APPLICATION NUMBER 77-D-025

Dranesville District

STAFF REPORT

Applicant: Albert J. Dwoskin, Trustee

Present Zoning: RE-1 Requested Zoning: R-12.5

Proposed Use: Residential

Subject Parcels: 11-1 ((1)) Part 2 Acreage: 78.93 acres

Application Filing Date: March 23, 1977

Planning Commission Hearing Date: October 6, 1977

Board of Supervisors Hearing Date: November 7, 1977

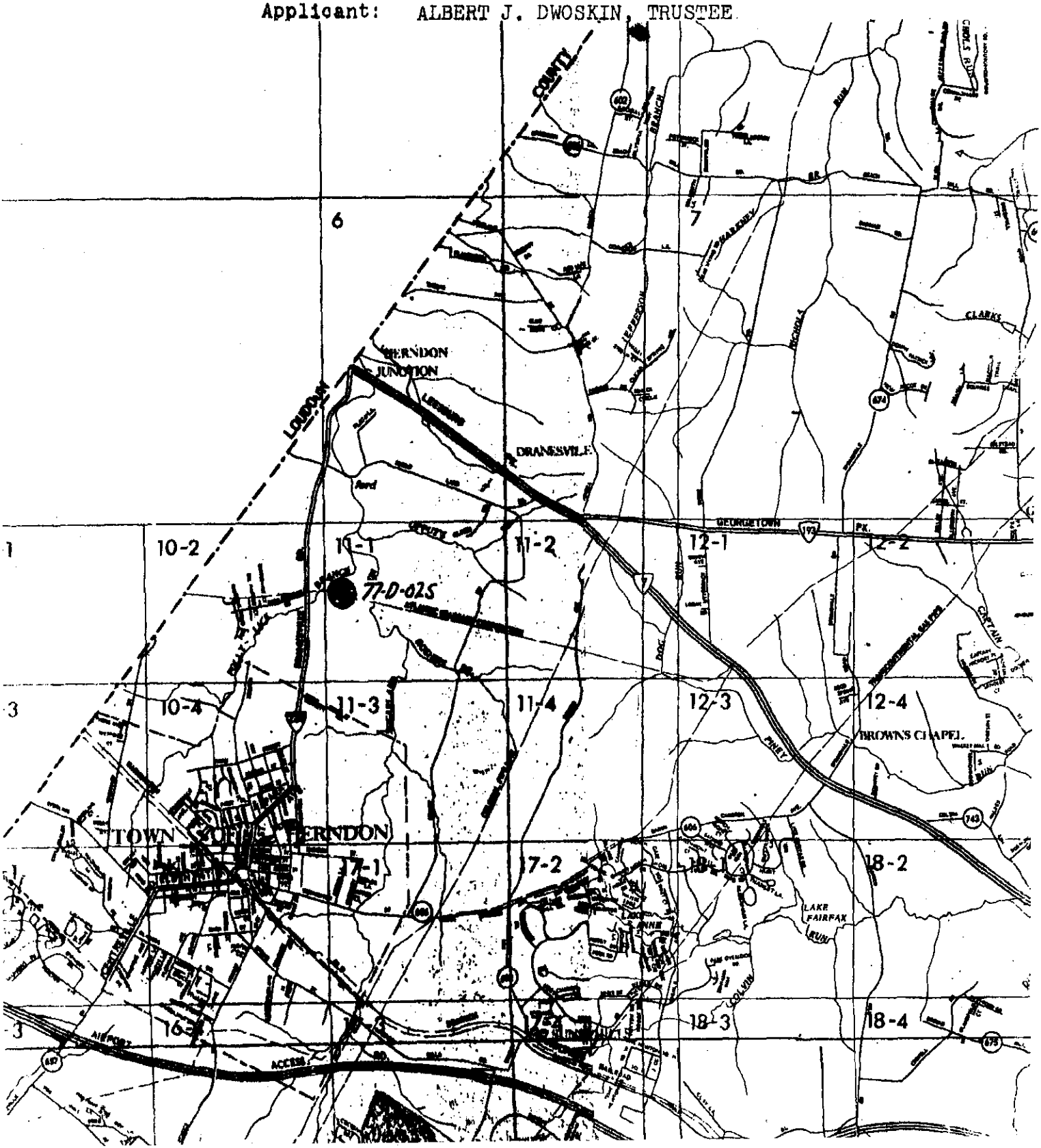
Staff Recommendation: The staff recommends that the Zoning Ordinance, as it pertains to the subject property, be amended from the RE-1 District to the R-12.5 District, subject to proffer by the owner/applicant to the submitted development plan as modified by the section Recommendations on the Development Plan on page 9 of this report.

It should be noted that it is not the intent of the staff to recommend that the Board, in adopting any of the referenced proffers, relieve the applicant from compliance with the provisions of any applicable ordinances, regulations or adopted standards.

REZONING APPLICATION

Number: 77-D-025
Acreage: 78.93 acres
From: RE-1
To: R-12.5
Applicant: ALBERT J. DWOSKIN, TRUSTEE

District: Dranesville
Section Sheet: 11-1
Subdivision: ((1))
Lot: Part 2



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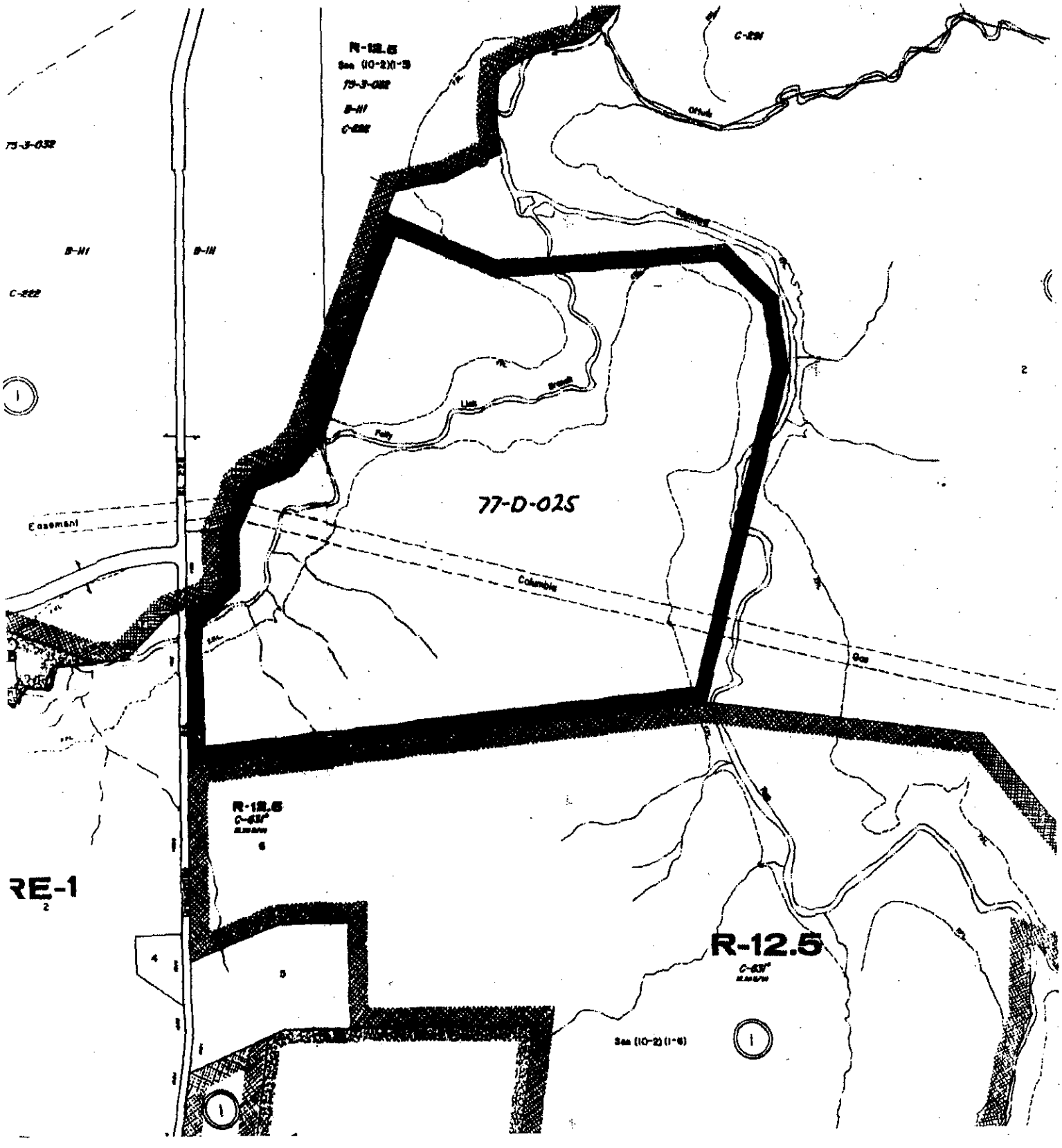

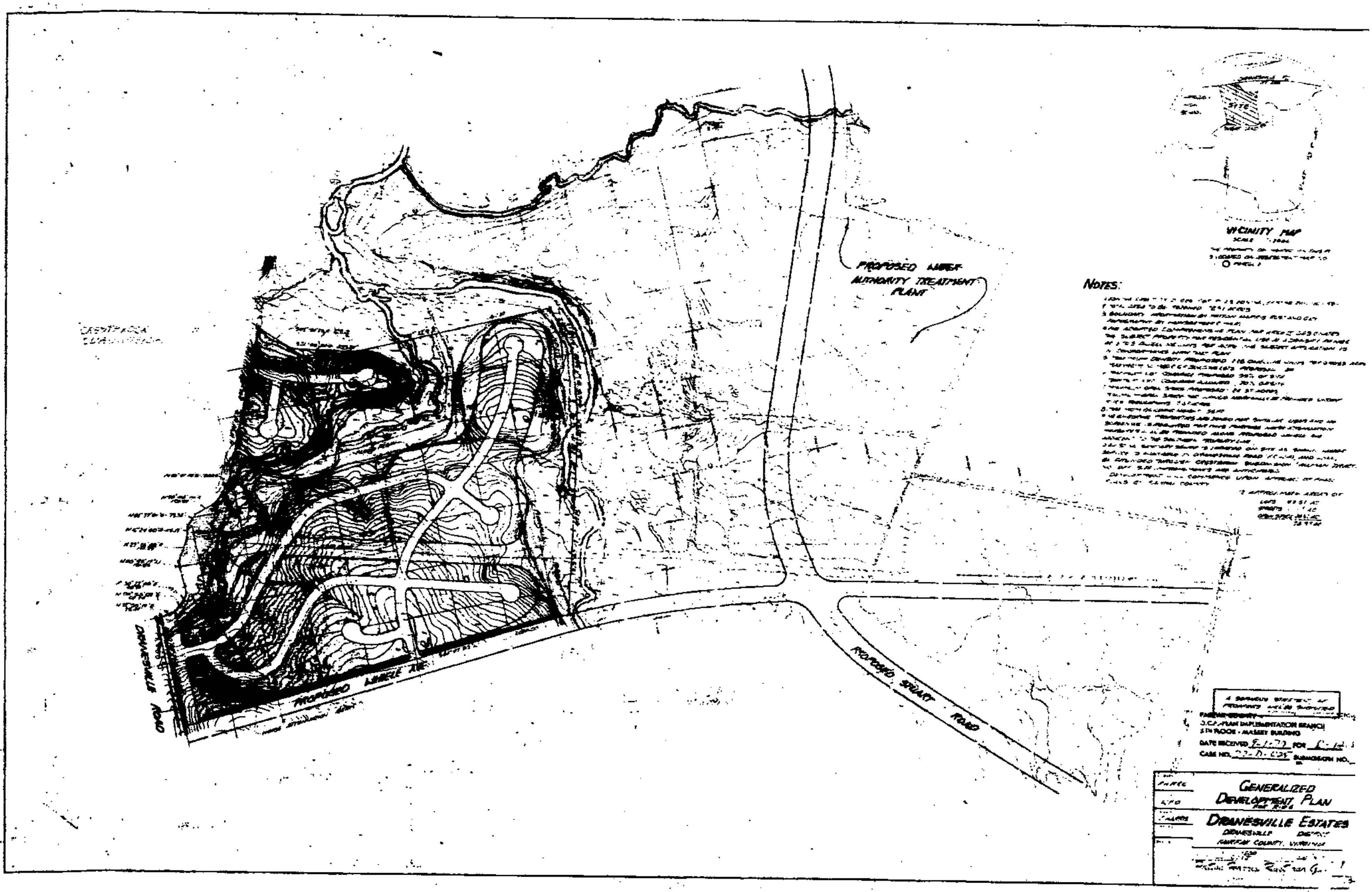
PROPOSED AUTHORITY TREATMENT PLANT
PROPOSED SUGAR ROAD
DRANESVILLE ROAD
VICINITY MAP
NOTES:
D.C.P.-PLAN IMPLEMENTATION BRANCH
5TH FLOOR - MASSEY BUILDING
DATE RECEIVED 8-1-73
CASE NO. 73-D-025 SUBMISSION NO.
GENERALIZED
DEVELOPMENT PLAN
DRANESVILLE ESTATES
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

A GLOSSARY OF TERMS FREQUENTLY USED IN STAFF REPORTS WILL BE FOUND AT THE BACK OF THIS REPORT

LOCATION AND CHARACTER OF THE AREA

The subject property is located in the Dranesville District. The site contains approximately 78.93 acres and is presented zoned RE-1 (residential single-family, one-acre lots). The site is located on the eastern side of Dranesville Rpad, approximately 100 feet south of Hiddenbrook Drive. To the west is the Hiddenbrook Estates Subdivision consisting of single-family homes and zoned R-12.5 (residential single-family, 12,500 square foot lots). Southerly of Hiddenbrook Estates is Kingston Chase Subdivision also zoned R-12.5 Directly north and south of the subject property are undeveloped properties zoned R-12.5. To the east remains a large undeveloped tract zoned RE-1 which is owned by the applicant in this case.

COMPREHENSIVE PLAN RECOMMENDATION

The subject property is located in the Sugarland Community Planning Sector of the Upper Potomac Planning District of Area III. The Area III Comprehensive Plan map recommends residential development at 2 to 3 dwelling units per acre.

DESCRIPTION OF THE APPLICATION

The applicant seeks rezoning of the subject property from RE-1 to R-12.5 The development plan submitted with the application notes the total number of units will not exceed 180 and that the overall density will equate to 2.28 dwelling units per acre. Subdivision would be according to the alternate density, or cluster, provisions of the Zoning Ordinance. Additional details are contained in Appendix 1.

PUBLIC FACILITIES ANALYSIS

Transportation

The transportation element of the Countywide Plan recommends implementation of projects for the following highway facility improvements in this area of Fairfax County.

- Extension of Wiehle Avenue, Route #828, from Baron Cameron Avenue to Loudoun County, as a four-lane divided facility.

- Construction of realigned Dranesville Road, from Leesburg Pike to Lee-Jackson Highway where Stringfellow Road will continue southward, as a four-lane divided facility.

- Improvement of Reston Avenue, Route #602, to a four-lane divided facility for its entire length.

- Improvement of Leesburg Pike, Route #7, to a six-lane divided limited access facility from the Loudoun County line to the Capital Belway.

- Construction of parallel lanes for general traffic along the Dulles Airport Access Road (DAAR) right-of-way.

- Construction of a METRO rapid rail transit line within the DAAR right-of-way.

- Construction of grade-separated interchanges at:

  - Leesburg Pike and Dranesville Road realigned.
  - Leesburg Pike and Reston Avenue.
  - The DAAR and Dranesville Road realigned.
  - The DAAR and Reston Avenue.

The Countywide Plan Recommended Program of Improvements has established priority status for the following projects:

- Construction of Dranesville Road extended between Fox Mill Road and Lee-Jackson Highway, as a four-lane divided facility, in Stage I (project initiation).

- Improvement of Reston Avenue, Route #602, to a four-lane divided facility between Baron Cameron Avenue and Sunrise Valley Drive, in Stage IV (committed). This project is currently under construction.

Although not included in the Recommended Program of Improvements, because funding must come from other than normal VDH & T sources, the construction of the parallel lanes along the DAAR is a priority project.

This site is adjacent to C-631, Pleasant View, and across Dranesville Road from 75-3-032, the Allman tract. As such, its impact should be treated as part of the impact that can be expected from rezoning applications in the vicinity. The potential trip generation of these three sites is shown in the following table. All of these trip generation figures are in vehicles per day (vpd).

Approved Applications

C-631	4,120 (R-12.5)
75-3-032	7,910 (R-12.5)
Subtotal	12,030 vpd

Pending Application	Existing Zone	Per Application	Plan Maximum
77-D-025	655 (RE-1)	1,620 (R-12.5)	2,135 (3 DU/AC)
Totals	12,685 vpd	13,650 vpd	14,165 vpd

These vehicles would have their greatest impact on Dranesville Road and Leesburg Pike, given the existing highway system. Once they are constructed, Wiehle Avenue extended, Dranesville Road realigned and the DAAR parallel lanes would also be impacted. The latest available VDH & T traffic counts, taken in 1976, for the two most affected roads are:

Dranesville Road, Route #228	
Herndon to Leesburg Pike	6,100 vpd
Leesburg Pike, Route #7	
Dranesville Road to Georgetown Pike	25,170 vpd
Georgetown Pike to Chain Bridge Road	31,160 vpd
Chain Bridge Road to the Capital Beltway	48,570 vpd

Dranesville Road is a two-lane facility that does not meet current design standards although the road has been improved in recent years. Because of its relatively low traffic count, this road is estimated to be operating at the borderline between levels of service D and E. Once the traffic from any of the three developments listed above is present, traffic would operate at level of service E or F. Considerable congestion would occur at the Dranesville Road/Leesburg Pike intersection.

Leesburg Pike is a good four-lane divided facility, but, because of its traffic volume, it operates at level of service E or F west of Georgetown Pike and at level of service F between Georgetown Pike and the Beltway.

A description of road capacity and levels of service is attached as Appendix 2.

Sanitary Sewer

The subject property is located in the Sugarland Run Watershed, and would be sewered into the Blue Plains Treatment Plant. Based upon current and committed flow, excess capacity is available at this time. For purposes of this report, committed flow shall be deemed as active and valid building permits in accordance with the context of the Blue Plains Agreement of 1974. Phase I of an engineering study is currently under way to provide from 4 to 10 million gallons per day from a pumpdown to the Southern County facilities by the end of 1979.

The nearest available sewer to the property are 21 and 30-inch lines located on the property. These lines are adequate for the proposed use.

Water Service

The subject property is located within the franchise area of the Fairfax County Water Authority. The nearest available water line is a 12-inch line located approximately 1,350 feet from the property. This line is adequate for the proposed use and sufficient capacity and pressure currently exist to serve the property.

Fire Services

Fire and Rescue Services' protection guidelines for this type development have been that this property should be no more than three (3) miles from a properly manned fire station.

The subject property is now 3.0 miles away from the Herndon Fire Department, Company Number 4. Said fire department is equipped with a two-piece engine company, an ambulance and should provide a total manning of 24 personnel, both volunteer and paid.

According to Fire and Resuce Services manpower statistics for the period, January 1976 to January 1977, the Herndon Fire Department is, after calculating present volunteer response, nine (9) paid firefighters short in providing proper manning of its apparatus, or three (3) paid firefighters short per shift.

In summary, it is the judgment of the Fire and Rescue Services that fire protection should be adequate with the placement of the nine (9) additional firefighters in the present fire station.

Parks

The site is served by the Bruin Neighborhood Park, the 66.7-acre Frying Pan large County park and the Hiddenbrook Neighborhood Park all within 5 miles of the subject property.

The Fairfax County Park Authority has reviewed the subject rezoning case and has made the following comments:

- All open space and recreational facilities associated with the subdivision should be dedicated to the Park Authority. A major portion of the open space falls within the floodplains and adjacent steep slopes of the Sugarland Run and Folly Lick Streams, both of which are listed in the Stream Valley Policy.

- The developer should provide 1 tot lot/apparatus area (80 feet by 100 feet) and 1 basketball/multi-use court (60 feet by 90 feet) in accordance with NRPA standards as adopted and adapted by the Fairfax County Park Authority. Additional recommended recreational facilities include passive facilities (EX. benches, tables, grills, trash receptacles, shade trees, pedestrian paths) and an open play field (100 feet by 200 feet cleared, graded and seeded).

- Storm water management facilities should not be placed on Park Authority property. However, if this is unavoidable, said facilities and the land on which they are located should be dedicated to the County Board of Supervisors for maintenance and liability.

- The developer should construct trails along Dranesville Road, Route #228, Sugarland Run Stream Valley and Folly Lick Stream Valley in accordance with the County Trails Plan. The developer should also provide or arrange for the provision of adequate signing, buffering, landscaping, drainage or bridge/crossing structures wherever appropriate along said trails. The trails should be constructed in accordance with County Trail Type 1-A specifications (6 feet to 8 feet wide, 2-inch asphalt cover, 4-inch gravel base).

- The developer should contact the developers of Kingstream and Crestbrook Subdivisions to coordinate the provision of open space, recreational facilities, trails and dedications.

Schools

A comparison of the student population estimated to be generated by the 180 single-family residences as proposed by the applicant and the 78 dwellings possible under current zoning reveals a net increase of 96 students. These estimates are:

Level	Estimate of Students Generated	Estimate Under Current Zoning	Difference
Elementary	.506 x 180 = 91	39	+52
Intermediate	.143 x 180 = 26	11	+15
High School	.255 x 180 = 46	17	+29
	163	67	+96

The schools which will serve this property, their program capacity, their March 1977 enrollment and their projected September 1977 enrollments are:

Schools	Program Capacity	March 1977 Membership	September 1977 Projected Membership
Herndon Elem.	858	930	975
Herndon Inter.	1,200	1,524	1,499
Herndon High	2,250	2,508	2,620

The foregoing statistics indicate that the elementary, intermediate and high school levels are all overenrolled.

It is difficult to assess the impact from residential rezoning applications on the existing school membership because of the lag time between the granting of a rezoning and actual completed development. Usually, by the time a new project begins generating students, the school grade make-up and total membership has changed. However, by applying the current student ratio, by dwelling unit type, to a proposed new residential development, the potential additional students can be projected for housing assignment purposes.

Area III school membership is generally decling in the Vienna, Dunn Loring and McLean areas while increasing in the Herndon and Reston areas. New developments will be assigned to schools serving the property or to a nearby existing school with available space. Boundary adjustments are made to accommodate changing school membership and/or school consolidation approvals.

Schools in the Herndon and Reston areas will continue to experience some overcrowding while waiting construction of new schools. Temporary housing assignments may be required, using available space in the Vienna/McLean area schools.

Libraries

The residents of the proposed community will be adequately served by the Herndon Fortnightly Library located approximately 4 miles to the south on Spring Street.

SITE AND DEVELOPMENT PLAN ANALYSIS

Site Analysis will be found at Appendix 3.

Design Considerations

This site is very appropriate for a residential development from environmental viewpoint because it offers rolling topography, good bearing capacity, stream valley corridors and excellent views. Generally speaking, the generalized development plan is well designed to respect and take advantage of the natural features of the land. The transportation networks follow the natural topography, developed areas are limited to the uplands leaving the stream valleys as open space, an earthen berm is proposed for future highway noise and the gasline easement will be transversed a minimum number of times.

The staff offers the following comments to be considered with the final design. They are as follows:

1. Lot line placement should take advantage of the large potential for pleasant views.

2. As many eastern red cedar trees as possible should be preserved because they provide a unique landscaping amenity.

3. All monarch trees should be preserved.

4. Lot line and dwelling placement should reflect all natural drainage patterns on the site. Future wet basement and soggy backyard problems can be alleviated by placing units away from the natural drainageways and springs.

5. Due to the moderate to high shrink-swell capacities of Iredell-Mecklenburg, Montalto and Rock Land soil types, all footings should be placed on the hard bedrock to alleviate potential foundation damage.

6. Minor open space changes are recommended as shown on the accompanying map to avoid clearing steep slopes and/or high quality stream valley vegetation.

7. The southeastern cul-de-sac should swing to the south to correspond more closely with the topography. Similarly, the northwestern cul-de-sac should be realigned as shown on the accompanying map to correspond better with the existing topography.

8. Reverse frontage should be provided for all lots along Dranesville Road and the proposed Wiehle Avenue.

9. Rights-of-way for the improved Dranesville Road and the proposed Wiehle Avenue appear to be provided for adequately by the development plan; these rights-of-way should be dedicated by the owner/ applicant.

The development plan proposes a density of 2.28 dwelling units per acre. This small increase over the planned base density of 2 dwelling units per acre appears to be amply justified by adherence to the following Board criteria:

° Sensitivity of design to the natural features of the land.

- See discussion above.

° Provision of open space for active and passive recreational purposes.

- More than 24 acres of open space is provided, representing approximately one-third of the site.

° Provision of amenities and special features.

- A noise attenuation berm is provided along the proposed Wiehle Avenue. Staff also recommends provision of active and passive recreation facilities.

° Provision of supportive public facilities.

- Right-of-way is to be dedicated for the improved Dranesville Road and the proposed Wiehle Avenue.

CONCLUSIONS AND RECOMMENDATION ON THE REZONING

Conclusions

The requested R-12.5 zoning developed at the density proposed by the submitted development plan is in accordance with the Comprehensive Plan and is a reasonable use for the subject property.

Recommendation

The staff recommends that the Zoning Ordinance, as it pertains to the subject property, be amended from the RE-1 District to the R-12.5 District, subject to proffer by the owner/applicant to the submitted development plan as modified by the following section Recommendations on the Development Plan.

RECOMMENDATIONS ON THE DEVELOPMENT PLAN

The staff recommends, should the Board of Supervisors intend to amend the Zoning Ordinance as the applicant has requested, that the submitted development plan be proffered by the owner/applicant and accepted by the Board, and further that the following changes/improvements to the development plan be similarly proffered and accepted:

- On Dranesville Road, Route #228, dedicate right-of-way to 45 feet from center line, construct road widening to 12 feet from center line plus a standard shoulder, and construct a 150-foot long, 12-foot wide deceleration/right-turn lane for the site entrance.

- For proposed Wiehle Avenue dedicate right-of-way sufficient, in conjunction with the right-of-way to be dedicated from the property to the south, for a right-of-way totalling 90 feet in width. Dedicate additional right-of-way at the Dranesville Road/Wiehle Avenue intersection to accommodate a high level channelized design, viz, a free-flow right-turn lane.

- Provide reverse frontage for all lots along Dranesville Road and proposed Wiehle Avenue.

- In the subdivision plat for this property, provide as feasible for items 1 through 7 of the Design Considerations section of this report.

- Dedicate open space and provide recreation facilities and trails as recommended in the Parks section of this report.

It should be noted that it is not the intent of the staff to recommend that the Board, in adopting any of the referenced proffers, relieve the applicant from compliance with the provisions of any applicable ordinances, regulations or adopted standards.

STATEMENT OF JUSTIFICATION FOR REZONING
From RE-1 to R-12.5 on Tax Map 11-1,
Parcel ((1)) Dranesville Magisterial
District, 216 acres more or less

The subject parcel is located on the easterly side of Dranesville Road, State Route 228, approximately 100 feet south of the entrance to Hiddenbrook Estates. The applicant requests that the parcel be rezoned from its current RE-1 classification to the R-12.5 classification. The property is located in the Area III Plan which recommends densities at 2-3 unites per acre and 1-2 units per acre.

Since the adoption of the Area III Plan, all of the property adjoining the entire southerly line of the captioned property has been rezoned to the R-12.5 classification. In addition thereto, the property adjoining the northerly line of the subject property has been rezoned to the R-12.5 rezoning classification. The property lying on the westerly side of the captioned property (Hiddenbrook Estates) is zoned R-12.5.

The Public Facilities Plan for Fairfax County has been amended to authorize a water treatment facility at the northeast portion of the property and the Fairfax County Water Authority has recently acquired title to the said northeasterly portion containing approximately 49.5 acres.

Based upon the Area III Plan,the rezoning on three sides of the captioned parcel to R-12.5 and the impact of the public facility use at the easterly portion of the property, the availability of services and the location of the site, it is submitted that the captioned parcel should be rezoned to the R-12.5 zoning classification. The owner will submit a development plan showing the character development proposed prior to a hearing on this application.

Capacity and Level of Service

The capacity of a given section of roadway may be defined as the maximum number of vehicles which have a reasonable expectation of passing over that section during a given time period under prevailing roadway and traffic conditions. Traffic operation is normally characterized by the term "level of service" which describes the relative freedom of movement drivers experience under prevailing roadway and traffic conditions. Level of service measures range from A (free flow, little or no restrictions) to E (capacity), with intermediate levels describing corresponding operating conditions. Level of service F is a term used to describe stop-and-go, forced flow conditions which may occur in the traffic stream as a result of continued increases in traffic volume beyond capacity. More detailed definitions of levels of service are set forth in the chart on the following page.

Caution should be used in the application of capacity and level of service data as a major criteria in determining the acceptability of an individual rezoning application because of the coarseness of detail of the analysis and the absence of a County standard by which to evaluate the results.

Capacity can be computed at a fine level of detail for analyzing the effects of traffic engineering improvements. Such calculations involve measurements of lane width, cycle time, turning movements, and other variables. Obviously, it is impractical to undertake this exercise for every rezoning application. The data reported herein, therefore, represent generalized approximations used for planning purposes which may not prove exact at a specific location.

However, even if a thorough analysis of service levels were available for any given location, the application of this data to determine the acceptability of a given rezoning application would be most difficult. Usually, level of service D is accepted for peak-hour design in urban areas, and level C in rural areas. However, it must be emphasized that the adopted Fairfax Countywide Transportation Plan does not achieve this level of operation because of its failure to accommodate the projected auto trips generated by additional development in Loudoun, Prince William and western Fairfax Counties. Previous estimates by staff of the implications of providing such facilities indicated that every major radial highway in Fairfax County leading to the central area of the region would need to be substantially widened in order to meet this need. Since fiscal constraints and public sentiment preclude the adoption of such facilities on the plan, it is accurate to state that the future peak-hour level of service will be F on major radial highways at the Beltway and E on major radial highways in the western part of the County. These circumstances considerably complicate the evaluation of an access or circulation scheme which is based entirely on a strict application of capacity and level of service. Nevertheless, the County and State both attempt to devise circulation and access plans which do not result in excessive congestion at any particular location.

ervice Level	Urban Condition - Signalized Arterials	Rural Conditions
A	Relatively free flow. Speeds controlled chiefly by signal progressions and regulatory speed limits. Minimum delay and congestion, free mid-block operation.	Free flow. Speeds limited only by the posted speed limits, driver desires and physical roadway conditions; little or no restriction in maneuverability because of the presence of other vehicles.
B	Stable flow, delays not unreasonable. Average overall speeds may drop due to intersection delay and intervehicular conflicts, with signals occasionally fully loaded.	Stable flow. Operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select speed of operation.
C	Stable flow with significant but acceptable delay. Average speeds drop to below 80% of free flow speeds. Frequency and duration of loaded signal cycles reaches what is considered a reasonable limit by most drivers.	Stable flow. Speed and maneuverability more restricted by the presence of other vehicles; freedom to select speed or to pass restricted. Relatively satisfactory operation still obtained.
D	Approaching unstable flow with tolerable delays. Delays at critical locations,such as crossings of other arterials, may become extensive, with some vehicles occasionally waiting two or more signal cycles to pass through the intersection.	Approaching unstable flow. Tolerable operating conditions for short periods of time, fluctuations in volumes and tempor restrictions may cause substantial drop in operating speeds. Little freedom to manei ver; comfort and convenience are low.
E	Volumes at capacity; congestion and intolerable delay. Continuous backup occurs on the approaches to most intersections, with traffic flows determined by the maximum discharge rates at each intersection. Traffic seeking to enter or cross from driveways or minor streets can enter only when traffic is stopped upstream at a signal, and even then the maneuver may be difficult.	Capacity - Lower operating speeds than level D with volumes at or near capacity of the highway. Flow is unstable and there may be momentary stoppages.
F	Forced flow; jammed. Flow interruptions are regularly induced at traffic signals, which in turn meter the traffic to the next downstream section. As downstream sections cannot accommodate the vehicles discharged by a signal, vehicular backups from one signal extend back through an upstream signalized intersection.	Forced flow. Speeds low and variable, volumes below capacity. These conditions usually result from downstream restrictions and are characterized by backed up queues of vehicles. Stoppages may occur for short periods of time. Speed and volume can d to zero.

	Yes	No
Geologic Impacts:		
Coastal Plain Province		
regional aquifer recharge		X
slippage clays		X
sand and gravel resources		X
		X
Piedmont Province		
localized ground water		X
shallow bedrock		X
		X
Triassic Province		
localized ground water (limited)	X	
shallow bedrock	X	
crushed stone resources	X	
	X	
Topography Restraints:		
Severe slopes	X	
Irregular configuration likely to require extensive cut and fill		X
Hydrology Impacts: Sugarland Run Watershed		
Critical watershed location	X	
High quality watershed	X	
Onsite water feature assets streams, ponds, floodplains	X	
Pro rata share requirements		X
Necessity for onsite storm water control	X	
Soil Concerns: Ruxton, Montalto, Iredell-Mecklenburg		
Slippage (marine) clays present	X	
Poor construction rating	X	
Severe erosion hazard		X
Vegetation, Wildlife and Open Space Impacts:		
Extensive high quality vegetation and/or habitat - good habitat, high quality vegetation in northern part.		X
Environmental Quality Corridor (EQC) components Sugarland Run EQC	X	
Citizen Identified Environmental Resources (CIER)	X	
Ambient Noise:		
Adverse highway impact on residential use	X	
Adverse airport impact on residential use		X
Adverse railroad impact on residential use		X
Air Quality Impacts		
Potential violation of standards		X
HISTORY		X
TRAIL	X	

	Yes	No
Geologic Impacts:		
Coastal Plain Province		X
regional aquifer recharge		X
slippage clays		X
sand and gravel resources		X
Piedmont Province		X
localized ground water		X
shallow bedrock		X
Triassic Province	X	
localized ground water (limited)	X	
shallow bedrock	X	
crushed stone resources	X	
Topography Restraints:		
Severe slopes	X	
Irregular configuration likely to require extensive cut and fill		X
Hydrology Impacts: Sugarland Run Watershed		
Critical watershed location	X	
High quality watershed	X	
Onsite water feature assets streams, ponds, floodplains	X	
Pro rata share requirements		X
Necessity for onsite storm water control	X	
Soil Concerns: Ruxton, Montalto, Iredell-Mecklenburg		
Slippage (marine) clays present	X	
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Severe erosion hazard		X
Vegetation, Wildlife and Open Space Impacts:		
Extensive high quality vegetation and/or habitat - good habitat, high quality vegetation in northern part.		X
Environmental Quality Corridor (EQC) components Sugarland Run EQC	X	
Citizen Identified Environmental Resources (CIER)	X	
Ambient Noise:		
Adverse highway impact on residential use	X	
Adverse airport impact on residential use		X
Adverse railroad impact on residential use		X
Air Quality Impacts		
Potential violation of standards		X
HISTORY		X
TRAIL	X	

Rezoning Application - 77-D-025

Dranesville Estates
Requested Zoning - R-12.5
Current Zoning - RE-1

This 78.9 acres site is a portion of a larger tract that encompasses much of the Sugarland Run - Folly Lick Branch confluence and flood plain system. This locale has been identified as an Environmental Quality Corridor (EQC). The Sugarland Run watershed is a high quality watershed that flows across the Loudon County - Fairfax County border during its course to the Potomac River. It enters the Potomac up river from the major metropolitan area water intakes. It is, therefore, essential to maintain the existing high quality water conditions of Sugarland Run. Through proper storm water management techniques water quality can be maintained.

Folly Lick Branch dissects this site into two separate sections accessible by two different access points, Stuart Road and Dranesville Road. Design considerations should take into account the Columbia Gas pipeline easement, which transverses the parcel in an east to west direction, and the extensive floodplain adjacent to Folly Lick Branch and Sugarland Run. The smaller western tract (78.9 acres) will be addressed in this report.

The following is an environmental inventory and analysis of site specific information.

Geology

This area is situated in the Triassic province just west of the Triassic Piedmont interface and lies across the metamorphic diabase and surrounding baked zone. The diabase is an intrusive dike, a hard, dense, dark grey to black mosaic of feldspar and pyroxene. It weathers to a clay rich soil. Surrounding the diabase is a baked zone where the Triassic sandstones and siltstones received tremendous amounts of heat during the diabase intrusion. The sandstones and siltstones became fractured in blocky, angular and subangular fragments which provides a limited degree of aquifer recharge. To where the recharge goes is not known as the sedimentary beds are fractured and dip in a multitude of directions.

The depth to bedrock varies. Generally, bedrock depth over the diabase ranges up to ten feet. The soils may be deeper where the higher nodes on uplands occur.

Topography

Slopes in the area range from 0-2% in the floodplains to 18% on the valley slopes. Irregular topography is usually associated with the diabase intrusions as is evident here. Stream erosion is the dominant land forming factor leaving wide, extensive floodplains, erosional remnants and moderate to steep valley slopes. The steepest slope exists on the western edge of Sugarland Run at the southernmost border of the site. Developmental restrictions should be placed upon this area due to the erosion potential, close proximity of Sugarland Run and the steep slopes. The remainder of the site lies in rolling topography.

Hydrology

Inventory

The Sugarland Run Watershed is considered a watershed of high quality. The Sugarland Run stream valley has been designated an Environmental Quality Corridor (EQC) meaning the floodplain falls into an interlocking system of stream valleys designed to provide vegetative barriers, wildlife habitats, trails (where applicable) and common open space - EQC's are reserved for public use.

Dranesville Estates lies in a critical watershed location because it is adjacent to the confluence of Sugarland Run and Folly Lick Branch. Small streams drain the property directly to these streams with no filtering or dissipating time between the property and the main stems. For this reason, water quality is of utmost importance as it leaves the site.

Stormwater Management

Stormwater retention structures and/or other storm water management practices are necessary in order to maintain pre-development runoff levels. Downspout gravel infiltration ditches, gravel interceptors, swamp filtration zones and natural vegetation filter strips are some available techniques useful for non-point source pollution and stormwater management control.

Soils

The soil types at this location are a direct result of the diabase which has weathered into a clay-rich overburden. Generally, shallow soils with a moderate to high shrink-swell

capacity are located on the uplands. Slope soils contain varying degrees of shrinkage swelling characteristics and are more erosive than the upland soils. Swale soils located in the floodplain are susceptible to periodic flooding.

Iredell-Mecklenburg silt loam and Montalto stoney silt loam are shrink-swell soils located in the uplands. All footings should be placed on the hard diabase bedrock in order to limit the possible shrinkage-swelling damage, otherwise, voids are left under foundations when the soils dry out and shrink, causing settling and hence splitting, cracking or warping of the foundation. In many cases, blasting may be necessary to secure footings for houses and utilities requiring a substantial developmental cost increase. Water seepage into basements may occur as the underlying diabase is very hard and impermeable causing water to run horizontally with the dip and strike. The danger of land slippage is minimal due to the relative flatness of the topography and cohesiveness of the soils.

Rawland silt loam and Manassas silt loam lie in the floodplain areas and are susceptible to periodic flooding. They are of alluvial origin and contain variable quantities of sands, silts, cobbles and pebbles. This area is best left for recreational uses such as trails, picnic areas or ballfields.

Slope soils are located on slopes of 2 to 25%. The erosion potential for these soils range from none (Rocky Land) to severe (Iredell-Mecklenburg, Montalto, Legore and Glenelg) depending upon their slope, texture and particle content. Extreme care should be taken to prevent slope erosion, particularly on cut or fill areas, by the employment of erosion and sediment control techniques.

Vegetation/Wildlife

Present vegetation suggests the major upland portion of this site was an open field. Existing vegetation consists of low lying ground cover and shrubbery such as wild strawberry, ivy, briars, goldenrod, thistle and a maze of vines which form a thick ground cover mat. Interspersed throughout the site are eastern red cedar trees averaging eight to ten feet in height. They are characteristic of the Piedmont and in the southeast portion of the site provide a unique and satisfying amenity.

Large clumps of softwood trees (sumac, small tulip trees) surround very dominant 24-36" d.b.h. white and red oaks which satisfy every habitat need for small mammals

and birds. These areas should be preserved to serve the wildlife community as well as maintain a monarch amenity to the development. Willow trees have taken root in the small side slope swales where springs have developed and provide enough water for their thirsty roots. It is quite unusual to observe willow trees on a side slope. Obviously, the water table is very shallow in those locations.

The northeastern corner of the site supports large hardwood species in a wooded location. Wherever possible, these trees should be retained as future shade trees in a residential neighborhood.

Ambient Noise

The major noise constraints placed upon this parcel will originate from the proposed Wiehle Avenue and, to a lesser extent, Dranesville Road.

At this time, projections for the future use of Wiehle Avenue include approximately 10,000 vehicles per day with the majority being auto traffic as opposed to a heavy truck volume. Occasional blasts from motorcylces and truck stacks appear to be the main irritating problem. The proposed berm along Wiehle Avenue will protect residents from this problem as well as the more continuous but lower level automobile noise.

The site is approximately 4.5 miles from the center of the major Dulles Airport flight track. Although occasional aircraft fly over the site which might create discomfort, it does not lie within the affected NEF 30 noise impact zone.

Air Quality

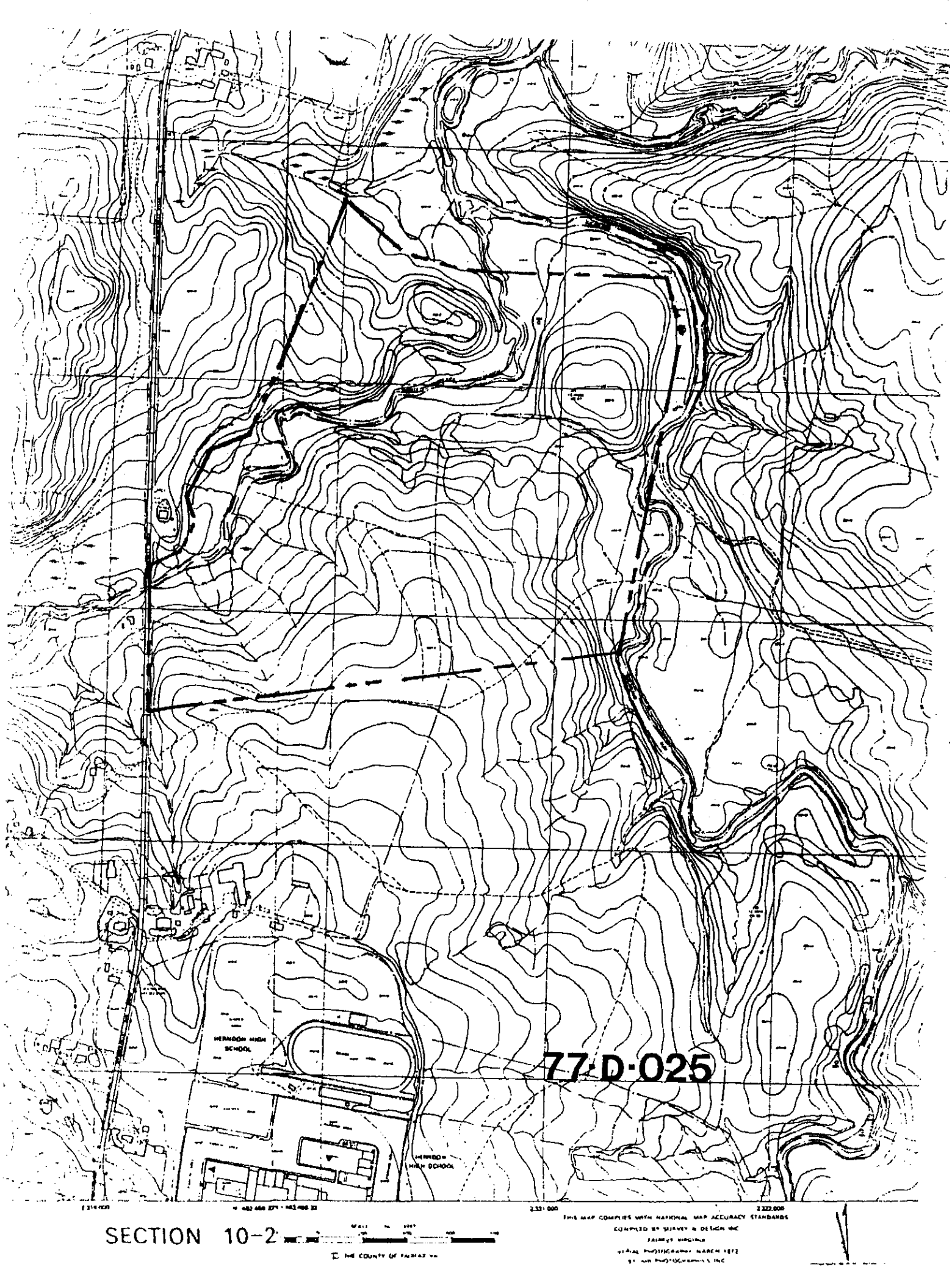
Proper transportation circulation is imperative for the maintenance of good air quality. Immobilized traffic emits a high percentage of air pollutants which add to the discomfort of hot, humid summer air. Of particular concern in this respect are CO, SO_2, NO_2 and particulates which will not exceed the recommended standards.

Trails

Trails are proposed to follow Sugarland Run, Folly Lick Branch and Wiehle Avenue. These efforts should be coordinated with the Department of Environmental Management for proper trail design, alignment and construction.

Visual Concerns

The resistant diabase intrusion has retained a slightly higher altitude than the surrounding land yeilding terrific panoramas in all directions. This is one major advantage of this site which should be considered when completing the overall design. Views to the east and west extend for approximately one mile while views north and south may reach ten or more miles on a clear day.


HERNDON HIGH SCHOOL
HERNDON HIGH SCHOOL
77-D-025
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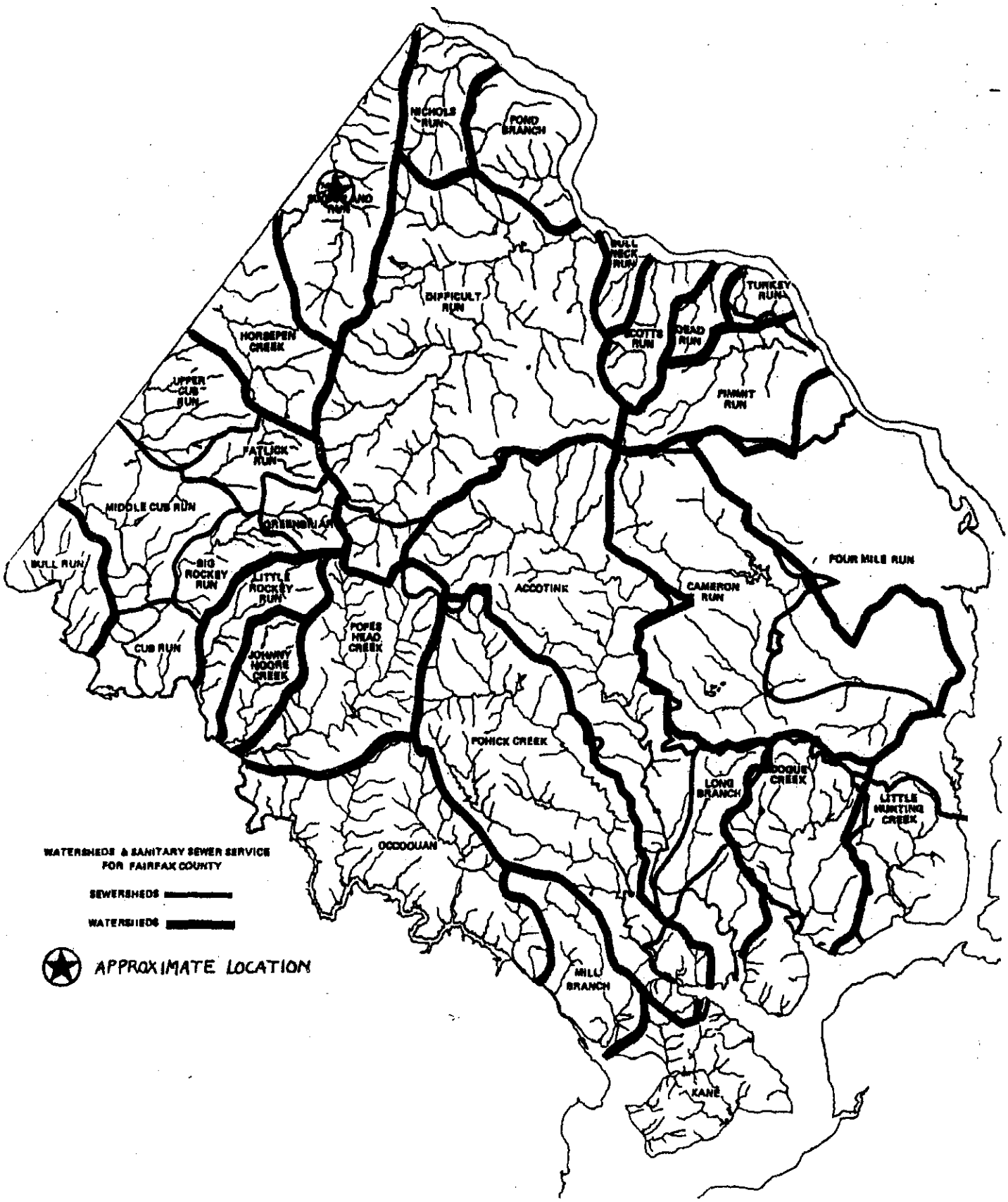
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
COMPILED BY SURVEY & DESIGN INC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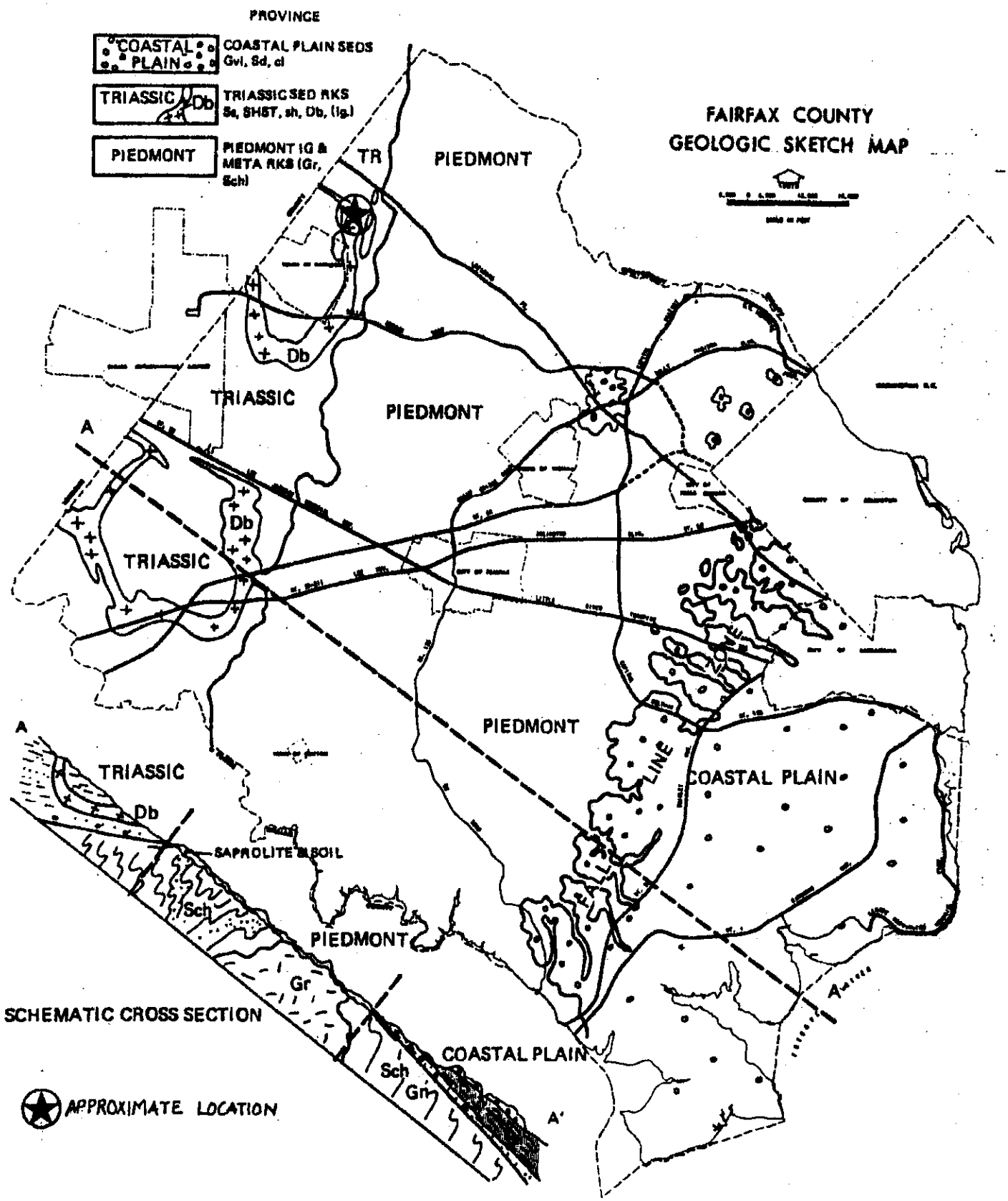
POND BRANCH
BULL NECK RUN
DIFFICULT RUN
TURKEY RUN
SCOTTS RUN
DEAD RUN
HORSEPEN CREEK
UPPER CUB RUN
FINNEY RUN
FATLICK RUN
MIDDLE CUB RUN
BULL RUN
BIG ROCKEY RUN
LITTLE ROCKEY RUN
ACCOTINK
CAMERON RUN
FOUR MILE RUN
CUB RUN
JOHNNY MOORE CREEK
POPES HEAD CREEK
POHICK CREEK
LONG BRANCH
DOGUE CREEK
LITTLE HUNTING CREEK
OCCOQUAN
MILL BRANCH
KANE
WATERSHEDS & SANITARY SEWER SERVICE FOR FAIRFAX COUNTY
SEWERSHEDS
WATERSHEDS
APPROXIMATE LOCATION


PROVINCE
COASTAL PLAIN
COASTAL PLAIN SEDS Gvl, Sd, cl
TRIASSIC
Db
TRIASSIC SED RKS Ss, SHST, sh, Db, (lg.)
PIEDMONT
PIEDMONT IG & META RKS (Gr, Sch)
FAIRFAX COUNTY
GEOLOGIC SKETCH MAP
TR
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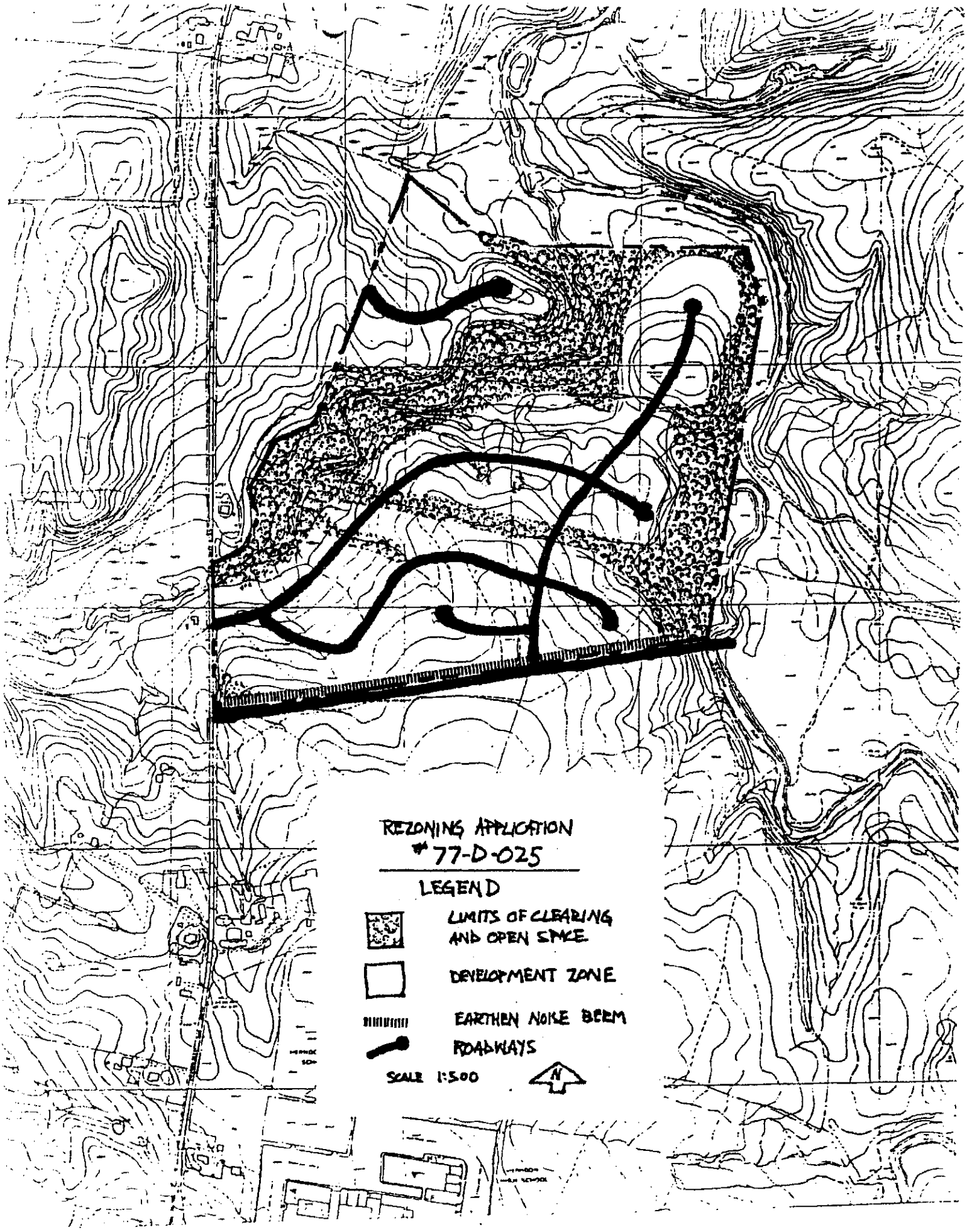
APPROXIMATE LOCATION


REZONING APPLICATION
77-D-025
LEGEND
LIMITS OF CLEARING AND OPEN SPACE
DEVELOPMENT ZONE
EARTHEN NOISE BERM
ROADWAYS
SCALE 1:500
N

SOIL CHARACTERISTICS

Swale Soils	Infiltration Rate	Shrink-swell	High Water table	Septic Suitability	Bearing Capacity	Erosion Hazard: Surface	Erosion Hazard: Subsoil	Erosion Hazard: Substratum
Rowland silt loam (12A+)	<1"/hr.	low	yes	poor	poor	none	none	none
Manassas silt loam (14B)	<1"/hr.	low	yes	poor	poor	slight	slight	slight
Slope Soils								
Montalto silt loam (28D)	2-3"/hr.	low - high	no	good	good	severe	severe	severe
Legore stoney silt loam (29D)	<1"/hr.	low	no	poor	good	severe	severe	severe
Rocky Land (basic) (41B, C)	<1"/hr.	variable	no	poor	excellent	none	none	none
Legore silt loam (27B)	<1"/hr.	low	no	poor	good	none	none	none
Iredell-Mecklenburg stoney silt loam (50C)	<1"/hr.	low - mod	no	poor	poor(surface layer)	severe	moderate	severe
Glenelg silt loam (55B)	2.5-10"/hr.	low	no	good	good	slight	slight	severe
Glenelg silt loam(55C)	2.5-8"/hr.	low	no	good	good	moderate	severe	severe
Upland Soils								
Iredell-Mecklenburgh silt loam (148B)	<1"/hr.	high	yes	poor	all footings should be placed on rock -	moderate	moderate	severe
Iredell-Mecklenburg silt loam (148C)	<1"/hr.	high	yes	poor	all footings should be placed on rock -	severe	moderate	severe
Montalto stoney silt loam(128C)	2-3"/hr.	mod - high	no	good	good	moderate	moderate	moderate

Albert J. Dwoskin, Trustee — REZONING AFFIDAVIT — Appendix 4

I, Albert J. Dwoskin, Trustee, do hereby make oath or affirmation that I am an applicant in Rezoning Case Number 77-D-025 which was filed on 8th day of Sept., 19 77, and that to the best of my knowledge and belief the following information is true:

1. (a) That the following constitutes a listing of names and last known addresses of all applicants, title owners, contract purchasers, or lessees of the land described in the application, and if any of the foregoing is a trustee, each beneficiary having an interest in such land, and all attorneys, real estate brokers, and all agents who have acted on behalf of any of the foregoing with respect to the application:

Name	Address	Relationship
Dranesville Fairfax Limited Partnership	10612 Warwick Avenue Fairfax, Virginia 22030	
see partnership list attached		

(b) That the following constitutes a listing of the shareholders of all corporations of the foregoing who own ten (10) per cent or more of any class of stock issued by said corporation, and where such corporation has ten (10) or less shareholders, a listing of all the shareholders:

Name	Address	Relationship
Albert J. Dwoskin	6824 Wemberly Way, McLean, VA	President
Dennis S. D'Annunzio	717 Kentland Dr., Great Falls, VA	Vice-President
Bryan A. Circosta	P.O. Box 811, Vienna, VA	
(principals of A.J. Dwoskin & Co., Inc. -- General Partner)		

(c) That the following constitutes a listing of all partners, both general and limited, in any limited partnership of the foregoing:

Name	Address	Relationship
see list attached		

2. That no member of the Fairfax County Board of Supervisors or Planning Commission owns or has any interest in the land to be rezoned or has any interest in the outcome of the decision,

EXCEPT AS FOLLOWS: (If none, so state)

None

3. That within the five (5) years prior to the filing of this application, no member of the Fairfax County Board of Supervisors or Planning Commission or any member of his immediate household and family, either directly or by way of partnership in which any of them is a partner, employee, agent or attorney, or through a partner of any of them, or through a corporation in which any of them is an officer, director, employee, agent or attorney or holds outstanding bonds or shares of stock with a value in excess of fifty dollars ($50), has or has had any business or financial relationship, other than any ordinary depositor or customer relationship with or by a retail establishment, public utility or bank, including any gift or donation having a value of fifty dollars ($50) or more with any of those listed in Par. 1 above.

EXCEPT AS FOLLOWS: (If none, so state)

None

WITNESS the following signature this 8th day of September, 19 77.

Albert J. Dwoskin, Trustee
Applicant

The above affidavit was subscribed and confirmed by oath or affirmation before me this 8th day of Sept. 19 77, in the State of Virginia.

Dona Kemble
Notary Public

My commission expires: June 5 1979

GLOSSARY

This Glossary is presented to assist citizens in a better understanding of Staff Reports; it should not be construed as representing legal definitions.

BUFFER - A strip of land established as a transition between distinct land uses. May contain natural or planted shrubs, walls or fencing, singly or in combination.

CLUSTER - The "alternate density" provisions of the Zoning Ordinance, which permits smaller lots and pipestem lots, if specified open space is provided. Primary purpose is to preserve environmental features such as stream valleys, steep slopes, prime woodlands, etc.

COVENANT - A private legal restriction on the use of land, recorded in the land records of the County.

DEVELOPMENT PLAN - Conceptual, Final, Generalized. A Development Plan consists of graphic, textual or pictorial information, usually in combination, which shows the nature of development proposed for a parcel of land. The Zoning Ordinance contains specific instructions on the content of development plans, based upon the purpose which they are to serve. In general, development plans contain such information as: topography, location of streets and trails, means by which utilities and storm drainage are to be provided, general location and types of structures, open space, recreation facilities, etc. A Conceptual Development Plan is required to be submitted with an application for the PDH or PDC District; a Final Development Plan is a more detailed plan which is required to be submitted to the Planning Commission after approval of a PDH or PDC District and the related Conceptual Development Plan; a Generalized Development Plan is required to be submitted with all residential, commercial and industrial applications other than PDH or PDC.

DEDICATE - Transfer of property from private to public ownership.

DENSITY - Number of dwelling units divided by the gross acreage being developed (DU/AC). Density Bonus is an increase in the density otherwise allowed, and granted under specific provisions of the Zoning Ordinance when developer provides excess open space, recreation facilities, moderately priced housing, etc.

DESIGN REVIEW - The Division of the Department of Environmental Management which reviews all subdivision plats and site plans for conformance with County policies and requirements contained in the Zoning Ordinance, the Subdivision Control Ordinance, the Public Facilities Manual, the Building Code, etc, and for conformance with any proffered plans and/or conditions.

EASEMENT - A right given by the owner of land to another party for specific limited use of that land. For example, an owner may give or sell easements to allow passage of public utilities, access to another property, etc.

OPEN SPACE - The total area of land and/or water not improved with a building, structure, street, road or parking area, or containing only such improvements as are complementary, necessary or appropriate to use and enjoyment of the open area.

Common - All open space designed and set aside for use by all or designated portions of residents of a development, and not dedicated as public lands (dedicated to a homeowners association which then owns and maintains the property).

Dedicated - Open space which is conveyed to a public body for public use.

Developed Recreation - That portion of open space, whether common or dedicated, which is improved for recreation purposes.

PROFFER - A Development plan and/or written condition, which, when offered by an owner and accepted by the Board of Supervisors, becomes a legally binding part of the regulations of the zoning district pertaining to the property in question. Proffers, or proffered conditions, must be considered by the Planning Commission and submitted by an owner in writing prior to the Board of Supervisors public hearing on a rezoning application, and thereafter may be modified only by an application and hearing process similar to that required of a rezoning application.

PUBLIC FACILITIES MANUAL - The manual, adopted by the Board of Supervisors, which defines guidelines which govern the design of those facilities which must be constructed to serve new development. The guidelines include streets, drainage, sanitary sewers, erosion and sediment control and tree preservation and planting.

SERVICE LEVEL - An estimate of the effectiveness with which a roadway carries traffic, usually determined under peak anticipated load conditions.

SETBACK, REQUIRED - The distance from a lot line or other reference point, within which no structure may be located.

SITE PLAN - A detailed plan, to scale, depicting development of a parcel of land and containing all information required by the Zoning Ordinance. Site plans are required, in general, for all townhouse and multi-family residential development and for all commercial and industrial development.

SUBDIVISION ORDINANCE - An ordinance regulating the division of land into smaller parcels and which, together with the Zoning Ordinance, defines required conditions laid down by the Board of Supervisors for the design, dedication and improvement of land.

SUBDIVISION PLAT - A detailed drawing, to scale, depicting division of a parcel of land into two or more lots and containing engineering considerations and other information required by the Subdivision Ordinance.

USE - The specific purpose for which a parcel of land or a building, is designed, arranged, intended, occupied or maintained.

Permitted - Uses specifically permitted by the Zoning Ordinance Regulations of the Zoning District within which the parcel is located. Also described as a Conforming Use.

Non-Conforming - A use which is not permitted in the Zoning District in which the use is located but is allowed to continue due to its existance prior to the effective date of the Zoning Regulation(s) now governing.

USE - Continued.

Special Permit - A use specified in the Zoning Ordinance which may be authorized by the Board of Zoning Appeals or the Board of Supervisors in specified zoning districts, upon a finding that the use will not be detrimental to the character and development of the adjacent land and will be in harmony with the policies contained in the latest adopted comprehensive plan for the area in which the proposed use is to be located. A Special Permit is called a Special Exception when granted by the Board of Supervisors.

Transitional - A use which provides a moderation of intensity of use between uses of higher and lower intensity.

VARIANCE - A permit which grants a property owner relief from certain provisions of the Zoning Ordinance when, because of the particular physical surroundings, shape or topographical condition of the property, compliance would result in a particular hardship or practical difficulty which would deprive the owner of the reasonable use of the land or building involved. Variances may be granted by the Board of Zoning Appeals after notification, advertising, posting and conduct of a public hearing on the matter in question.

VPD - Vehicle trips per day (for example, the round trip to and from work equals two VPD). Also ADT - Average Daily Traffic.

ENVIRONMENTAL TERMS

ACOUSTICAL BERM - Usually a triangular-shaped earthen structure paralleling a highway noise source and extending up from the elevation of the roadway a distance sufficient to break the line of sight with vehicles on the roadway.

AQUIFER - A permeable underground geologic formation through which groundwater flows.

AQUIFER RECHARGE AREA - A place where surface runoff enters an aquifer.

CHANNEL ENLARGEMENT - A development-related phenomenon whereby the stream's bank full capacity is exceeded with a greater frequency than under natural undeveloped conditions, resulting in bank and stream bottom erosion. Hydrology literature suggests that flows produced by a storm event which occurs once in 1.5 years are the channel defining flows for that stream.

COASTAL PLAIN GEOGRAPHIC PROVINCE - In Fairfax County, it is the relatively flat southeastern 1/4 of the County, distinguished by low relief and a preponderance of sedimentary rocks and materials (sands, gravels, silts) and a tendency towards poorly drained soils.

dB(A) - Abbreviation for a decibel or measure of the noise level perceived by the ear in the A scale or range of best human response to a noise source.

DRAINAGE DIVIDE - The highest ground between two different watersheds or subsheds.

ENVIRONMENTAL LAND SUITABILITY - A reference to a land use intensity or density which <u>should</u> occur on a site or area because of its environmental characteristics.

ERODIBLE SOILS - Soils susceptible to diminishing by exposure to elements such as wind or water.

FLOODPLAIN - Land area, adjacent to a stream or other surface waters, which may be submerged by flooding; usually the comparatively flat plain within which a stream or riverbed meanders.

IMPERVIOUS SURFACE - A natural or man-made surface (road, parking lot, roof top, patio) which forces rainfall to runoff rather than infiltrate.

MONTMORILLONITIC CLAY - A fine grained earth material whose properties cause the clay to swell when wet and shrink when dry. In addition, in Fairfax County these clays tend to slip or slump when they are excavated from slope situations.

NEF - Noise Exposure Forecast - A noise description for airport noise sources.

PERCENT SLOPE - The inclination of a landform surface from absolute horizontal; formula is vertical rise (feet) over horizontal distance (feet) or V/H.

PIEDMONT GEOGRAPHIC PROVINCE - The central portion of the County, characterized by gently rolling topography, substantial stream dissection, V-shaped stream valley, an underlying metamorphic rock matrix (schist, gneiss, greenstone) and generally good bearing soils.

PIES/ENVIRONMENT - Project Impact Evaluation - A systematic, comprehensive environmental review process used to identify and evaluate likely environmental impacts associated with individual project or area plan proposals.

SHRINK-SWELL RATE - The susceptibility for a soil's volume to change due to loss or gain in moisture content. High shrink-swell soils can buckle roads and crack foundations.

SOIL BEARING CAPACITY - The ability of the soil to support a vertical load (mass) from foundations, roads, etc.

STREAM VALLEY - Any stream and the land extending from either side of it to a line established by the high point of the concave/convex topography, as delineated on a map adopted by the Stream Valley Board. For purposes of stream valley acquisition, the five-criteria definition of stream valleys contained in "A Restudy of the Pohick Watershed" (1969) will apply. The two primary criteria include all the land within the 100-year floodplain and the area along the floodplain in slopes of 15 percent or more.

STORM WATER MANAGEMENT - An emerging art/science that attempts to treat storm water runoff at the source and as a resource. Storm water management programs seek to mitigate or abate quantity and quality impacts typically associated with development by the specific design of onsite systems such as <u>Detention Devices</u> which slow down runoff and in some cases improve quality, and <u>Retention Systems</u>, which hold back runoff.

TRIASSIC GEOGRAPHIC PROVINCE - The western 1/4 of Fairfax County, characterized by broad expanses of nearly level topography, subtle ridge lines, a shallow depth to sedimentary rocks which are locally intruded by igneous rocks and a tendency towards soils with high shrink-swell properties.