EXHIBIT LIST

A. ALTA Survey (Including legal Description and Vicinity Map)

B. D.C. Survey

C. Baist Atlas Map of Square 1346

D. Aerial Photograph (Property boundary highlighted)

E. Zoning Map (Property outlined)

F. Photographs of the Property

G. Site Plans of Existing Conditions (Topographic Plan)

H. Proposed Site Plan

I. Preliminary Landscape Plan (Colored)

J. Typical House Plans Samples

K. Lot Planting Schematic

L. Dunmarlin at Phillips Park – Landscape Design Guidelines (preliminary)

M. Civil Engineering Plans – Storm water, water & sewer

N. Street Cross Section Plans

O. Traffic Impact Analysis, Gorove/Slade Associates, Inc., October 7, 2004

P. Phase I Environmental Site Assessment for Phillips Estate, Environmental Systems Analysis, Inc., September 2004

Q. Phillip's Estate Wetland/Waters Jurisdictional Determination (Color), Environmental Systems Analysis, Inc., September 17, 2004 (rev. 9/28/04)

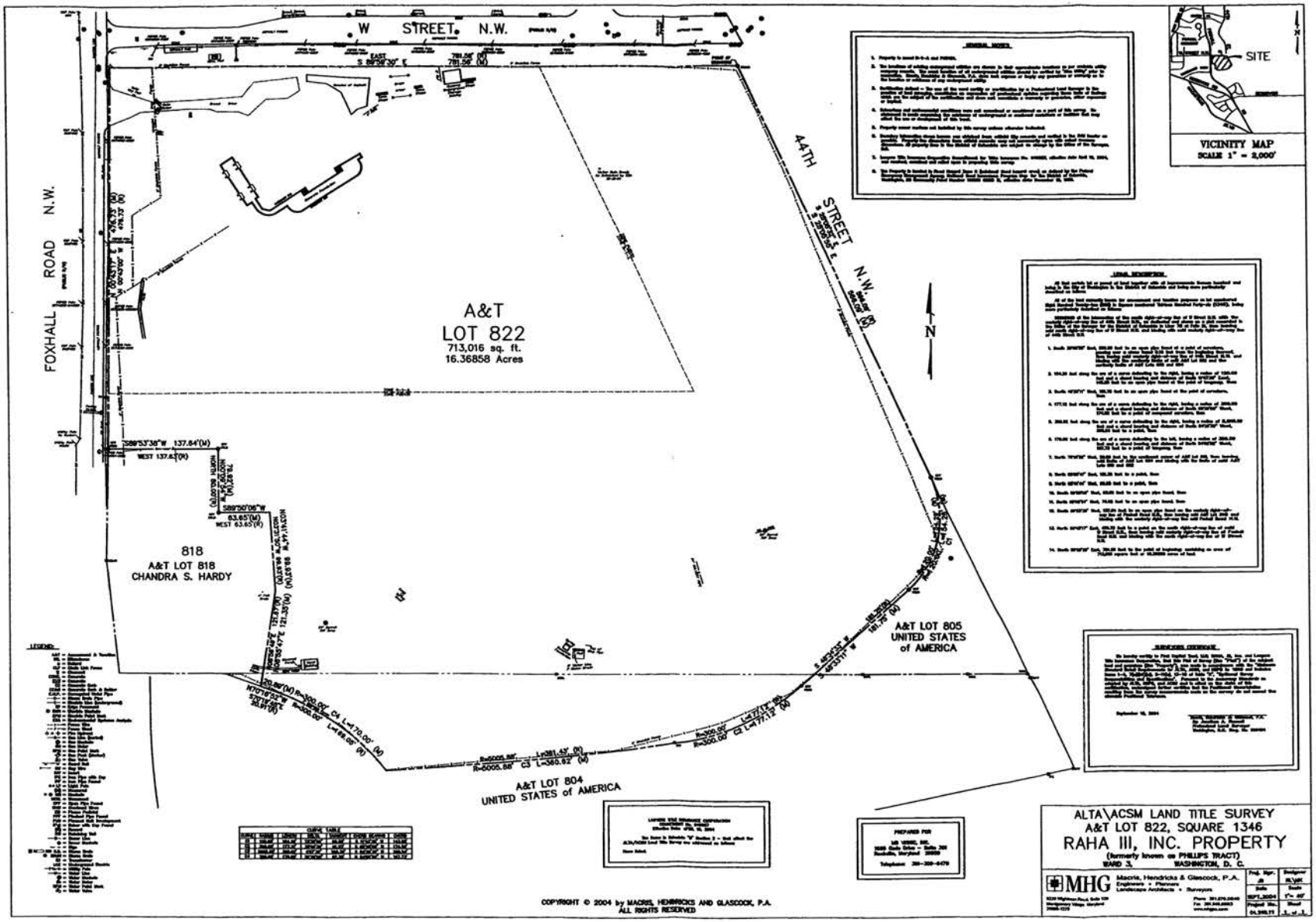
R. Phillips Property Tree Inventory (list and survey)

S. Phillips Property Special Tree Removal List (list and plan)

BZA
Case No. 17276
Exhibit No. 8

Board of Zoning Adjustment
District of Columbia
CASE NO. 17276
EXHIBIT NO. 8A1

A



I:\04240\dwg\AS_11_01.dwg, 11x17 Border, 10/6/2004 1:43:21 PM, crumste, COPYRIGHT @2004 MACRIS, HENDRICKS & GLASCOCK, P.A.

Macris, Hendricks and Glascock, P.A.
Engineers • Planners • Surveyors • Landscape Architects

9220 Wightman Road, Suite 120
Montgomery Village, Maryland
20886-1279
Phone 301.670.0840
Fax 301.948.0693
www.mhgpa.com

MHG

LEGAL DESCRIPTION

All that certain lot or parcel of land together with all improvements thereon located and being in the City of Washington in the District of Columbia and being more particularly described as follows:

All of the land currently known for assessment and taxation purposes as lot numbered Eight Hundred Twenty-two (822) in Square numbered Thirteen Hundred Forty-six (1346), being more particularly described as follows:

BEGINNING at the intersection of the south right-of-way line of W Street N.W. with the westerly right-of-way line of 44th Street N.W., as dedicated and shown on a plat recorded in the Office of the Surveyor for the District of Columbia in Liber 78 at Folio 21, then leaving said south right-of-way line of W Street N.W. and binding with said westerly right-of-way line of 44th Street N.W.

1. South 25°05'55" East, 566.09 feet to an open pipe found at a point of curvature, passing over a stone found 0.15 feet from the beginning thereof, then leaving said westerly right-of-way line of 44th Street N.W. and binding with the southerly limits of said A&T Lot 822 and the northerly limits of A&T Lots 805 and 804

2. 154.26 feet along the arc of a curve deflecting to the right, having a radius of 120.00 feet and a chord bearing and distance of South 11°43'38" East, 143.85 feet to an open pipe found at the point of tangency, then

3. South 48°33'11" West, 181.75 feet to an open pipe found at the point of curvature, then

4. 177.12 feet along the arc of a curve deflecting to the right, having a radius of 300.00 feet and a chord bearing and distance of South 65°28'00" West, 174.56 feet to a point of compound curvature, then

5. 360.62 feet along the arc of a curve deflecting to the right, having a radius of 5,005.88 feet and a chord bearing and distance of South 84°26'39" West, 360.54 feet to a point, then

6. 170.00 feet along the arc of a curve deflecting to the left, having a radius of 300.00 feet and a chord bearing and distance of North 54°02'52" West, 167.73 feet to a point of tangency, then

7. North 70°16'52" West, 20.89 feet to the southeast corner of A&T Lot 818, then leaving said limits of A&T Lot 804 and binding with the limits of said A&T Lots 818 and 822

8. North 08°55'47" East, 121.35 feet to a point, then

9. North 03°41'44" West, 99.93 feet to a point, then

10. South 89°50'06" West, 63.65 feet to an open pipe found, then

11. North 00°09'54" West, 79.92 feet to an open pipe found, then

12. South 89°53'38" West, 137.64 feet to an open pipe found on the easterly right-of-way line of Foxhall Road N.W., then leaving said A&T Lot 818 and binding with the easterly right-of-way line of said Foxhall Road N.W.

13. North 00°43'17" East, 476.73 feet to a point on the south right-of-way line of said W Street N.W., then leaving said easterly right-of-way line of Foxhall Road N.W. and binding with the south right-of-way line of W Street N.W.

14. South 89°59'30" East, 781.56 feet to the point of beginning; containing an area of 713,016 square feet or 16.36858 acres of land.

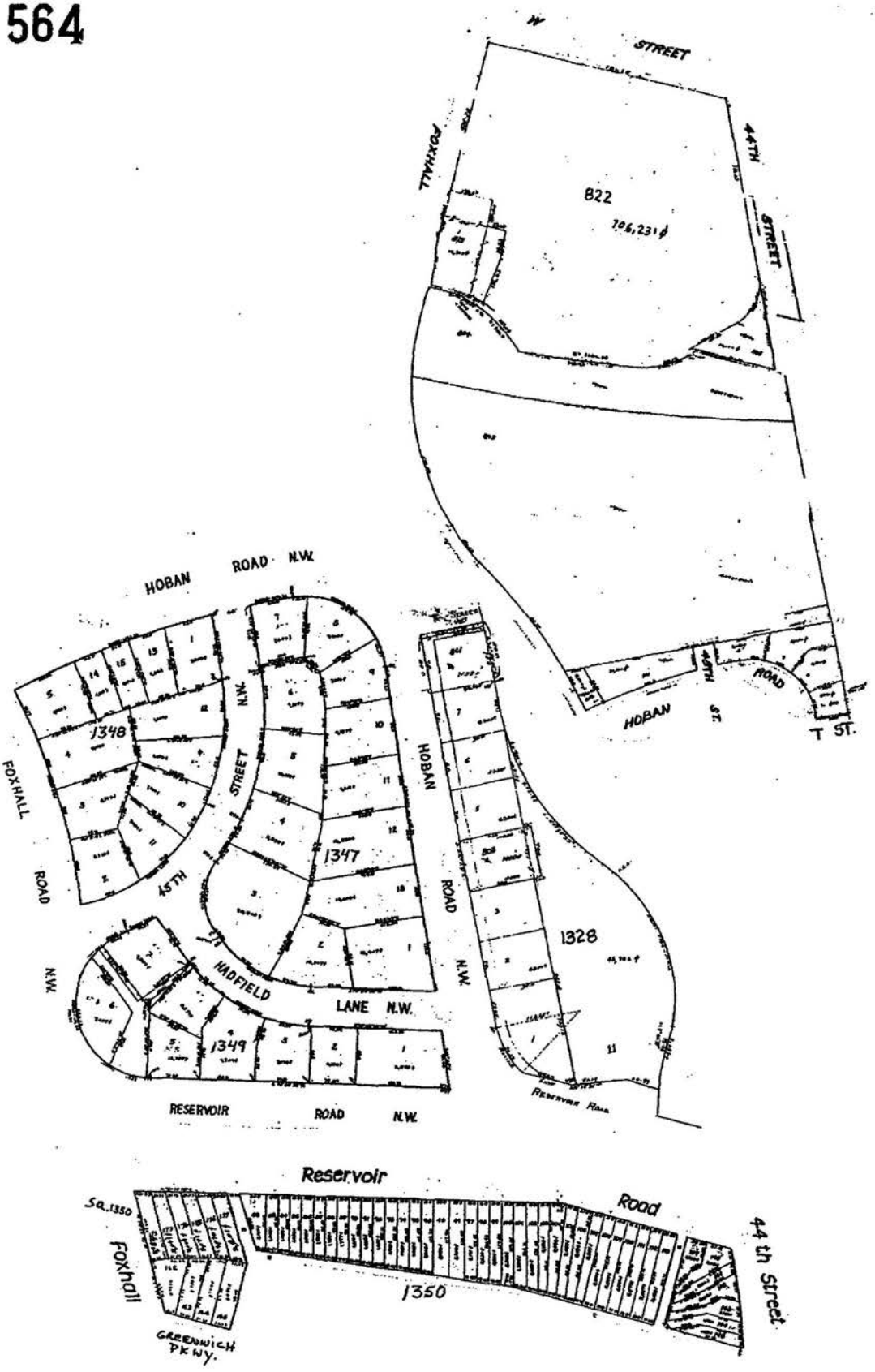
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B

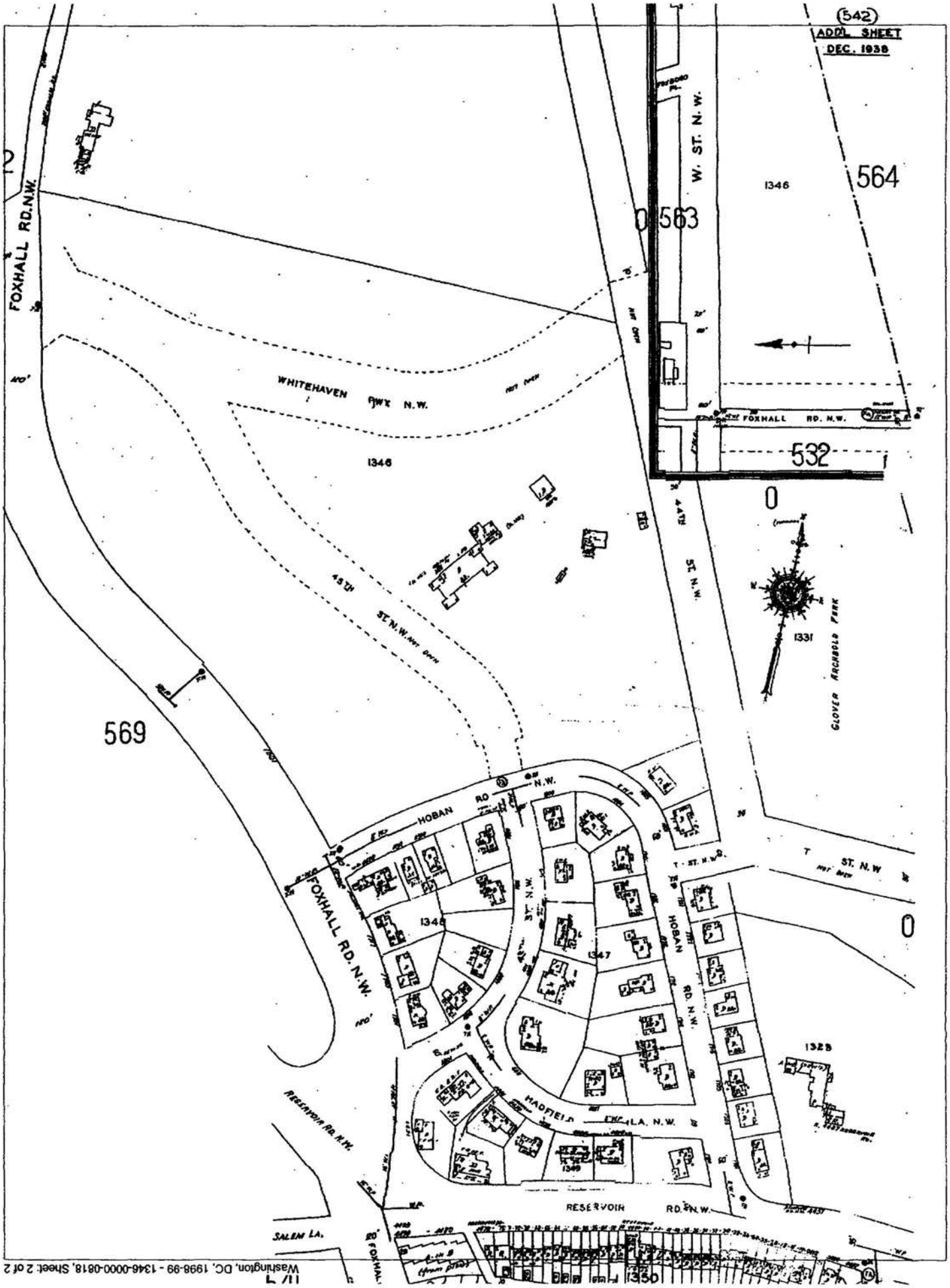
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C

564

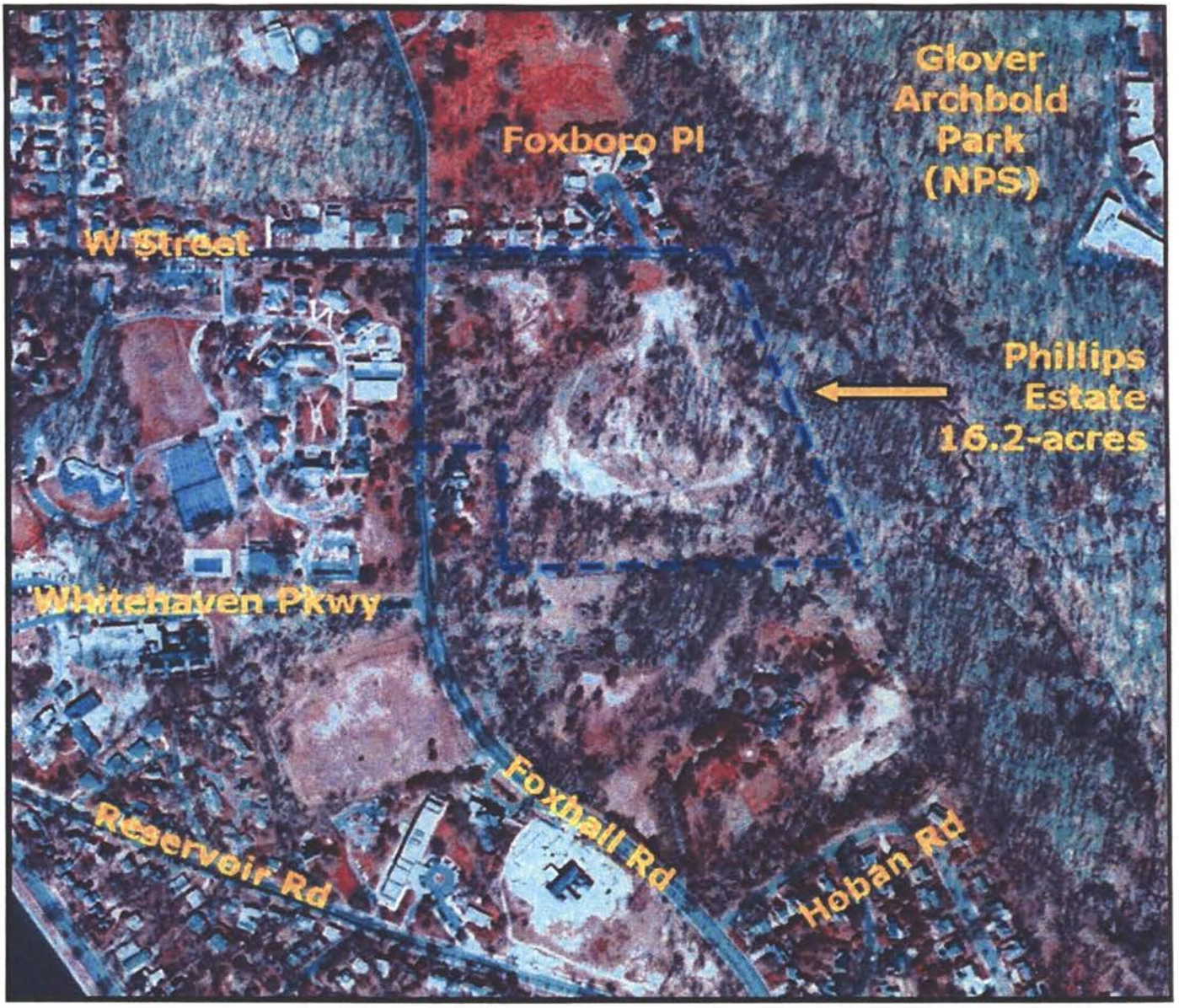


Washington, DC, 1998-99 - 1346-0000-0618, Sheet 1 of 2



Washington, DC. 1998-99 - 1346-0000-0818, Sheet: 2 of 2

D

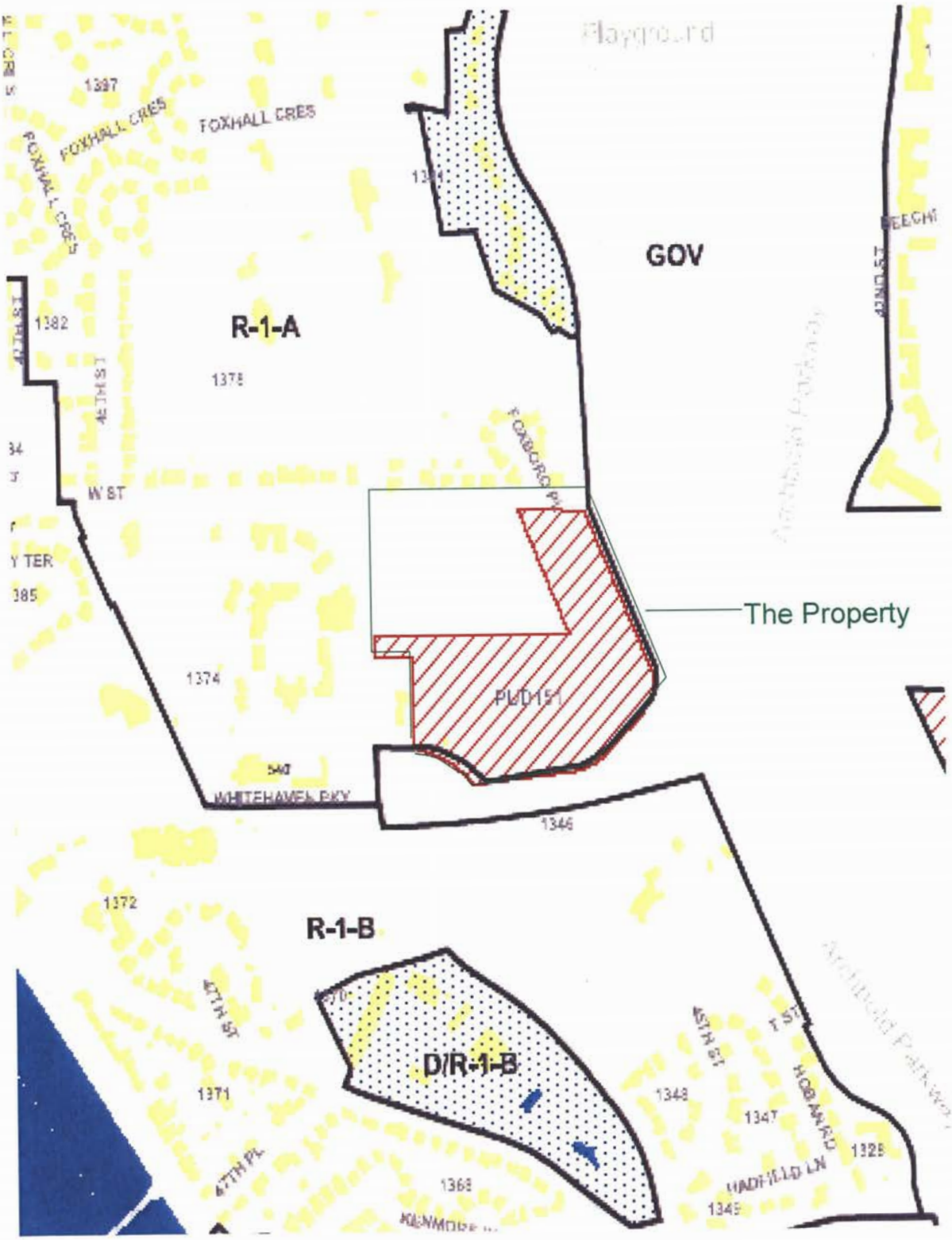


Phillips Estate

MD DNR DOQQ Infrared Aerial Photograph, March 1994

esa

E


Playground
GOV
R-1-A
R-1-B
D/R-1-B
The Property
PUD151
FOXHALL CRES
WHITEHAVEN PKY
1387
1382
1378
1374
1372
1371
1368
1346
1348
1347
1328
1345
47TH ST
47TH PL
HOBANKD
HADFIELD LN

F



Original 2101 Foxhall Road entrance in to the Property



RECEIVED
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Interior of the Property (Note: Fields permitted to go fallow & revert to old-field condition. Nuisance, invasive & alien species dominate portions of the Property, including weed species such a porcelain berry, Japanese stilt grass and mile-a-minute vine, all of which are considered plant invaders of natural areas.)

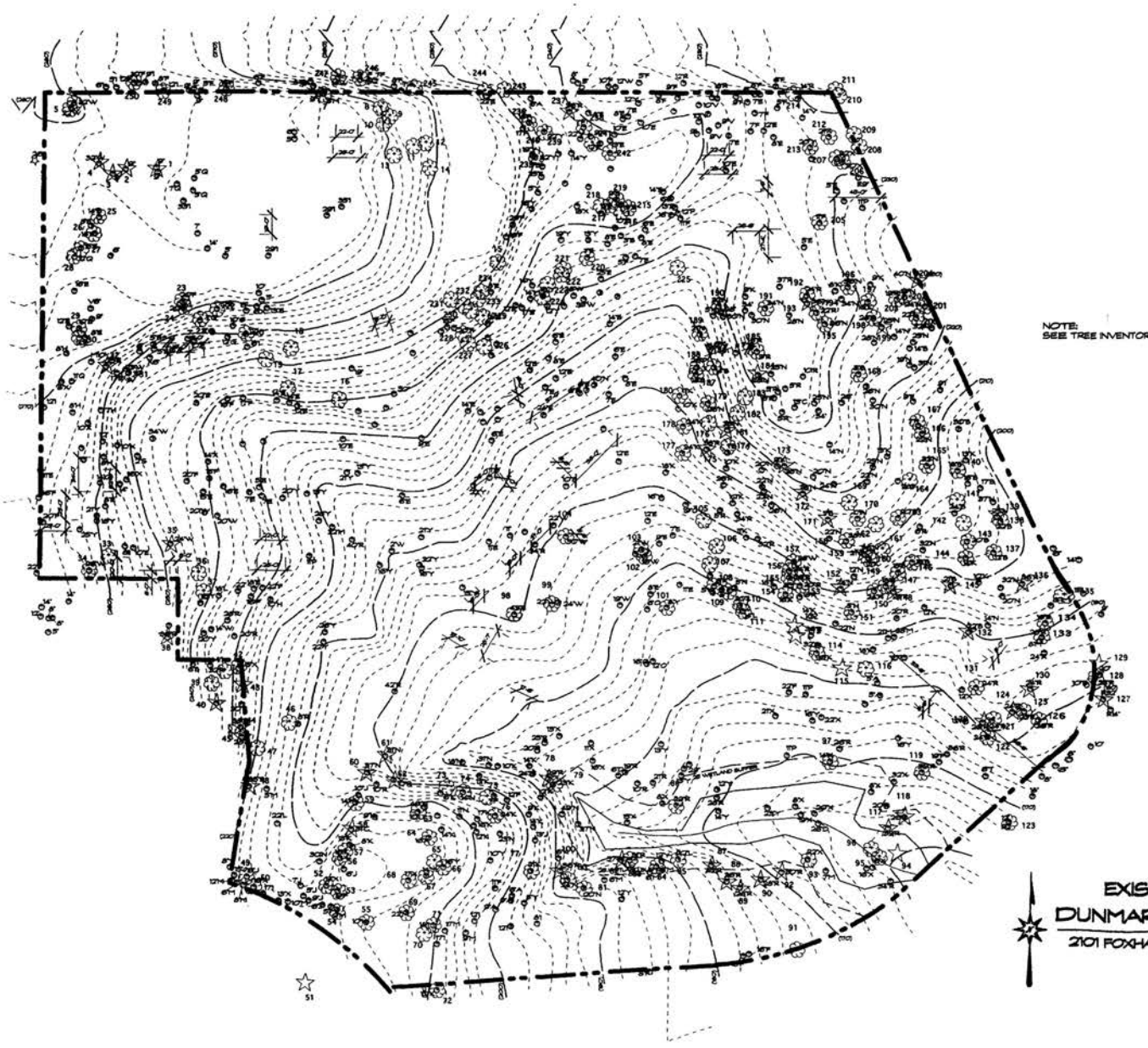


Property looking up to 2001 Foxhall Road (Note: Illustrates that dominant vegetative cover is the invasive mile-a-minute vine.)



Concrete foundation of former well pump house previously used to pump fresh, potable water up to the Phillips mansion.

G



NOTE:
SEE TREE INVENTORY ATTACHED

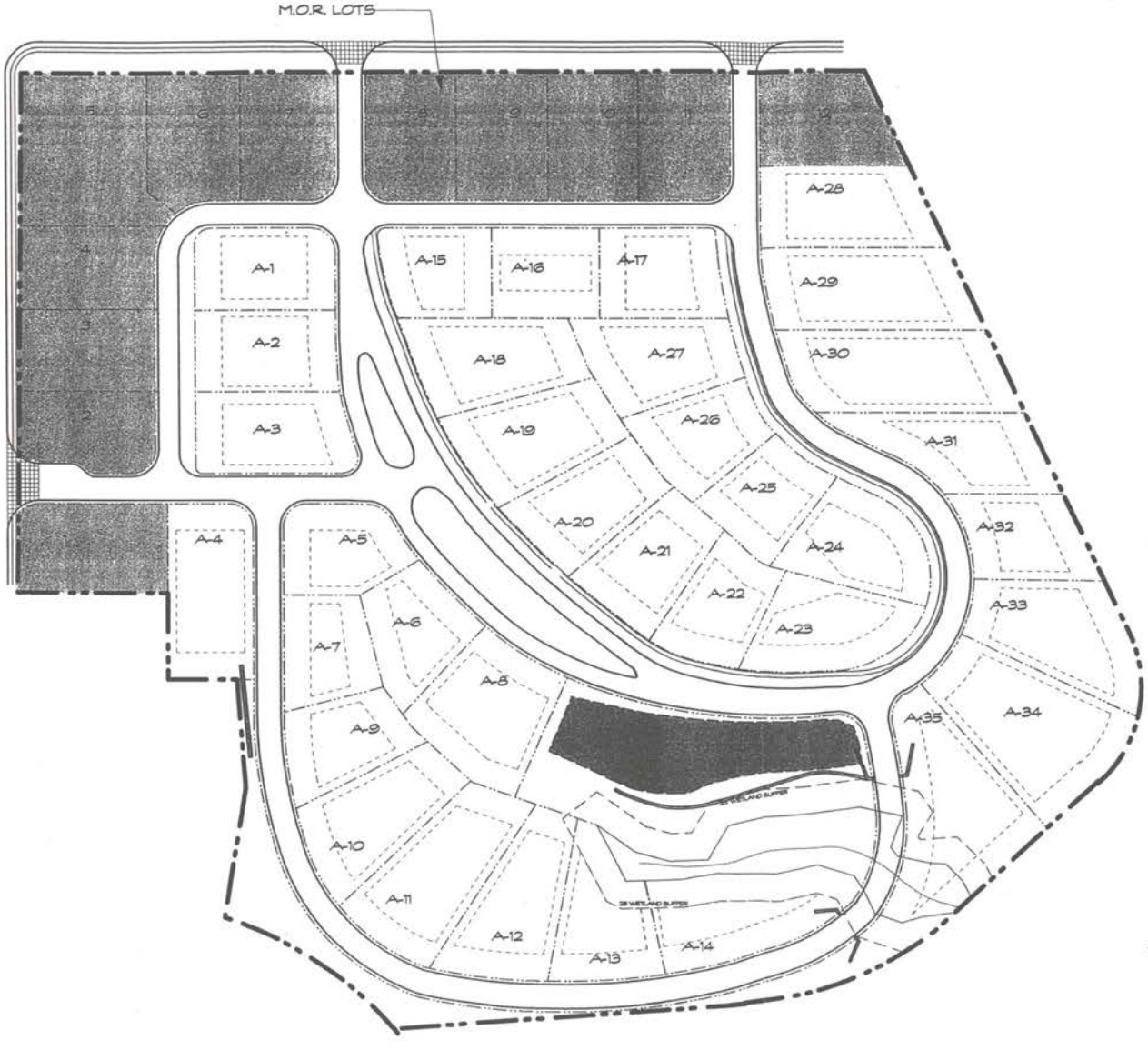
EXISTING CONDITIONS
DUNMARLIN AT PHILLIPS PARK

2101 FOXHALL ROAD WASHINGTON, D.C.

13 OCTOBER 2004

SCALE: 1" - 100'

H



Lot #	Area (sf)	Lot #	Area (sf)
1	11,270	A-13	10,130
2	9,880	A-14	13,120
3	9,300	A-15	8,160
4	9,580	A-16	8,240
5	15,390	A-17	9,240
6	10,210	A-18	12,340
7	10,020	A-19	11,000
8	9,870	A-20	10,120
9	9,980	A-21	9,860
10	9,980	A-22	8,570
11	9,870	A-23	10,600
12	10,160	A-24	10,130
A-1	9,240	A-25	8,160
A-2	10,360	A-26	8,780
A-3	10,100	A-27	10,620
A-4	12,760	A-28	11,660
A-5	8,550	A-29	13,870
A-6	9,300	A-30	14,950
A-7	7,580	A-31	11,000
A-8	13,200	A-32	8,700
A-9	7,870	A-33	12,990
A-10	11,230	A-34	17,300
A-11	14,500	A-35	14,560
A-12	12,120		
	Avg Area	10,775	

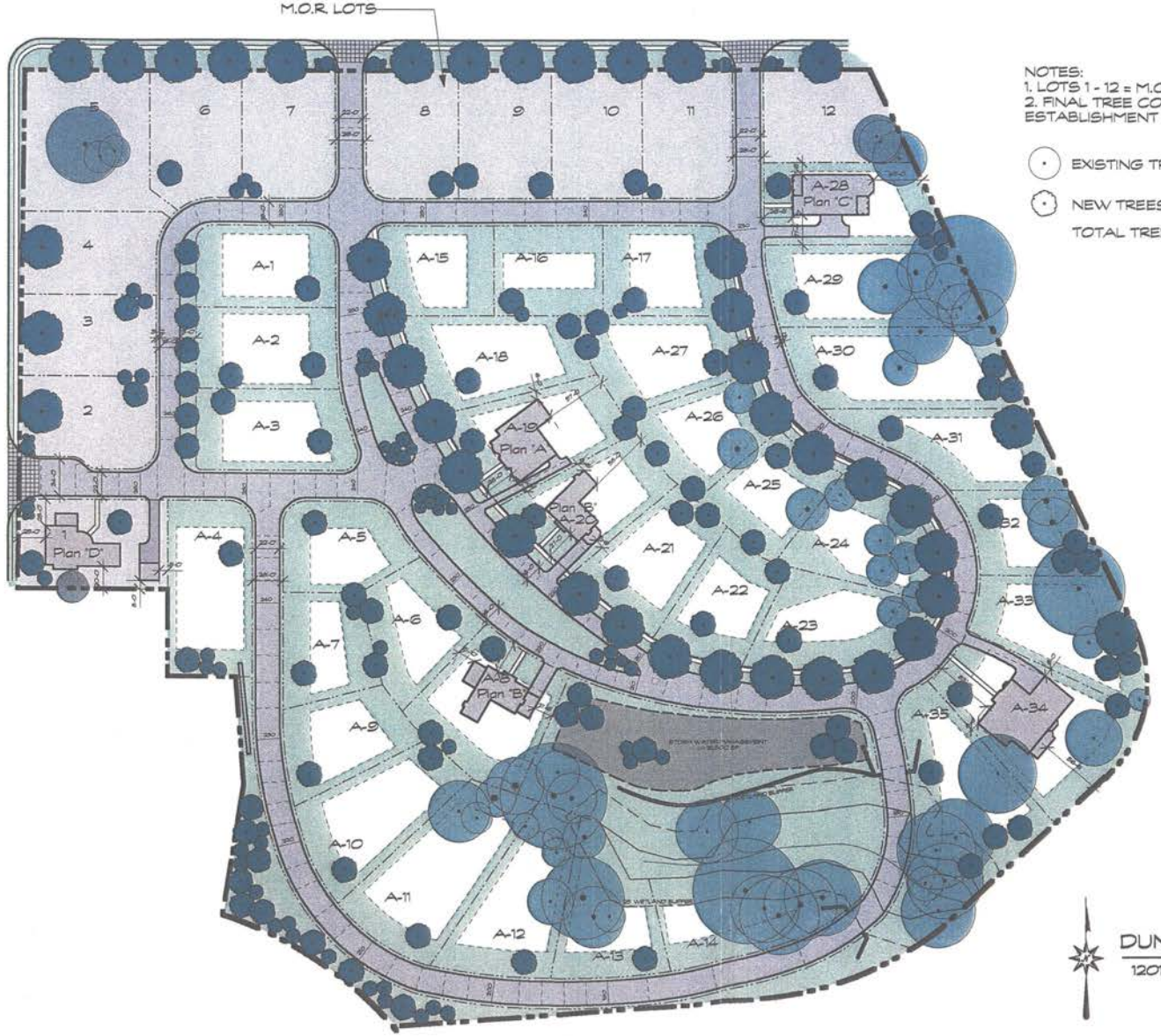
LOT PLAN
DUNMARLIN AT PHILLIPS PARK
1201 FOXHALL ROAD WASHINGTON D.C.

13 OCTOBER 2004

SCALE: 1" - 100'

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2004 NOV 18 PM 3:41
OFFICE OF ZONING

I



NOTES:
1. LOTS 1 - 12 = M.O.R. LOTS
2. FINAL TREE COUNT IS SUBJECT TO ESTABLISHMENT OF FINAL GRADING PLAN.

EXISTING TREE TO REMAIN = 58 TREES

NEW TREES = 196 NATIVE SPECIES

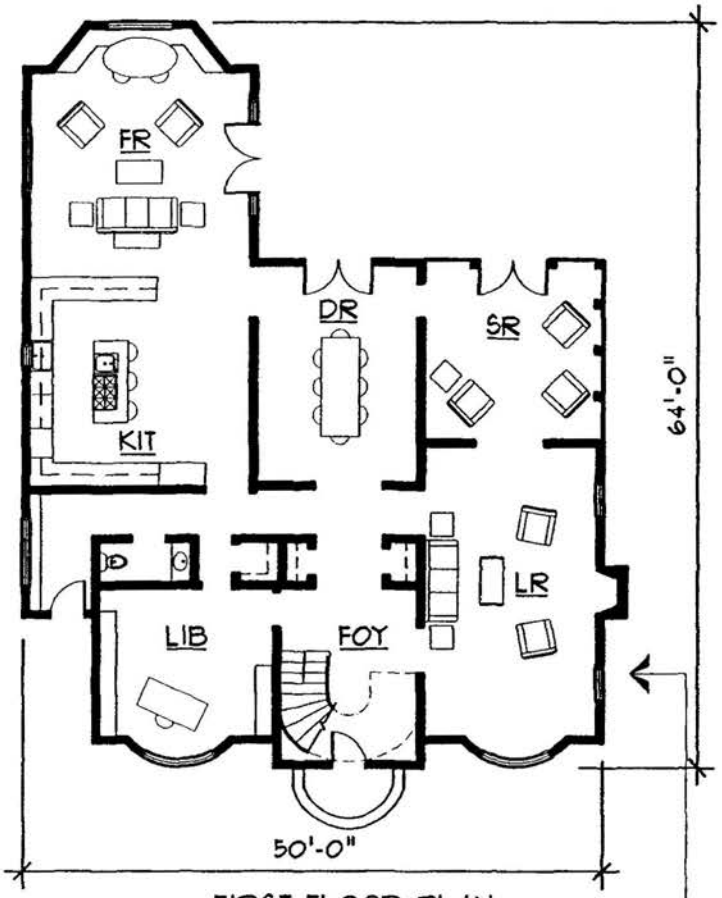
TOTAL TREES ON SITE = 254

SITE PLAN
DUNMARLIN AT PHILLIPS PARK
1201 FOXHALL ROAD WASHINGTON D.C.

18 OCTOBER 2004

SCALE: 1" - 100'

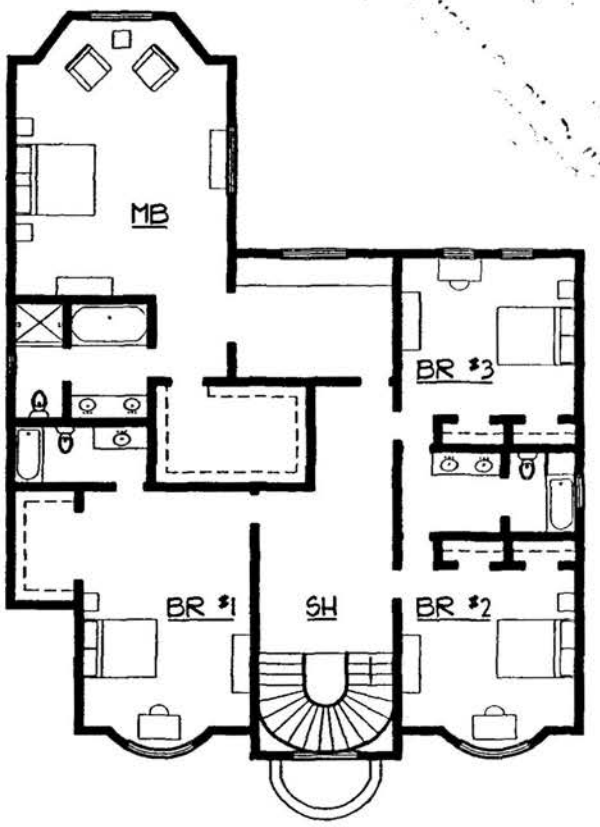
J



FIRST FLOOR PLAN
2525 S.F.

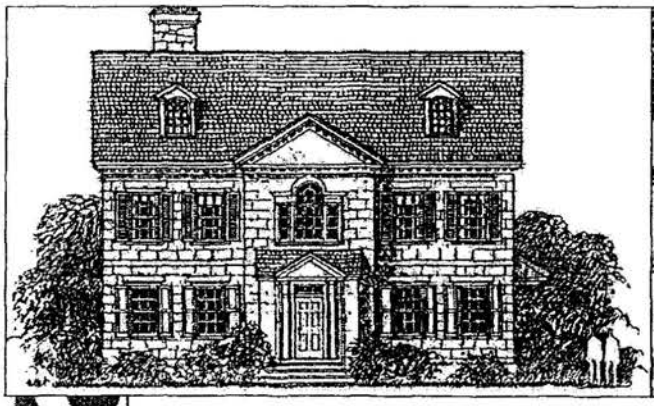
FOYER:	12'x15'
LIVING ROOM:	15'x25'
LIBRARY:	15'x13'
DINING ROOM:	14'x19'
SUN ROOM:	16'x16'
KITCHEN:	19'x18'
FAMILY ROOM:	19'x21'
½ BATHROOM	-

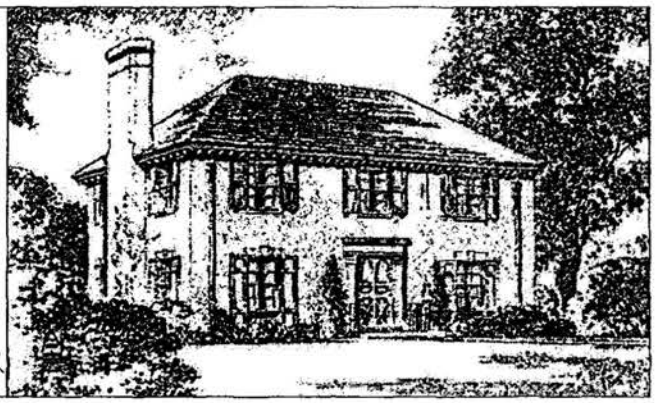
BASEMENT
1000 S.F. FINISHED
1 BATHROOM
GARAGE



SECOND FLOOR PLAN
2525 S.F.

STAIR HALL:	12'x23'
BEDROOM #1:	15'x21'
BEDROOM #2:	15'x14'
BEDROOM #3:	15'x14'
MASTER BEDROOM:	19'x24'
3 BATHROOMS	-





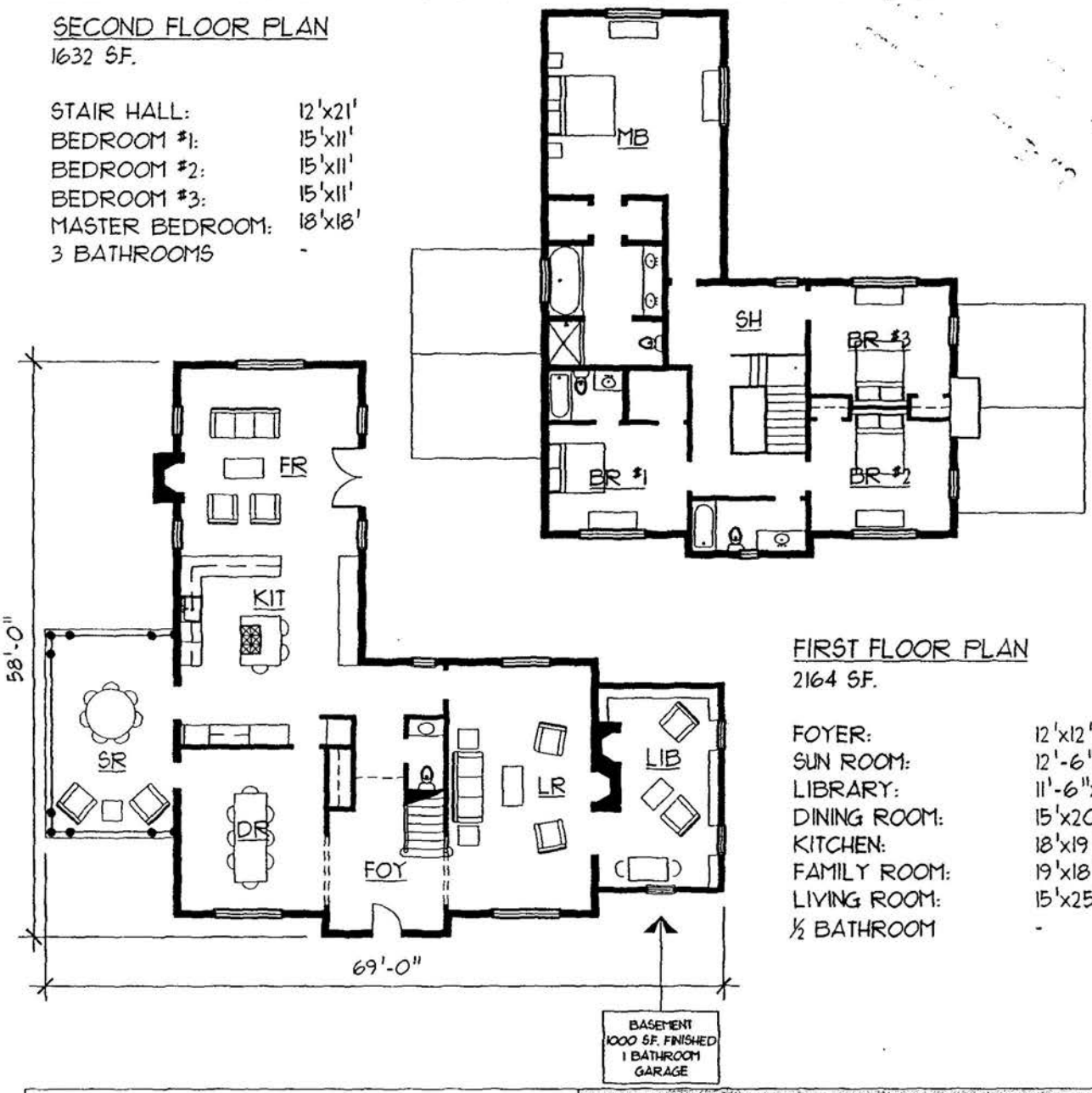
BARNES VANZE ARCHITECTS

D U N M A R L I N at Phillips Park
2101 Foxhall Road, Washington, D.C.

HOUSE PLAN "A"
SCALE: N.T.S.

SECOND FLOOR PLAN
1632 S.F.

STAIR HALL:	12'x21'
BEDROOM #1:	15'x11'
BEDROOM #2:	15'x11'
BEDROOM #3:	15'x11'
MASTER BEDROOM:	18'x18'
3 BATHROOMS	-



FIRST FLOOR PLAN
2164 S.F.

FOYER:	12'x12'
SUN ROOM:	12'-6"x20'
LIBRARY:	11'-6"x20'
DINING ROOM:	15'x20'
KITCHEN:	18'x19'
FAMILY ROOM:	19'x18'
LIVING ROOM:	15'x25'
½ BATHROOM	-



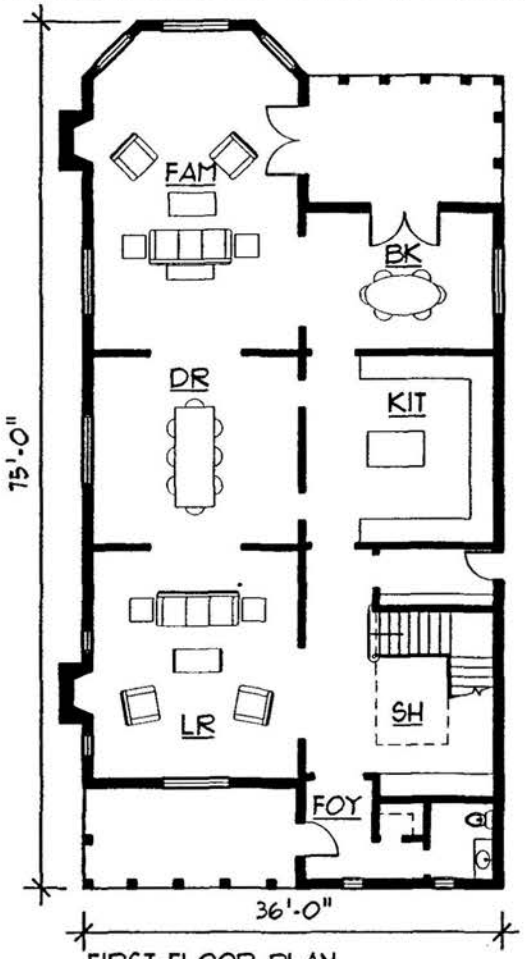
BARNES VANZE ARCHITECTS

D U N M A R L I N at Phillips Park

2101 Foxhall Road, Washington, D.C.

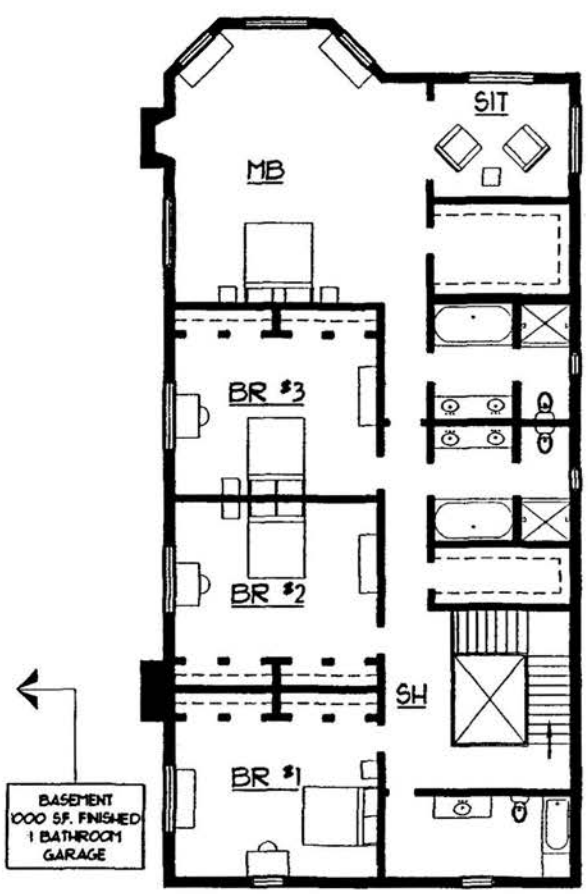
HOUSE PLAN "B"

SCALE: N.T.S.



FIRST FLOOR PLAN
2250 S.F.

FOYER: 6 X 9
STAIR HALL: 16 X 16
LIVING ROOM: 18 X 20
DINING ROOM: 18 X 16
FAMILY ROOM: 18 X 28
KITCHEN: 16 X 16
BREAKFAST: 16 X 12
1/2 BATHROOM: 5 X 7



SECOND FLOOR PLAN
2590 S.F.

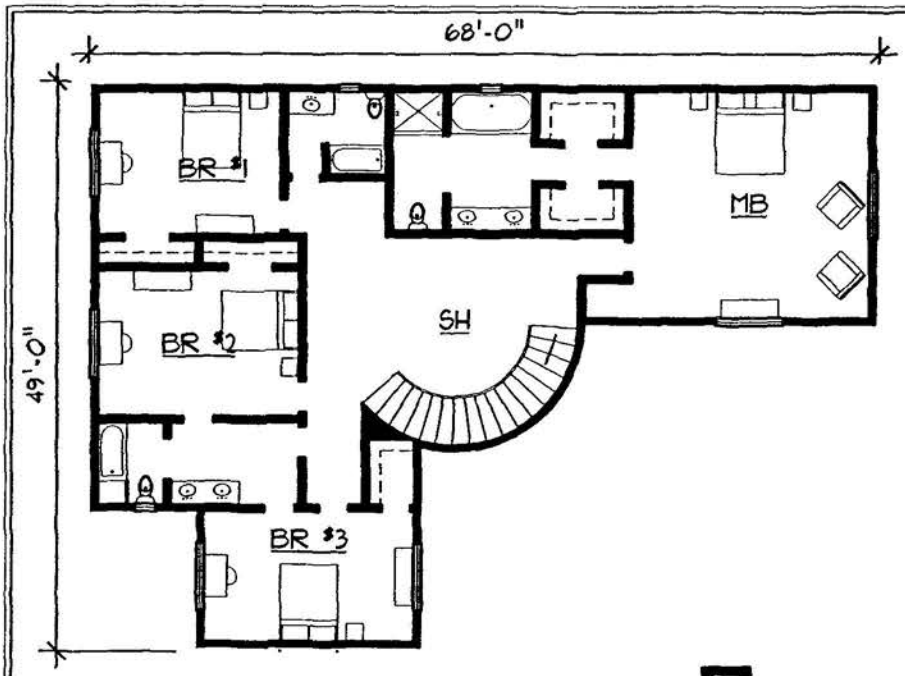
STAIR HALL: 16 X 16
BEDROOM #1: 18 X 14
BEDROOM #2: 18 X 14
BEDROOM #3: 18 X 14
MASTER BEDROOM: 22 X 24
SITTING: 10 X 12
3 BATHROOMS



BARNES VANZE ARCHITECTS

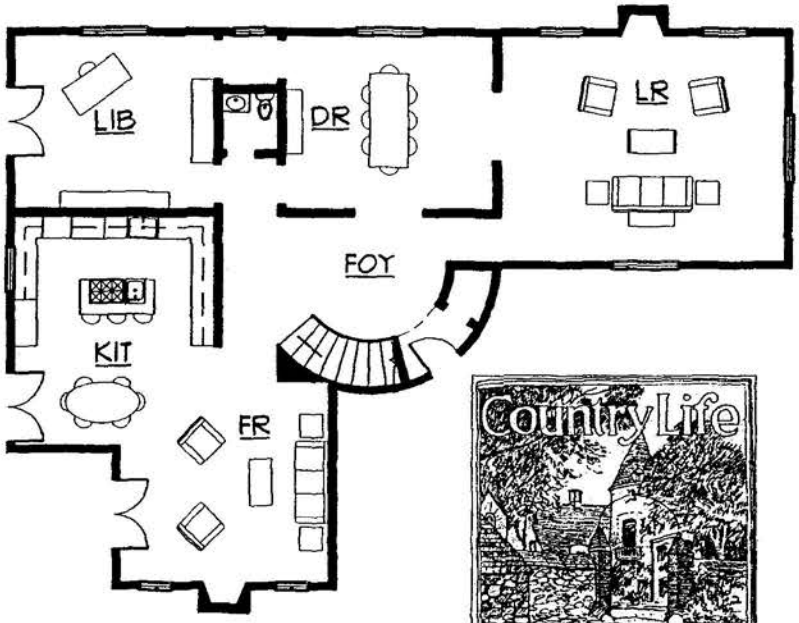
D U N M A R L I N at Phillips Park
2101 Foxhall Road, Washington, D.C.

HOUSE PLAN "C"
SCALE: N.T.S.



SECOND FLOOR PLAN
2287 S.F.

STAIR HALL:	23'-6"x15'
BEDROOM #1:	16'x12'
BEDROOM #2:	17'-6"x12'
BEDROOM #3:	18'x11'
MASTER BEDROOM:	21'x19'-6"
3 BATHROOMS	-

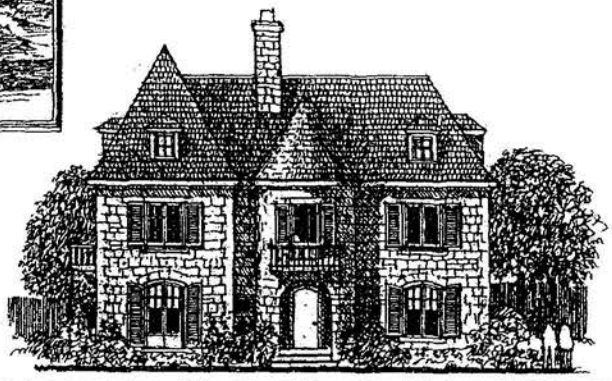


BASEMENT
1000 S.F. FINISHED
1 BATHROOM
GARAGE

FIRST FLOOR PLAN
2287 S.F.

FOYER:	23'-6"x15'
LIVING ROOM:	18'x17'
LIBRARY:	17'-6"x15'
DINING ROOM:	18'x15'
KITCHEN:	17'-6"x20'
FAMILY ROOM:	25'x19'-6"
½ BATHROOM	-

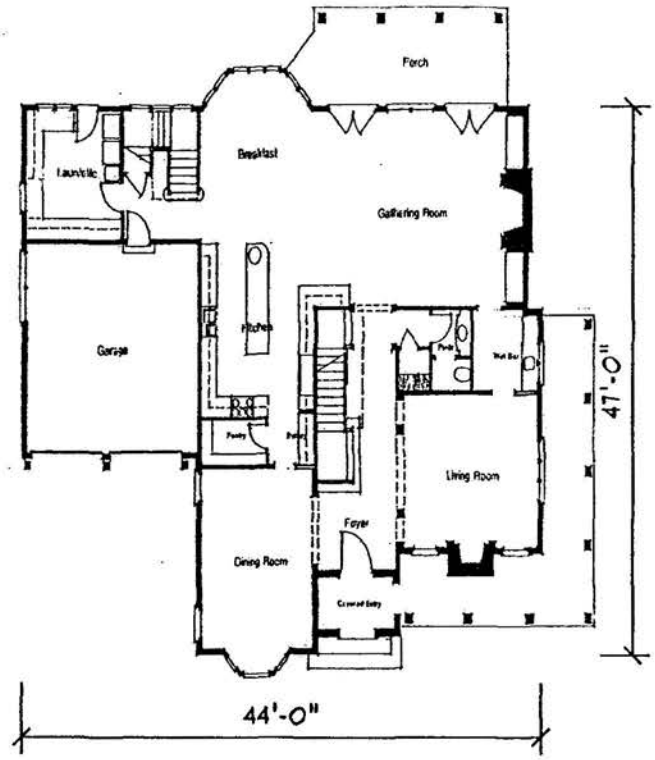


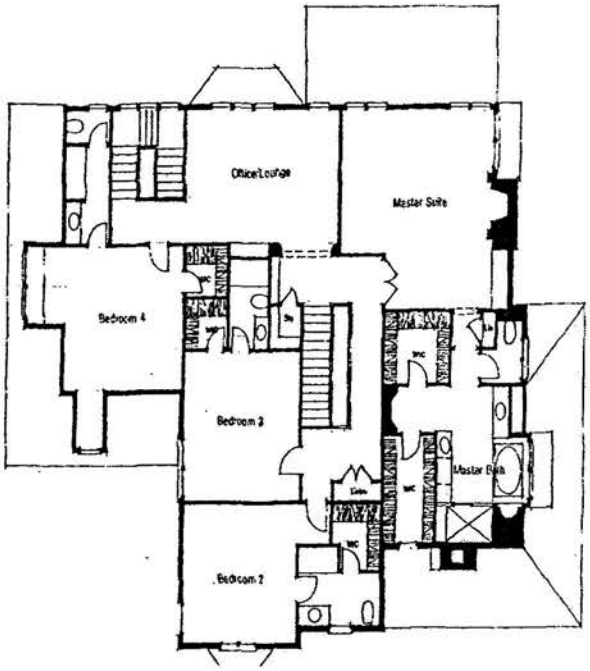


BARNES VANZE ARCHITECTS

D U N M A R L I N at Phillips Park
2101 Foxhall Road, Washington, D.C.

HOUSE PLAN "D"
SCALE: N.T.S.



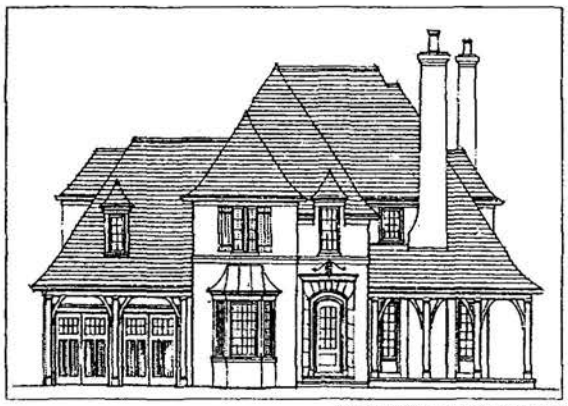


FIRST FLOOR PLAN
2068 S.F.

FOYER:	7'x7'
LIVING ROOM:	12'x13'
GATHERING RM:	19'x21'
BREAKFAST:	9'x10'
KITCHEN:	16'x20'
DINING ROOM:	10'x 15'
½ BATHROOM:	-

SECOND FLOOR PLAN
1600 S.F.

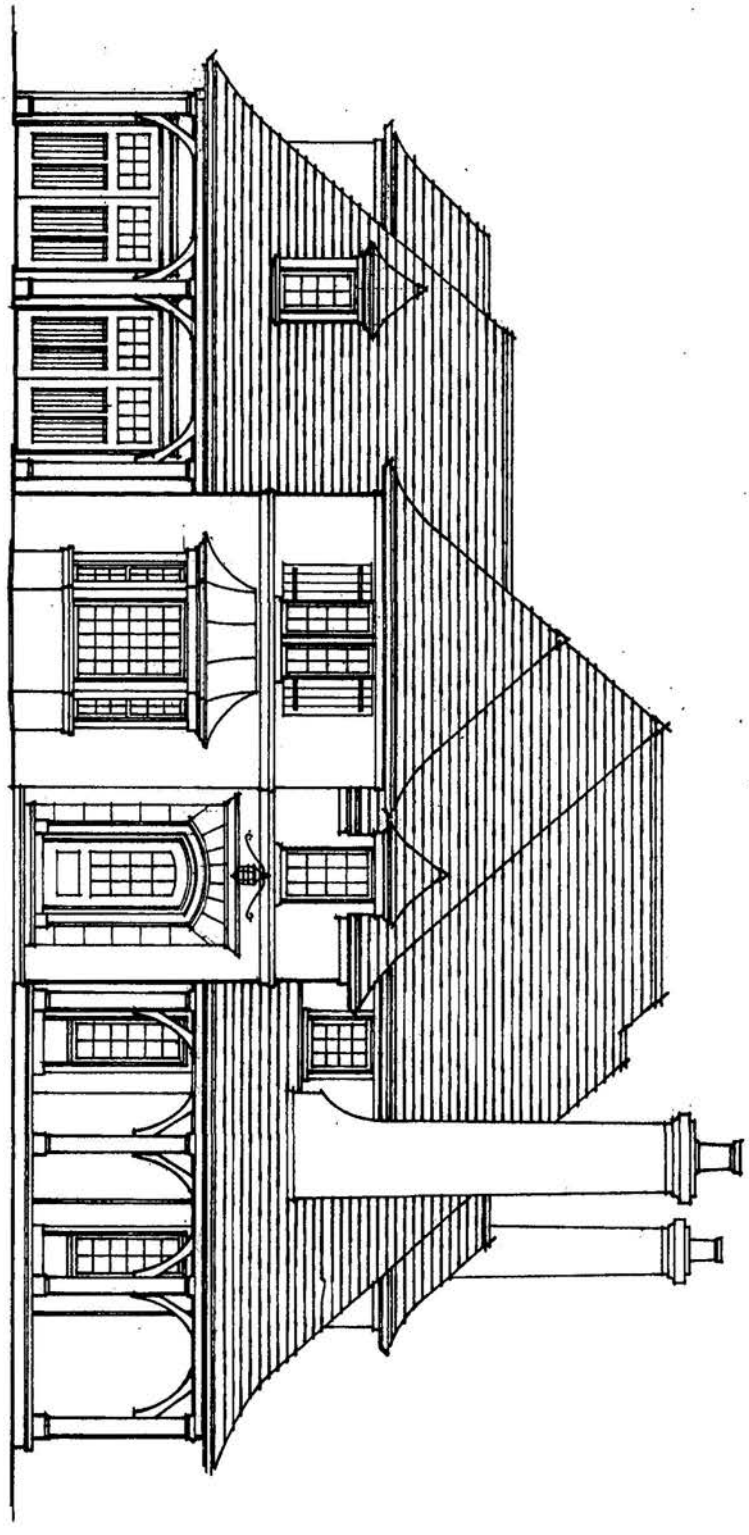
MASTER BEDROOM:	13'x15'
BEDROOM #2:	10'x12'
BEDROOM #3:	10'x13'
BEDROOM #4:	13'x13'
OFFICE/LOUNGE:	12'x14'
4 BATHROOMS	-



TED VISNIC & ASSOCIATES

D U N M A R L I N at Phillips Park
2101 Foxhall Road, Washington, D.C.

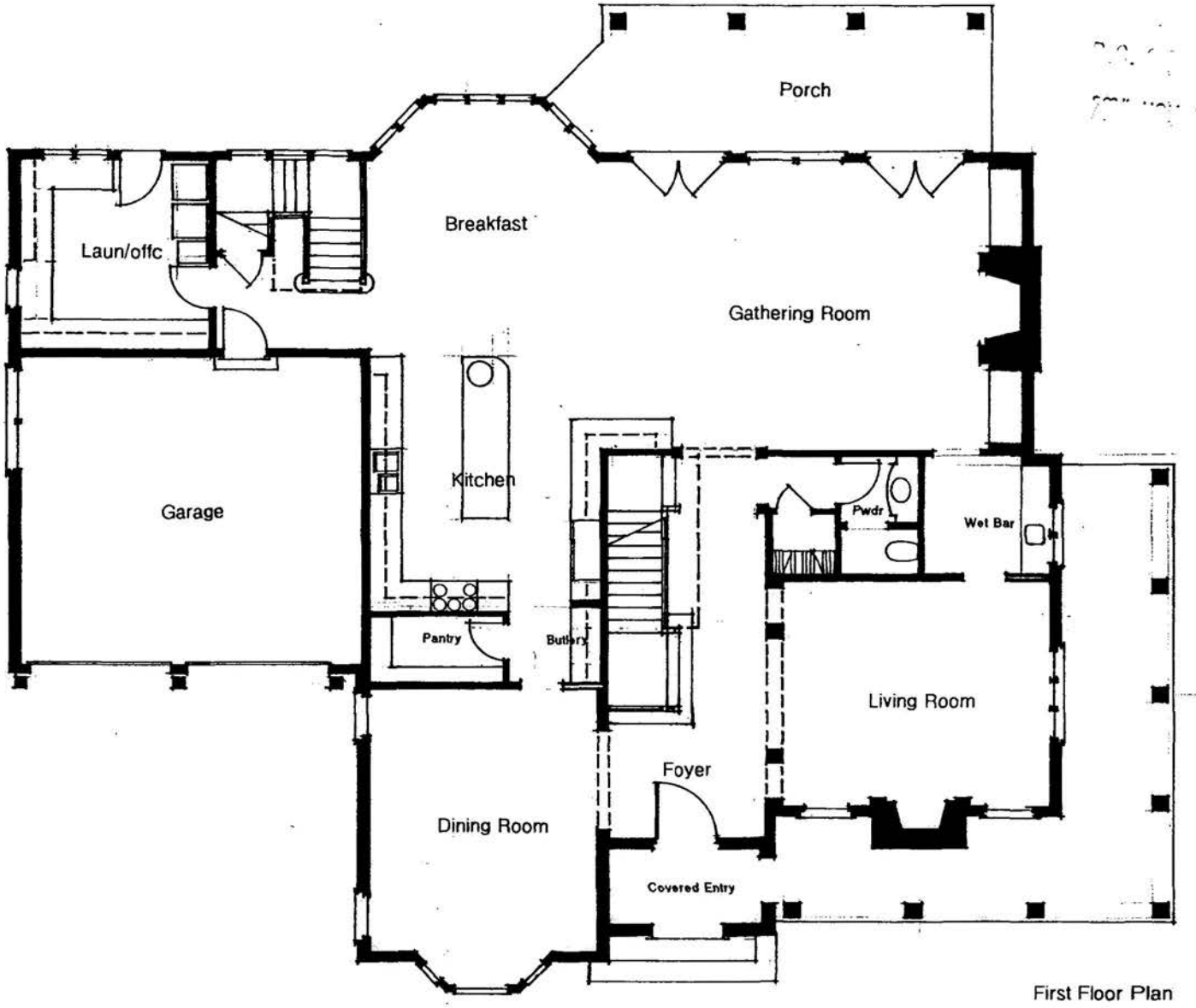
HOUSE PLAN "E"
SCALE: N.T.S.



Elevation

Ted Visnic & Associates

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First Floor Plan

Ted Visnic & Associates

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Second Floor Plan

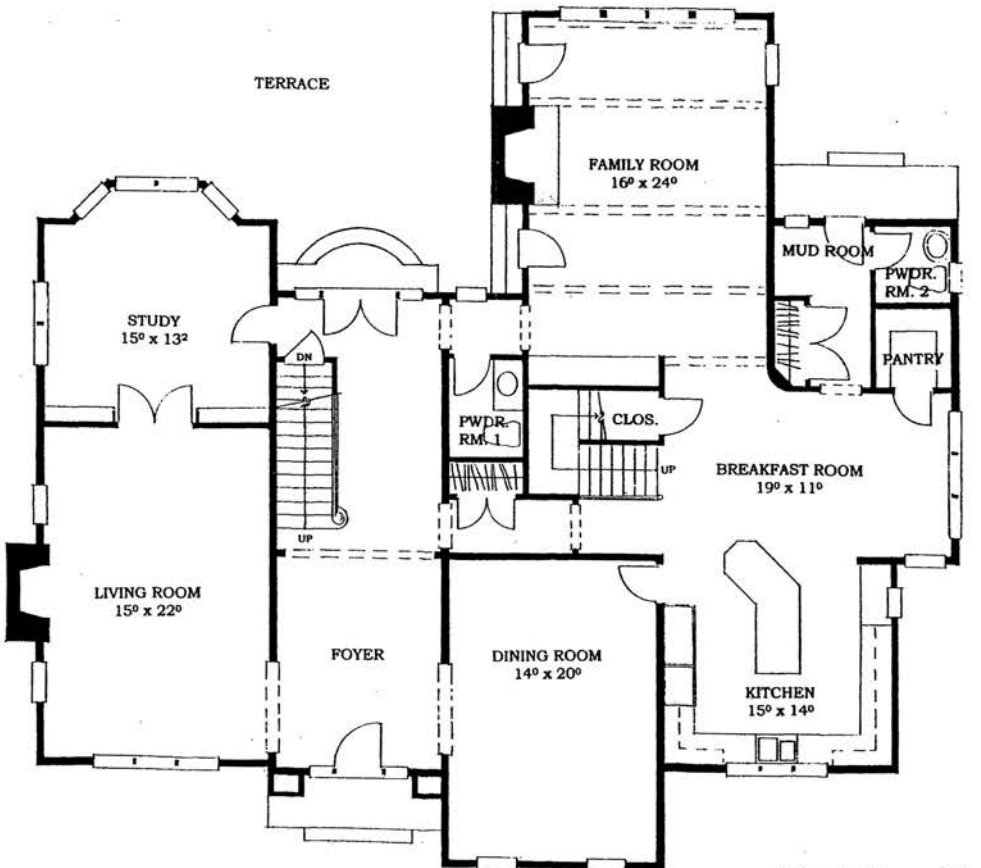
Ted Visnic & Associates

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Elevation

Ted Visnic & Associates

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First Floor Plan

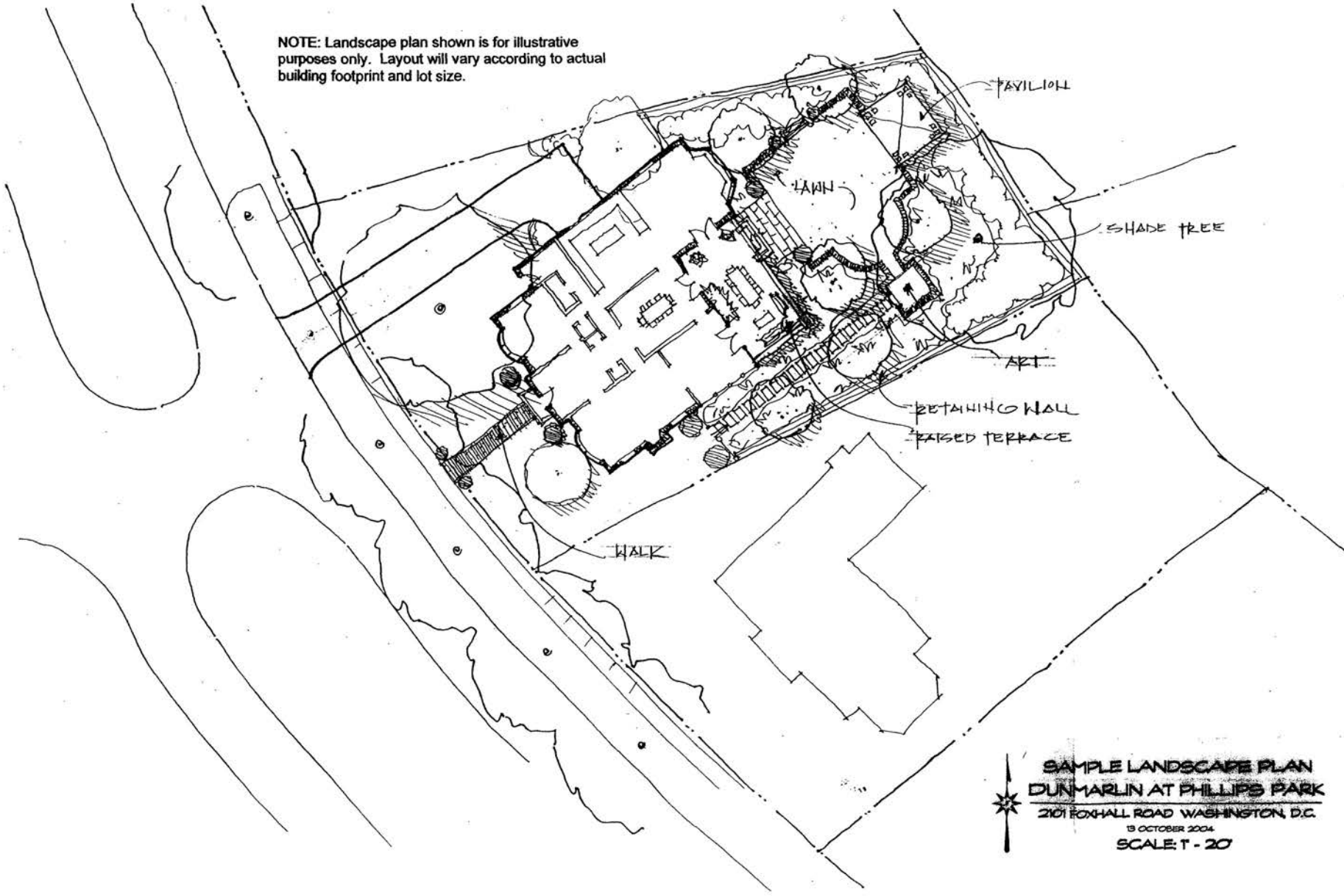
Ted Visnic & Associates



Second Floor Plan

Ted Visnic & Associates

K


NOTE: Landscape plan shown is for illustrative purposes only. Layout will vary according to actual building footprint and lot size.
PAVILION
LAWN
SHADE TREE
ART
RETAINING WALL
RAISED TERRACE
WALK
SAMPLE LANDSCAPE PLAN
DUNMARLIN AT PHILLIPS PARK
2101 FOXHALL ROAD WASHINGTON, D.C.
13 OCTOBER 2004
SCALE: 1" - 20'

L

Dunmarlin at Phillips Park

Landscape Design Guidelines

Introduction

The landscape of Dunmarlin at Phillips Park has been designed to emulate the significant nature of the neighboring communities such as Wesley Heights, Spring Valley, Foxhall. Although we found invasive outgrowth of non-endemic species, as well as considerable neglect, care has been exercised to areas that have been preserved in order to maintain an established and mature landscape setting for the neighborhood. New natural areas including a signature boulevard shall compliment such a park-like environment. Additionally, significant open spaces for proper storm water management practice offer additional planting opportunities.

Site Planning

Proper site planning is crucial to the success of the residence and the neighborhood in which it belongs. Each home should be sited to respond directly and positively to topography and vegetation. Homes should be chosen to suit these conditions. The development will respect a 25' front-yard building setback, in addition to the DCMR regulations for rear and side yard setbacks.

The following regulations apply:

- The siting of the home should respect and compliment the siting of adjoining properties so that all properties work together as a visual unit.
- All homes should be sited within the building envelope.
- Buildings shall be sited to protect and preserve all trees as indicated on the site plan.
- A site plan must be submitted for approval to the Architectural Review Board prior to any development of the lot. The site plan must include existing and proposed topographic contours, the location and size of existing trees, the location of the house, out-buildings, driveways, walks and parking areas in their final location.
- The siting of the home is to occur in a manner that maximizes the preservation of healthy, special trees. A list of suggested species and forbidden invasive plants is provided in the Appendices.

Tree Pruning and Removal

No pruning or removal of tress from the lot can be done prior to the staking out and approval of the house on the site.

Either a landscaping architect or licensed arborist shall provide a Tree Protection Plan, in conjunction with a Landscape Plan, for approval.

Tree protection fencing must be provided around all trees. Fencing shall be marked at the drip line of the trees. No storage of materials or pedestrian and vehicular traffic is permitted within this zone. Tree pruning and construction access within these areas can be granted during construction with approval by the Architectural Review Board if site access is limited.

Tree pruning shall be executed in a manner that preserves the natural character of the tree. The practice of "topping" is forbidden. Tree pruning must be executed by a licensed arborist. Any pruning work must be approved on site by the Architectural Review Board.

Landscape Development

The following are the Landscape Design Guidelines for development around the home/residence:

- Patios, terraces, and walks should be of stone or brick. Conventional wood decks are prohibited. Terraces are preferred.
- Sensitivity to compatible exterior material on the home. Walls and piers should be of native fieldstone, brick (painted or natural), or stucco. Freestanding walls should be veneered on both sides. Retaining walls may be of concrete but must be veneered with one of the above materials. Caps for walls should be of natural stone or brick and will have a minimum thickness of one and one half inches.
- All landscape materials must conform to the regulations set out in the Architectural guidelines including colors and sizes.
- All side and rear yard fences shall be metal. Wood stockade style fences are prohibited. Iron is a preferred material to aluminum.
- Fences in the side and rear yard shall be no greater than 6' in height. These fences are discouraged in situations other than for safety, pet containment, and screening.
- There shall be no front yard fences. Front yard perimeter landscaping shall be no greater than 4' in height.
- Driveways should be of brick, cut stone, concrete with a pea gravel finish, or asphalt with an applied washed gravel topping.
- All art visible from outside of the lot is to be approved by the Architectural Review Board.

- It is recommended that the homeowner secure the service of a Landscape Architect to prepare a Master Plan for the development of the property. Plans must include locations of all structures, walks, walls, fences, driveways, parking areas and existing and proposed vegetation. The plan must also include the size, quantity and species of all proposed vegetation. The plan must be submitted at a scale of 1/8"=1'-0". The use of native plants is highly recommended. Invasive plants are forbidden. A list of suggested plants is provided in the Appendices.

Recommended Plants

Ground Covers and Vines

Boston Ivy	*Parthenocisus tricuspidata*
Climbing Hydrangea	*Hydrangea anomala subsp. petiolaris*
Virginia Creeper	*Parthenocisus quinquefolia*
Bignonia	*Bignonia capreolata*
Trumpet Creeper	*Campsis radicans*
Clematis	*Clematis species*
Pachysandra	*Pachysandra terminalis*
Native Climbing Hydrangea	*Decumaria Barbara*
Mondo Grass	*Ophiopogon japonica*
St. John's Wort	*Hypericum calycinum*
Sweet Pepperbush	*Clethra alnifolia*
Virginia Sweetspire	*Itea virginica*
Mountain Laurel	*Kalmia latifolia*
Wax Myrtle	*Myrica pennsylvanica*
Spicebush	*Lindera benzoin*

Small Trees

Fringe Tree	*Chionanthus virginicus*
Eastern Redbud	*Cercis canadensis*
Whitebud	*Cercis canadensis "Alba"*
Flowering Dogwood	*Cornus florida*
Japanese Snowbell	*Styrax japanicus*
Magnolia	*Magnolia species*
Japanese Stewartia	*Stewartia psuedocamellia*
Sassafras	*Sassafras albidum*
American Hornbeam	*Carpinus caroliniana*
Hop Hornbeam	*Ostrya virginica*

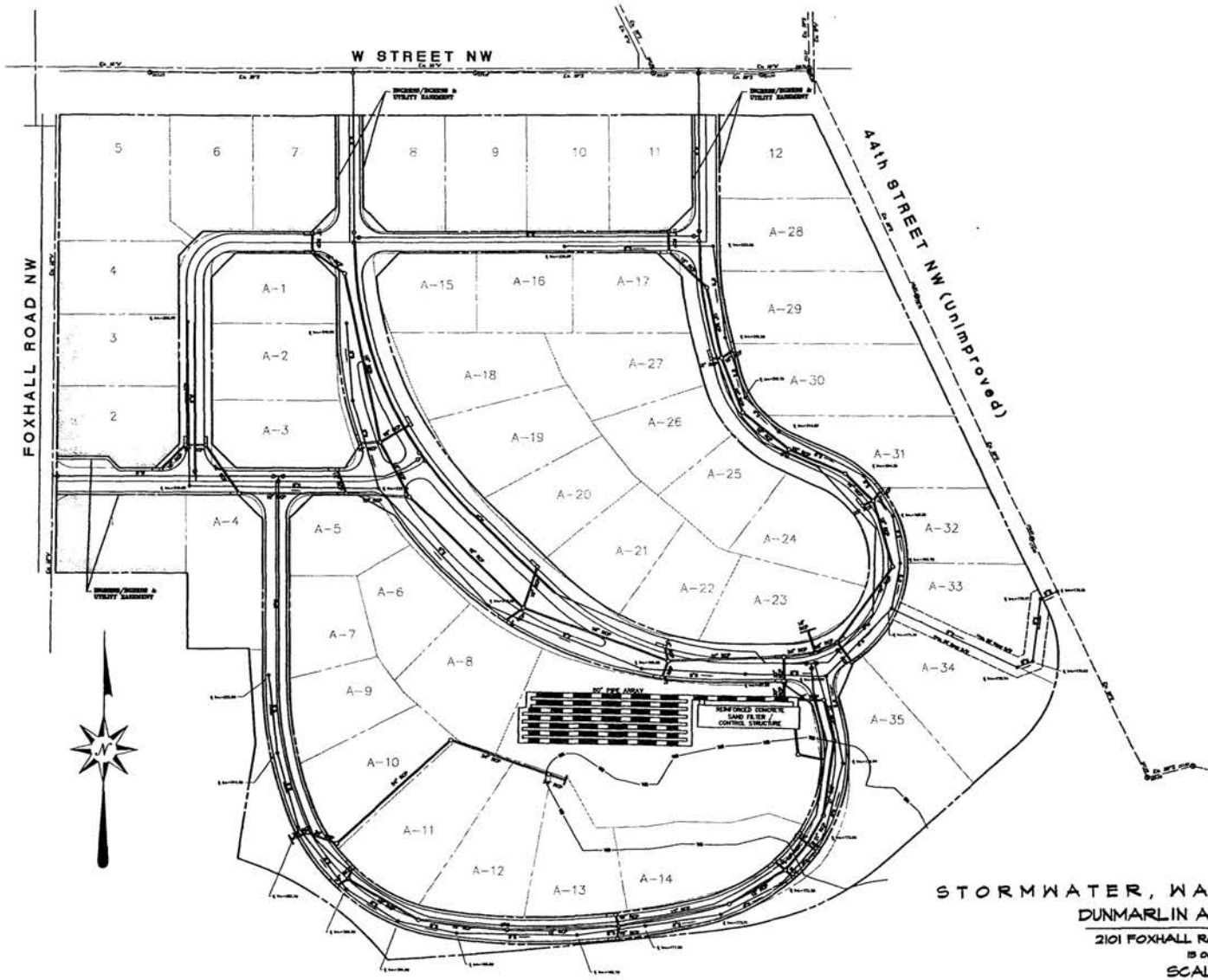
Large Trees

Oak	*Quericus species* (no *Quercus palustris*)
American Beech	*Fagus grandifolia*
Ash	*Fraxinus species*
London Planetree	*Platanus x acerifolium*
American Linden	*Tilia Americana*
Yellowwood	*Cladrastis kentuckea*
Sweet Gum	*Liquidambar styraciflua*
Black Gum	*Nyssa sylvatica*
Hickory	*Carya species*
Dawn Redwood	*Metasequoia glyptostroboides*
Southern Magnolia	*Magnolia grandiflora*

Evergreen Trees

Eastern Red Cedar	*Juniperus virginiana*
American Holly	*Ilex opaca*
Southern Magnolia	*Magnolia grandiflora*

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NOTES:

1. LOTS 1 THROUGH 12 SHOWN HEREON, ARE HOR LOTS.

STORMWATER, WATER & SEWER PLAN

DUNMARLIN AT PHILLIPS PARK

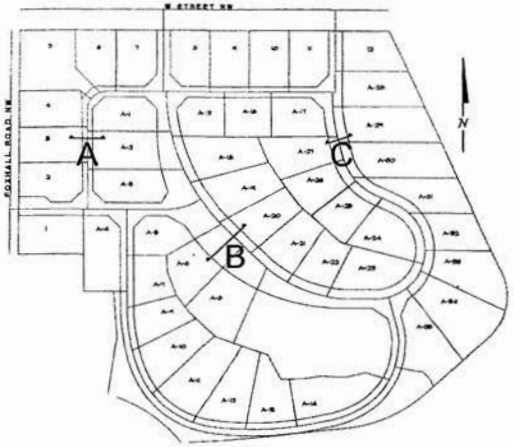
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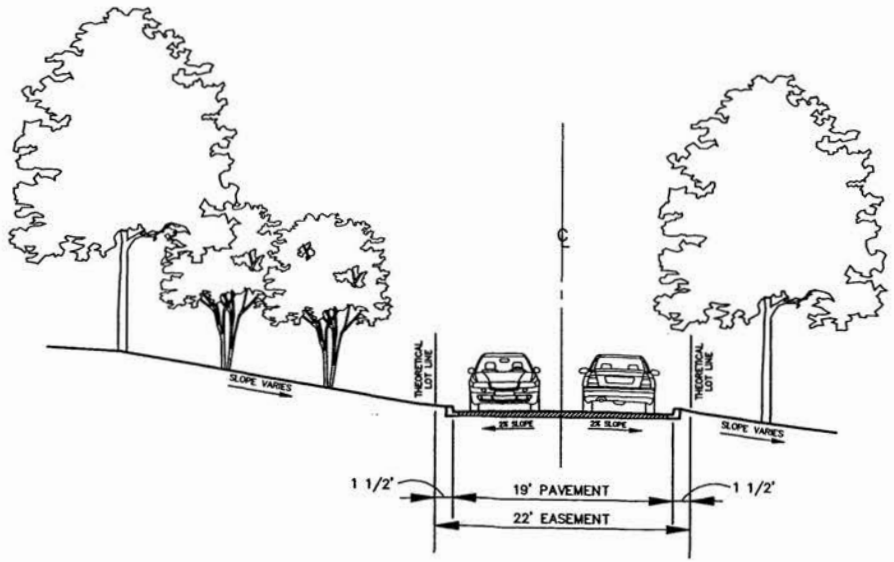
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(A) TYPICAL ALLEY SECTION

ROADWAY SECTIONS

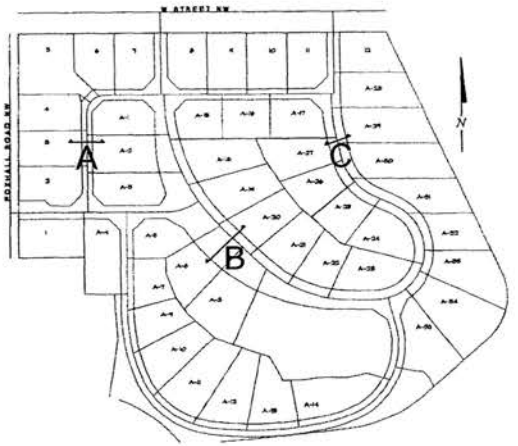
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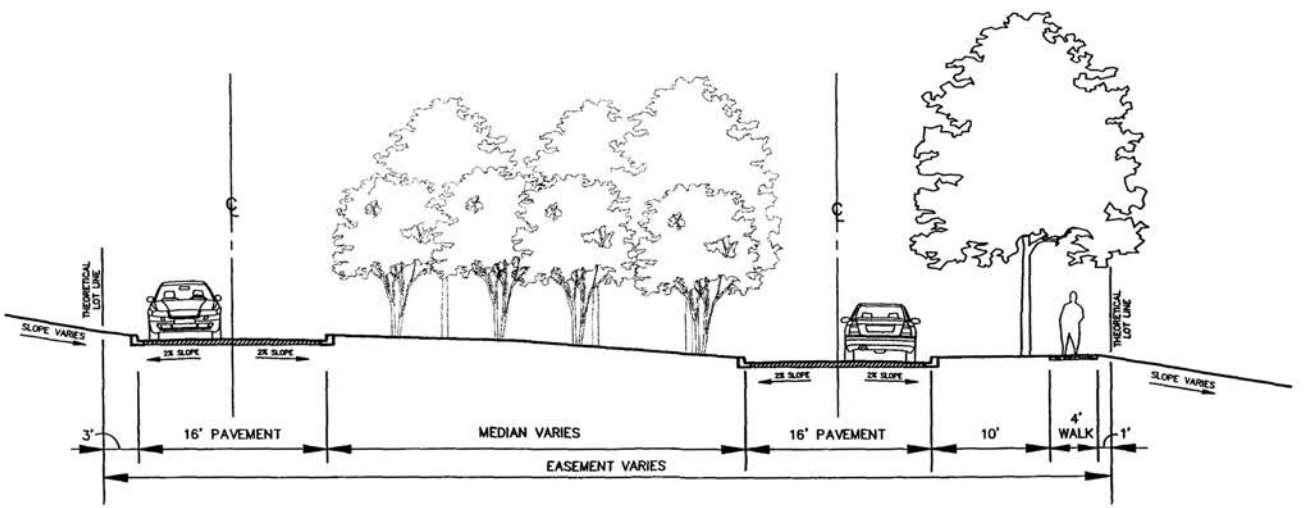
ROADWAY SECTIONS

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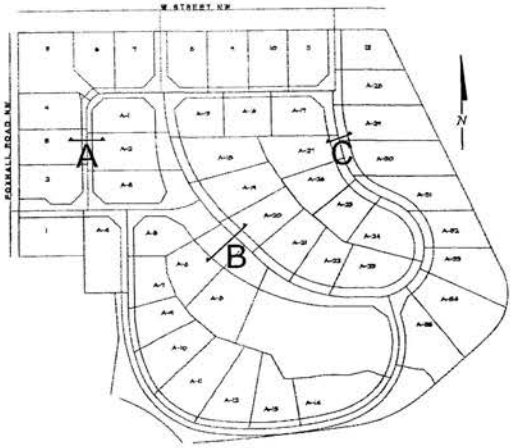
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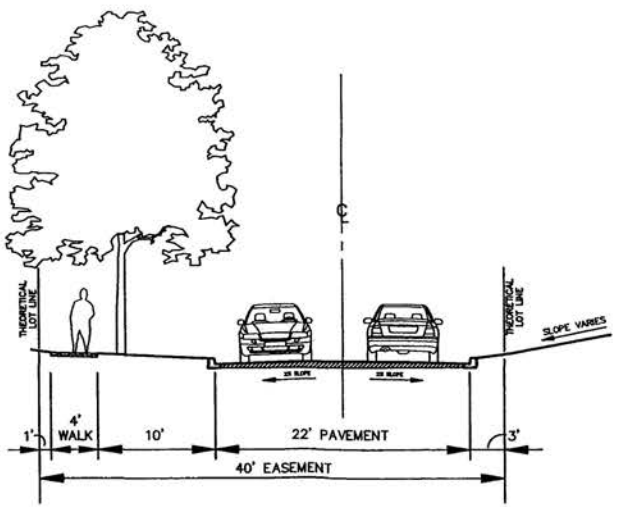
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(B) TYPICAL BOULEVARD SECTION

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(C) TYPICAL STREET SECTION

ROADWAY SECTIONS

DUNMARLIN AT PHILLIPS PARK

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O

Traffic Impact Analysis

Phillips Property

Washington, D.C.

October 7, 2004

GOROVE/SLADE ASSOCIATES, INC.
1140 Connecticut Ave. NW / Suite 700 / Washington, DC 20036

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INTRODUCTION

This report presents the results of a traffic impact analysis for the Phillips Property, a proposed residential development located near the intersection of W Street with Foxhall Road, NW; Figure 1 displays a map of the site location. The development will consist of 47 single-family homes; access will be from W Street east of Foxhall Road. Twelve of the houses on the Phillips Property are 'by-right', and can be constructed without further analysis or approval. This analysis contains the entire development to better show the overall picture of future traffic conditions.

Study Scope

In preparation for this analysis, Gorove/Slade Associates, Inc. (G/SA) discussed the scope and assumptions of this report with District Department of Transportation (DDOT) staff. These discussions set the project study to two intersections: (1) Foxhall Road and Whitehaven Parkway, and (2) Foxhall Road and W Street. In addition, background development and trip generation assumptions were agreed upon, and DDOT expressed a desire for this report to address the impact of Phillips traffic on the Field School traffic signal located north of the site, and traffic associated with St. Patrick's on Whitehaven Parkway.

Steps in this report included:

1) Collecting existing traffic data;
2) Assembling traffic volumes for both existing conditions (based on the data collection) and future conditions (including the addition of traffic generated by the Phillips Property);
3) Analyzing the traffic capacity of the existing and future conditions within the study area;
4) Discussing the impacts of traffic generated by the Phillips Property on the signalized Field School driveway and traffic generated by St. Patrick's; and
5) Summarizing the impact of the development and recommending mitigation measures.

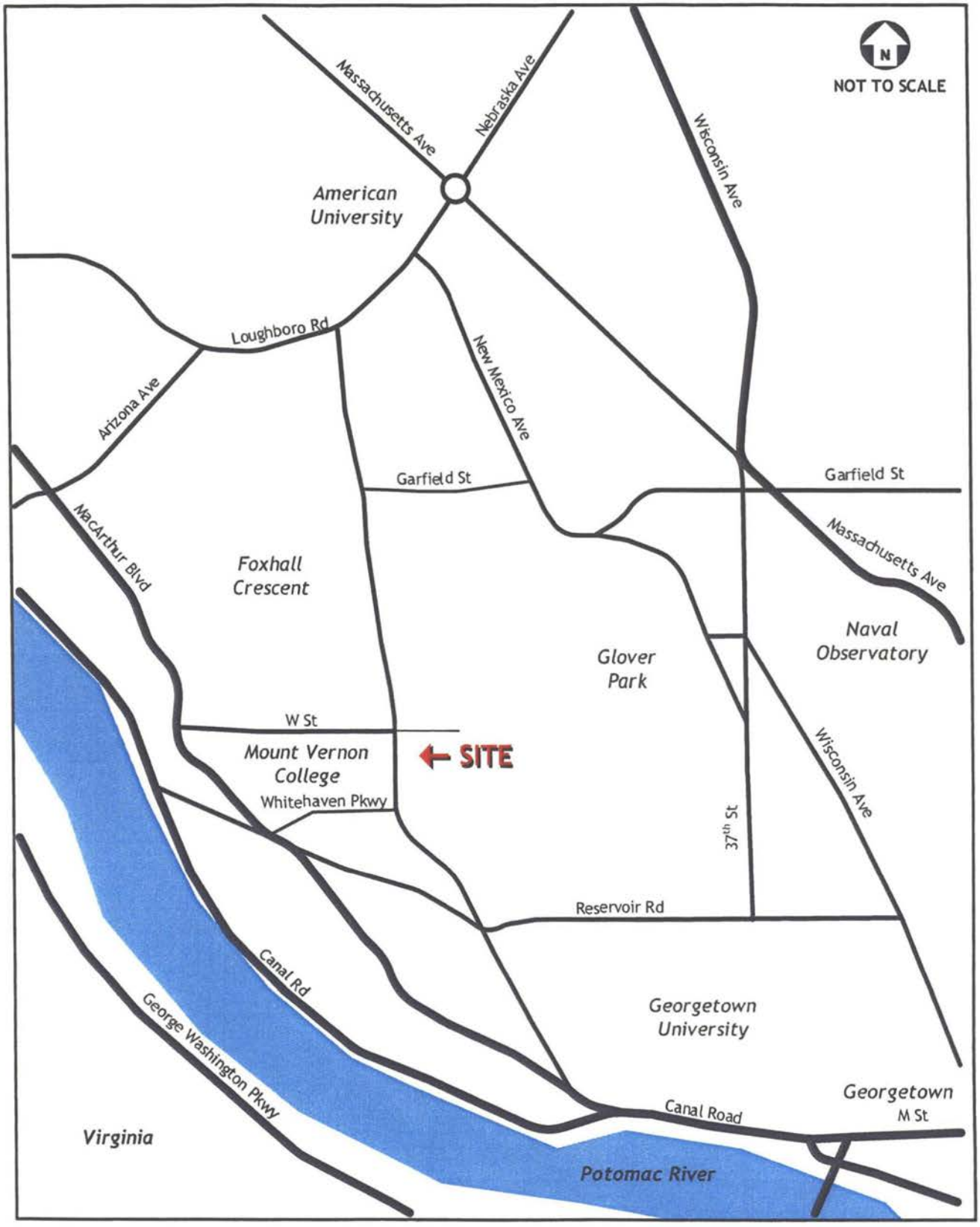


Figure 1 – Site Location Map

DATA COLLECTION

The following is a description of the roadways within the study area.

- *Foxhall Road*
  Foxhall Road is a major local north-south roadway that extends from the north at its intersection with Nebraska Avenue and Loughboro Road south to its intersection with MacArthur Boulevard and Canal Road.

- *W Street*
  W Street is a local east-west roadway that primarily serves residential traffic. It provides a connection between MacArthur Boulevard, west of site, and Foxhall Road. W Street also offers access to the George Washington University at Mount Vernon College.

- *Whitehaven Parkway*
  Whitehaven Parkway Street is a short, east west roadway that connects Reservoir Road and MacArthur Boulevard with Foxhall Road. St Patrick's Episcopal Church and Day Care is located on Whitehaven Parkway.

Field Visit

G/SA visited the study area to collect data on traffic controls (locations of stop signs, timings of traffic signals), lane designations and roadway cross-sections. Figure 2 displays the lane designations and traffic controls observed in the study area.

Turning Movement Counts

G/SA conducted turning movement counts at the two study intersections on Thursday, September 9, 2004. The combined commuter peak hours within the study area were 7:30 to 8:30 am, and 5:30 to 6:30 pm. Figure 3 shows a summary of these volumes; detailed turning movement count sheets are contained in the Appendix.

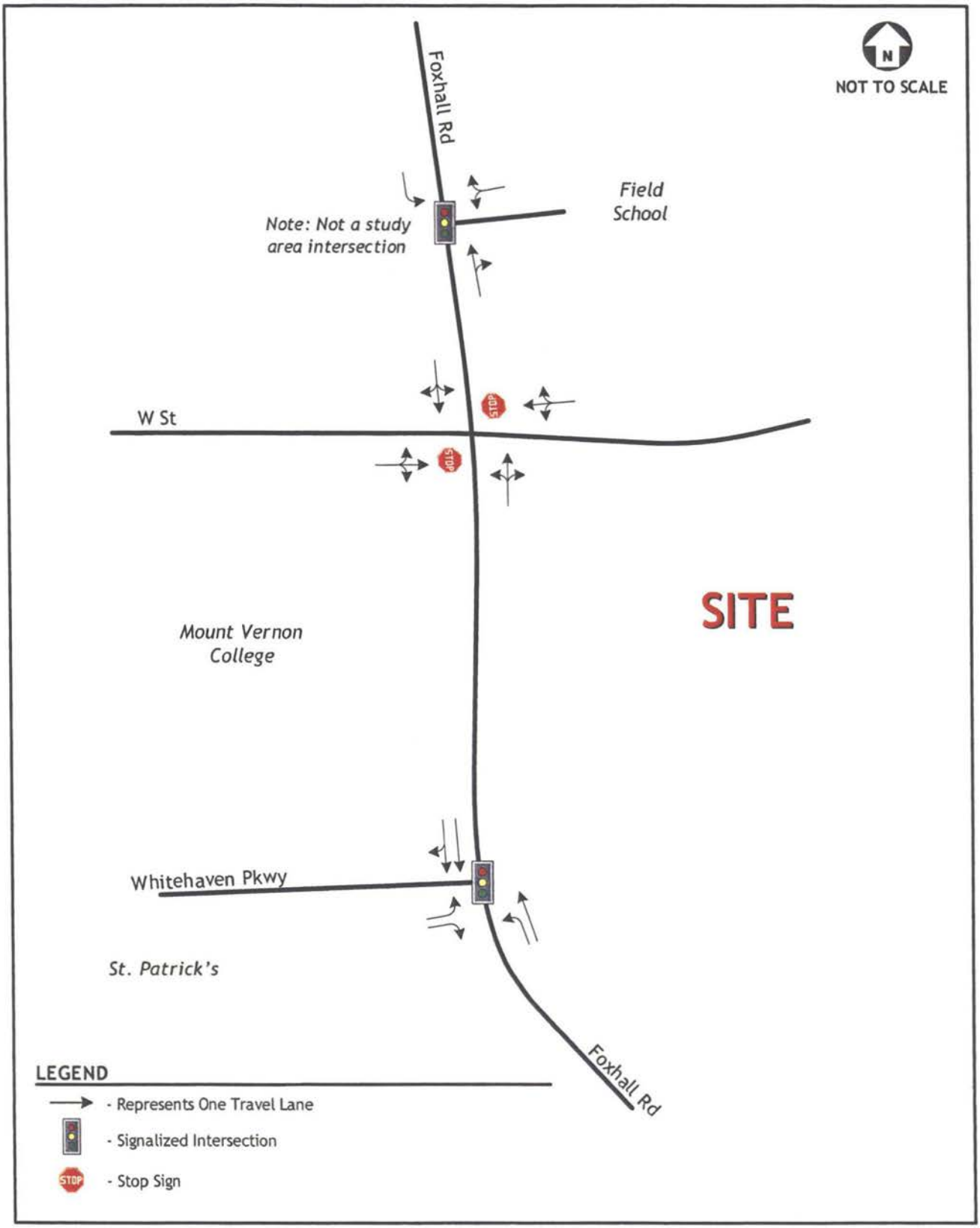


Figure 2 – Lane Designations and Traffic Controls

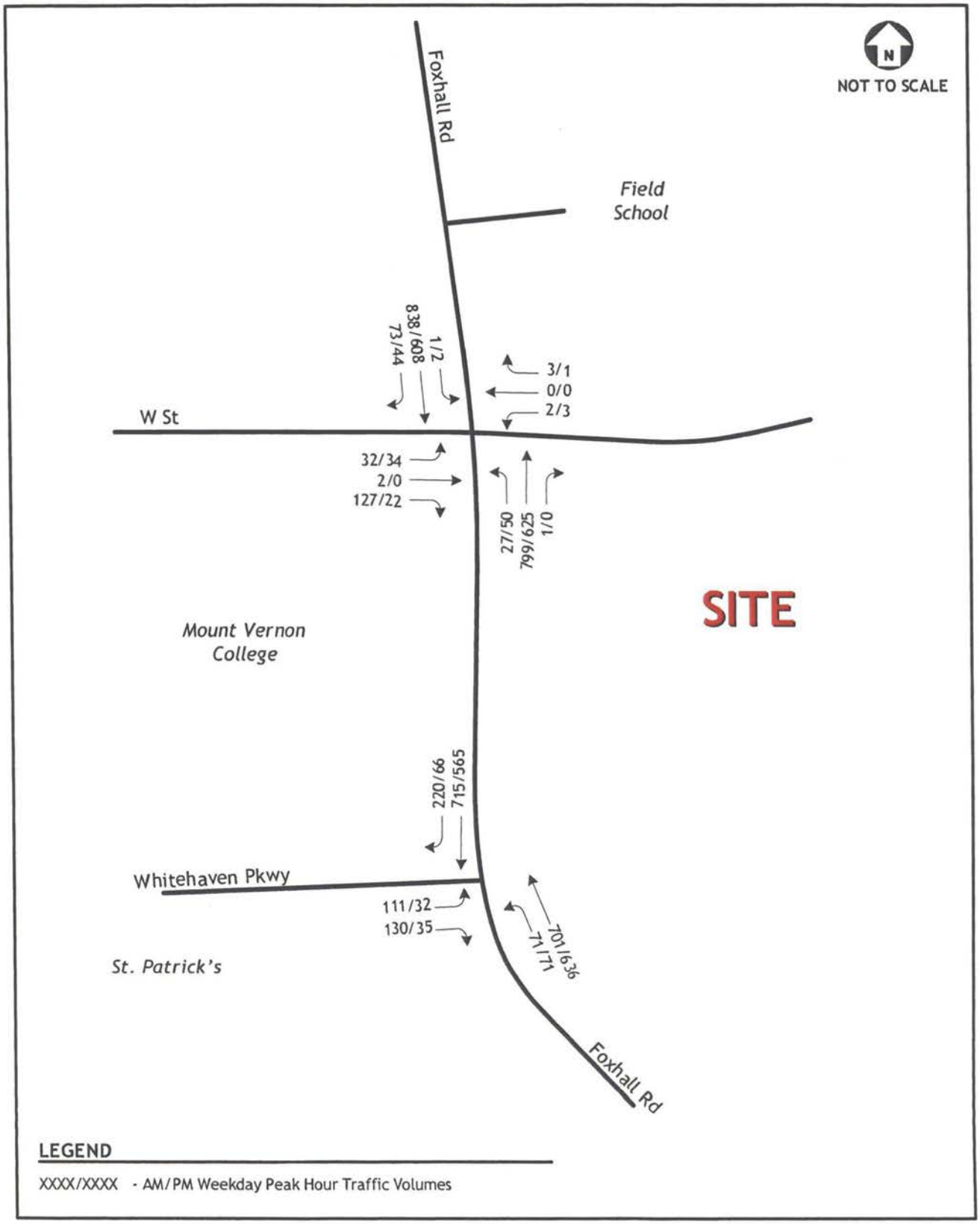


Figure 3 – Existing Peak Hour Traffic Volumes

FUTURE TRAFFIC VOLUMES

Background Growth

Background traffic volumes represent a growth in traffic due to future developments other than the proposed Phillips Property. Previous studies performed near the study area did not include background traffic projections, usually limited to already approved, but not yet constructed developments. Recent projects near the site, such as the Field School, Mount Vernon College, and St. Patrick's are complete and thus included in the turning movement counts. A conservative assumption was made to include a 1% per year growth percentage for a three year period to traffic on Foxhall Road. The purpose of adding a growth percentage is to account for both local background developments, and regional growth in traffic using Foxhall Road as a through route.

Site Trip Generation

G/SA used methodology contained in the ITE *Trip Generation* Manual, 7th Edition, to calculate the amount of commuter peak hour trips the Phillips Property will generate. Table 1 summarizes these calculations.

Table 1 – Phillips Property Trip Generation Summary

Land Use	Details	AM Peak Hour			PM Peak Hour			Weekday (24 Hour)		
		In	*Out*	*Total*	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Single-Family Detached Housing (Land Use Code 210)										
	Rates	0.75 per Unit			1.01 per Unit			9.75 per Unit		
	Directional Split	25%	75%	100%	63%	37%	100%	50%	50%	100%
	Amount: 47 Houses	**9**	**26**	**35**	**30**	**17**	**47**	**229**	**229**	**458**

Note: Trip rates used instead of equations due to the low number of dwelling units compared to the average ITE data point for this land use (201 for AM peak, 214 for PM Peak, and 197 for Weekday)

Table 1 shows a development level of 47 houses, which includes the 12 by-right parcels contained in the Phillips Property. This is done to perform a more complete analysis of future conditions, even though the 12 by-right homes do not need further approvals.

The calculations in Table 1 show that the amount of trips generated by the proposed Phillips Property development will only slightly impact traffic levels in the study area. For example, at the intersection of Foxhall Road and W Street, Phillips generated traffic will only constitute 1.8% and 3.2% of the AM and PM future traffic, respectively.

Trip Assignment

Site access to the Phillips Property will be from W Street, east of Foxhall Road. This analysis assumes that all of the 47 houses on the property will use the internal roadway system to exit onto W Street, including the 12 by-right houses. If the by-right houses were built separate from the Phillips Property, they would use individual driveways onto Foxhall Road and W Street.

Trips generated for the Phillips Property were assigned to the roadway network based on the existing turning movement counts at the intersection of W Street with Foxhall Road. The east leg of this intersection consists of a short segment of W Street that leads only to several single family houses, similar to the ones proposed in the Phillips development. This analysis assumed that the proposed Phillips generated traffic would behave in a similar fashion to the existing traffic generated on W Street east of Foxhall Road. Table 2 contains the resulting trip distribution numbers based on this assumption.

Table 2 – Site Generation Traffic Trip Distribution

Direction of Approach	Inbound Distribution	Outbound Distribution
To/from north on Foxhall Road	60%	45%
To/from west on W Street	10%	15%
To/from south on Foxhall Road	30%	40%

The trip distribution of current W Street residents shows that many drivers travel to and from the north, rather than to and from the south, which at first appears to be the most direct connection to downtown. This is probably due to drivers using Garfield Street and Massachusetts Avenue as an east-west route downtown, whether because it is more direct or because the conjunction of Foxhall Road, MacArthur Boulevard and Canal Street is congested during peak hours.

Future Volumes

The future peak hour volumes within the study area were assembled by adding the following:

1) The existing peak hour volumes (Figure 3);
2) The 1% per year growth factor applied for three years; and
3) The Phillips Property trip generation (Table 1), assigned to the roadway network based on the site developed trip distribution (Table 2).

Figure 4 shows the resulting future peak hour traffic volumes.

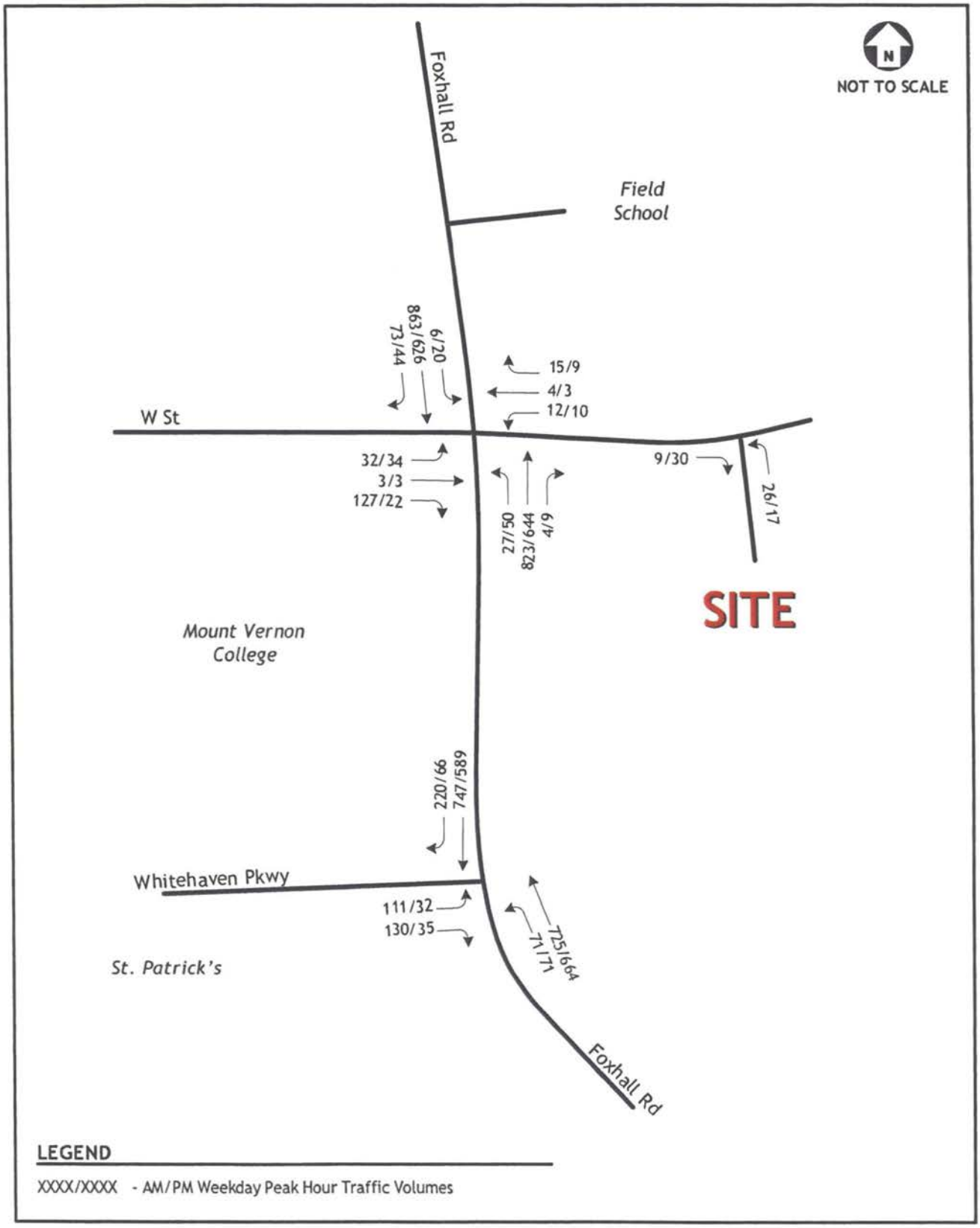


Figure 4 – Future Peak Hour Traffic Volumes

CAPACITY ANALYSES

Using the existing and future peak hour traffic volumes, G/SA performed capacity analysis for the intersections within the study area. These analyses were completed using the Synchro 6.0 software program, using two separate methodologies. First, Synchro was used to analyze traffic capacity based on methodology contained in the *Highway Capacity Manual* (HCM), a national standard within the industry. In addition to using the HCM method, G/SA modeled the study area using the SimTraffic software program. The HCM methodology is based on proven empirical data and statistical analyses; the SimTraffic simulation is a microscopic traffic model that simulates traffic vehicle-by-vehicle. G/SA used both because a traffic simulation can evaluate complex elements within a roadway system, such as in this study area where a busy unsignalized intersection (Foxhall Road and W Street) is located between two signalized intersections (Foxhall Road's intersections with Whitehaven Parkway and the Field School driveway). The simulation was used to better evaluate how drivers use gaps in traffic to turn from east or westbound W Street onto Foxhall Road. In order to simulate the gaps in traffic created by these traffic signals, the signalized intersection of the Field School driveway with Foxhall Road was added to the traffic simulation.

Table 3 presents the results of the capacity analysis for the AM peak hour. Results are presented as Level of Service (LOS) and average delay per vehicle in seconds, for the entire intersection and each approach. LOS is a 'letter-grade' based measure of traffic conditions, which for signalized intersections is based on the average delay. DDOT generally considers LOS D an acceptable condition, although in urbanized areas, LOS E is considered acceptable.

Table 3 – Capacity Analysis Results: AM Peak Hour

Intersection (Approach/Movement)	AM Peak Hour Capacity Analysis							
	Existing Conditions				*Future Conditions*			
	HCM		*Simulation*		*HCM*		*Simulation*	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Foxhall Road & Whitehaven Parkway								
Overall	A	7.2	A	8.8	A	7.4	A	8.7
Eastbound	C	29.2	C	24.4	C	31.1	C	26.8
Northbound	A	5.0	A	6.6	A	5.1	A	6.3
Southbound	A	3.4	A	6.4	A	3.4	A	6.4
Foxhall Road & W Street NW								
Overall	C	21.2	C	23.4	E	38.2	E	46.5
Eastbound	F	232.9	F	229.3	F	341.3	F	568.1
Westbound	F	129.5	E	39.1	F	579.3	F	75.1
Northbound	A	2.3	A	7.0	A	2.7	A	9.5
Southbound	A	0.1	A	3.3	A	0.4	A	3.5

The results contained in Table 3 indicate the following:

- The intersection of Whitehaven Parkway with Foxhall Road currently operates at an acceptable LOS. With the inclusion of traffic generated by the Phillips residential development, it will continue to operate at an acceptable LOS; and
- Drivers on the stop sign controlled approaches to Foxhall Road on W Street experience significant delays. The traffic simulation shows that these drivers are using gaps created by the nearby intersections, but in both the existing and future conditions, these gaps are not enough to create acceptable levels of service.

Table 4 presents the capacity analysis results for the PM peak hour.

Table 4 – Capacity Analysis Results: PM Peak Hour

Intersection (Approach/Movement)	PM Peak Hour Capacity Analysis							
	Existing Conditions				*Future Conditions*			
	HCM		*Simulation*		*HCM*		*Simulation*	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Foxhall Road & Whitehaven Parkway								
Overall	A	3.2	A	3.8	A	3.2	A	4.2
Eastbound	C	34.3	A	8.4	C	34.9	A	9.6
Northbound	A	1.9	A	3.6	A	2.0	A	3.9
Southbound	A	1.4	A	3.6	A	1.4	A	3.9
Foxhall Road & W Street NW								
Overall	A	3.6	A	4.6	A	5.7	A	5.4
Eastbound	F	62.1	D	25.9	F	92.3	C	24.9
Westbound	E	45.0	C	20.8	F	51.5	D	25.7
Northbound	A	2.0	A	4.8	A	2.1	A	5.4
Southbound	A	0.1	A	2.4	A	0.7	A	3.0

The results contained in Table 4 indicate the following:

- The intersection of Whitehaven Parkway with Foxhall Road currently operates at acceptable levels of service. With the inclusion of traffic generated by the Phillips Property, it will continue to operate at an acceptable LOS;
- Although the traditional HCM methodology indicates that drivers on W Street turning onto Foxhall road experience long delays, the traffic simulation shows that these drivers are using gaps created by the nearby intersections to achieve an acceptable levels of service. This is the case even with the inclusion of traffic generated by the Phillips Property; and
- Overall traffic levels are lower in the PM peak hour then in the AM peak hour, where failing levels of service are observed at the intersection of Foxhall Road and W Street.

IMPACT ON ST. PATRICK'S AND FIELD SCHOOL DRIVEWAY

DDOT specifically requested that this analysis evaluate the impact of the proposed development on the operations of St. Patrick's and the Fields School signalized intersection. This section provides a brief summary of these impacts, based on the traffic volumes and capacity analyses.

St Patrick's

St Patrick's is an Episcopal Church and Day Care located on Whitehaven Parkway approximately 500 feet from the intersection of Foxhall Road and Whitehaven Parkway. Day Care generated traffic overlaps with the AM peak hour of Phillips generated traffic. There is concern that Phillips traffic might elevate traffic volumes at the intersection of Foxhall Road and Whitehaven Parkway and disrupt St. Patrick's operations. Based on the capacity results contained in Table 3, the impact of both the growth percentage on Foxhall Road and the traffic generated by the proposed development will not significantly impact the intersection of Foxhall Road with Whitehaven Parkway.

Field School Signal

The traffic signal located at the Field School southern driveway is relatively close to the intersection of Foxhall Road and W Street (approximately 200 feet). There is concern that added traffic on both W Street and Foxhall Road could negatively impact the operations of this traffic signal. The traffic simulation used for the capacity analysis included the Field School signal based on prior studies performed for the traffic signal. The simulation showed no deterioration in level of service at the Field School driveway due to the background growth factor or traffic generated by the proposed development.

Another issue regarding a conflict between the Field School signal and traffic along W Street is the sight distance between these two intersections required to ensure safe operations of Foxhall Road. During the site visit to the study area, G/SA photographed these sight distances between these intersections northbound and southbound, displayed in Figure 5. The second photograph shown in Figure 5, looking south from the traffic signal towards W Street, shows that the spacing, grade and vegetation along Foxhall Road can limit sight distance southbound, a factor which should influence possible mitigation measures for the proposed development.

Looking north from W Street towards Field School Driveway



Looking south from Field School Driveway towards W Street



Figure 5 – Intersection Spacing Photographs

MITIGATION MEASURES (W STREET & FOXHALL ROAD)

Based on the capacity analysis and impacts generated by the Phillips residential development, G/SA developed several ideas to help mitigate the development's impact on the intersection of W Street and Foxhall Road. These mitigations measures, depicted on Figure 6, are the following:

1) Adding short right turn bays to eastbound and westbound W Street;
2) Altering operations of the Field School Signal to decrease delays at W Street;
3) Adding a right-in/right-out driveway for the proposed development on Foxhall Road; and
4) Adding a full access driveway for the proposed development on Foxhall Road.

Previous projects near the site have attempted to mitigate traffic congestion at this intersection through similar measures, including the addition of a traffic signal. These measures, especially a traffic signal, have been met with strong community opposition.

These mitigations measures were compared based on two criteria: (1) their ability to decrease long delays shown at the intersection of W Street and Foxhall Road in the morning commuter peak hour, and (2) any increases in the safety and efficiency of the roadway system, especially in improving sight distance issues.

W Street Right Turn Bays

The addition of short right turn bays to the westbound and eastbound approaches to W Street at Foxhall Road separates right turning traffic from through and left turning traffic, increasing the ability for drivers to use gaps created by nearby traffic signals. To evaluate this impact, 50 foot long turn bays were added to W Street and HCM and simulation analyses performed; Table 5 contains the results.

Table 5 – Capacity Analysis Results: W St Right Turn Bay Mitigation Measure

Intersection (Approach/Movement)	AM Peak Hour Capacity Analysis							
	Future Conditions (from Table 3)				*With Right Turn Bays*			
	HCM		*Simulation*		*HCM*		*Simulation*	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Foxhall Road & W Street NW								
Overall	E	38.2	E	46.5	B	12.6	C	13.3
Eastbound	F	341.3	F	568.1	F	92.7	F	198.0
Westbound	F	579.3	F	75.1	F	239.6	F	83.5
Northbound	A	2.7	A	9.5	A	2.7	A	9.6
Southbound	A	0.4	A	3.5	A	0.4	A	4.0

The capacity results including the short turn bays show that these turn bays have a significant impact in decreasing the delay experienced by drivers. The simulation results show that with these turn bays, the delays in the future would be lower than those seen in the existing conditions (Table 3).

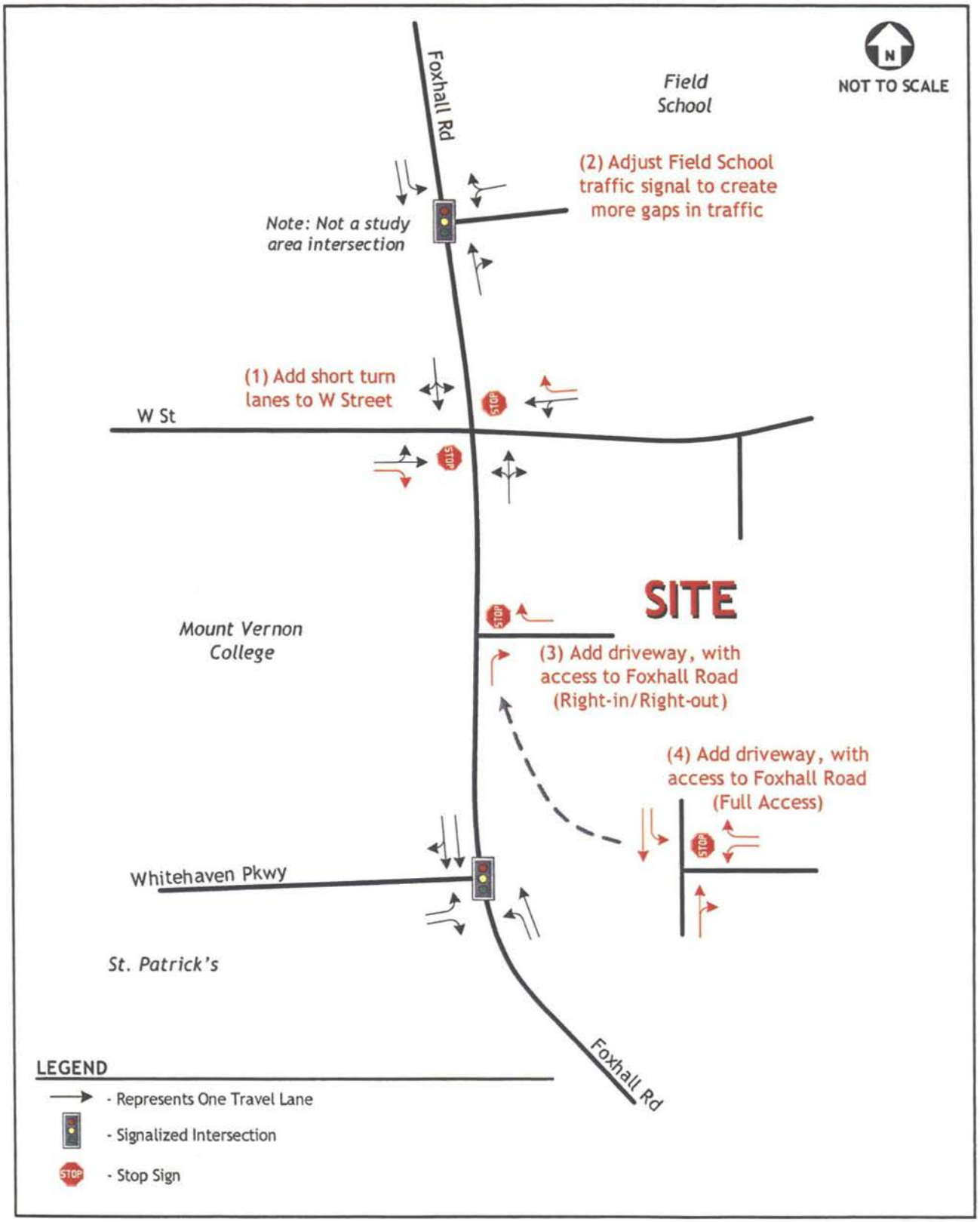


Figure 6 – W Street & Foxhall Road Mitigation Measures

Although this mitigation measure decreases the delays shown at W Street, it does not address the sight distance issues on W Street. In addition, this improvement aids overall W Street traffic instead of directly negating the impact of Phillips Property traffic.

Implementation of this mitigation measure would require additional land at the eastbound and westbound approaches, including adding pavement, lane marking and possible removal of some on-street parking. The Phillips Property would consider partially funding such an improvement, because a portion of their traffic is generating the projected future delays.

Altering Operations of the Field School Signal

This mitigation measure would involve adjusting the traffic signal at the Field School to create more gaps in traffic, allowing turning vehicles time to access Foxhall Road. Currently, the Field School is an actuated signal, only stopping through traffic when there are vehicles turning into or out of the School. The signal can be adjusted to routinely stop north and southbound traffic regardless of School traffic, and the length of the stopped time increased. Alternatively, sensors can be placed on W Street, stopping traffic when waiting turning vehicles are detected.

Although this would reduce waiting times for turning vehicles it would degrade the north and southbound through traffic. This mitigation measure would require approval from DDOT and possibly access to property to install new sensors.

Access to Proposed Development from Foxhall Road

The addition of a driveway to the Phillips Property directly to Foxhall Road would displace some turning traffic from W Street, helping mitigate the future AM peak hour traffic conditions. In addition, the new access point could be located to provide an alternative to turning vehicles at W Street with an improved sight distance.

This report compares two different access drives to Foxhall Road; (1) a right turn in/right turn out only driveway, and (2) a full access driveway with a southbound left turn lane and separate left turn lane exiting the Phillips Property. These driveways would be located approximately 400-420 feet south of the intersection of W Street and Foxhall Road. At this point, Foxhall Road is straight and relatively flat. With proper landscaping, an access point would have proper sight distance, and would present an improvement over conditions at W Street.

These two options were analyzed using HCM and traffic simulation; Tables 6 and 7 display the results.

Table 6 – Capacity Analysis Results: Right-In/Right-Out Driveway

Intersection (Approach/Movement)	AM Peak Hour Capacity Analysis							
	Future Conditions (from Table 3)				*With Second Driveway*			
	HCM		*Simulation*		*HCM*		*Simulation*	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Foxhall Road & W Street NW								
Overall	E	38.2	E	46.5	D	34.8	D	32.4
Eastbound	F	341.3	F	568.1	F	320.4	F	350.0
Westbound	F	579.3	F	75.1	F	741.3	F	61.0
Northbound	A	2.7	A	9.5	A	2.7	A	6.4
Southbound	A	0.4	A	3.5	A	0.4	A	3.8
Foxhall Road & Second Driveway								
Overall	-	-	-	-	A	0.1	A	2.3
Westbound	-	-	-	-	C	20.7	B	11.0
Northbound	-	-	-	-	A	0.0	A	2.6
Southbound	-	-	-	-	A	0.0	A	2.2

The results contained in Table 6 show that right-in/right-out second driveway would operate under acceptable levels of service. Since the second driveway does not alleviate long delays experienced by left turning vehicles from W Street to Foxhall Road, the average westbound delay at this intersection is still significantly large. This mitigation measure does not improve traffic at the intersection of Foxhall Road and W Street on the whole; instead it helps alleviate delays directly generated by the small addition of Phillips Property traffic.

Table 7 – Capacity Analysis Results: Full Access Driveway

Intersection (Approach/Movement)	AM Peak Hour Capacity Analysis							
	Future Conditions (from Table 3)				*With Second Driveway*			
	HCM		*Simulation*		*HCM*		*Simulation*	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Foxhall Road & W Street NW								
Overall	E	38.2	E	46.5	E	28.3	C	19.1
Eastbound	F	341.3	F	568.1	F	323.6	F	182.6
Westbound	F	579.3	F	75.1	F	105.2	E	40.2
Northbound	A	2.7	A	9.5	A	2.7	A	5.6
Southbound	A	0.4	A	3.5	A	0.1	A	3.3
Foxhall Road & Second Driveway								
Overall	-	-	-	-	A	0.5	A	2.6
Westbound	-	-	-	-	E	39.6	E	40.1
Northbound	-	-	-	-	A	0.0	A	2.5
Southbound (left turn)	-	-	-	-	B	11.8	B	10.0

The results contained in Table 7 show that a full access point on Foxhall Road would operate under acceptable levels of service. In addition, this mitigation measure helps alleviate delays at W Street by diverting some W Street traffic to the new access point. This mitigation measure also directly addresses the traffic movements increased by the proposed development.

Implementation of this mitigation measure would involve having the Phillips development construct this access point as part of their site plan.

Mitigation Recommendation

Based on the mitigation measure analyses, G/SA recommends that an access road to the Phillips Property be added to Foxhall Road for the following reasons:

- An increase in safety on Foxhall Road by providing another option, with improved sight distance, for vehicles currently turning into and out of W Street.
- The decrease in delays shown in the capacity analyses for the intersection of Foxhall Road and W Street, which currently operates with significant eastbound and westbound delays.
- The measure would directly address trips generated by the Phillips Property.

Table 8 compares the delays at W Street and Foxhall Road between existing conditions and future conditions with this recommended mitigation measure. The results in this table show that even with a regional growth percentage on Foxhall Road, the inclusion of the recommended mitigation measure generates traffic conditions at W Street and Foxhall Road in the future similar to, or improved over existing conditions. The AM peak hour results show improved conditions; the PM peak hour experiences an increase in delay attributable to regional growth on Foxhall Road. The impacts of the Phillips Property are limited.

Table 8 – Capacity Analysis Summary of Recommended Mitigation

Intersection (Approach/Movement)	Time Period (Simulation Results)							
	AM Peak Hour				*PM Peak Hour*			
	Existing		*Future (with Mitigation)*		*Existing*		*Future (with Mitigation)*	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Foxhall Road & W Street NW								
Overall	C	23.4	C	19.1	A	4.6	A	4.6
Eastbound	F	229.3	F	182.6	D	25.9	E	36.7
Westbound	E	39.1	E	40.2	C	20.8	D	28.1
Northbound	A	7.0	A	5.6	A	4.8	A	4.0
Southbound	A	3.3	A	3.3	A	2.4	A	2.3

This mitigation measure, after being recommended by G/SA was added to the site planning for the Phillips Property.

CONCLUSIONS

The analyses contained in this report provided the following results:

- The proposed Phillips Property residential development contains 47 single family houses, of which 12 can be constructed as by-right, without any further approvals. This analysis examined the impacts of the combined 47 houses to provide a more accurate projection of future traffic.
- The approval of the entire Phillips Property, instead of only the by-right parcels, would have a beneficial impact on future traffic for several reasons: (1) it would eliminate the driveways of the by-right units, as they would use the internal roadway network for the Phillips Property, (2) by moving traffic towards a new access point on Foxhall Road (the recommended mitigation measure), these by-right units would have a more efficient and safer place to access Foxhall Road, especially compared to individual driveways.
- The proposed development will generate over 450 new vehicle trips per weekday, 35 and 47 of which will occur during the AM and PM peak hours, respectively. This represents a very small increase to study area traffic; only 1.8% and 3.2% of the AM and PM future traffic at the intersection of W Street with Foxhall Road.
- There will be no negative impact to the operations of St Patrick's or the Field School traffic signal generated by the proposed residential development.
- Existing and future capacity analyses show unacceptable levels of service occur at the intersection of W Street and Foxhall Road, on the stop-sign controlled east and westbound approaches. Other intersections within the study area will operate at acceptable levels of service.
- Since the original site plan called for access on W Street, this report examined several mitigation measures that the proposed development could include or contribute towards, which would improve future traffic conditions.
- Of the mitigation measures analyzed, G/SA recommends the addition of a full service access point to the Phillips Property on Foxhall Road, south of its intersection with W Street. This mitigation measure directly addresses traffic generated by the Phillips Property, mitigates excessive delays observed at W Street, and can provide improved sight distance compared to access from the intersection of W Street and Foxhall Road. Since the recommendation of this measure, it has been incorporated into the site planning for the Phillips Property.