

Alignment Considerations and Environmental
Impact Report for the Takoma Park Water and
Sewer Main Replacement

WSSC Contract No. BRCRLR5355C12

June 10, 2016



Project Scope

The Takoma Park Water and Sewer Main Replacement Project is a partnership between WSSC and the City of Takoma Park. The project includes replacing/relocating approximately 2000 feet of small diameter water main and 2000 feet of small diameter sewer main in the 6300, 6400, 6600, and 6700 blocks of Eastern Avenue.

Water mains in the project vicinity were installed in the 1920s through 1940s, and they are past their life expectancy. WSSC has identified crushed sewer pipe in the 6700 block of Eastern Avenue, through CCTV footage. Sections of sewer pipe in the 6600 block of Eastern Avenue at 1st Avenue and at 2nd Avenue have been identified as high priority for replacement under the consent decree.

The purpose of this rehabilitation project is to improve water and sewer service and fire protection. The project goals are:

- To replace failing water and sewer mains that were installed in the 1930s or earlier;
- To replace individual water service connections;
- To replace individual sewer service connections up to the property line, or entirely for new sewer service connections;
- To assist and support customers to achieve the recommended alignment solution for their home service

WSSC has contracted The Wilson T. Ballard Company as the design consultant for this project.

Previously Considered Alignment Solutions

The design team has explored various alignment solutions since the inception of the project in 2010. The alignment selection process has been guided by cooperation and involvement of the homeowners being served by the rehabilitation project.

Southern Section: 6313 through 6411 Eastern Avenue

The design team proposes water main and sewer main relocation to the Public Right-of-Way in front of the homes. Using the Public Right-of-Way avoids the need for easement acquisition. This sewer alignment is possible without grinder pumps, due to the flat topography of the properties in these blocks.

Northern Section: 6601 and 6761 Eastern Avenue

Water and Sewer Replacement Alignment in Backyard

This first alignment solution included replacement of the water and sewer mains in their existing backyard location. The alignment required that affected homeowners grant a 35-foot easement to WSSC. After homeowners initially rejected granting the 35-foot easement, WSSC reduced the required easement to 30 feet for this alignment.

WSSC moved on from this alignment solution as the majority of homeowners did not agree to grant a 30-foot easement to WSSC. Also, homeowners were not agreeable to the estimated easement values per square foot on their properties.

Water Main to Roadway and Sewer Main in Backyard by Directional Drilling

By placing the proposed water in the roadway, the required backyard alignment was reduced to 20 feet. The sewer main would be installed by horizontal directional drilling. Directional drilling would require excavation of drilling and receiving pits at properties where WSSC would install manholes. Excavation would include tree removal within the construction easement on these properties.

This sewer alignment was rejected, as it presented two problems:

1. The sewer main would require a new sewer feed to Westmoreland Avenue. The new sewer feed would be aligned across backyards of Walnut Avenue. The homeowners along Walnut Avenue rejected granting a 20-foot easement to WSSC.
2. Directional drilling is not a reliable construction method for an 8-inch gravity sewer system. This construction method increases risk of installing a sewer main that is not flush, and thus a chance of sewer backups at uneven locations.

Gravity Sewer Main in Roadway

A gravity sewer main would be constructed in the Public Right-of-Way in front of homes. New sewer service connections would be installed from the backs of homes, around the sides of the homes, and to the new gravity main in the street. This alignment was ultimately rejected because the gravity sewer main would require too deep of excavation between the homes to install service connections. Deep excavation would potentially negatively impact the foundation of homes.

Partial Gravity Sewer Main in Roadway

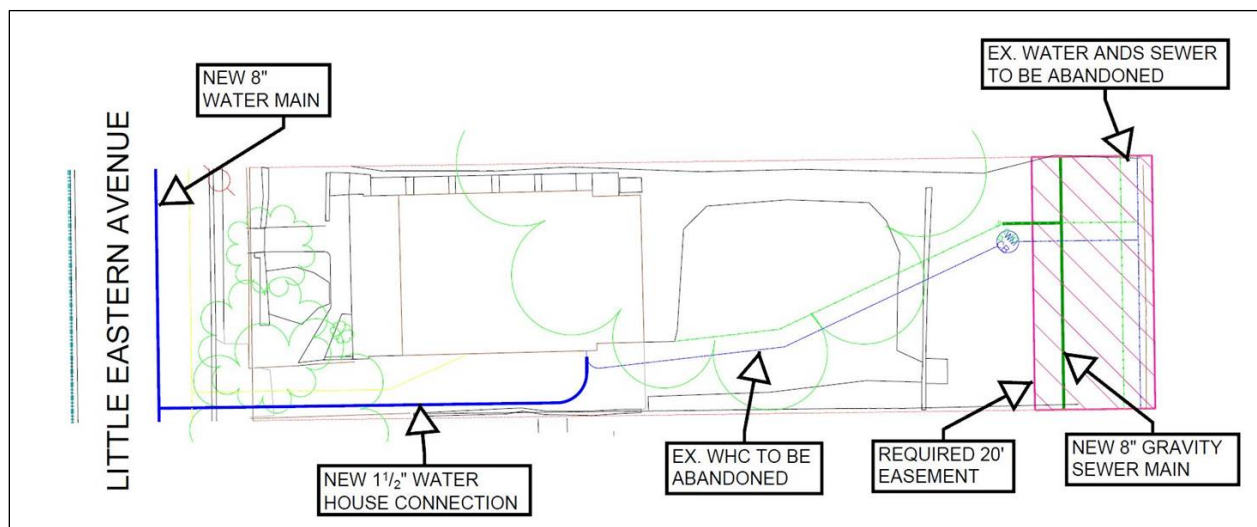
A gravity sewer main would be constructed in the Public Right-of-Way in front of homes. New sewer service connections would be installed from the backs of homes, around the sides of the homes, and to the new gravity main in the street. Wastewater from the ground level of the homes and up would exit the house via a new, shallow, gravity flow sewer service connection. Wastewater from the basement level would exit the homes via ejector pumps that will move water up to the new gravity sewer service connections. Plumbing assessments at affected homes revealed that only one-third of homes qualified for this alignment solution without needing major home renovations.

April 2015 Homeowner Vote

Homeowners at 6601 through 6713 Eastern Avenue had the opportunity to vote for either a backyard alignment or roadway alignment for their replacement sewer system. (At this time, the roadway grinder pump alignment was identified as the only alignment solution for homeowners at 6717 through 6761 Eastern Avenue; these homeowners were not invited for an alignment vote.)

Voting Option 1: Water Main to Roadway and Sewer Main in Backyard by Open Cut Installation

The pressurized water system will be relocated to the front of the homes, and new water service connections will be installed around the side of the houses. The gravity sewer system will be replaced in the existing backyard location by an open trench installation method. The sewer main will be installed in a 20-foot easement granted to WSSC by the homeowner.

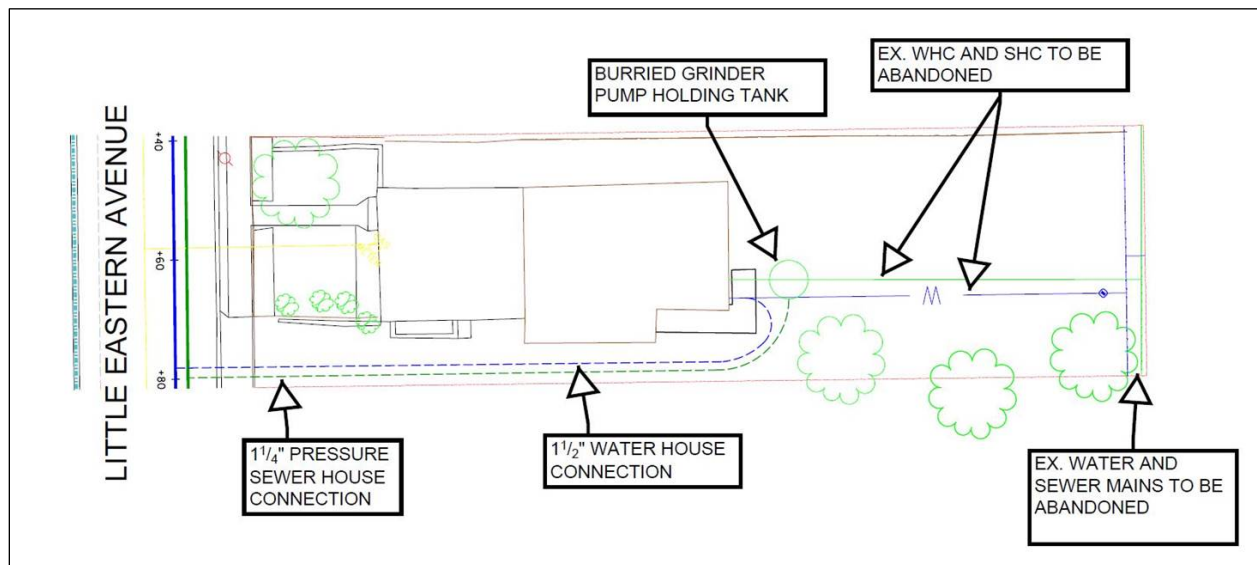


This alignment is viable for all homes in the 6600 block of Eastern Avenue. The alignment is also feasible for homes in the 6700 block with sewer mains that drain towards 1st Avenue (6701 through 6713 Eastern Avenue). **This sewer alignment was not feasible for homes with sewer mains that drain towards Walnut Avenue (6717 through 6761 Eastern Avenue), as WSSC has not identified a viable sewer feed for these homes.**

Voting Option 2: Water Main to Roadway and Sewer Main in Roadway with Grinder Pumps

Sewer mains will be relocated to the public Right-of-Way in front of homes. The new sewer system will be a low pressure sewer system. Due to the existing slope of the homes, grinder pumps will be needed to move wastewater from the basement level of homes to the roadway in front of homes. New pressurized sewer laterals will be installed between the grinder pump systems and the pressure sewer main in the roadway. WSSC offers a 10-year grinder pump

maintenance warranty on top of the 2-year manufacturer's warranty. Long-term grinder pump maintenance will be the responsibility of the homeowner.



Voting Results:

Homeowners submitted votes, as shown in the picture below, for either a roadway or backyard alignment for sewer. "B" represents a vote for the backyard alignment through submittal of a signed pre-appraisal agreement. "G" represents a vote for the grinder pump alignment, or no submittal of the pre-appraisal agreement by the April 17 deadline. The homeowner at 6617 Eastern Avenue did not submit a vote by the deadline; however, based on the results, this homeowner could eventually be designed for either alignment.



WSSC moved forward with design of the backyard alignment for homeowners at 6617 through 6705 Eastern Avenue. These homeowners would later be referred to as “Sewer Block 2,” for distinction during the subsequent voting phase.

March 2016 Homeowner Vote

Homeowners at 6601 through 6613 Eastern Avenue are given a second opportunity to vote, after they are given confirmation that WSSC will not hold responsibility of long-term grinder pump maintenance.

Feasible Backyard Gravity Solution for All Homes in the 6700 Block of Eastern Avenue

By changing the direction of the sewer main to flow towards 1st Avenue, homes at 6717 through 6761 Eastern Avenue have an option for a replacement gravity sewer main in the backyard alignment. This alignment will not require a grinder pump system at these homes. Work will be completed via open trench installation, and homeowners will be required to grant a 20-foot easement to WSSC.

Voting Option 1: Water Main to Roadway and Sewer Main in Backyard by Open Cut Installation

The pressurized water system will be relocated to the front of the homes, and new water service connections will be installed around the side of the houses. The gravity sewer system will be replaced in the existing backyard location by an open trench installation method. The sewer main will be installed in a 20-foot easement granted to WSSC by the homeowner.



Voting Option 2: Water Main to Roadway and Sewer Main in Roadway with Grinder Pumps

Sewer mains will be relocated to the public Right-of-Way in front of homes. The new sewer system will be a low pressure sewer system. Due to the existing slope of the homes, grinder pumps will be needed to move wastewater from the basement level of homes to the roadway in front of homes. New pressurized sewer laterals will be installed between the grinder pump

systems and the pressure sewer main in the roadway. WSSC offers a 10-year grinder pump maintenance warranty on top of the 2-year manufacturer's warranty. Long-term grinder pump maintenance will be the responsibility of the homeowner.



Voting Results

Sewer Block 1 – 6711 through 6761 Eastern Avenue

The majority of homeowners voted for the backyard gravity sewer alignment. The absence of a returned voting form was also calculated as a vote for replacement of the sewer mains in the existing backyard alignment. WSSC received one vote for the front yard alignment and one vote for neither alignment. WSSC will move forward with the design of the backyard alignment with gravity sewer flowing towards 1st Avenue at these addresses.

Sewer Block 3 – 6601 through 6613 Eastern Avenue

The homeowners of sewer block 3 voted unanimously for the roadway alignment with grinder pumps. WSSC will move forward with the design of the roadway pressure sewer alignment at these addresses.

Final Design Alignments

Southern Section: 6313 through 6411 Eastern Avenue

The design team proposes water main and sewer main relocation to the Public Right-of-Way in front of the homes. New water and sewer service connections will be installed at these properties.



Northern Section: 6601 and 6761 Eastern Avenue

Final Water Alignment Solution

The pressurized water system will be relocated to the front of the homes, and new water service connections will be installed around the side of the houses.

Final Sewer Alignment Solution

Based on homeowner votes, the final sewer alignment will be in the roadway for addresses 6601 through 6613 Eastern Avenue. Addresses 6617 through 6761 Eastern Avenue will have a backyard gravity sewer alignment.



Construction Methods

Backyard Construction

Construction of the backyard sewer alignment will require open cut installation of the sewer mains. WSSC anticipates that trenches will be up to 20 feet deep at some locations. Trees will be cleared from the 20-foot easement prior to pipe installation begins. Homeowners can expect to see construction vehicles and open trenches in the rear 20 feet of their properties. All work will be completed within the 20-foot easement granted to WSSC. Homeowners can expect the construction contractor to connect to the existing sewer lateral either at the easement line or up to 10 feet past the easement line to complete a connection to a solid piece of pipe.



Roadway Construction

Construction of the water main in the roadway will require a much shallower open trench (less than 10 feet) for installation. WSSC anticipates using a trenchless method to install the pressure sewer in the roadway alignment for addresses 6601 through 6613 Eastern Avenue. All pressurized service connections will be installed by a trenchless method, requiring an approximately three foot square excavation to be used as a receiving pit.



Grinder Pump Installation

Pits will be excavated to install the grinder pump tanks and pump system. Grinder pump systems will be installed with a cover that is level with the ground surface outside of the house.



Environmental Impacts of the Final Backyard Alignment Solution

The following pages identify the environmental impacts of the final backyard sewer alignment, as determined by WSSC's environmental reviewer. The review considers a 20-foot easement at the rear of all properties with a backyard alignment. Trees not identified for removal shall be saved during construction. WSSC will adhere to all tree removal fines and replanting requirements as mandated by the City of Takoma Park.

Arborist Exhibits
Takoma Park Water / Sewer Relocation
WSSC Contract No. BR/CR/LR5355A12

The following list of trees is based on Wilson T. Ballard survey data and field visits by WSSC arborist. Plans call for removal of all woody vegetation within the 20' easement at the backs of 6600 and 6700 blocks of Eastern Avenue.

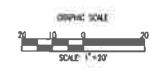
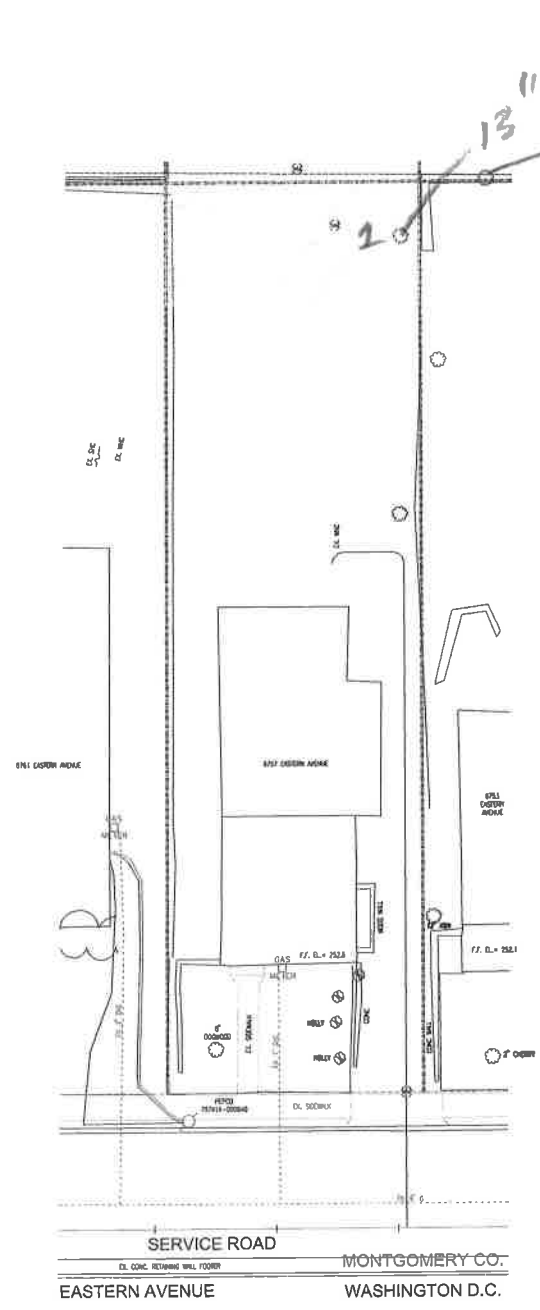
It is anticipated that most, if not all, of the trees outside of the easement will be saved and, where necessary, protected during construction. Protection measures may include tree protection fence; root pruning; trunk protection; and mulch matting depending on tree size and proximity to construction. In some cases, Super Silt Fence may serve in both sediment control and tree protection capacities.

Tree removal will be subject to the City of Takoma Park Tree Ordinance and associated fees.

Doug Sievers

John 'Doug' Sievers
ISA Certified Arborist #MA-0753AM
ISA Qualified Tree Risk Assessor

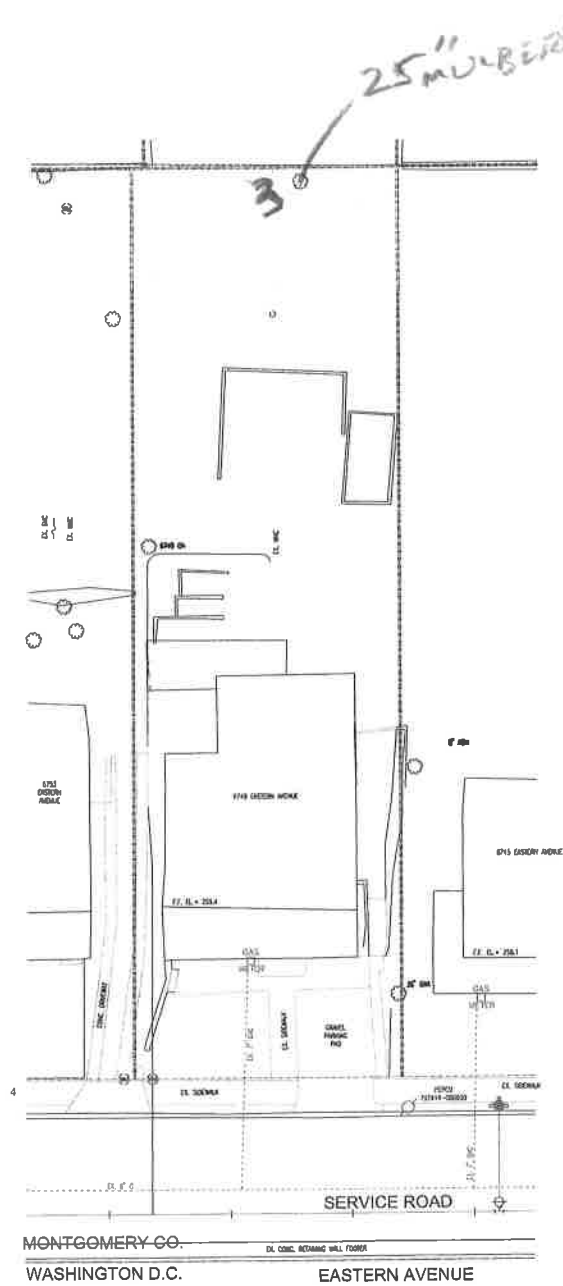
Takoma Park Water / Sewer Relocation – Trees to be Removed – Preliminary List			
Tree No.	Address	Tree size (dbh)/ species	Remarks
1	6757 Eastern Avenue	13" American Elm	
2	6753 Eastern Avenue	10" dead Black Cherry	
3	6749 Eastern Avenue	25" mulberry	
4	6745 Eastern Avenue	5" Callery Pear	
5	6741 Eastern Avenue	11' Norway Maple	Specimen White Oak at this address (48" estim.) -50' clr. from excavation trench
6	6737 Eastern Avenue	15" mulberry	
7	6733 Eastern Avenue	9" dead White Pine	Bamboo grove at left rear yard To be removed
8	6729 Eastern Avenue	12" dead snag	
9	6729 Eastern Avenue	3" Trident Maple	
10	6729 Eastern Avenue	15" mulberry	
11	6725 Eastern Avenue	25" Chestnut Oak	
12	6725 Eastern Avenue	14" Norway Maple	
13	6713 Eastern Avenue	26" red oak	
14	6713 Eastern Avenue	33" White Oak	
15	6711 Eastern Avenue	12" Sweet Cherry	
16	6711 Eastern Avenue	30" White Oak	
17	6711 Eastern Avenue	14": leaning White Oak	
18	6705 Eastern Avenue	8" Norway Maple	
19	6701 Eastern Avenue	24" White Oak	
20	6701 Eastern Avenue	8" Red Maple	Poor condition
21	6837 Eastern Avenue	8" mulberry	
22	6633 Eastern Avenue	36" White Oak	
23	6633 Eastern Avenue	36" dead oak	
24	6625 Eastern Avenue	12" oak	
25	6621 Eastern Avenue	30" mulberry	
26	6621 Eastern Avenue	15" tree	

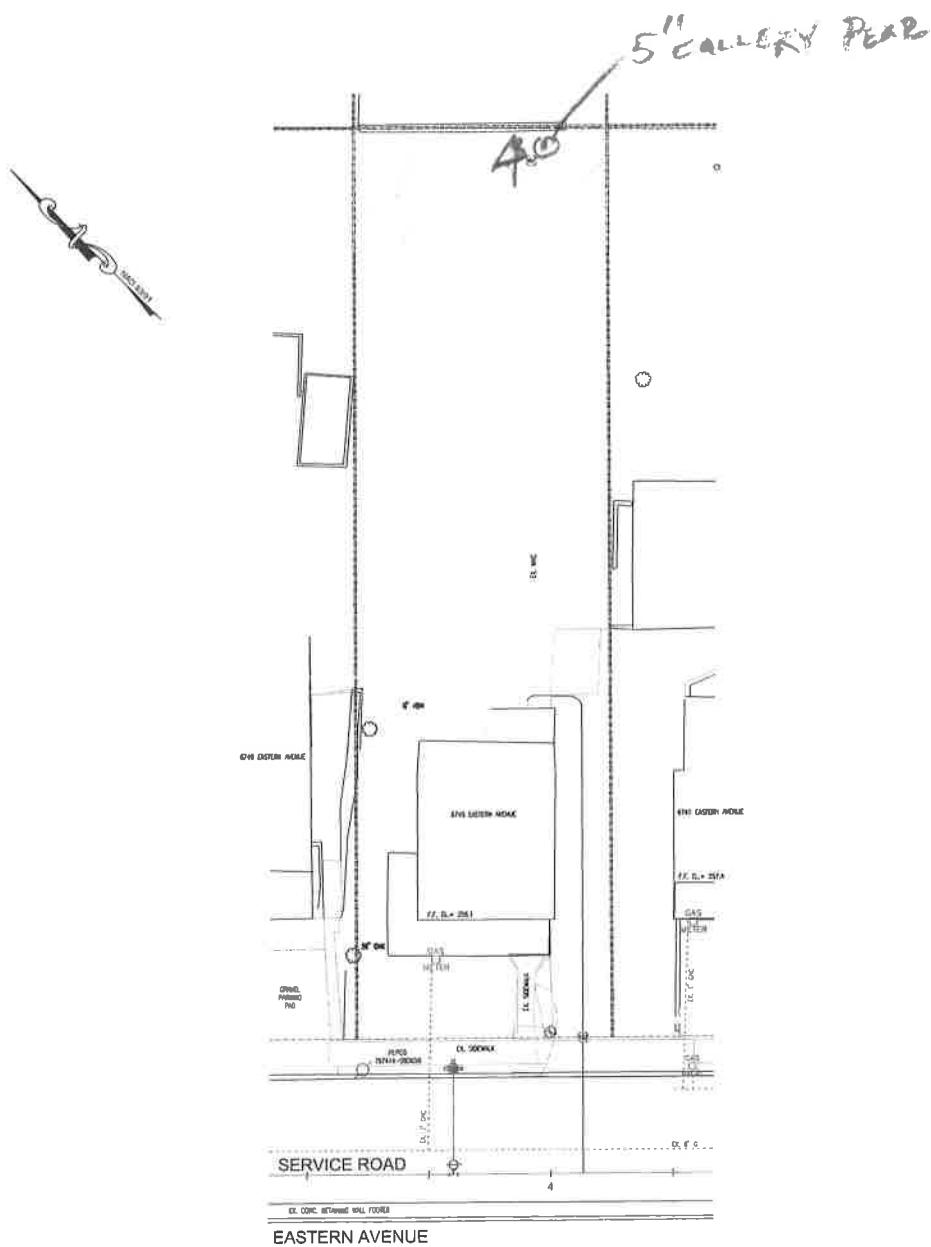


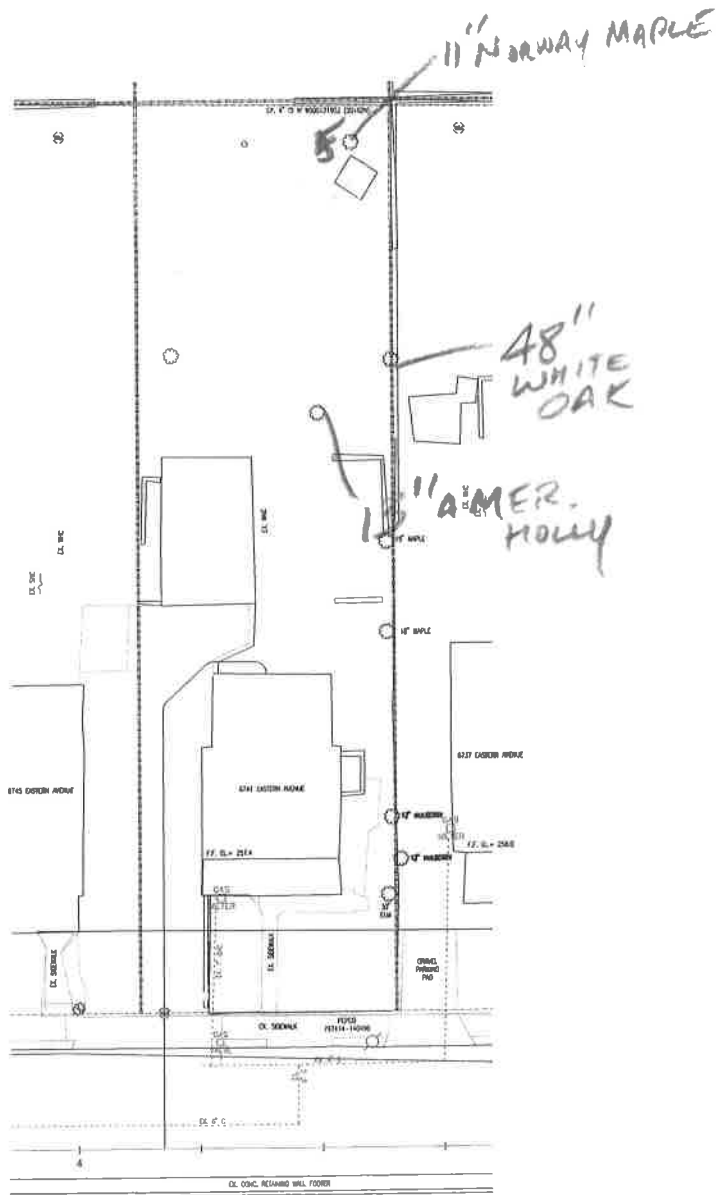
TAKOMA PARK WATER/SEWER RELOCATION
CONTRACT BR/CR/LR5355A12

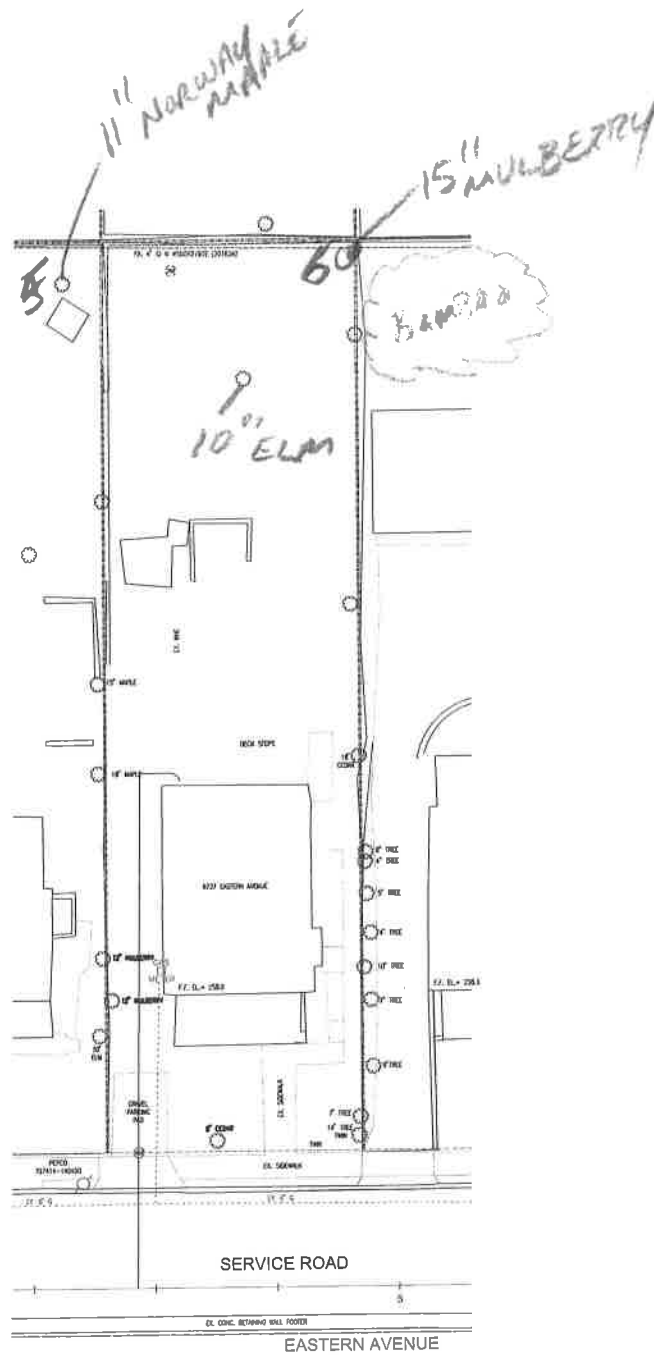
PROPERTY:
ADDRESS: 8757 EASTERN AVENUE
TAKOMA PARK, MD 20912
OWNER: BARBOY I. COHEN AND VIRGINIA ELAINE FALCK

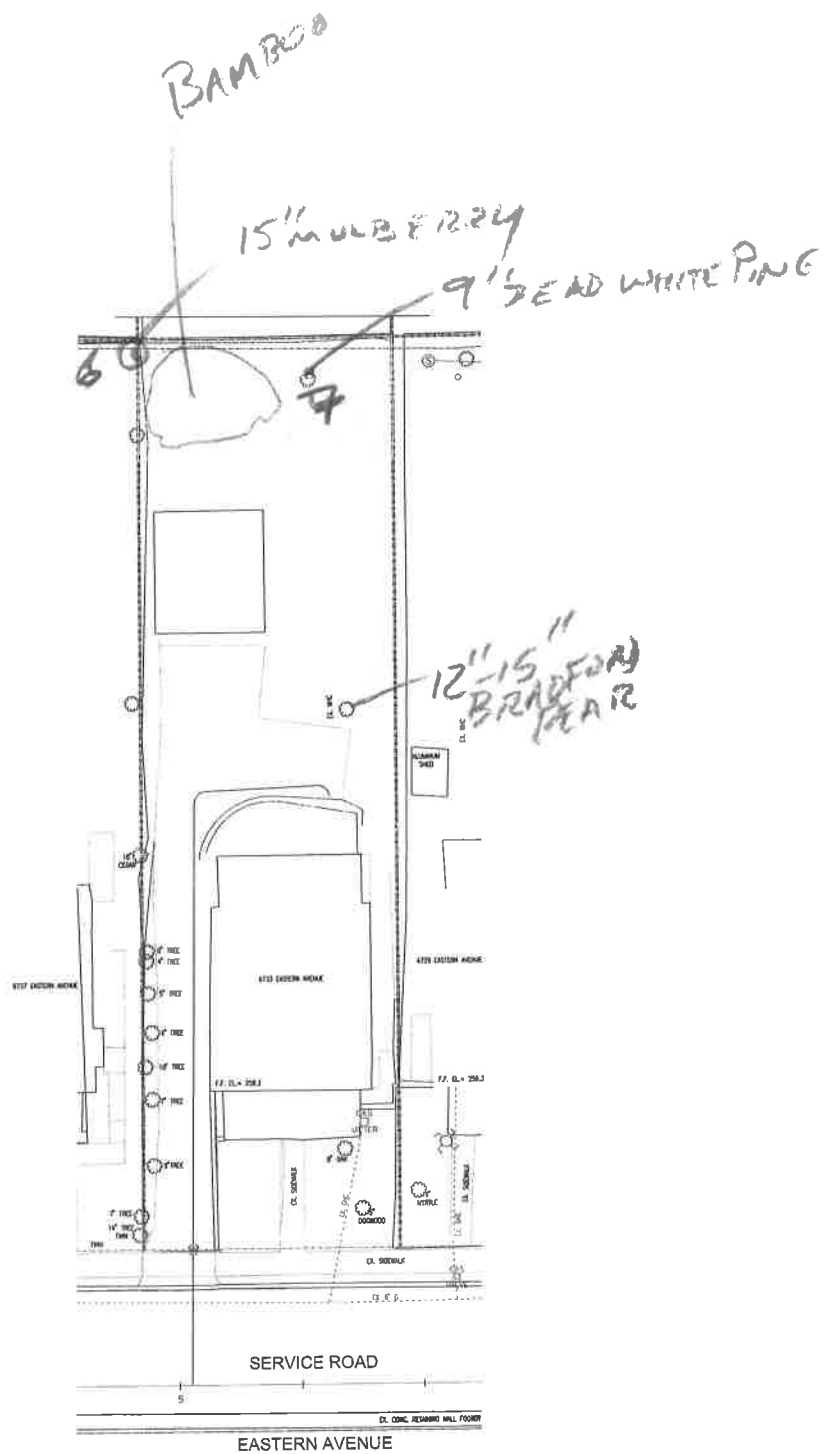
WSSC
FEBRUARY 2016





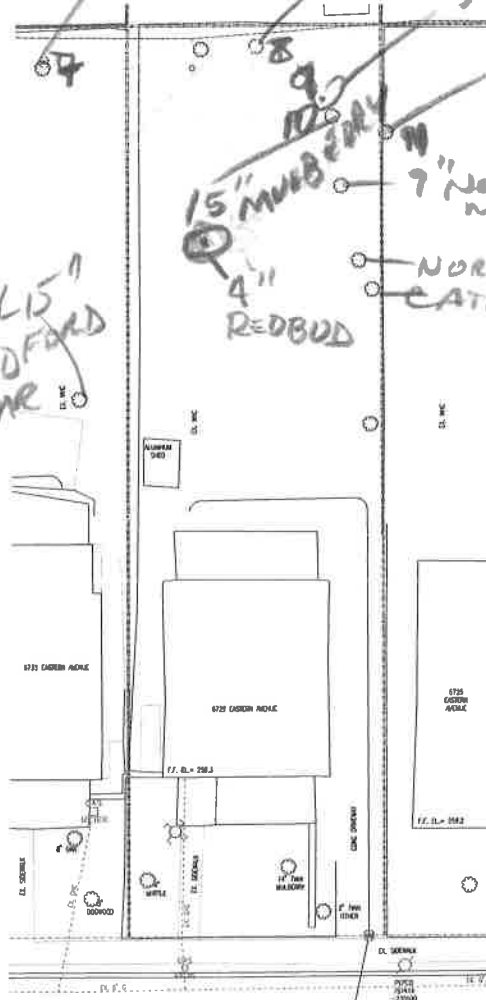








9" DEAD WHITE PINE
12" DEAD SNAG
3" TRIDENT MAPLE
25" CHESTNUT D.K.
15" MULBERRY
7" NORWAY MAPLE
4" REDBUD
NORWAY MAPLE
CATALPA
12' 15" BRADFORD PEAR



SERVICE ROAD

DC. CHC. RECORDS WILL FORUM
EASTERN AVENUE

MONTGOMERY CO.
WASHINGTON D.C.



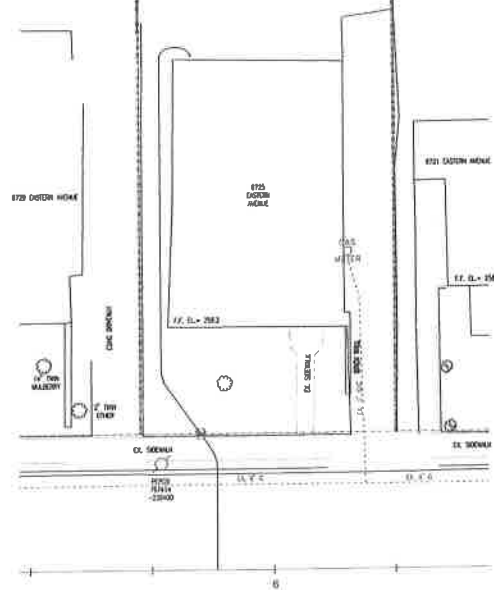
TAKOMA PARK WATER/SEWER RELOCATION
CONTRACT BR/CR/LR5355A12

PROPERTY:
ADDRESS: 6729 EASTERN AVENUE
TAKOMA PARK, MD 20912
OWNER: JACK B. WENDER, JR.

WSSC
FEBRUARY 2016

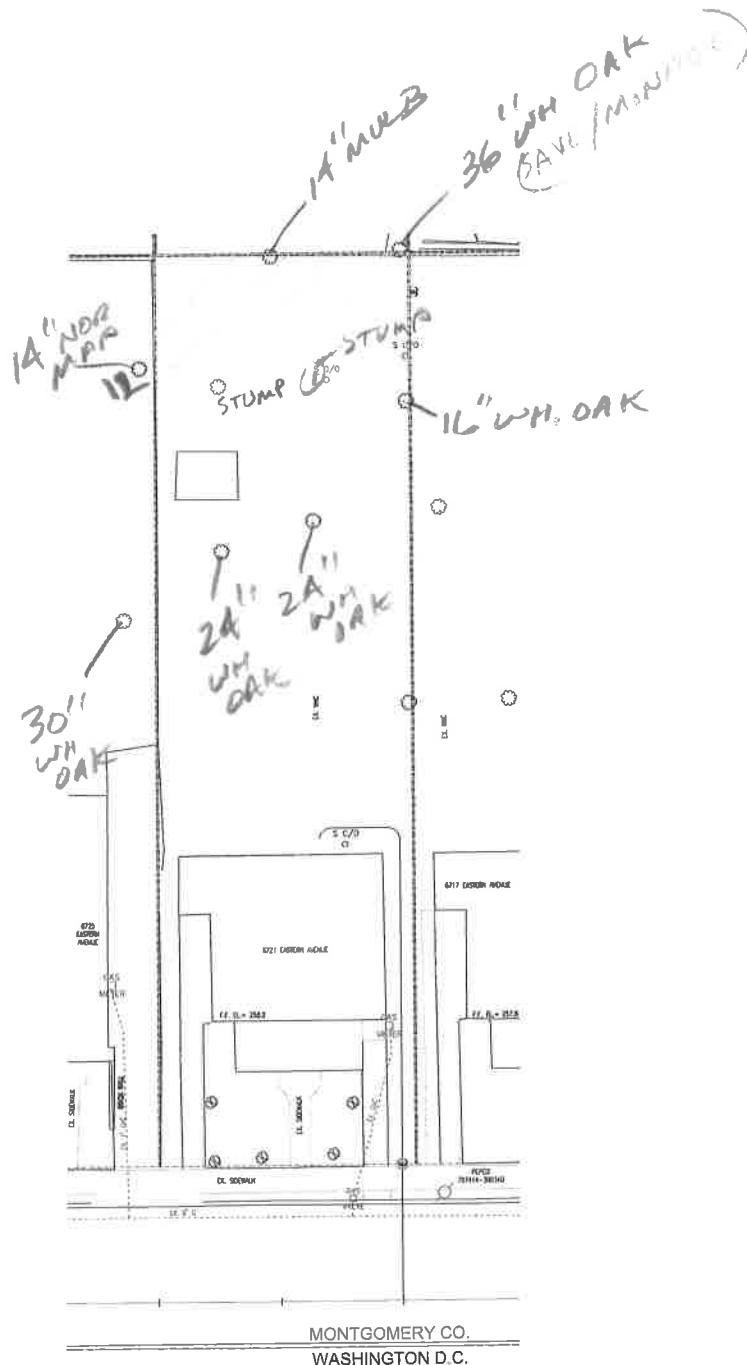


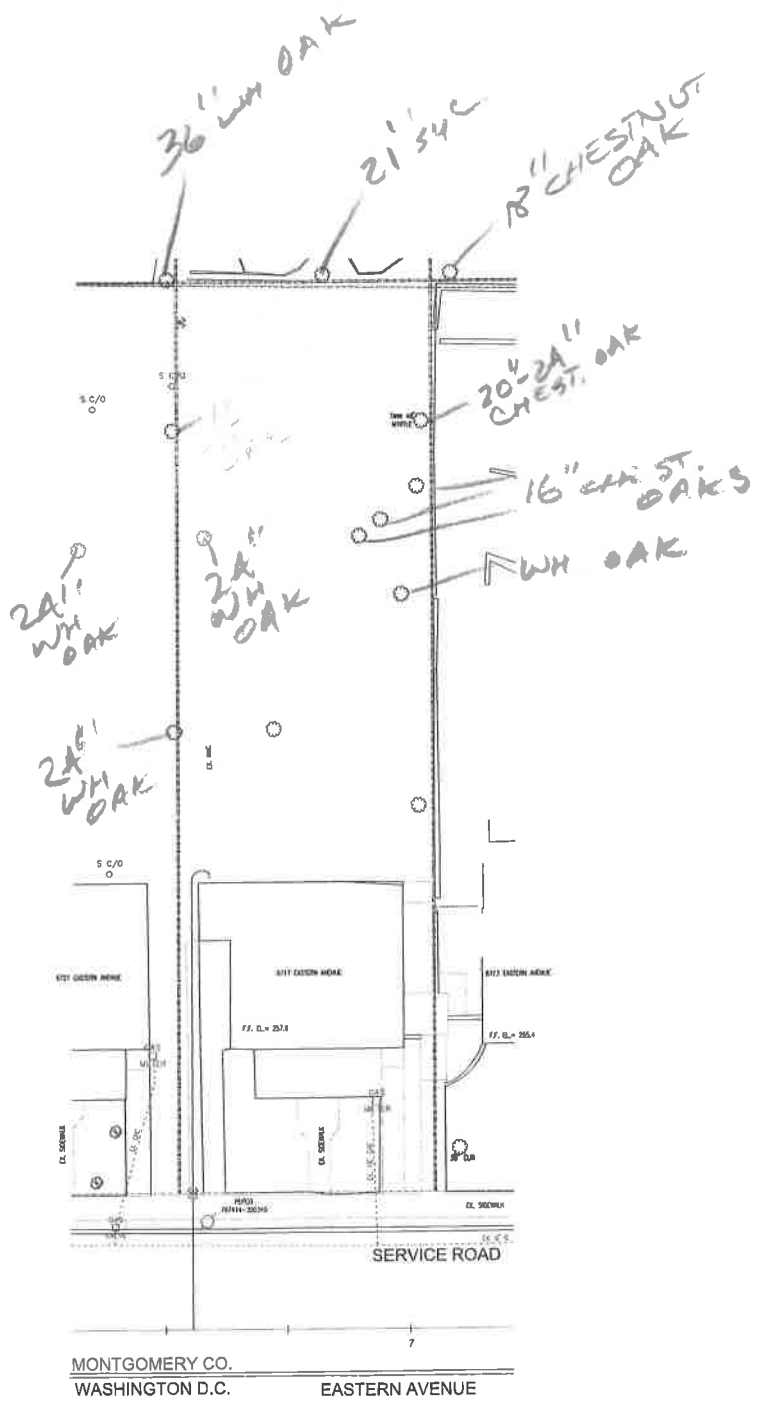
15' MULBERRY
25' CHESTNUT OAK
14' NORWAY MAPLE
9' NORWAY MAPLE
6" STUMP
24' WHITE OAK
30' WHITE OAK
NORWAY MAPLE
CATALPA

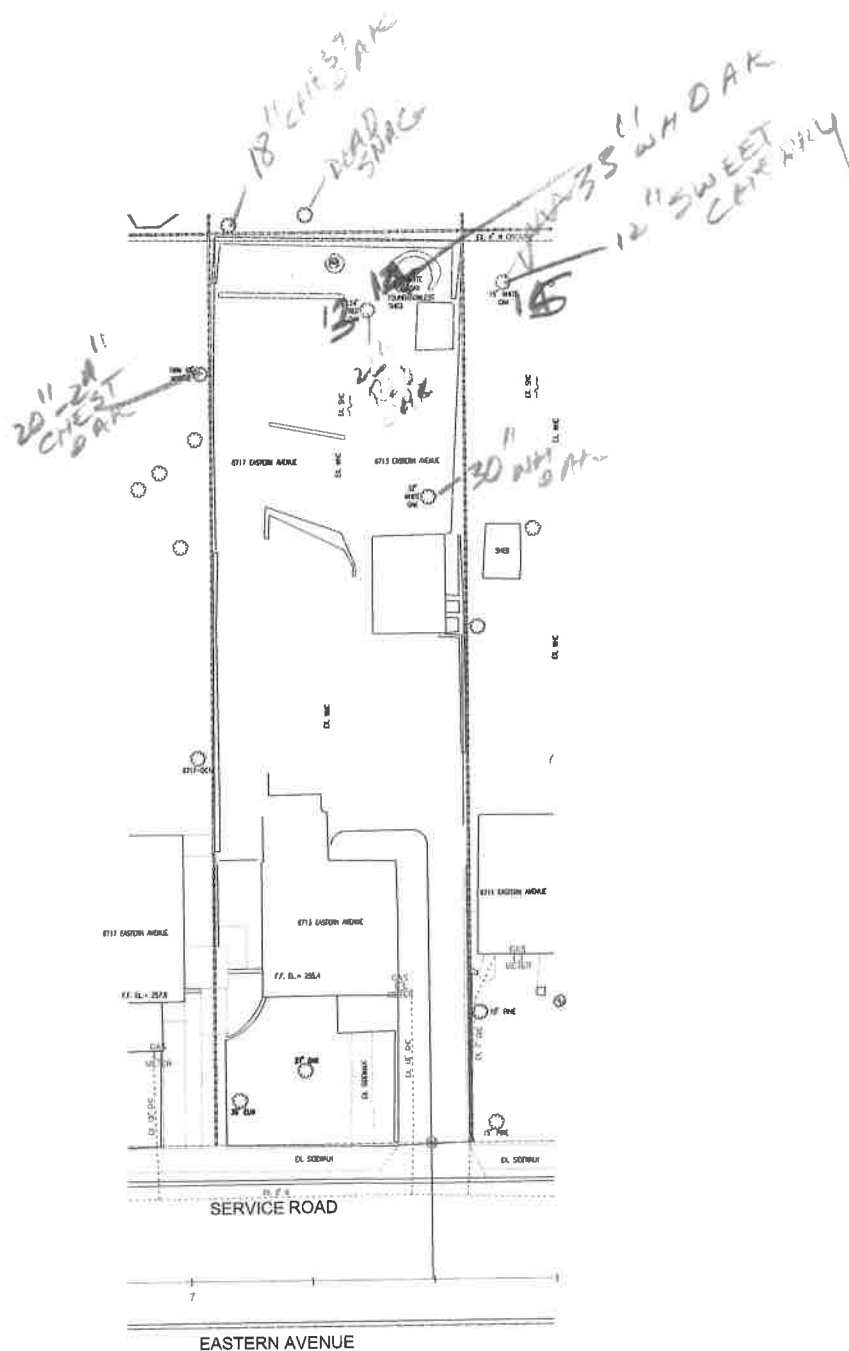


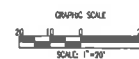
MONTGOMERY CO.
WASHINGTON D.C.

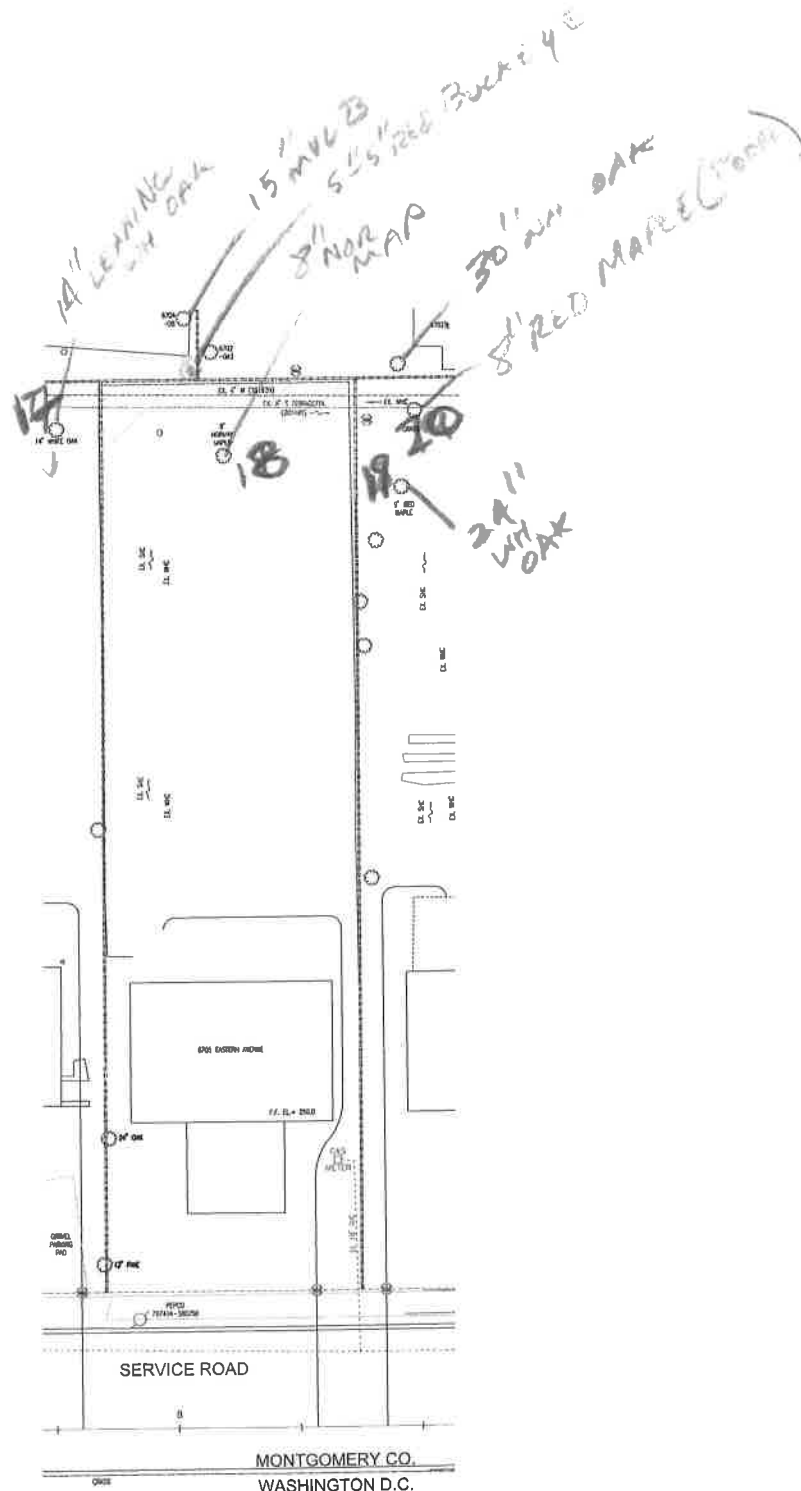






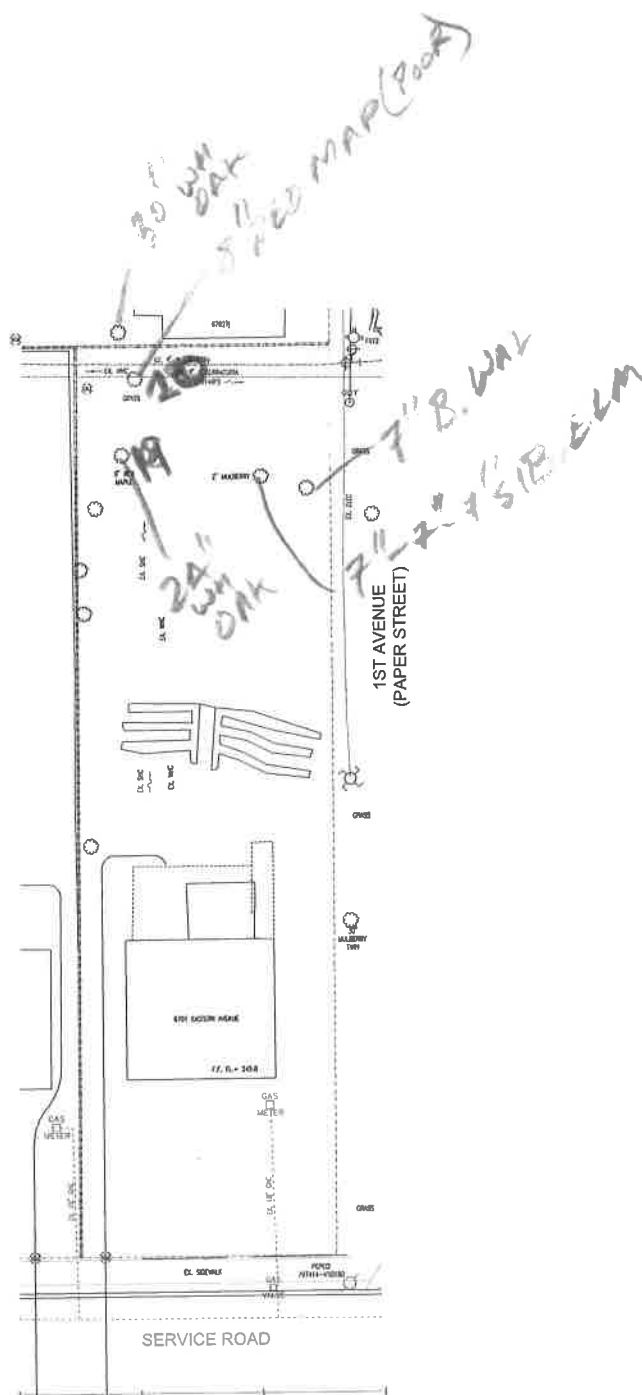




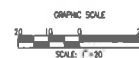




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WATER
WELL



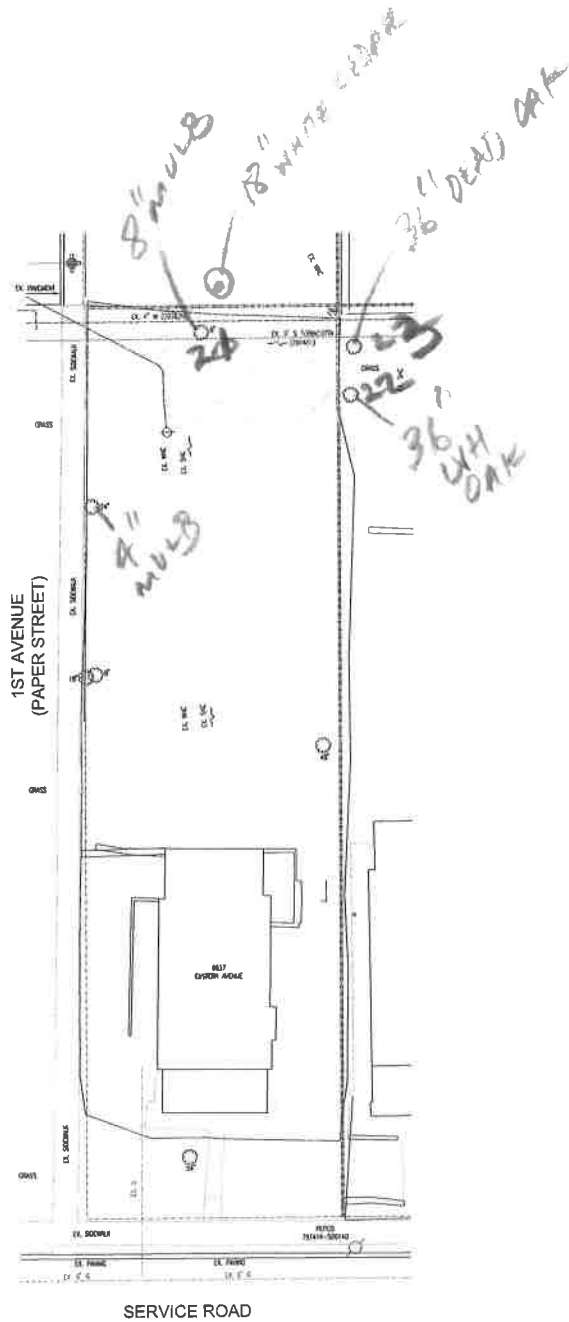
MONTGOMERY CO.
WASHINGTON D.C.



TAKOMA PARK WATER/SEWER RELOCATION
CONTRACT BR/CR/LR5355A12

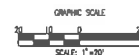
PROPERTY:
ADDRESS: 8701 EASTERN AVENUE
TAKOMA PARK, MD 20912
OWNER: SUSAN BOORSE

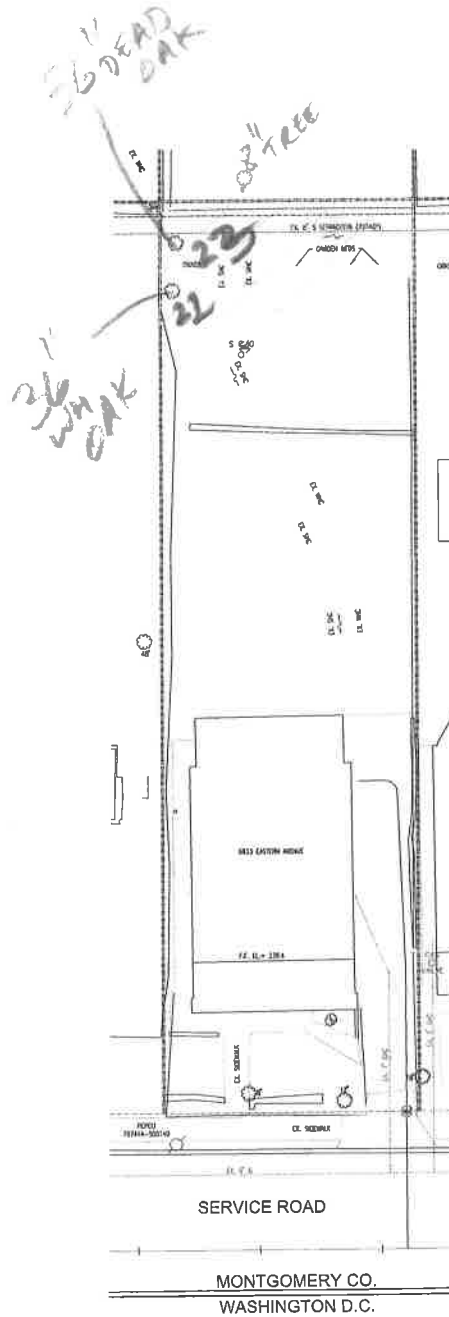
WSSC
FEBRUARY 2018

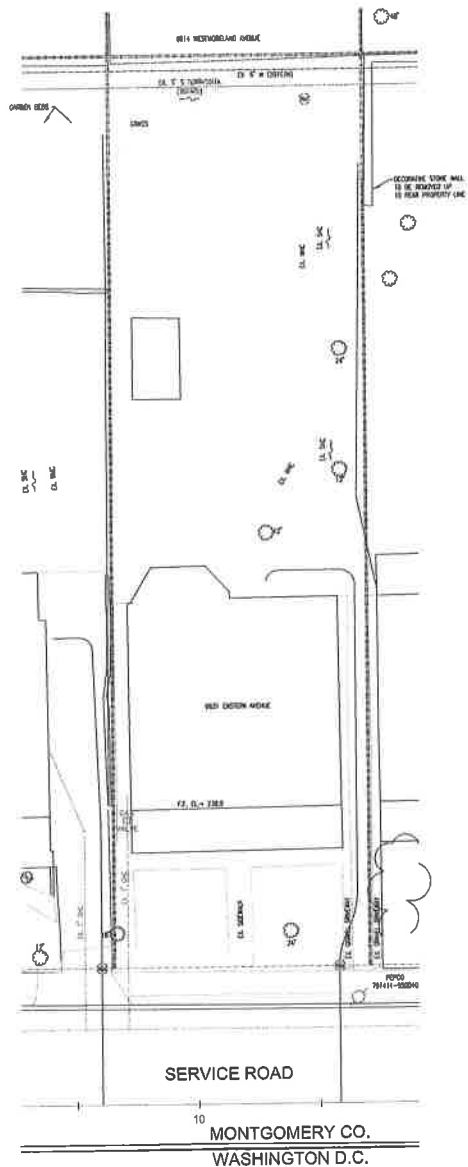


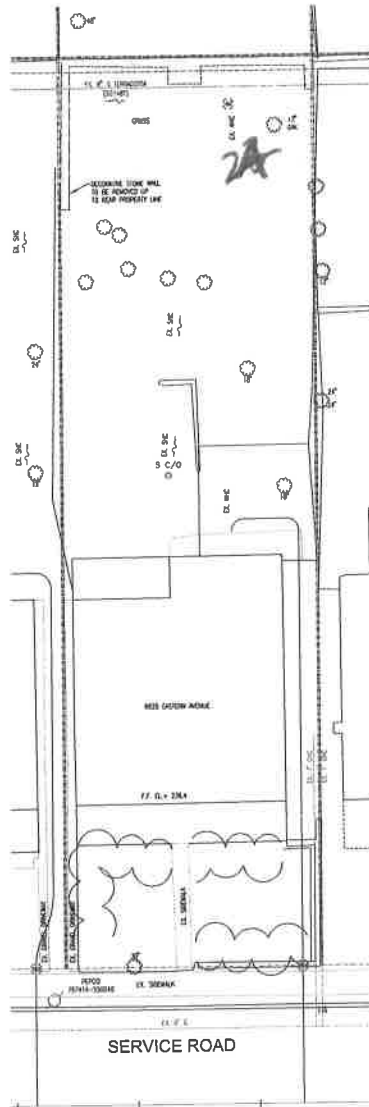
SERVICE ROAD

MONTGOMERY CO.
WASHINGTON D.C.

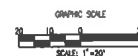


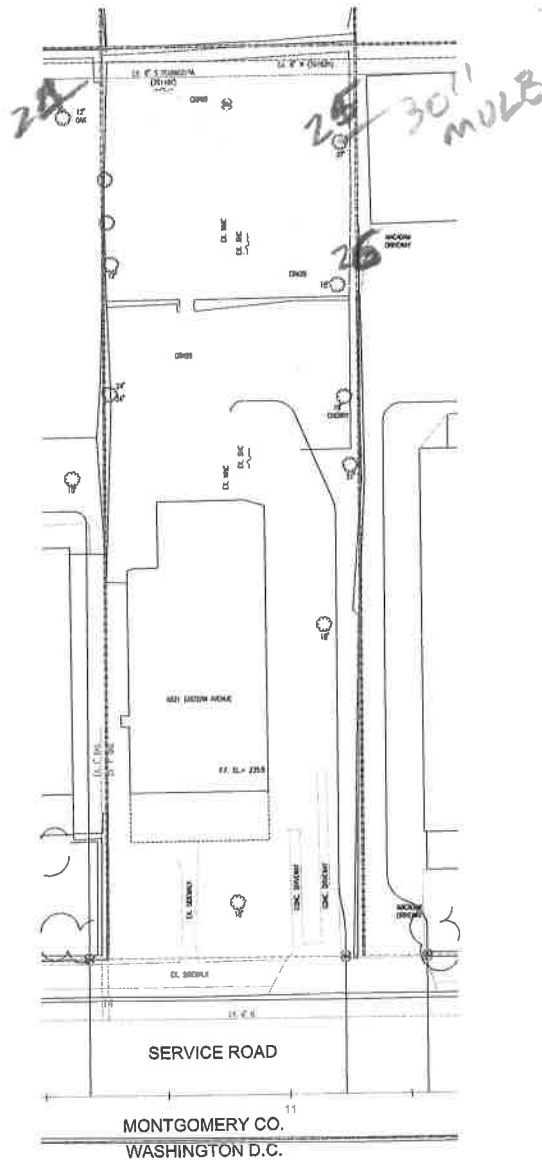






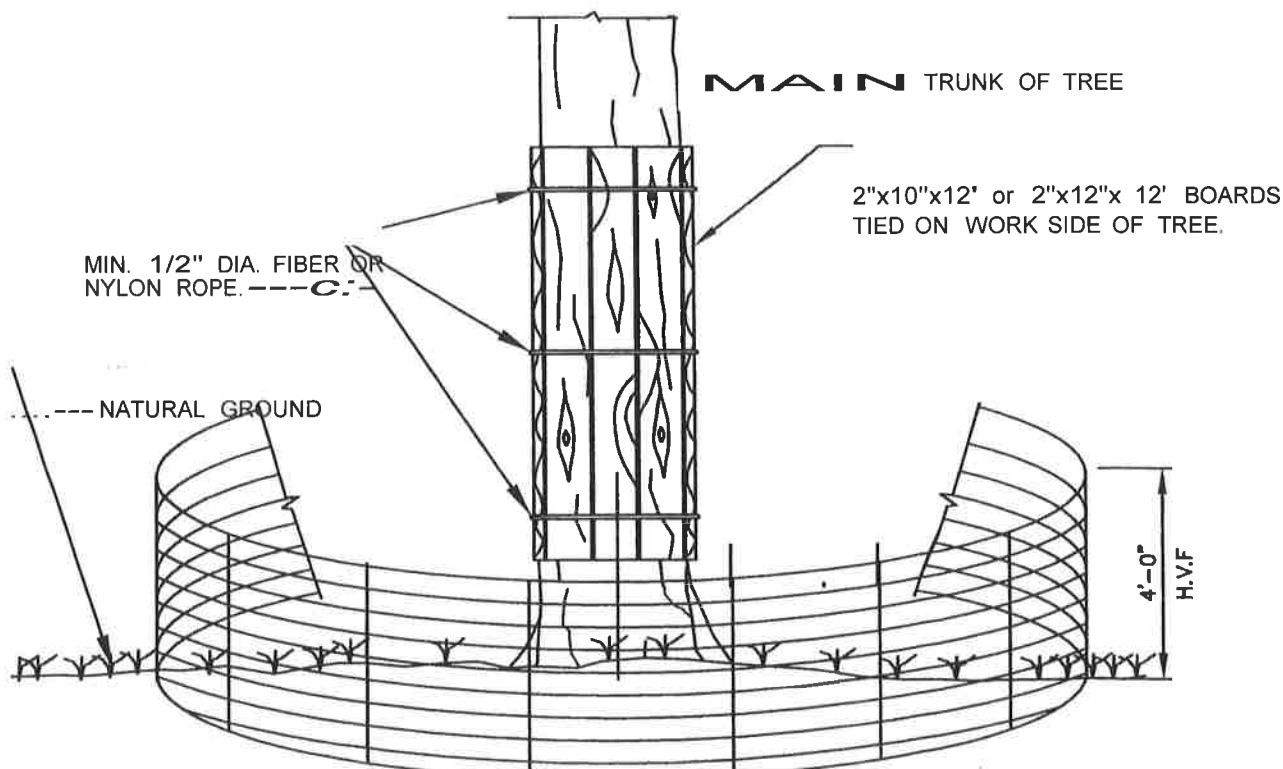
MONTGOMERY CO.
WASHINGTON D.C.





WVA M. BALDWIN AND
EMMA CHEUSE
8621 EASTERN AVENUE
TAKOMA PARK, MD 20912
4053/216





SPECIAL TREE PROTECTION DETAIL

NOTES:

1. TIE WITH 1/2" DIAMETER ROPE (FIBER OR NYLON), SUFFICIENT 2"x10"x12' OR 2"x12"x12' BOARDS AROUND MAIN TRUNK OR TREE TO PROTECT ALL AREAS EXPOSED TO CONSTRUCTION.
2. ADDITIONAL HIGH VISIBILITY FENCE (H.V.F.) WILL BE PLACED 5' FROM THE TRUNK WHERE SILT FENCE IS NOT SPECIFIED.
3. SILT FENCE IS ONLY TO BE INSTALLED ON THE TRENCH SIDE OF TREES.
4. H.V.F FENCE POST MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE POST HEIGHT.

STP

ASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: JULY 1, 2005 <i>Rafael R. Hernandez</i> Chief Engineer	STANDARD DETAIL SPECIAL TREE PROTECTION	SC 19.0
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Project Schedule

The anticipated design schedule is shown below. The design team will complete the design of the sewer alignments as described above, and anticipates design completion by summer 2016. WSSC requires homeowner authorization of all easement agreements and Rights-of-Entry agreements before moving forward with construction.

Takoma Park Water and Sewer Main Replacement Project Timeline

