



Northern Virginia Stream Restoration Bank Reston Status and Wiehle South Preliminary Plan

February 21, 2012

Presented by Mike Rolband & Kelly Petrey

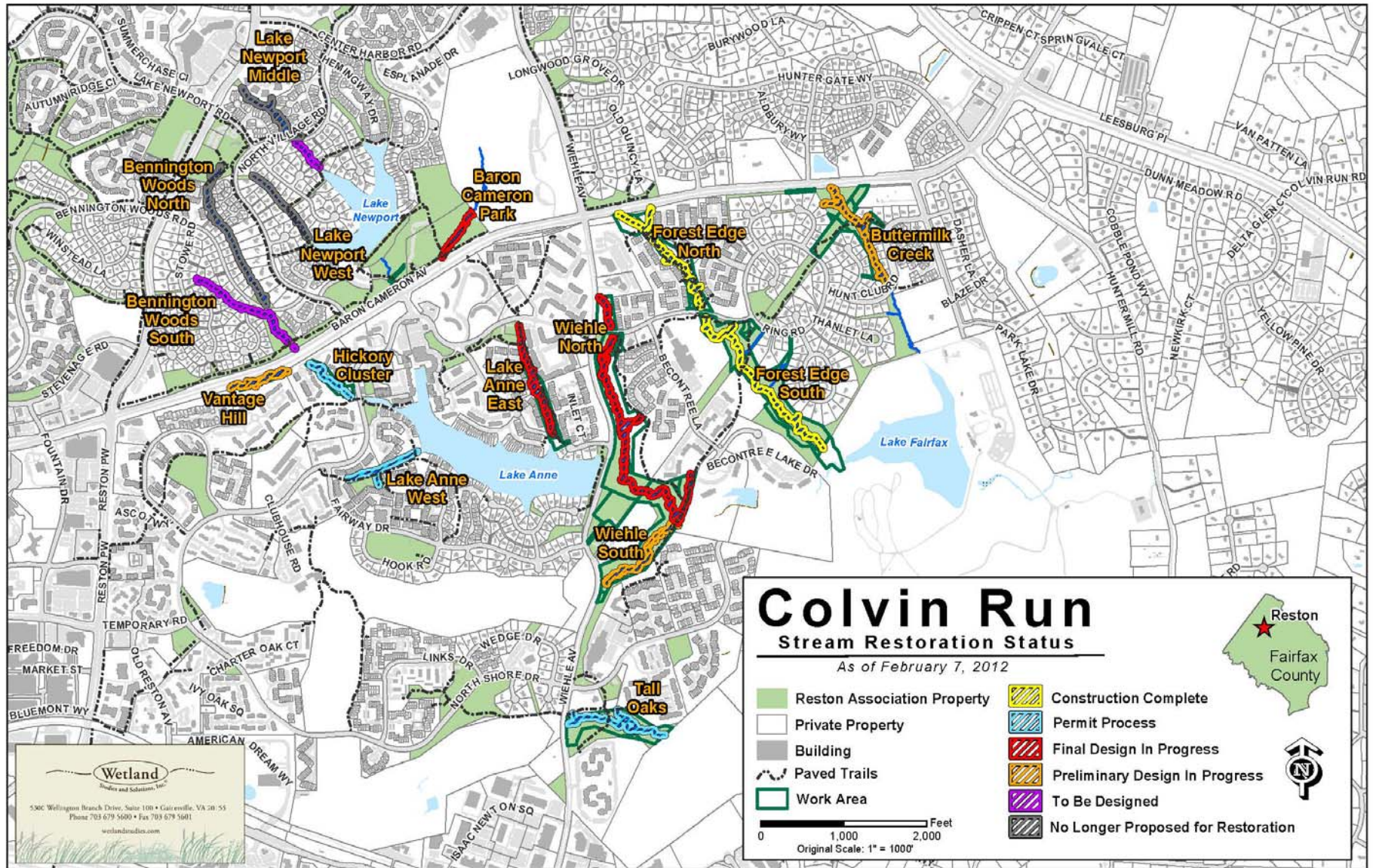
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Reston Status



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The Glade – Reach 6 Repairs



**Tree protection fencing installed,
early February**



Deck Mats used in active cut-ins

The Glade Reach 6 Repairs (cont'd)



Tree clearing complete



Rock wall and channel grading commenced



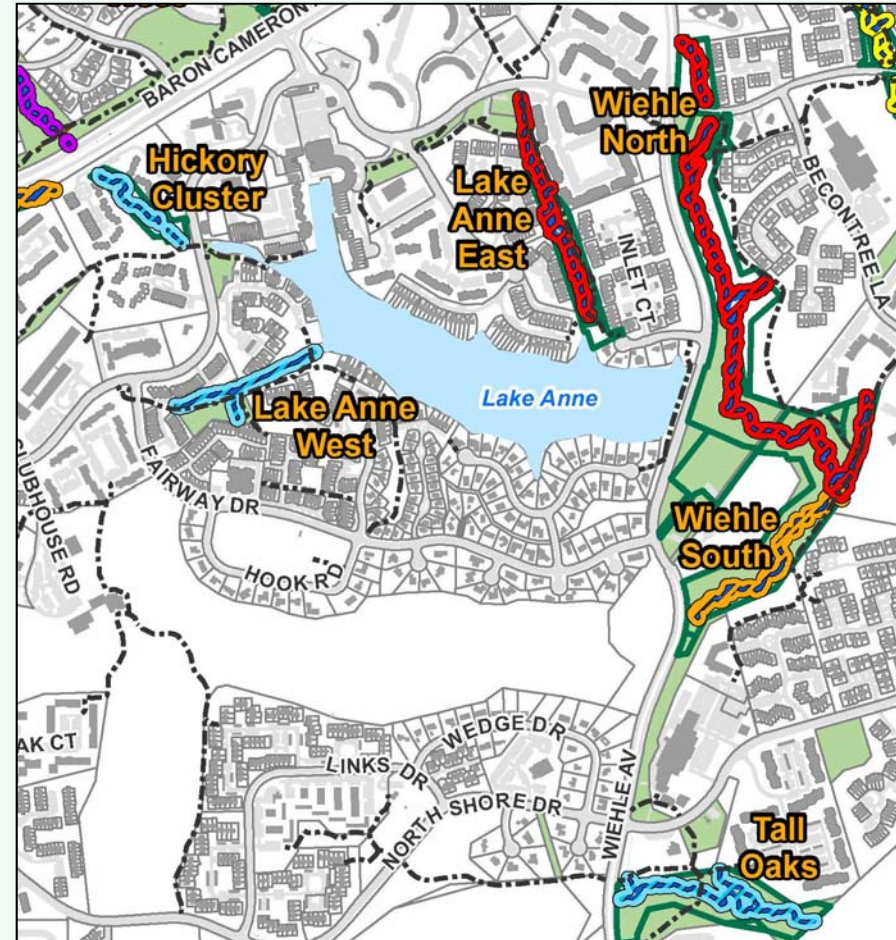
Request for DRB Approval Extension

Request letter from WSSI dated 11/30/11

1. Hickory Cluster
 - DRB Approved: 2/15/2011
 - County Approved: 7/14/2011
 - *VDOT Approval: pending*
2. Lake Anne West
 - DRB Approved: 10/18/2011
 - County Approved: 12/20/2011
 - *VDOT Approval: pending*
3. Tall Oaks
 - DRB Approved: 11/15/2011
 - County Approved: 01/13/2012
 - *VDOT Approval: pending*

Future financing for project is based on:

1. Obtaining all necessary (DRB, County, Agency, VDOT, etc.)
2. Selling stream credits that have been constructed to-date, as well as 15% pre-sale for all un-built sections.



Wiehle South – Preliminary Plan

Community Events:

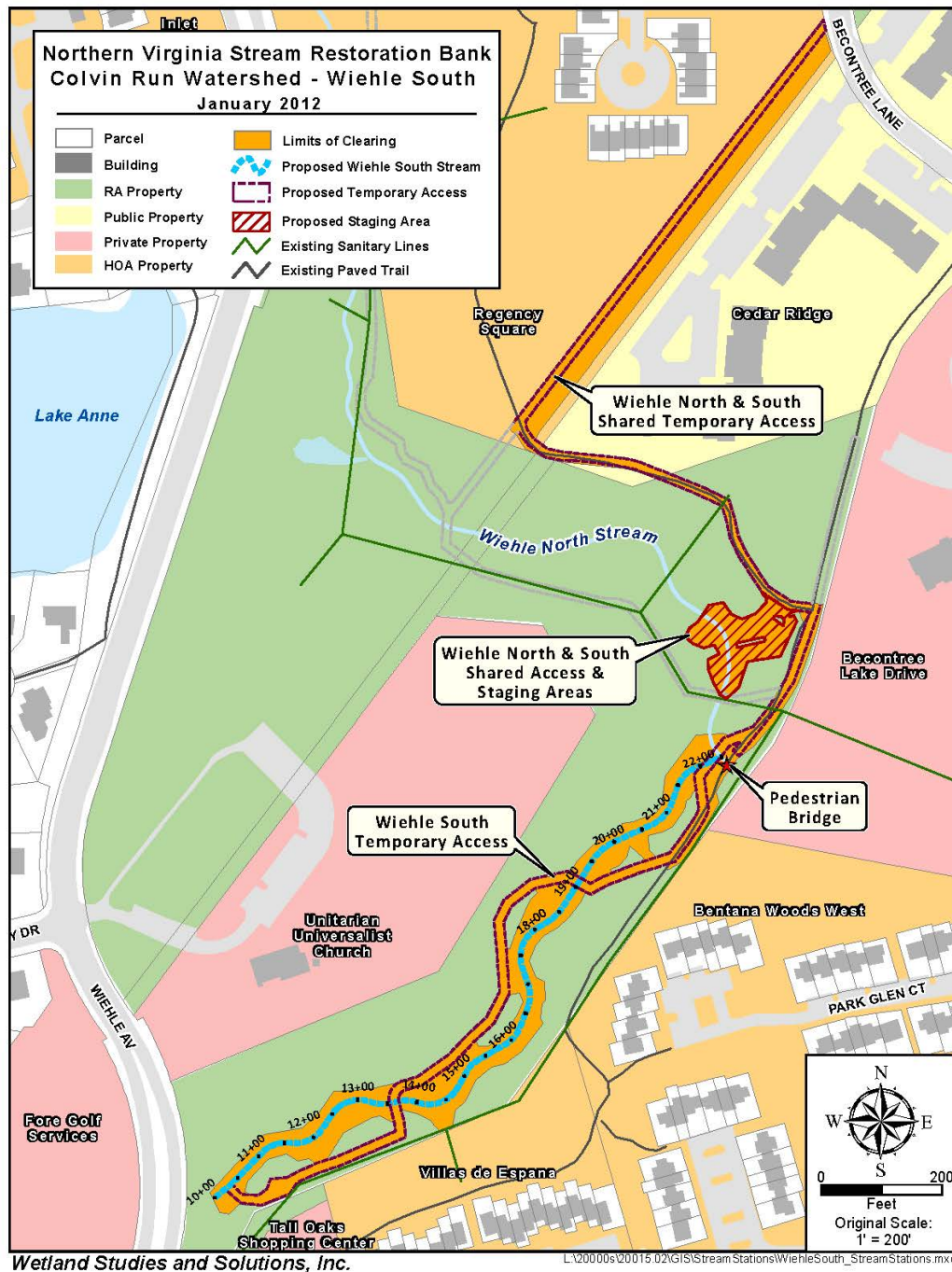
- Community Stream Walk
January 14, 2012
- Walk with Reston Unitarian Church
Representatives this week

Proposed Construction Access & Staging:

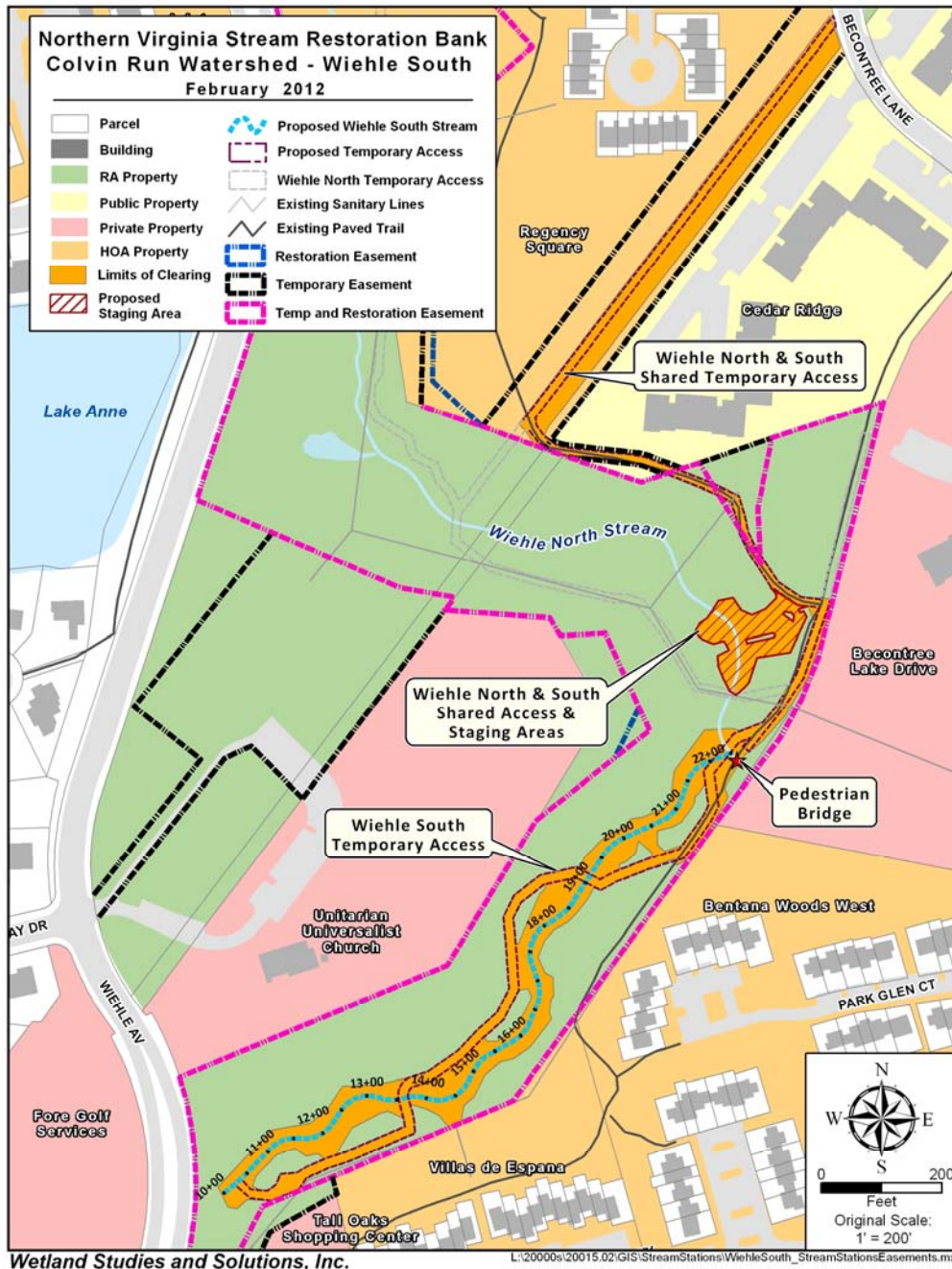
- Access from Becontree Lane through Gas Easement and paved trail
- Staging Area shared with Wiehle South Stream Project
- Access crosses stream twice to limit tree removal

Channel Length & Dimensions:

- Bankfull Width = 22'
- Bankfull Depth = 1.7'
- Restored Length = 1,238'



Wiehle South – Easements

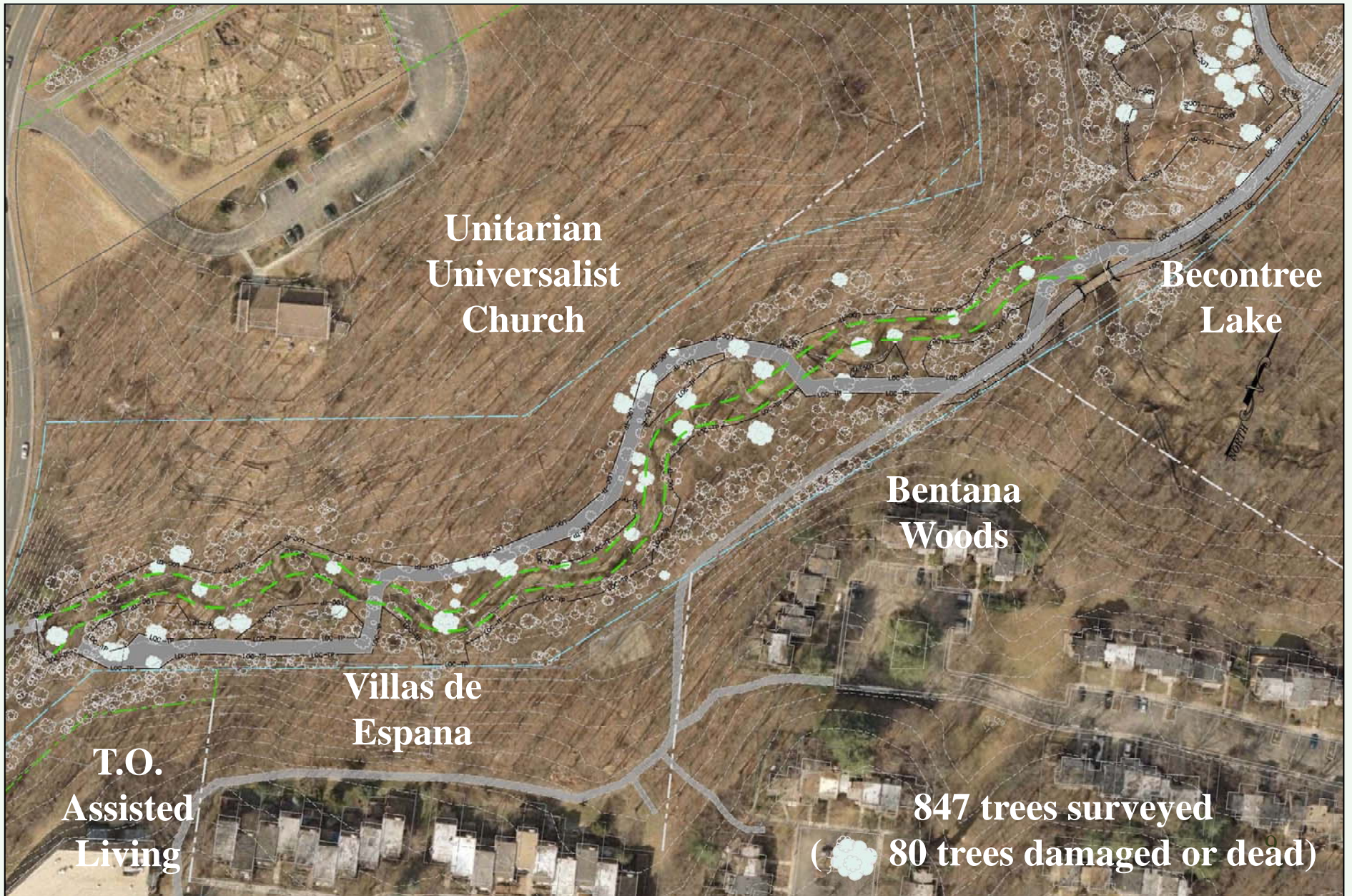


1. Shared access and staging with Wiehle North Restoration Project (reduces land disturbance and tree removal)
2. Easements for access
 - Recorded: Gas line / Regency Square Cluster
 - *Pending*: Paved trail from gas easement (Cedar Ridge)
3. Easements for staging and proposed stream restoration
 - Recorded: Reston Association property only

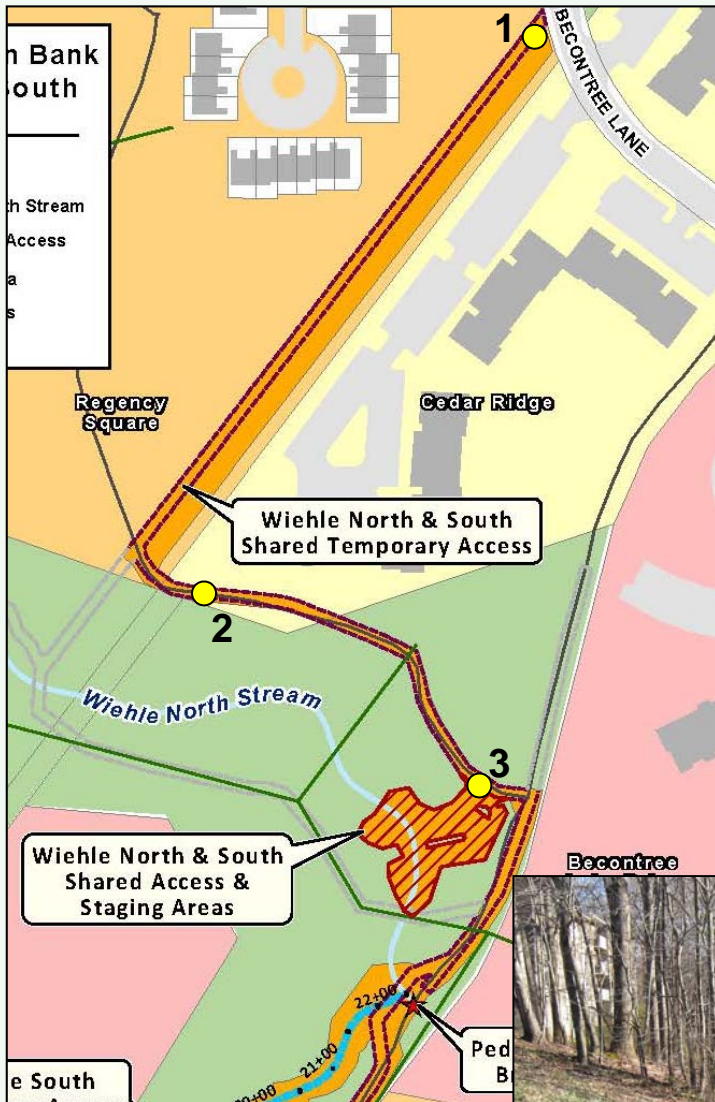


F0 Tornado Damage (April 2011)

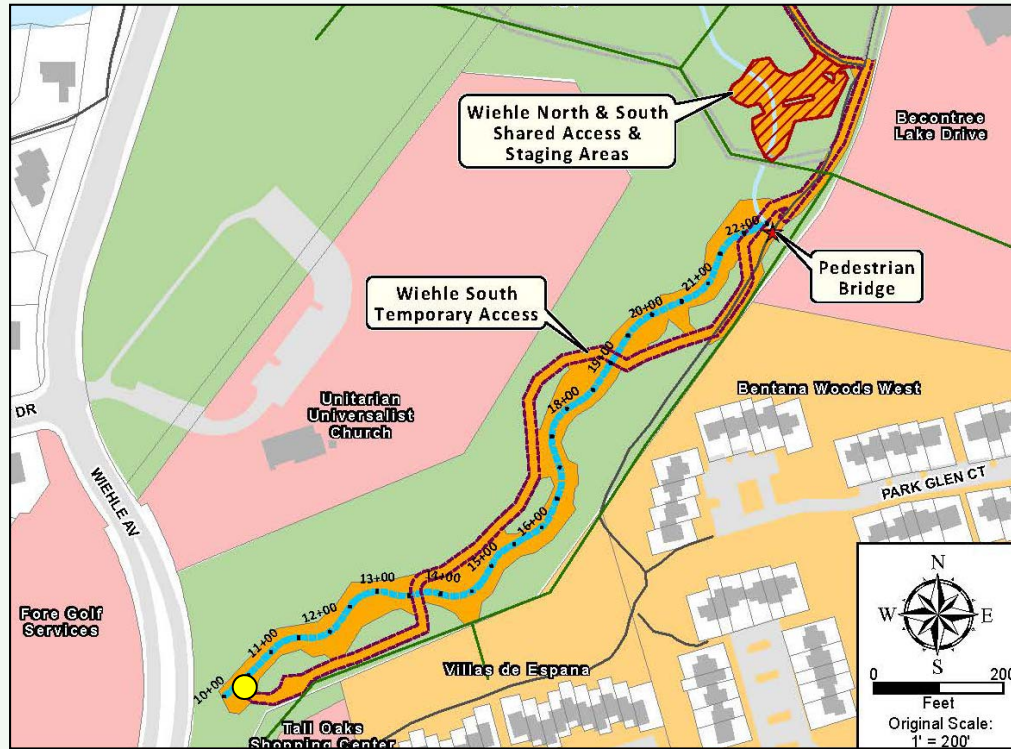
Wiehle South – Tree Survey



Wiehle South – Access & Staging



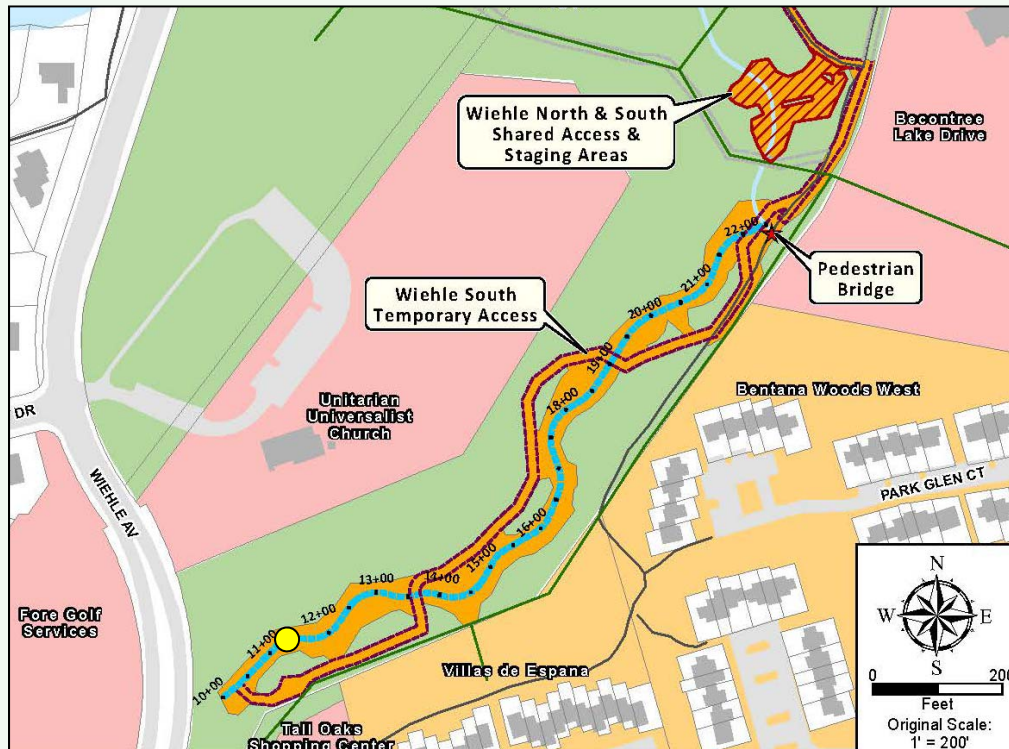
Wiehle South – Existing Conditions



- All trees are down in the small island immediately downstream of the culvert.
- Large drop at concrete trickle ditch.



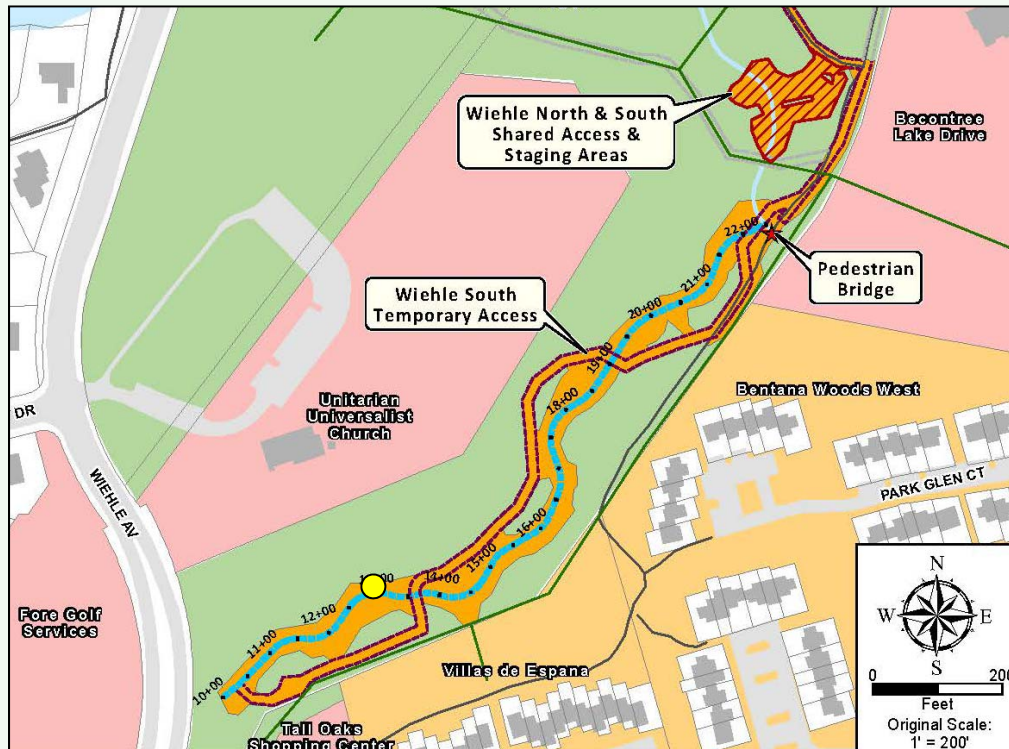
Wiehle South – Existing Conditions



- Vertical banks typical throughout reach.
- Eroded bank at meander – debris jam accumulated since tornado damage.



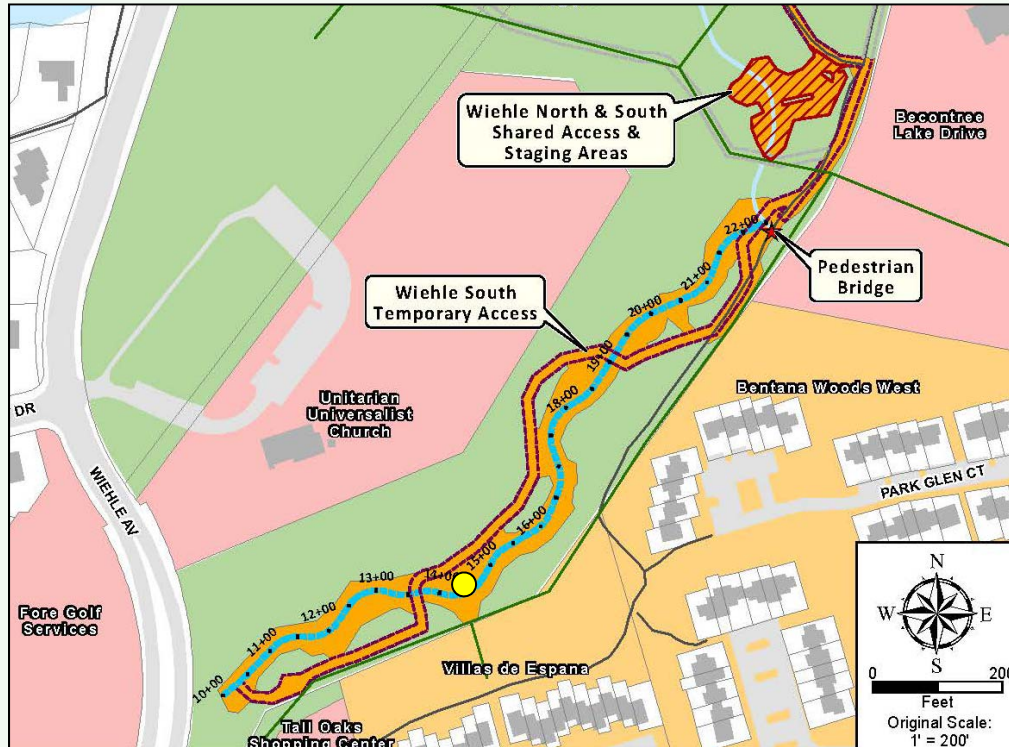
Wiehle South – Existing Conditions



- Very tight meander and another tall, eroded bank.



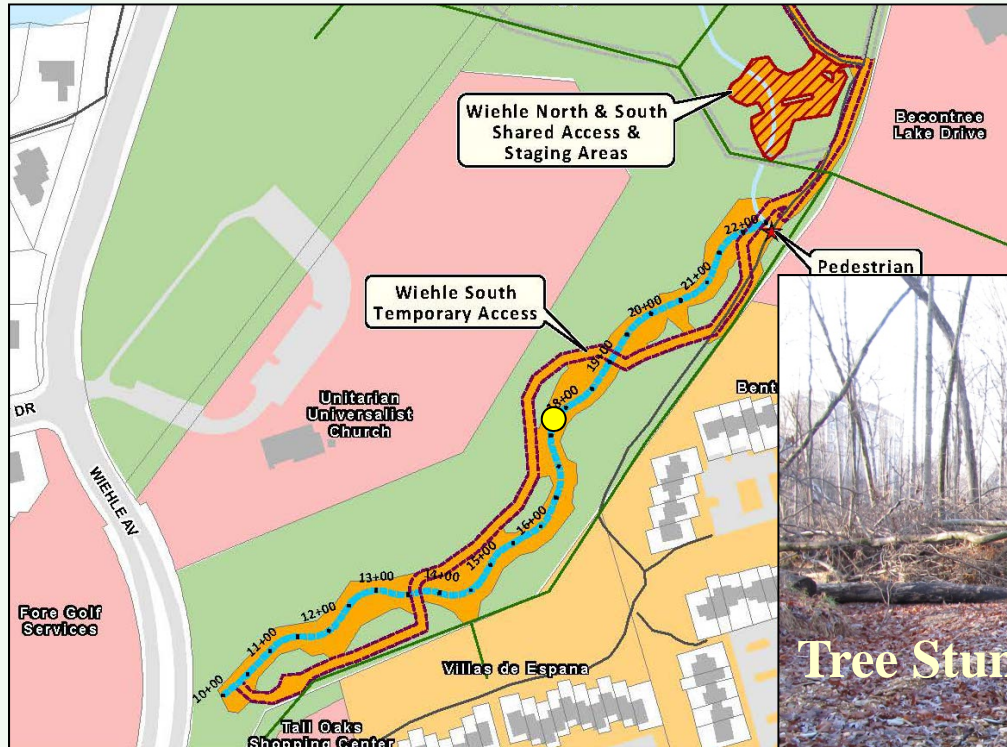
Wiehle South – Existing Conditions



- Tree fall (left bank) at disconnected culvert outfall on the right bank.

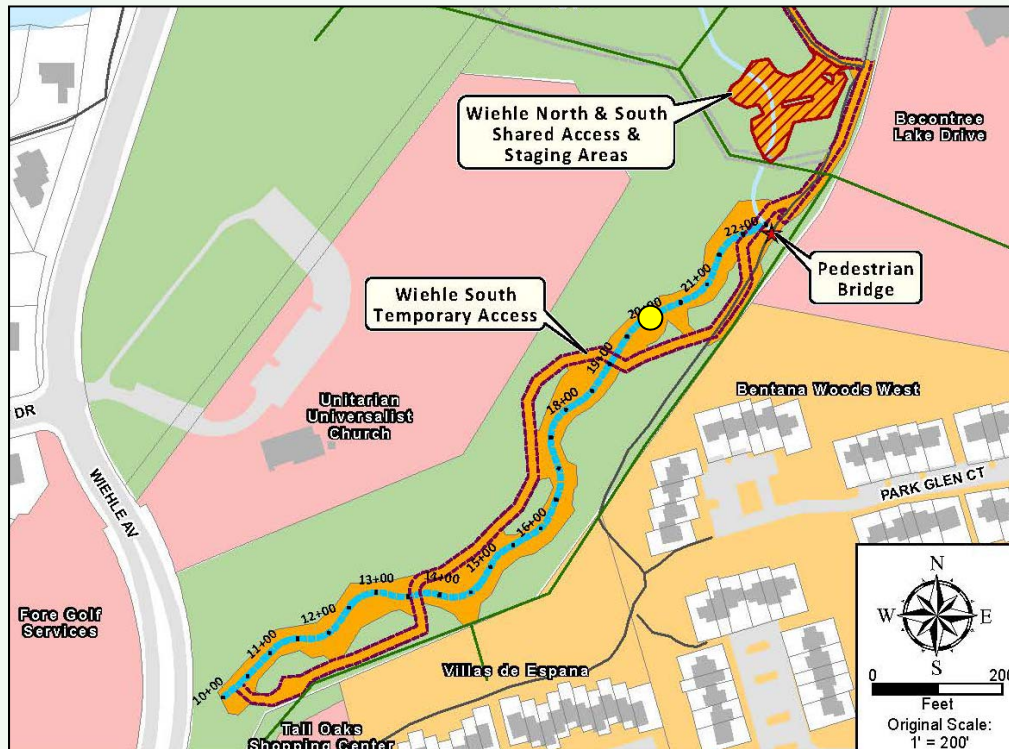


Wiehle South – Existing Conditions



- 10' eroded bank
- Channel shifting & widening

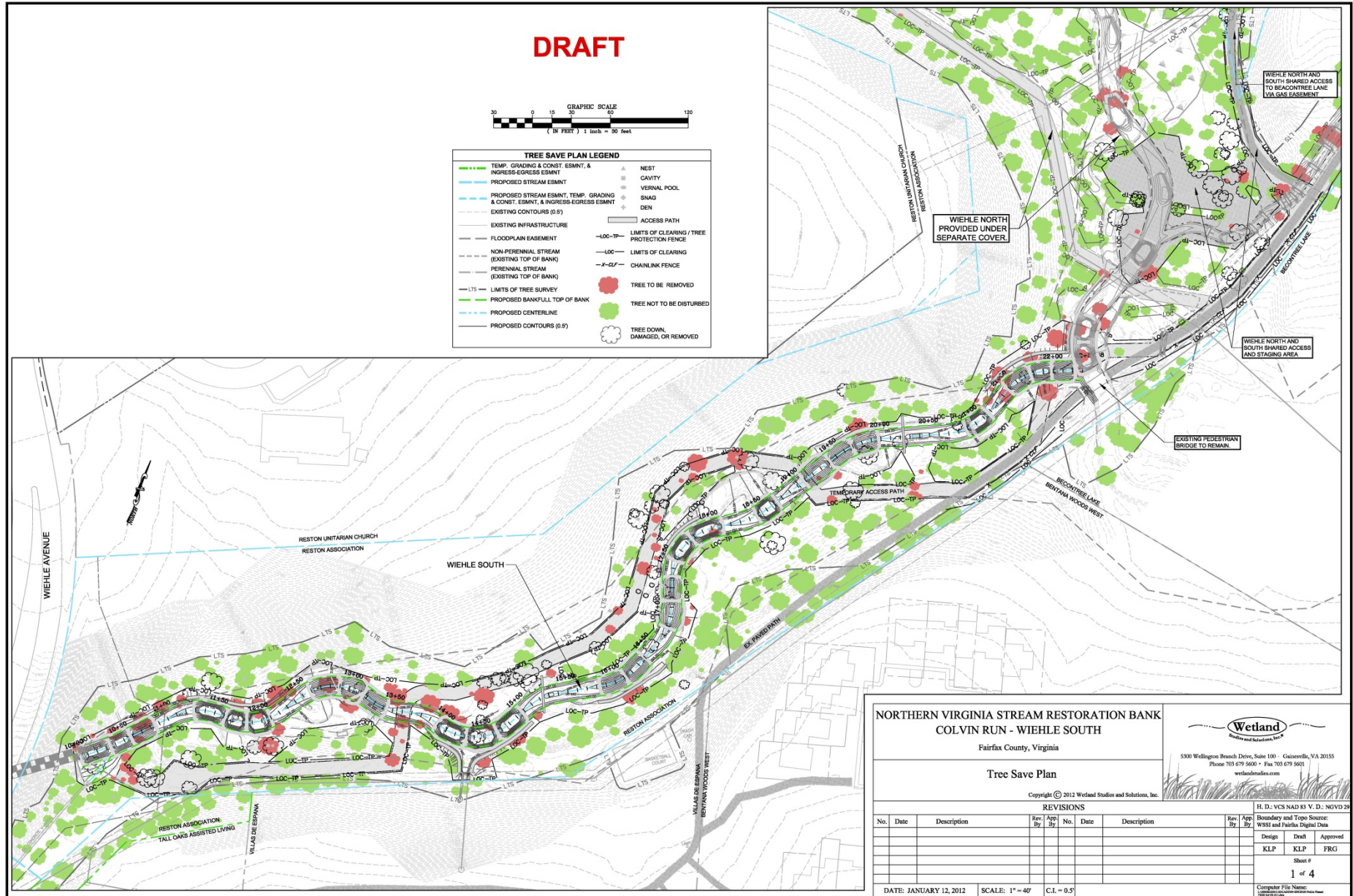
Wiehle South – Existing Conditions



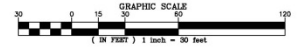
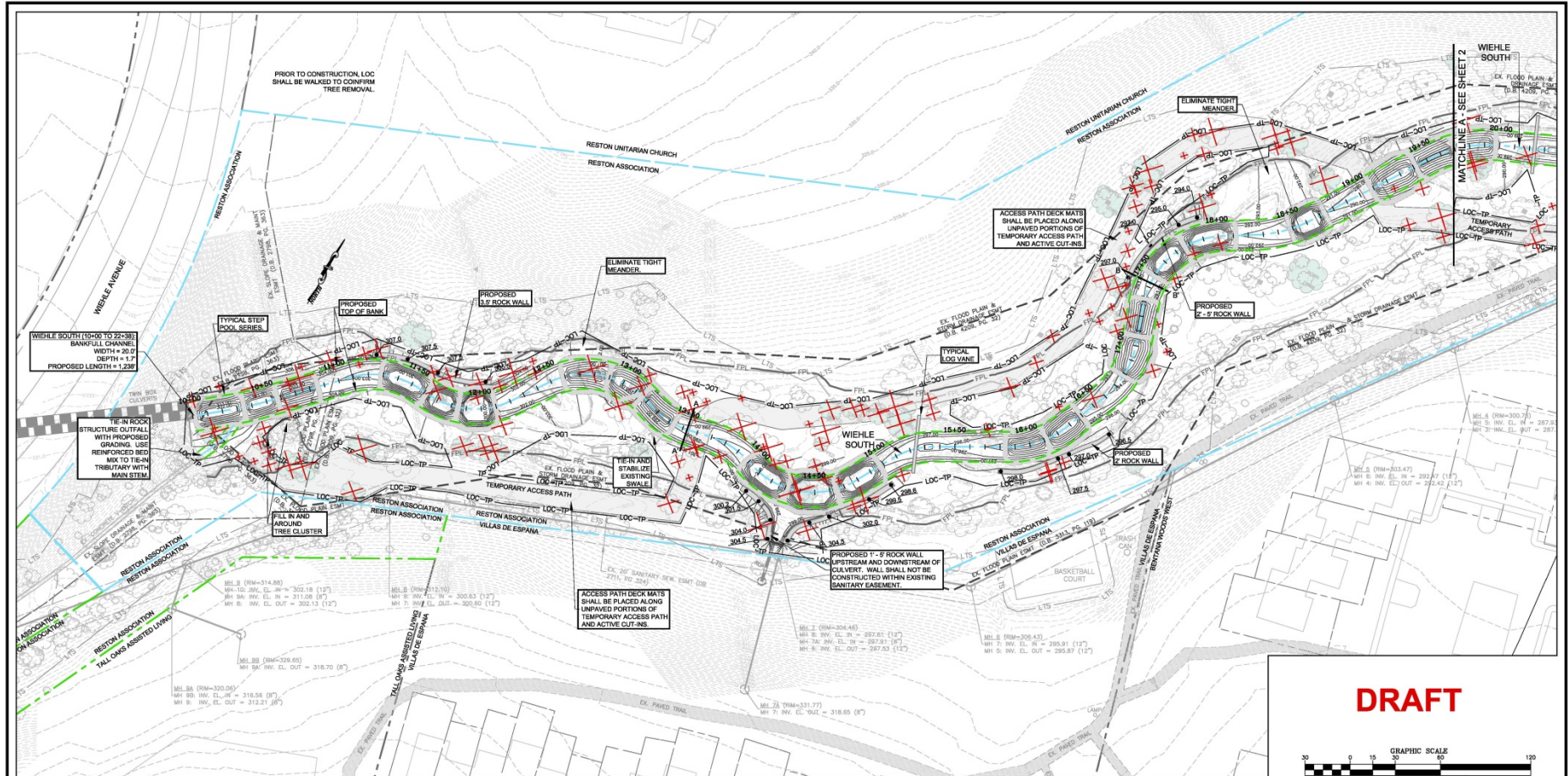
- Abrupt tie-in with Wiehle North at metal bridge.
- Bridge will not be replaced.



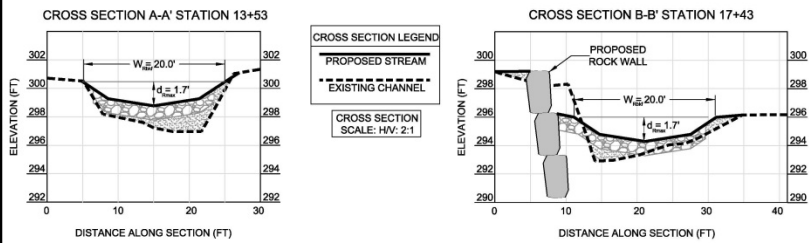
Wiehle South – Preliminary Plan



Wiehle South – Preliminary Plan



TYPICAL PROPOSED RIFFLE CROSS SECTIONS



PRELIMINARY PLAN LEGEND

--- TEMP. GRADING & CONST. ESMNT. & INGRESS-EGRESS ESMNT	▲ NEST
--- PROPOSED STREAM ESMNT	■ CAVITY
--- PROPOSED STREAM ESMNT, TEMP. GRADING & CONST. ESMNT. & INGRESS-EGRESS ESMNT	■ VERNAL POOL
--- EXISTING CONTOURS (0.5)	■ SMAG
--- EXISTING INFRASTRUCTURE	--- DEN
--- FLOODPLAIN EASEMENT	--- ACCESS PATH
--- NON-PERENNIAL STREAM (EXISTING TOP OF BANK)	--- EXISTING 100-YR FLOOD ELEVATION
--- PERENNIAL STREAM (EXISTING TOP OF BANK)	--- PROPOSED 100-YR FLOOD ELEVATION
--- LTS	--- LIMITS OF CLEARING / TREE PROTECTION FENCE
--- LIMITS OF TREE SURVEY	--- LOC
--- PROPOSED BANKFULL TOP OF BANK	--- LIMITS OF CLEARING
--- PROPOSED CENTERLINE	--- CHAINLINK FENCE
--- PROPOSED CONTOURS (0.5)	⊗ TREES TO BE REMOVED
⊗ TREES DOWN, DAMAGED, OR REMOVED	⊗ TREES PROPOSED FOR REMOVAL (SEE INVENTORY WIEHLE NORTH STREAM PLAN - PROVIDED UNDER SEPARATE COVER)

NORTHERN VIRGINIA STREAM RESTORATION BANK
COLVIN RUN - WIEHLE SOUTH

Fairfax County, Virginia

Preliminary Plan

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REVISIONS

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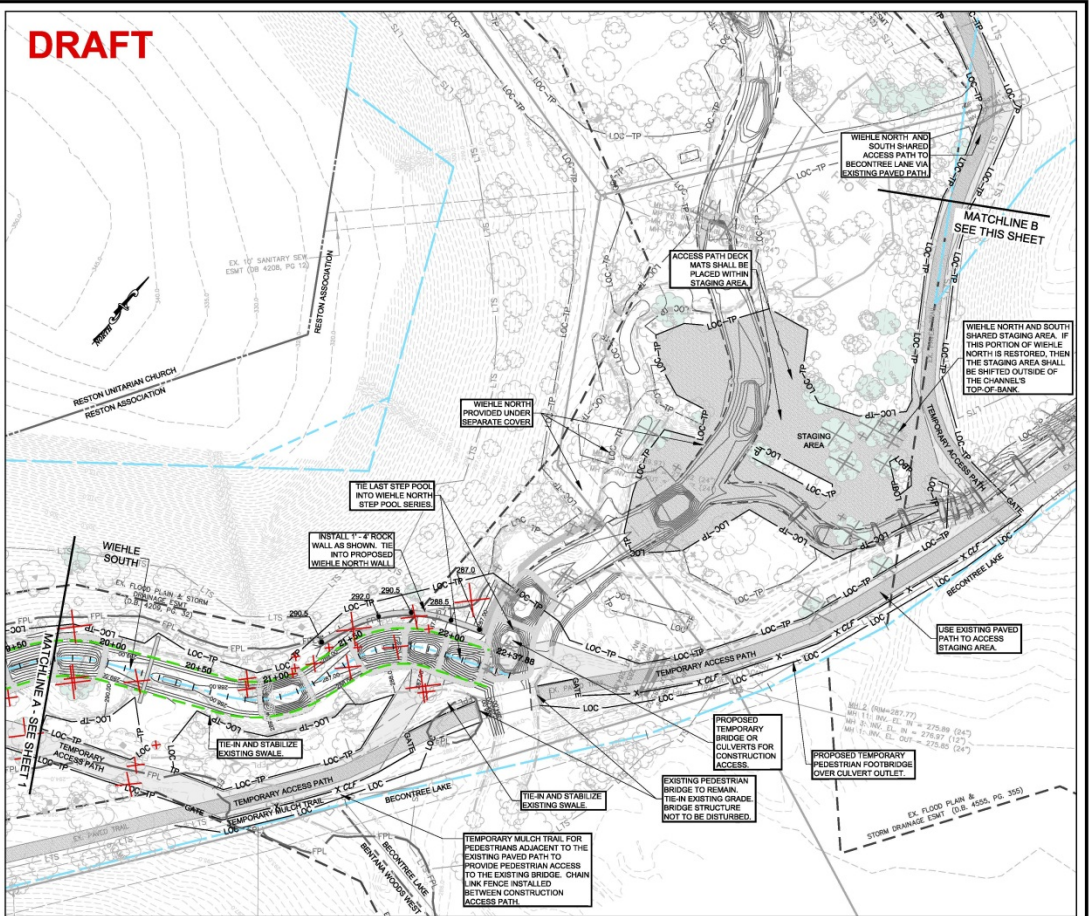
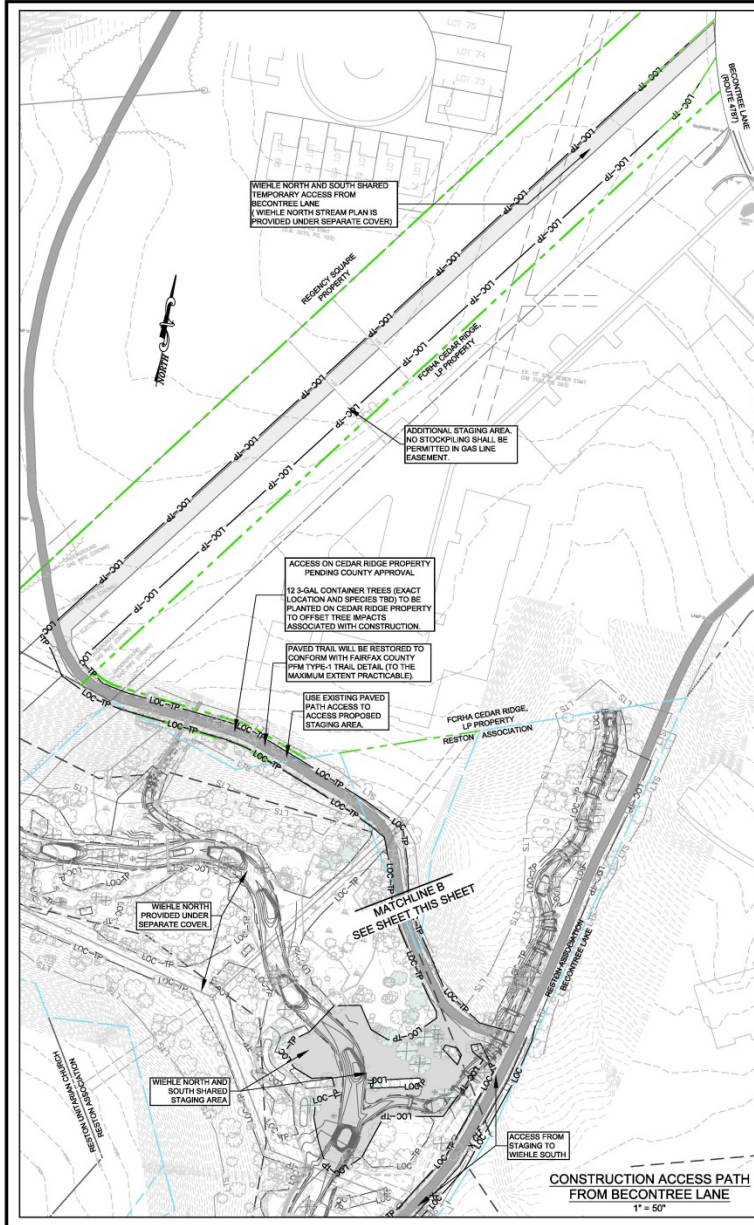
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DATE: JANUARY 12, 2012 SCALE: 1" = 30' C.I. = 0.5'

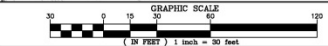
Wiehle South – Preliminary Plan



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PRELIMINARY PLAN LEGEND

TEMP. GRADING & CONST. ESMNT. & INGRESS-EGRESS ESMNT.	NEST
PROPOSED STREAM ESMNT.	CAVITY
PROPOSED STREAM ESMNT. TEMP. GRADING & CONST. ESMNT. & INGRESS-EGRESS ESMNT.	VERNAL POOL
EXISTING CONTOURS (0.5')	SNAG
EXISTING INFRASTRUCTURE	DEN
FLOODPLAIN EASEMENT	ACCESS PATH
NON-PERENNIAL STREAM (EXISTING TOP OF BANK)	EXISTING 100-YR FLOOD ELEVATION
PERENNIAL STREAM (EXISTING TOP OF BANK)	PROPOSED 100-YR FLOOD ELEVATION
LTS	LIMITS OF CLEARING / TREE PROTECTION FENCE
LIMITS OF TREE SURVEY	-LOC-TP
PROPOSED BANKFULL TOP OF BANK	-LOC-
PROPOSED CENTERLINE	-X-CL-
PROPOSED CONTOURS (0.5')	CHAINLINK FENCE
TREES DOWN, DAMAGED, OR REMOVED	TREES TO BE REMOVED
	TREES PROPOSED FOR REMOVAL (SEE INVERTS)
	WIEHLE NORTH STREAM PLAN - PROVIDED UNDER SEPARATE COVER



NORTHERN VIRGINIA STREAM RESTORATION BANK
COLVIN RUN - WIEHLE SOUTH
 Fairfax County, Virginia

Preliminary Plan

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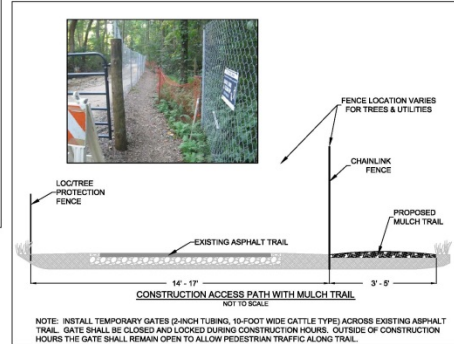
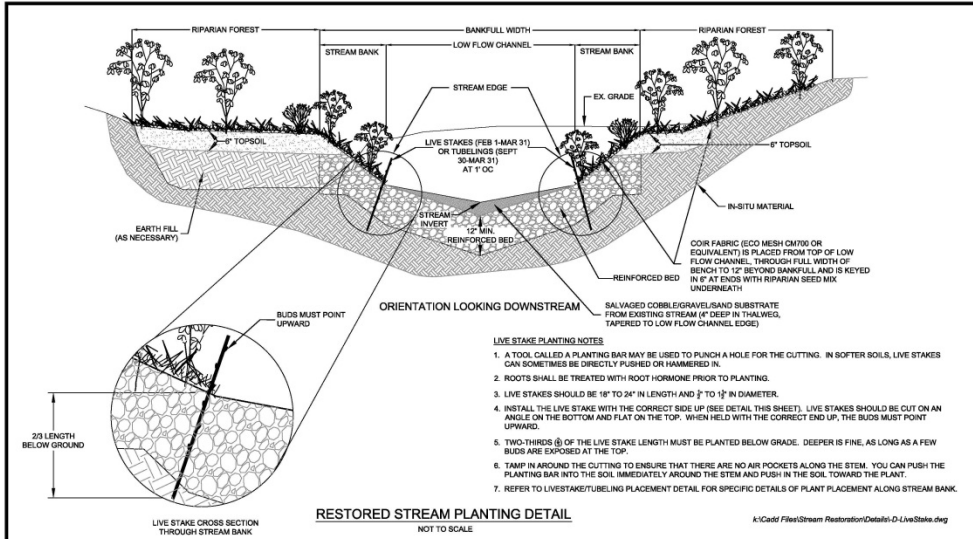
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Wiehle South - Preliminary Plan



PLANTING SCHEDULE					
CONTAINER PLANTING TIME	SPECIES GROUP#1	SPECIES#	INDICATOR STATUS	PLANT SPACING	CONTAINER SIZE, RATE, AND QUANTITY PLANTS PER ACRE
RIPARIAN FOREST	TREE LAYER	QUERCUS ALBA (WHITE OAK)	FACU	SEE NOTE #1	ONE GALLON
		QUERCUS BICOLOR (SWAMP WHITE OAK)	FACU	SEE NOTE #1	TUBELINGS
		QUERCUS PAUCIFLORA (PIN OAK)	FACU	SEE NOTE #1	TUBELINGS
		QUERCUS PHAEOLUS (YELLOW OAK)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)
		QUERCUS RUBRA (NORTHERN RED OAK)	FACU	SEE NOTE #1	TUBELINGS
	QUERCUS NIGRA (BLACK OAK)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)	
	QUERCUS PRINCEPI (PRINCE OAK)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)	
	QUERCUS SPICATA (BLACK OAK)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)	
	PLATANUS OCCIDENTALIS (AMERICAN SYCAMORE)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)	
	FRAXINUS AMERICANA (AMERICAN HICKORY)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)	
SHRUB LAYER	PRUNELLA SP. (BLACKBERRY)	FACU	SEE NOTE #1	SEE NOTE #1	
	CORNUS FLORIDA (DOGWOOD)	FACU	SEE NOTE #1	SEE NOTE #1	
	CORNUS AMERICANA (AMERICAN CORNUS)	FACU	SEE NOTE #1	SEE NOTE #1	
	VIBURNUM BENTONIANUM (SOUTHERN HAWTHORN)	FACU	SEE NOTE #1	SEE NOTE #1	
	VIBURNUM PRUNIFOLIUM (BLACK HAW)	FACU	SEE NOTE #1	SEE NOTE #1	
RIPARIAN FOREST QUANTITY SUBTOTALS					
STREAM BANK	TREE AND SHRUB LAYER	QUERCUS ALBA (WHITE OAK)	FACU	SEE NOTE #1	ONE GALLON
		QUERCUS BICOLOR (SWAMP WHITE OAK)	FACU	SEE NOTE #1	TUBELINGS
		QUERCUS PAUCIFLORA (PIN OAK)	FACU	SEE NOTE #1	TUBELINGS
		QUERCUS PHAEOLUS (YELLOW OAK)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)
		QUERCUS RUBRA (NORTHERN RED OAK)	FACU	SEE NOTE #1	TUBELINGS
STREAM BANK QUANTITY SUBTOTALS					
STREAM EDGE	TREE AND SHRUB LAYER	QUERCUS ALBA (WHITE OAK)	FACU	SEE NOTE #1	ONE GALLON
		QUERCUS BICOLOR (SWAMP WHITE OAK)	FACU	SEE NOTE #1	TUBELINGS
		QUERCUS PAUCIFLORA (PIN OAK)	FACU	SEE NOTE #1	TUBELINGS
		QUERCUS PHAEOLUS (YELLOW OAK)	FACU	SEE NOTE #1	MIX AT 1:1 RATIO (SEE NOTE #1)
		QUERCUS RUBRA (NORTHERN RED OAK)	FACU	SEE NOTE #1	TUBELINGS
STREAM EDGE QUANTITY SUBTOTALS					

SEEDING SCHEDULE			
SEED PLANTING ZONE	SPECIES GROUP#1	SPECIES#	INDICATOR SEEDING RATE PER ACRE
RIPARIAN BUFFER SEED MIX	7	QUERCUS ALBA (WHITE OAK)	NI 45.00
		BETULA PULCHRA (PITCH BEECH)	UPL 25.00
		CORYLUS CORYCAEA (BROWN CHESTNUT)	FACU 35.00
		CORYLUS QUERCIFOLIA (BURROCK HAZEL)	NI 35.00
		CORYLUS VULGARIS (COMMON HAZEL)	UPL 35.00
	8	CORYLUS COCAONUTS (SHELL)	FACU 35.00
		JUNCUS EFFRUSUS (SART GRASS)	FACU 35.00
		JUNCUS TRIGLUS (TRIGLASS)	FACU 35.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 10.00
		PANICUM CLANDESTINUM (SWEET TOOTH GRASS)	FACU 10.00
RIPARIAN BUFFER SEED MIX	9	PEROGYRUS PEROGYRUS (WILD RICE)	FACU 10.00
		PANICUM CLANDESTINUM (SWEET TOOTH GRASS)	FACU 10.00
		PANICUM SCHOTTII (SPOON GRASS)	FACU 10.00
		ANDROPOGON TETRACHAETUS (SWEET GUM)	NI 3.00
		ASTER ROTUNDIFOLIUS (NEW ENGLAND ASTER)	FACU 3.00
	10	ASTER ROTUNDIFOLIUS (NEW ENGLAND ASTER)	UPL 3.00
		ASTER PRINCEPS (SUN DIAL ASTER)	FACU 3.00
		LIQUIRITIA SYRIACA (SWEET WOOD)	FACU 3.00
		SOLIDAGO JUNCEA (EARLY GOLDENROD)	UPL 3.00
		TOPIRISIA PERFORATA (BONE SET)	FACU 3.00
RIPARIAN BUFFER SEED MIX	11	EUPHATIA SPERMOPHYLLA (SWEET LEAF GOLDENROD)	FACU 3.00
		SOLIDAGO CANADENSIS (SANDWICH GOLDENROD)	FACU 3.00
		SOLIDAGO SPECIOSA (SHOW GOLDENROD)	UPL 3.00
		VERONICA ADVERSARIENSIS (NEW YORK SPEEDWELL)	FACU 3.00
		ZOSTERIS ALBA (SWEET WOOD)	FACU 3.00
	12	PEROGYRUS PEROGYRUS (WILD RICE)	UPL 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		HELIOPSIS AUTUMNALIS (COMMON TIGERWEED)	FACU 3.00
		HELIOPSIS ANNUUS (SUNFLOWER)	FACU 3.00
		INDIGLIS BENSUENSIS (SENSITIVE FERN)	FACU 3.00
RIPARIAN BUFFER SEED MIX	13	PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
	14	CORYLUS COCAONUTS (SHELL)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	UPL 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
		PEROGYRUS PEROGYRUS (WILD RICE)	FACU 3.00
SEEDING TOTALS			

- PLANTING AND SEEDING NOTES:**
- IT IS EXPECTED AND PREFERRED THAT ALL SPECIES IN EACH OF THE SPECIES GROUPS ARE PLANTED. THE TOLERANCES LISTED IN THIS NOTE ARE INTENDED TO INCORPORATE FLEXIBILITY ACCORDING TO SPECIES AVAILABILITY. AT A MINIMUM, CONTRACTOR TO PROVIDE AT LEAST:
 - A 3 OF THE 5 SPECIES IN GROUP 1.
 - B 4 OF THE 8 SPECIES IN GROUP 2.
 - C ALL OF GROUP 3.
 - D 3 OF THE 7 SPECIES IN GROUP 4.
 - E 3 OF THE 5 SPECIES IN GROUP 5.
 - F 3 OF THE 4 SPECIES IN GROUP 6 (WITH SALIX NIGRA A REQUIRED SPECIES).
 - G ALL OF GROUP 7.
 - H 4 OF THE 5 SPECIES IN GROUP 8.
 - I 3 OF THE 4 SPECIES IN GROUP 9.
 - J 3 OF THE 7 SPECIES IN GROUP 10.
 - K 3 OF 7 IN GROUP 11.
 - L 3 OF 8 IN GROUP 12.
 - M 4 OF 8 IN GROUP 13.
 - N 3 OF 8 IN GROUP 14, AND 2 OF 8 IN GROUP 15.
 - SUBSTITUTIONS FOR SELECTED SPECIES BASED UPON AVAILABILITY SHALL BE REQUESTED IN WRITING TO ENGINEER DOCUMENTING THE LACK OF AVAILABILITY IF THE FLEXIBILITY INHERENT IN THE ABOVE SCHEDULE IS STILL NOT SUFFICIENT. ENGINEER IS UNDER NO OBLIGATION TO APPROVE SUBSTITUTIONS.
 - THE PLANTED TREES AND SHRUBS SHALL BE RANDOMLY SPACED AND SPECIES MIXED THROUGHOUT THE PLANTING AREAS.
 - CONTAINER RATES AND QUANTITIES SHOWN FOR ONE GALLON SIZE. FOR PURPOSES OF SUBSTITUTION, TWO TUBELINGS ARE THE EQUIVALENT OF ONE 1-GALLON CONTAINER PLANT IN THIS SCHEDULE. CONTRACTOR MAY PROVIDE A MIX OF CONTAINER AND TUBELING SIZES FOR EACH SPECIES REQUIREMENT, PROVIDED THE RATIO OF TUBELINGS TO CONTAINERS IS NOT LESS THAN 2:1. EXCEPTION - GROUP 6 (STREAM EDGE) SHALL BE PLANTED IN ACCORDANCE WITH NOTE #5.
 - GROUP 6 (STREAM EDGE) ZONE SHALL BE PLANTED WITH TUBELINGS, OR AS LIVESTAKES (SALIX NIGRA ONLY, AND ONLY BETWEEN FEBRUARY 1 AND MARCH 31). NO ONE GALLONS ARE TO BE USED FOR ANY OF THIS GROUP'S SPECIES.
 - STREAM BANK AND STREAM EDGE ZONES SHALL BE PLANTED SUCH THAT THE COMBINED MIX OF SPECIES IS SPACED APPROX. 3' O.C. AND 1' O.C. RESPECTIVELY. THESE ZONES SHALL NOT BE PLANTED SUCH THAT EACH INDIVIDUAL SPECIES IN THESE ZONES IS PLANTED AT THESE RATES, RESULTING IN TIGHTER SPACING.
 - ALL SEEDING RATES ARE EXPRESSED IN POUNDS OF PURE LIVE SEED (PLS).

NORTHERN VIRGINIA STREAM RESTORATION BANK
COLVIN RUN - WIEHLE SOUTH

Fairfax County, Virginia

Preliminary Plan

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REVISIONS

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DATE: JANUARY 12, 2012 SCALE: NTS C.I. = 0.5"

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Phone 703 679 5600 • Fax 703 679 5601
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Boundary and Topo Source: WSS1 and Fairfax Digital Data

Design Draft Approved

KLP KLP FRG

Sheet #

3 of 4

Computer File Name: [unclear]

Wiehle South's Tree Inventory

TREE INVENTORY SUMMARY COLVIN RUN - WIEHLE SOUTH					
DIAMETER	STATUS				
	TBR ¹			DND ²	TST ³
(INCHES)	(LIVE)	(DEAD / FALLEN)	(WIEHLE NORTH) ⁴		
4-5" (Sapling)	27	8	10	163	208
6-9" (Pole)	36	12	11	208	267
10-17" (Small)	16	16	8	164	204
18-29" (Medium)	17	12	8	114	151
30"+ (Large)	0	2	0	15	17
	96	50	37		
TOTAL	146		37	664	847

¹ TBR means to be removed. (183)

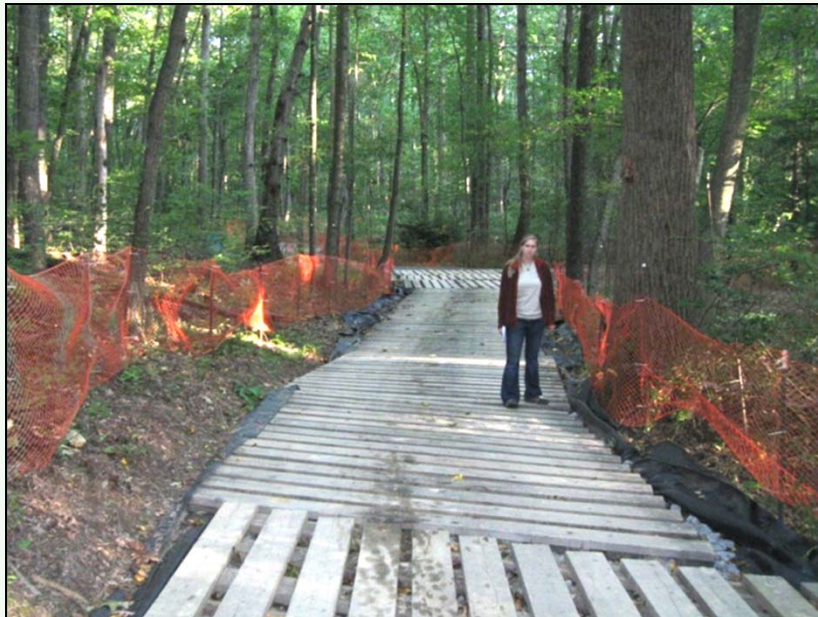
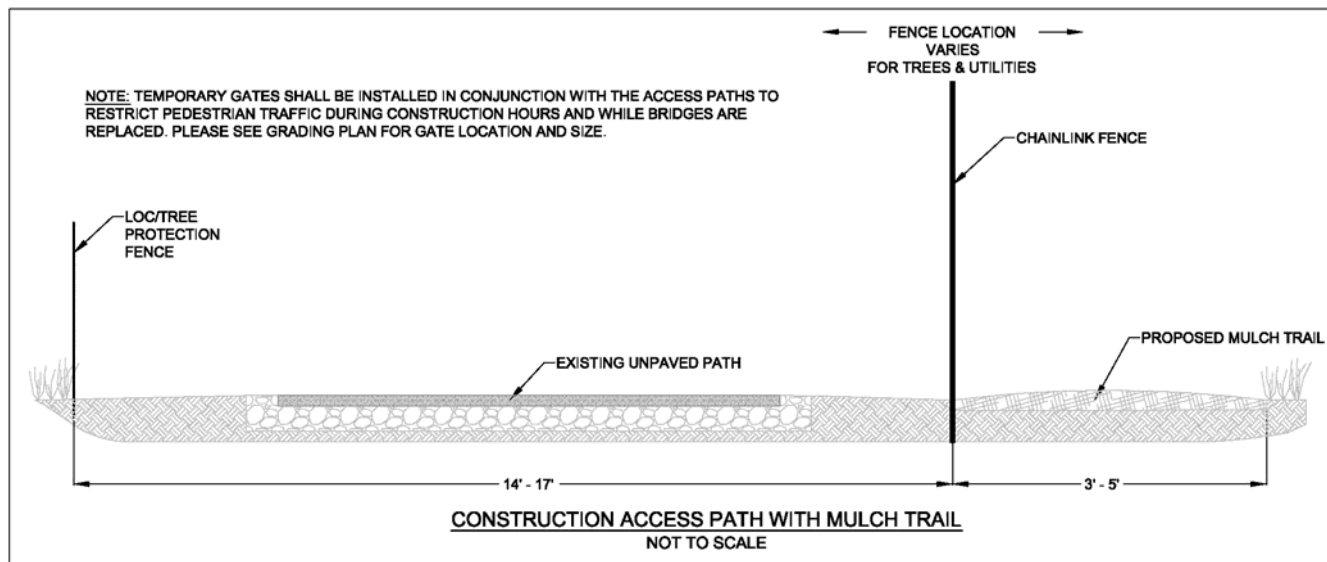
² DND means do not disturb.

³ TST means total surveyed trees.

⁴ Trees under TBR-WIEHLE NORTH were previously proposed for removal under the *Northern Virginia Stream Restoration Bank - Colvin Run Wiehle North Stream Restoration Plan* (provided under separate cover). These trees are included herein as the Wiehle South plan proposes to use the Wiehle North lower staging area (see plan for details). 11 of the 37 trees are either dead or fallen.

Compiled 01/10/2012

Access Road Deck Mat

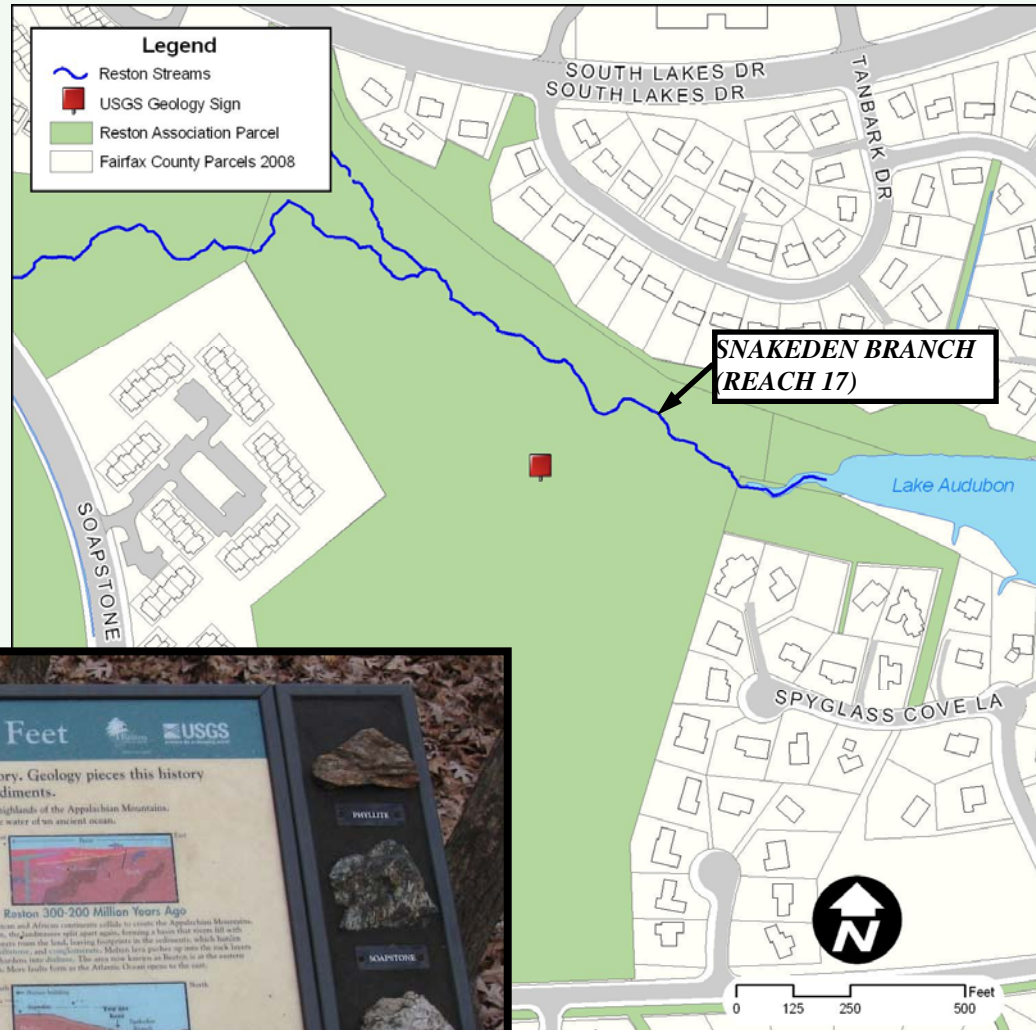


Questions



Diabase Slides

Native Rock



The Story Beneath Your Feet

You are standing on a half billion years of Earth's history. Geology pieces this history together using evidence found in exposed rocks and sediments.

Reston is located in the Piedmont geologic province: the broad, rolling area east of the highlands of the Appalachian Mountains. Creation of this province began over 500 million years ago when this area was under the water of an ancient ocean.

Reston 500 Million Years Ago

Sand and mud are deposited as sediments in basins on an ancient ocean floor. Much of the ocean floor, called basins, moves over the sediments along faults. Pieces of basalt are deposited in the sand and mud.

Reston 300-200 Million Years Ago

The North American and African continents collide to create the Appalachian Mountains. Sediments from the land, having fragments in the sediments, which basins into conglomerates, silstones, and conglomerates. Much has pushed up into the rock basins of the basin and basins into diabase. The area now known as Reston is at the eastern edge of this basin. More faults form at the Atlantic Ocean (open to the sea).

Reston 450 Million Years Ago

The mud, sand and basalt are deeply buried. Increased pressure and temperature causes metamorphosis to occur. Mud changes into phyllite, sand changes into quartzite, and basalt changes into gneiss and schists. During this metamorphic process, fluids are released that form veins of quartz within the rock.

Here and Now

A warm, moist climate has caused the phyllite bedrock to weather into a thick, clay-rich sponge soil called regurite. Regurite lies under the organic topsoil of the forest floor. Vein and silt are deposited along Snakeden Branch streams. Sometimes, after heavy rain, phyllite bedrock is exposed in the streambed.

Labels on the left: SANDSTONE, CONGLOMERATE, DIABASE. Labels on the right: PHYLLITE, SOAPSTONE, QUARTZ.

Diabase Rock

January 19, 2009

Via U.S. Mail and Email: RNArch@comcast.net

Mr. Richard Newlon, Chairman
Reston Design Review Board
Reston Association
1930 Isaac Newton Square
Reston, Virginia 20190

Dear Mr. Newlon,

I am a local geology professor, familiar with the Reston area via teaching, fieldtrips, etc. I have been asked by WSSI for my perspective on various Northern VA geological issues over the past few years. It is my present understanding that some Reston citizens are opposed to the use of diabase rocks within the Reston stream restoration project – suggesting that it is an "invasive and non-native rock." This is hard to reconcile with the local geology. The Sugarland Run area sits within a region known for Mesozoic diabase dikes. Drake and Lee (1989) clearly indicate that Jurassic diabase (symbolized as Jd) is found locally. Specifically, diabase is found in the area under consideration due north of the United States Geological Survey (USGS) Reston Center between the Dulles Expressway and Baron Cameron, and bounded on the east by the Town Center Parkway and on the west by Route 7100 (Fairfax County Parkway). I would bring your attention to the following reference in particular: Drake, A.A., Jr. and Lee, K.Y., 1989, Geologic map of the Vienna quadrangle, Fairfax County, Virginia, and Montgomery County, Maryland: USGS, Geologic Quadrangle Map GQ-1670, scale 1:24000. This map is quite clear, and is viewable online via the National Geologic Map Database. Portions of the Reston area are sitting right on the strongly to weakly thermally metamorphosed Triassic sedimentary rocks (known commercially as graystone, or more scientifically as hornfels), and very near the Jurassic diabase (Jd) that Wetland Studies and Solutions, Inc. (WSSI) proposes to use for stream stabilization. Diabase is surely outcropping in the Sugarland Run vicinity. It is in no way "invasive and non-native". The Quaternary alluvium characteristic of the modern streams must be a mix of the above, plus some particularly durable quartzite pebbles. Nevertheless, diabase is very much associated with this area, and entirely appropriate for use if it suits the physical properties needed for the Reston stream restoration project.

Sincerely,

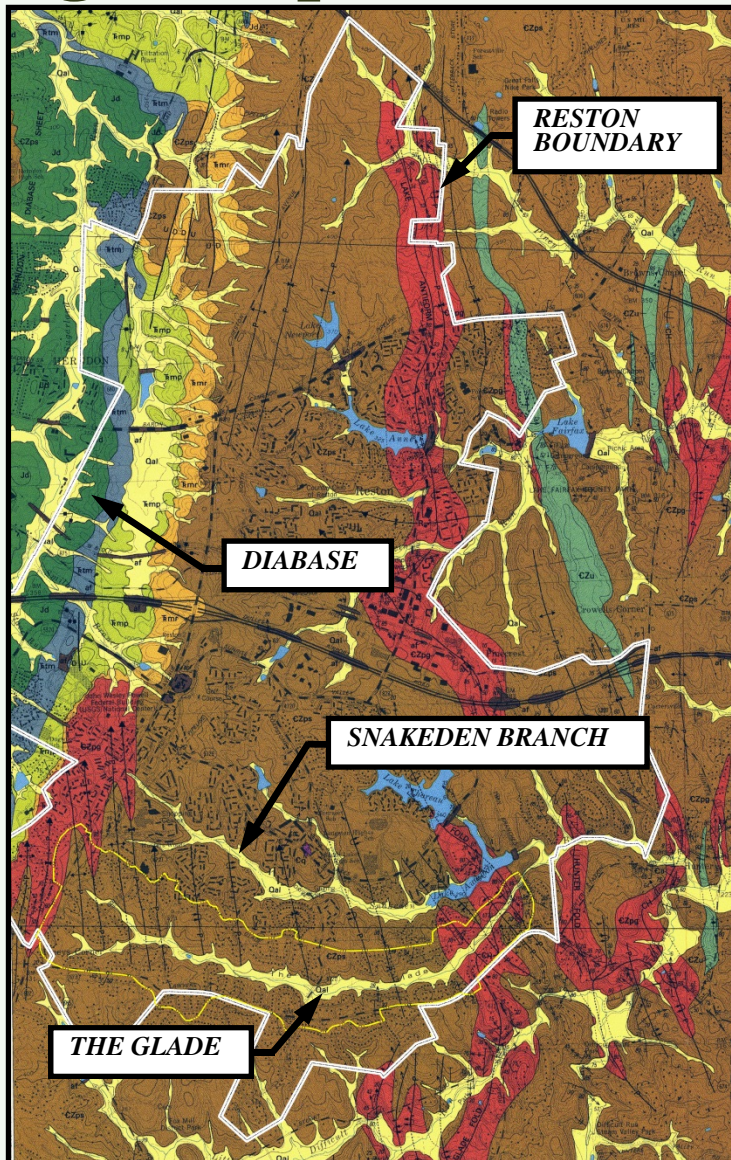


Dr. Kenneth A. Rasmussen, Ph.D.
Annandale, Virginia 22003

cc: Mike Rolband, WSSI Via Email: mrolband@wetlandstudies.com
Amy E. Tobias, WSSI Via Email: atobias@wetlandstudies.com

“Diabase is surely outcropping in the Sugarland Run vicinity. It is in no way ‘invasive and non-native’.”
-Kenneth Rasmussen, Ph.D.

Geologic Map



DESCRIPTION OF MAP UNITS	
SURFICIAL DEPOSITS	
af	Artificial fill —Various sandy and gravelly materials; occupies low-lying areas filled for construction of highways, bridges, and railroad beds
Qal	Alluvium (Holocene) —Sand, gravel, silt, and clay underlying sinuous flood plains along most streams; clastic sediments are in fairly well-bedded, well- to poorly sorted, graded fluvial, cyclic deposits with gravel at base of upward fining sequences; as much as 7 m (23 ft thick). Commonly micaceous silts and sands with quartz and crystalline rock pebbles, cobbles, and boulders in streams draining Piedmont terrain
Qt	Terrace deposits (Holocene (?)) —Gravel, sand, silt, and clay deposits along Potomac River
MESOZOIC ROCKS	
Jd	Diabase (Early Jurassic) —Medium- to dark-gray; largely equigranular, locally microcrystalline to fine-crystalline near the chilled margins, but coarse-crystalline in central parts of larger bodies. Consists of grayish-green to black crystals of augite and pigeonite and scattered granules or aggregates of magnetite and ilmenite which fill interstices between euhedral and subhedral light-gray plagioclase laths. Forms the Herndon sheet and a dike in the northwestern corner of the quadrangle
Ttm	Thermally metamorphosed rocks (Late Triassic) —Gray to dark-gray, medium-bluish-gray, and olive-black hornfels and granofels which are metamorphosed sandstone of the Poolesville Member of the Manassas Sandstone. Cordierite hornfels and tourmaline granofels are the major rock types in the metamorphic aureole beneath the Herndon diabase sheet
Tmp	Poolesville Member of Manassas Sandstone (Late Triassic) (Lee and Froelich, 1989) —Dusky-red to grayish-red to very dark-red, very fine- to medium-grained feldspathic, micaceous, ferruginous sandstone. Thin- to very thick-bedded and massive, and planar crossbedded. Locally it contains lenses and beds of light-gray to gray, medium- to very coarse-grained, feldspathic sandstone and quartzite pebble conglomerate. Thickness is variable but may exceed 1 km (3,281 ft) in places
Tmr	Reston Member of Manassas Sandstone (Late Triassic) (Lee and Froelich, 1989) —Predominantly pebble to boulder conglomerate containing subangular clasts of schists, quartz, and quartzite in a matrix of fine- to coarse-grained arkosic sand or clayey silt. Contains some beds of micaceous, calcareous, clayey, feldspathic siltstone, fine- to medium-grained crossbedded sandstone; and pebbly, feldspathic, coarse-grained sandstone. In this quadrangle the unit ranges from 3 m (10 ft) to 30 m (98.5 ft) in thickness
CZps	Peters Creek Schist (Early Cambrian and (or) Late Proterozoic) (Drake and Morgan, 1981) —Fine- to coarse-grained, lustrous, greenish-gray to gray, reddish-weathering, quartz-rich schist, and lesser mica gneiss. Fine- to medium-grained, light- to medium-gray, yellowish- to reddish-brown-weathering, well-bedded metagraywacke and semi-pelitic schist (CZpg). Both of these rock types contains abundant interbeds of the other rock type, as well as a few layers of calc-silicate rock. Much of the graywacke is graded, but some beds have a pseudolamination which is actually pressure-solution cleavage. Contains large mappable blocks of serpentinite and associated chlorite-tremolite-epidote schist, talc-chlorite schist, and talc-chlorite-actinolite schist (CZu). The unit's thickness is not known, as its base is marked by the Plummers Island thrust fault (Drake, 1985a). It is overlain on the west by Triassic rocks
CZpg	
CZu	

Source: USGS National Geologic Map Database
 Title: "Geologic Map of the Vienna Quadrangle, Fairfax County, Virginia, and Montgomery County, Maryland"

Map of Local Quarries

