANGE IS 6.0 TO 7.0; WILL TOLERATE FROM 3.0 TO 8.0. WILL GROW ON SHALLOW AND CLAYPAN SOILS IF THEY ARE MOIST. GROWTH IS LIMITED MORE BY MOISTURE THAN BY TEMPERATURE EXTREMES, BUT IT WILL TOLERATE DROUGHT, INFERTILE SOILS AND SHADE.

**ESTABLISHMENT:** REQUIRES A FIRM SEEDBED. HYDROSEEDING IS SUCCESSFUL. SEEDING RATES VARY FROM 100 LBS. PER ACRE FOR EROSION CONTROL TO 250 LBS. PER ACRE FOR LAWNS. PLANT IN EARLY SPRING OR FROM THE MIDDLE OF AUGUST THROUGH SEPTEMBER. LEGUMES MAY NOT THRIVE IN FESCUE STANDS DUE TO THE AGGRESSIVE GROWTH HABITS OF THIS GRASS. MOWING IS DESIRABLE ON CRITICAL AREAS AT LEAST ONCE EVERY TWO YEARS; LACK OF PERIODIC MOWING WILL ENCOURAGE CLUMPINESS.

**SOURCES:** READILY AVAILABLE AS SEED AND SOD.

2. KENTUCKY BLUEGRASS (POA PRATENSE)

**USES:** PASTURE, TURF FOR LAWNS, ATHLETIC FIELDS, GOLF COURSES, AND PLAYGROUNDS. ALSO USED TO STABILIZE WATERWAYS, SLOPES, CUTS AND FILLS. CHOICE FOOD FOR GROUSE, TURKEYS, DEER AND RABBITS.

**DESCRIPTION:** LONG-LIVED, COOL SEASON PERENNIAL GRASS WHICH FORMS A DENSE SOD. BECOMES DORMANT IN THE HEAT OF SUMMER SINCE ITS GROWING SEASON IS SPRING AND FALL.

**ADAPTATION:** BEST ADAPTED TO WELL - DRAINED, FERTILE SOILS OF LIMESTONE ORIGIN AND THE CLIMATE OF NORTHERN AND WESTERN VIRGINIA. OPTIMUM PH RANGE IS 6.0 TO 7.0. BLUEGRASSES ARE BETTER SUITED TO HIGH MAINTENANCE SITUATIONS IN THE TRANSITIONS ZONE. ESSENTIALLY DORMANT DURING DRY OR HOT WEATHER; HOWEVER, IT WILL NORMALLY SURVIVE SEVEREDROUGHT.

**ESTABLISHMENT:** REQUIRES A FIRM, WEED-FREE SEEDBED AND ADEQUATE FERTILIZATION (LIBERAL PHOSPHORUS) AND LIME ARE IMPORTANT. CAN BE USED WITH TALL FESCUES AT LOW RATES. MINIMUM MOWING HEIGHT IS 1-1/2 INCHES. CRITICAL EROSION AREAS MAY BE MOWED ONLY ONCE PER YEAR, IF DESIRED. THIS GRASS IS USUALLY SEEDING WITH A MIXTURE OF OTHER GRASSES OR LEGUMES; SEVERAL VARIETIES OF BLUEGRASS SHOULD BE USED TOGETHER TO ENSURE GOOD STAND SURVIVAL. BARE GROUND RATES ARE 120 LBS. PER ACRE. OVERSEED 1 TO 1-1/2 LBS PER 1000 SQUARE FEET.

**SOURCES:** READILY AVAILABLE AS SEED AND SOD.

3. PERENNIAL RYEGRASS (LOLIUM PERRENNE)

**USES:** EROSION CONTROL, SOIL IMPROVEMENT, LAWNS, PASTURE, AND HAY; NEWER VARIETIES ARE EXCELLENT FOR HIGH-TRAFFIC AREAS.

**DESCRIPTION:** PERENNIAL RYEGRASSES ARE AN EXCELLENT SELECTION WHERE RAPID ESTABLISHMENT IS DESIRED. COOL SEASON RYEGRASSES CROSS-POLLINATE FREELY SO "COMMON RYEGRASS" MAY BE A MIXTURE OF ANNUAL AND PERENNIAL SPECIES. CERTIFIED SEED OF PERENNIAL RYEGRASS VARIETIES IS PRODUCED: BLASER, PALMER, GOALIE, FIESTA II, RANGER, REGAL AND PENNFINE MAY BE USED IN VIRGINIA.

**ESTABLISHMENT:** A FIRM, SHALLOW SURFACE OVER COMPACT SUBSOIL GIVES GOOD RESULTS. SEED IN FALL OR SPRING. PERENNIAL RYEGRASS MAY ALSO BE SEEDING IN MID-AUGUST TO EARLY SEPTEMBER. FOR TURF, USE A RATE OF 5 TO 8 LBS. PER 1000 SQUARE FEET, IF SEEDING ALONE; LESSER AMOUNTS ARE SUITABLE IN MIXTURES, DEPENDING ON THE CHARACTERISTICS OF THE COMPANION SPECIES. GENERALLY NOT SEEDING ALONE EXCEPT ON ATHLETIC FIELDS WITH INTENSIVE PERENNIAL RYEGRASS DOES BEST WHEN USED WITH BLUEGRASS AS 20 PERCENT OR LESS OF THE MIXTURE. RYEGRASSES GERMINATE RAPIDLY, WHICH MAKES THEM PARTICULARLY SUITED TO DISTURBED-AREA STABILIZATION AND TEMPORARY SEEDING. THEY WILL, HOWEVER, TEND TO DOMINATE STANDS IN MIXTURES IF PERCENTAGE IS TOO HIGH.

**SOURCES:** READILY AVAILABLE COMMERCIALY. CARE SHOULD BE TAKEN TO BUY SEED APPROPRIATE TO THE NEEDS OF THE PROJECT.

4. BERMUDAGRASS (CYNODON DACTYLION)

**USES:** SOIL AND WATER CONSERVATION, PASTURE, HAY, SILAGE, LAWNS, BOTH HIGH MAINTENANCE AND GENERAL PURPOSE TURF, AND STABILIZATION OF GRASSED WATERWAYS.

**DESCRIPTION:** A LONG-LIVED, WARM SEASON PERENNIAL THAT SPREADS BY STOLONS AND RHIZOMES (RUNNERS AND UNDERGROUND STEMS). HEIGHT OF STEMS OF COMMON BERMUDAGRASS MAY BE 12 INCHES. THE STEMS ARE SHORT-JOINTED AND THE LEAVES FLAT AND SPREADING.

COMMON BERMUDAGRASS MAY BE ESTABLISHED VEGETATIVELY WITH SPRIGS (SECTIONS OF STEMS) OR FROM SEEDS; HOWEVER, IT HAS THE POTENTIAL TO DEVELOP INTO A WEED PROBLEM BECAUSE IT SPREADS VIGOROUSLY. COLD-TOLERANT HYBRIDS ARE USUALLY SPECIFIED. THESE ARE TRADITIONALLY ESTABLISHED FROM SPRIGS OR SOD, BUT SEED IS NOW AVAILABLE.

**ADAPTATION:** SOUTHERN PIEDMONT AND COSTAL PLAIN IN VIRGINIA AND SOME SOUTHERN APPALACHIAN RIDGES AND VALLEYS. CHECK STD. & SPEC. 3.34 FOR REGIONAL ADAPTATIONS OF VARIETIES. MAKES ITS BEST GROWTH WHEN AVERAGE DAILY TEMPERATURES ARE ABOVE 75 DEGREES. GROWS ON A WIDE RANGE OF SOILS FROM HEAVY CLAYS TO DEEPS SANDS. OPTIMUM PH IS 6.0 TO 6.5. IT IS DROUGHT-RESISTANT AND SALT-TOLERANT. TOLERATES FLOODS OF SHORT DURATION BUT WILL NOT THRIVE ON WATERLOGGED SOILS; DOES NOT PERSIST UNDER HEAVY SHADE.

FOR ROUGH AREAS, THE VARIETIES MIDLAND (A FORAGE HYBRID) AND COASTAL ARE RECOMMENDED. FOR FINE-TURF AREAS, TUFCOTE (A FINE-LEAVED TURF HYBRID), MIDIRON, TIFWAY, AND VAMONT ARE USED IN VIRGINIA.

**ESTABLISHMENT:** BY SODDING OR PLANTING SPRIGS. SPRIGS SHOULD BE PLANTED (BY HAND OR MACHINE) WHEN SOIL IS WARM IN A WELL-PREPARED, MOIST SEEDBED. ONE END OF THE SPRIG SHOULD EXTEND ABOVE GROUND, AND THE OTHER SHOULD BE COVERED BY FIRMLY PACKED SOIL.

**SOURCES:** READILY AVAILABLE AS SEED, SPRIGS, AND SOD.



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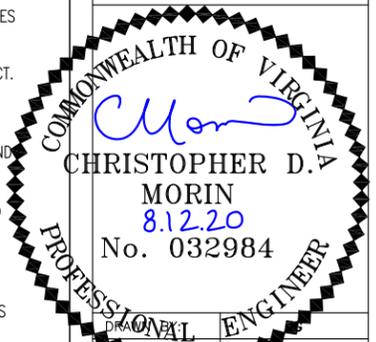
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5. REDTOP (AGROSTIS ALBA)

USES: EROSION CONTROL, PASTURE, COMPANION GRASS IN TURF SEEDINGS AND STABILIZING DITCH AND CHANNEL BANKS, GRASSED WATERWAYS, AND OTHER DISTURBED AREAS.

DESCRIPTION: A COARSE, COOL SEASON PERENNIAL GRASS WITH RHIZOMES (UNDERGROUND STEMS). GROWS TO 30 TO 40 INCHES.

ADAPTATION: THROUGHOUT VIRGINIA; DOES BETTER IN THE COOL, HUMID AREAS. WILL GROW UNDER A WIDE VARIETY OF SOIL AND MOISTURE CONDITIONS. GROWS ON VERY ACID SOILS OF LOW FERTILITY. WHILE DROUGHT-RESISTANT, IT IS ALSO A USEFUL WETLAND GRASS.

ESTABLISHMENT: HAS VERY SMALL SEED AND REQUIRES A COMPACT SEEDBED. MAY BE SOWN IN EARLY SPRING OR LATE SUMMER. SELDOM SEEDED ALONE EXCEPT AS TEMPORARY TURF. ADEQUATE FERTILIZATION IS ESSENTIAL ON CRITICAL AREAS TO OBTAIN GOOD COVER RAPIDLY. MOST COMMONLY ADDED TO MIXES, USUALLY 2 TO 3 LBS. PER ACRE. REDTOP WILL DISAPPEAR FROM A STAND UNDER FREQUENT LOW MOWING.

SOURCES: AVAILABLE FROM COMMERCIAL SOURCES.

6. CROWNVELTCH (CORONILLA VARIA)

USES: FOR EROSION CONTROL OF CRITICAL AREAS SUCH AS STEEP ROADBANKS, SURFACE MINE SPOILS AND INDUSTRIAL WASTE AREAS. IT IS ALSO USEFUL AS A RESIDENTIAL GROUND COVER. IT PROVIDES HIGH-QUALITY FORAGE FOR RUMINANT ANIMALS AND SERVES AS A WILDLIFE FOOD AND COVER PLANT.

DESCRIPTION: A DEEP-ROOTED, COOL SEASON, PERENNIAL, HERBACEOUS LEGUME WITH A SEMI-RECLINING GROWTH HABIT. IT REACHES 2 TO 3 FEET IN HEIGHT, AND DOES NOT CLIMB OR TWINE. IT FIXES NITROGEN IN THE SOIL AND MAKES A DENSE MAT OF VEGETATIVE COVER.

ADAPTATION: BEST ADAPTED TO THE NORTHERN PIEDMONT AND MOUNTAIN REGIONS OF VIRGINIA. IT GROWS BEST ON WELL-DRAINED SOILS WITH A PH RANGE OF 5.5 TO 8.3. IT WILL PERSIST ON MORE ACID SOILS FOR A PROLONGED PERIOD ONCE ESTABLISHED. IT IS NOT ADAPTED TO SOILS WITH POOR DRAINAGE. CROWNVELTCH IS WINTER-HARDY AND DROUGHT TOLERANT. VARIETIES COMMONLY USED ARE CHEMUNG, PENNGIFT, AND EMERALD.

ESTABLISHMENT: ONLY INOCULATED SEED SHOULD BE USED. REQUIRES AT LEAST 500 LBS. PER ACRE OF 5-10-10 FERTILIZER (OR THE AREA SHOULD BE FERTILIZED ACCORDING TO SOIL TEST RESULTS). SOIL ACIDITY MUST BE RAISED ABOVE A PH OF 5.5. CROWNVELTCH REQUIRES MULCH AND CAN BE HYDROSEEDED SUCCESSFULLY.

SEEDING IN THE SPRING IS MOST SUCCESSFUL. FROST-SEEDING MAY BE USED ON STEEP OR STONY SITES (SEED IN LATE WINTER, AND ALLOW FROST ACTION TO WORK THE SEED INTO SOIL). CROWNVELTCH OFTEN TAKES 2 TO 3 YEARS TO ESTABLISH A DENSE STAND. A COMPANION GRASS SUCH AS PERENNIAL RYEGRASS OR REDTOP NEEDS TO BE MIXED INTO THE INITIAL PLANTING, BUT THE CROWNVELTCH WILL EVENTUALLY CROWD OUT THE COMPANION PLANTS. IT WILL NOT PERSIST UNDER FREQUENT MOWING.

SOURCES: AVAILABLE COMMERCIALY

7. SERICEA LESPEDEZA (LESPEDEZA CUNEATA)

USES: HAY, PASTURE, EROSION CONTROL, COVER CROP, WILDLIFE FOOD.

DESCRIPTION: WARM SEASON PERENNIAL LEGUME WITH UPRIGHT WOODY STEMS 12 TO 18 INCHES TALL. ROOTS WIDELY BRANCHED PENETRATING SOIL 3 FEET OR MORE.

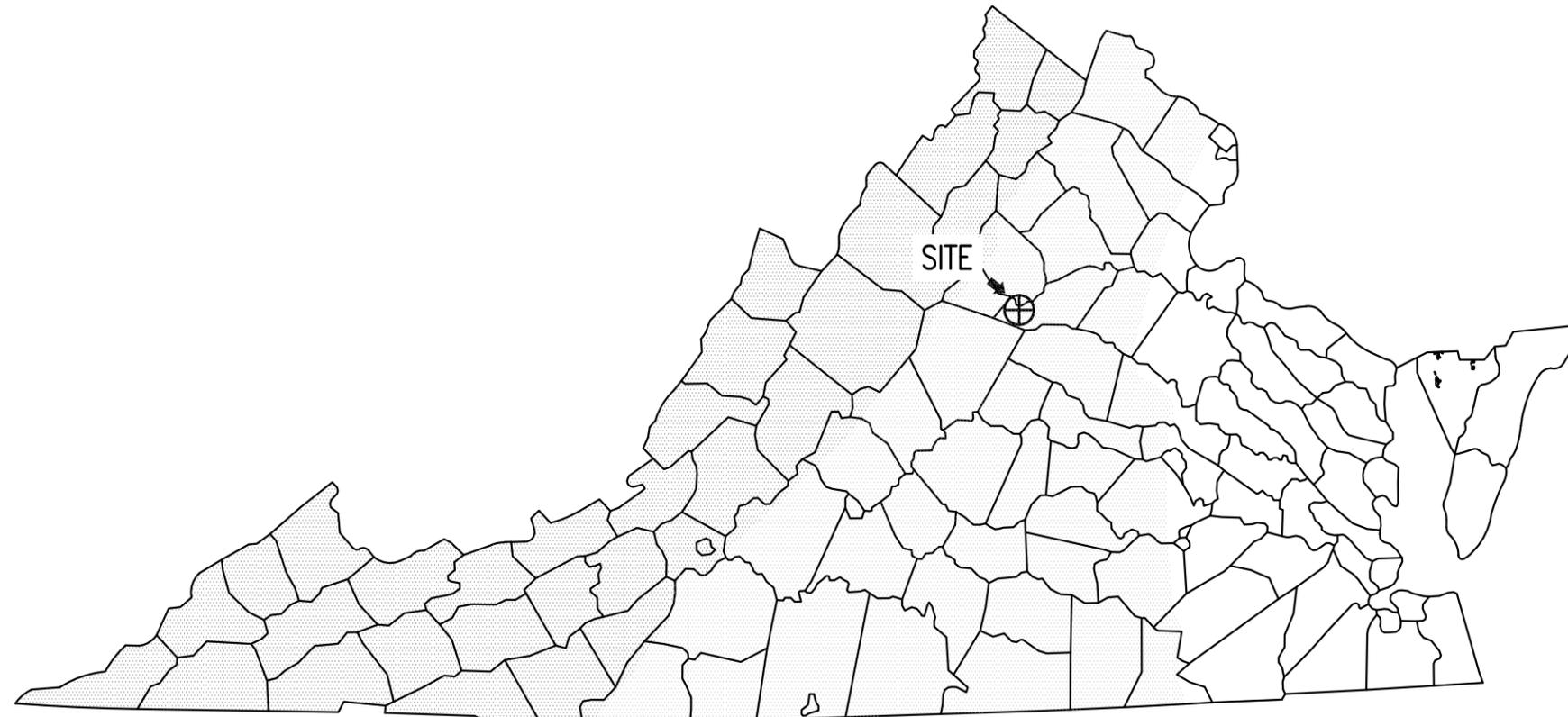
ADAPTATION: WELL ADAPTED TO ALL PARTS OF VIRGINIA. BEST ON WELL-DRAINED, DEEP SOILS OF MEDIUM TEXTURE. WILL ALSO GROW ON SANDY, RATHER ACIDIC, INFERTILE SOILS. MOST OFTEN THE LEGUME OF CHOICE FOR EASTERN VIRGINIA. OPTIMUM PH RANGE IS 6.0 TO 6.5, BUT WILL TOLERATE A RANGE OF 5.0 TO 7.0. IT IS DROUGHT-TOLERANT. COMMON VARIETIES IN VIRGINIA ARE SERALA AND INTERSTATE.

ESTABLISHMENT: SEED FROM APRIL TO JUNE. REQUIRES A FIRM SEEDBED. USE ONLY INOCULATED SEED. RATES VARY FROM 20 TO 30 LBS. OF UNHULLED SEED PER ACRE. REQUIRES PHOSPHATE AND POTASH. WILL NOT PERSIST UNDER FREQUENT MOWING (ONCE A YEAR RECOMMENDED).

SOURCES: SEED OF COMMON VARIETIES IS COMMERCIALY AVAILABLE.

PS STD & SPEC 3.32 - PERMANENT SEEDING

NOTE: ALL DETAILS ARE REFERENCED FROM THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992 AND FIELD MANUAL, SECOND EDITION, 1995  
SEE E&S DRAWINGS FOR LOCATIONS OF EROSION AND SEDIMENT CONTROL STRUCTURAL PRACTICES



APPALACHIAN

PIEDMONT

COASTAL PLAIN

PHYSIOGRAPHIC PROVINCES IN VIRGINIA

SCALE IN FEET



11'x17" - 1"=250,000'  
24'x36" - 1"=125,000'

PHYSIOGRAPHIC PROVINCES IN VIRGINIA



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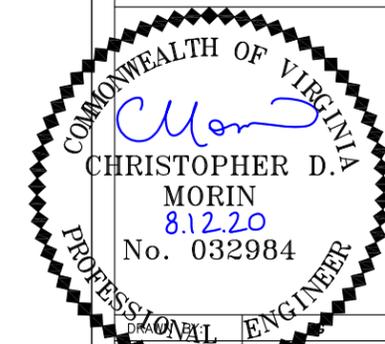
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2	COMMENTS	JG	05-14-20
3	COMMENTS	JG	05-15-20
4	COMMENTS	AGT	07-20-20
5	T1 EDIT	AGT	07-27-20
6	E&S PLAN CHGS.	AGT	08-12-20

SITE NAME:  
**UNO**

SITE NUMBER:  
**CWS 43**

SITE ADDRESS:  
**950 S BLUE RIDGE TURNPIKE  
SOMERSET, VA 22972**



DATE DRAWN:	01-13-20
SUBMISSION:	FINAL ZONING

SHEET TITLE:  
**PERMANENT SEEDING NOTES  
(3 OF 3)**

SHEET NUMBER:	REV. #
<b>E&amp;S-20B</b>	<b>6</b>