

I. Environmental Impacts of the HDD Method (Backyard Alignment)

The WSSC design team reviewed the Environmental Impacts of the proposed Horizontal Directional Drilling (HDD) construction method. The HDD method would replace the existing sewer main in the backyard location from addresses 6617 through 6761 Eastern Avenue. Homeowners will be required to grant WSSC 20-foot-wide easements at the rear of their properties. Homeowners at the ends of the blocks will also be required to grant WSSC temporary construction easements for the excavation of drilling and pipe-receiving pits. Using the backyard HDD method anticipates the removal of 18 trees versus 39 trees that WSSC would anticipate removing using the open cut method. (Appendix A) Sketches of the anticipated tree removals for both the open cut and HDD construction methods will be available on the public website prior to the next public meeting.

WSSC reviewed a previously shared hydrology report from September 2016 discussing the anticipated impacts to storm water due to the clear-cutting of trees within the proposed 20-foot-wide permanent easement along the backyards of homes on Eastern Avenue. The hydrology report includes a report of existing soil conditions in the project area, and it is available on the project webpage. The report identifies removal of 39 trees by the open cut construction method for a backyard gravity sewer alignment. An in-depth hydrology study could not be completed for a project area due to the size of the impacted area. However, in the report, the hydrology engineer references the recently-completed geotechnical investigation for the project area in his final determination that tree removal along the project area would not cause significant impact to soil erosion and storm water volume in this location.

With the HDD construction method, WSSC expects to significantly reduce the number of tree removals from 39 to approximately 18 trees. Therefore, there is no change to the design team's deduction that storm water will not be significantly impacted by construction in the backyard location. WSSC has invited the Montgomery County Department of Environmental Protection to review the results of the hydrology report. If the agency provides comments for the report's revision, the design team will provide any report updates through email and on the project webpage.

II. Consideration of Front Yard Gravity Sewer Alignment

The design team looked at two options for connecting homes to a front yard gravity sewer main alignment: Option #1- installing gravity sewer laterals from the existing exit points at the rear of homes and wrapping the sewer laterals around the sides of homes; and Option #2- installing new sewer service exit points at the front of homes. (Appendix B)

A. Front Alignment Option #1: New Gravity Sewer Laterals around the Sides of Homes (Determined to be Infeasible)

Under this alignment option, the WSSC contractor would install new gravity sewer laterals around the sides of homes, and connect them to the existing sewer exit point in the rear of the home. Laterals installed between homes require deep trenches, and an expanded trench width to prevent the trench from collapsing inward during the construction process. The list of specific trench depths necessary to install gravity laterals between specific homes can be found in Appendix C.

This alignment produces a risk to a home's foundation and is determined infeasible according to the *International Plumbing Code (2012)*. The Code indicates in Section 307, Part 5 that

“Trenches installed parallel to footings shall not extend below the 45-degree (0.79 rad) bearing plane of the footing or wall.” For many homes along the 6600 and 6700 blocks of Eastern Avenue, the needed installation depths to maintain gravity laterals between the homes are below the bearing plane of home foundations. The bearing plane is also known as the “zone of influence” of the footer.

The "zone of influence" encompasses the horizontal and downward-vertical distances at which the foundation is releasing the force of the home's weight into the earth. In other words, the soil surrounding the footer braces and stabilizes the foundation of the home. If soil is disturbed within the “zone of influence,” such as when soil is removed to construct a wide and deep trench, the home's foundation will shift because there is no longer an equal force pushing against the home from the soil. As a result, disturbance within a home's "zone of influence" can significantly compromise the foundation and cause substantial structural damage, including the collapse of the home's foundation. Many of the homes in this neighborhood were built in the first quarter of the 20th century, and have simple supporting structures that will be compromised with this type of construction method. (Appendix D)

The attached drawings (Appendix E) include plan and section views of the homes and proposed gravity sewer laterals. The "zone of influence" for all footers is shown at 45 degrees from the foundation edge per the standards set forth by the *International Plumbing Code (2012)*. The drawings show that open trench installation of the proposed laterals is expected to impact many of the home foundations' "zone of influence."

B. Front Alignment Option #2: New Gravity Sewer Connections at the Front of Homes

This alignment option requires installation of new gravity sewer service exit points at the front of the homes along Eastern Avenue. A new sewer exit point at the front removes the need to dig trenches around the sides of the homes. The new exit points would empty into a roadway gravity sewer main.

1. Feasibility of Installing New Exit Points at the Front of Homes

On March 13, 2017, WSSC conducted plumbing assessments at the homes 6713 Eastern Avenue and 6753 Eastern Avenue. The inspection revealed that new gravity sewer connections are feasible at the front of these homes; however, each home will require varying extents of interior remodeling to make such a connection feasible.

The type of interior renovations necessary and associated costs depend on: the number and location of interior load-bearing walls, which will require new plumbing to be rerouted around them; the presence of finished rooms on the basement level, which will need to be torn open and rebuilt; and the presence of plumbing fixtures at the rear of the basement, which will require new piping to redirect wastewater from the back to the front of the home at a constant, decreasing slope. As referenced in Appendix D, the age of the home could also impact costs as older homes may require additional structural protection as renovation work is completed.

In addition, the majority of homes along the 6600 and 6700 blocks of Eastern Avenue will require ejector pumps to move wastewater from the basement level of their homes to the street level. An ejector pump is a smaller version of a grinder pump system that would be only responsible for "pushing" basement-level wastewater towards the exit point. Using a small amount of electricity, the ejector pump will propel wastewater from basement-level bathrooms and utility sinks to the ground level, where it will meet with wastewater from the rest of the

house and leave the house at the new exit point. Like the grinder pump solution previously offered, homeowners will be responsible for the long-term maintenance of ejector pumps.

2. Requirements from Homeowners to Construct Front Alignment Option #2

All interior renovation work must be completed by a private plumber and contractor. WSSC estimates that homeowners would be responsible for renovation costs of between \$35,000 and \$50,000 per home for the reconfiguration of sewer plumbing to exit the homes at the front of the properties.

In addition, each impacted homeowner must grant WSSC an approved Right-of-Entry to install new sewer service laterals at the new sewer exit point at the front of the home to the new gravity sewer line in Little Eastern Avenue. WSSC's Land Unit will contact homeowners directly to discuss easement appraisals. We anticipate easements to value approximately \$21,000 per property. Please note that easement appraisal values will vary based on actual lot size and the presence of mature trees and structures on the property.

III. Maintenance Impacts of the Front Yard Gravity Sewer Alignment (Option #2)

Following the contractor installation warranty of two (2) years, all maintenance activity for the sewer lateral on private property is the financial responsibility of the homeowner. Sewer service laterals require full replacement approximately every 20 years. Homeowners must annually clear the inside of their sewer lateral lines to remove tree roots, rust and scale deposits, and grease buildup. Without regular clearing maintenance, the service lateral is susceptible to backups as wastewater cannot move freely through the pipe. Clearing maintenance would be completed through "cleanouts" which are installed on the lateral. Cleanouts are points of access to the lateral from the ground level, which can be seen as vertical pipes sticking out of the ground. (Appendix F)

Appendices

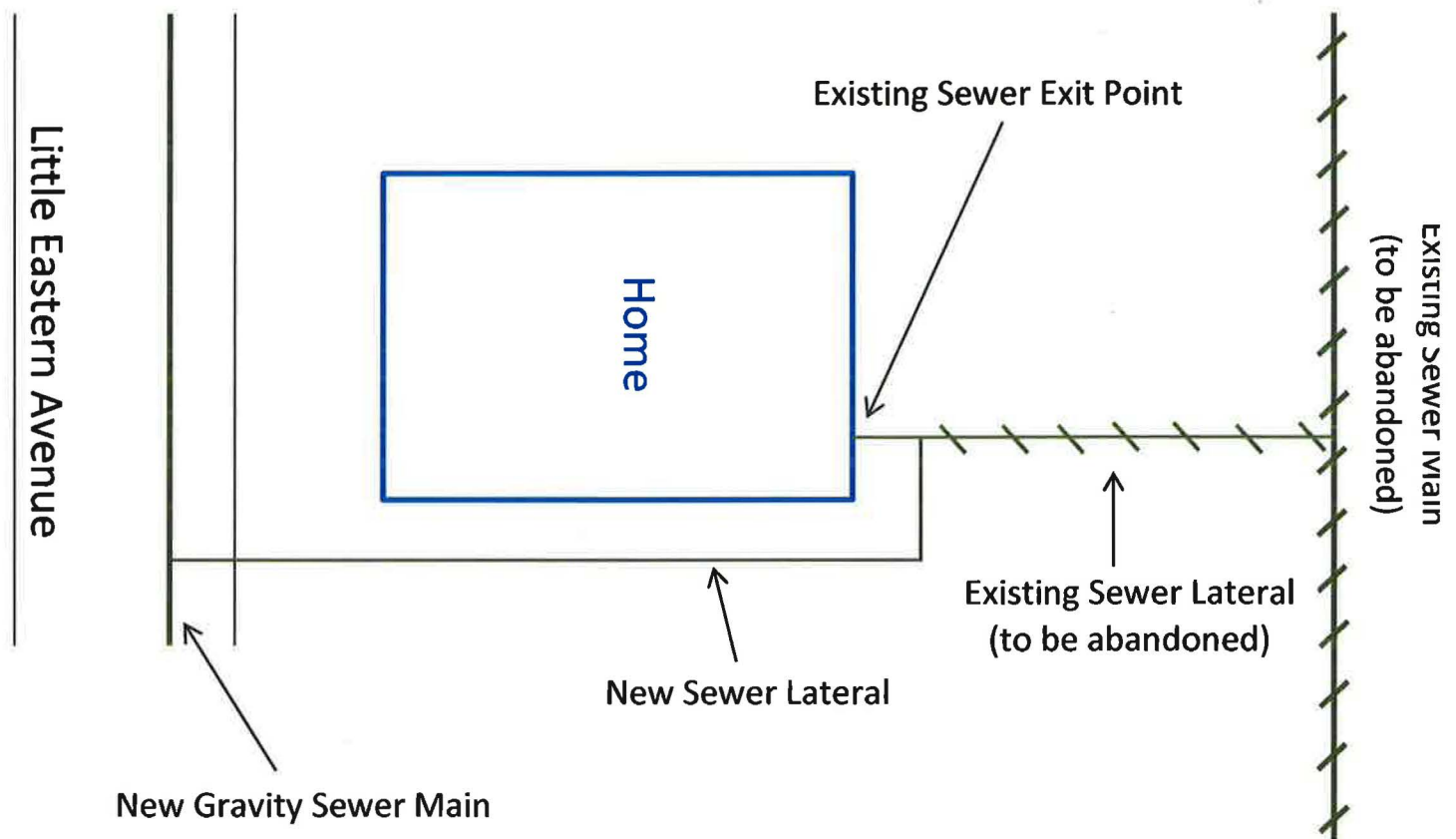
- A. Tree Removal Impacts by Construction Method**
- B. Sketches of Front Yard Gravity Sewer Alignment**
- C. Depths of Trenches Needed to Install Proposed Gravity Sewer Laterals between Homes on Eastern Avenue**
- D. Construction Age of Homes along Eastern Avenue**
- E. Plan Drawings for Gravity Sewer Main in Little Eastern Avenue**
- F. Picture Example of Sewer Cleanout**

Appendix A: Tree Removal Impacts by Construction Method

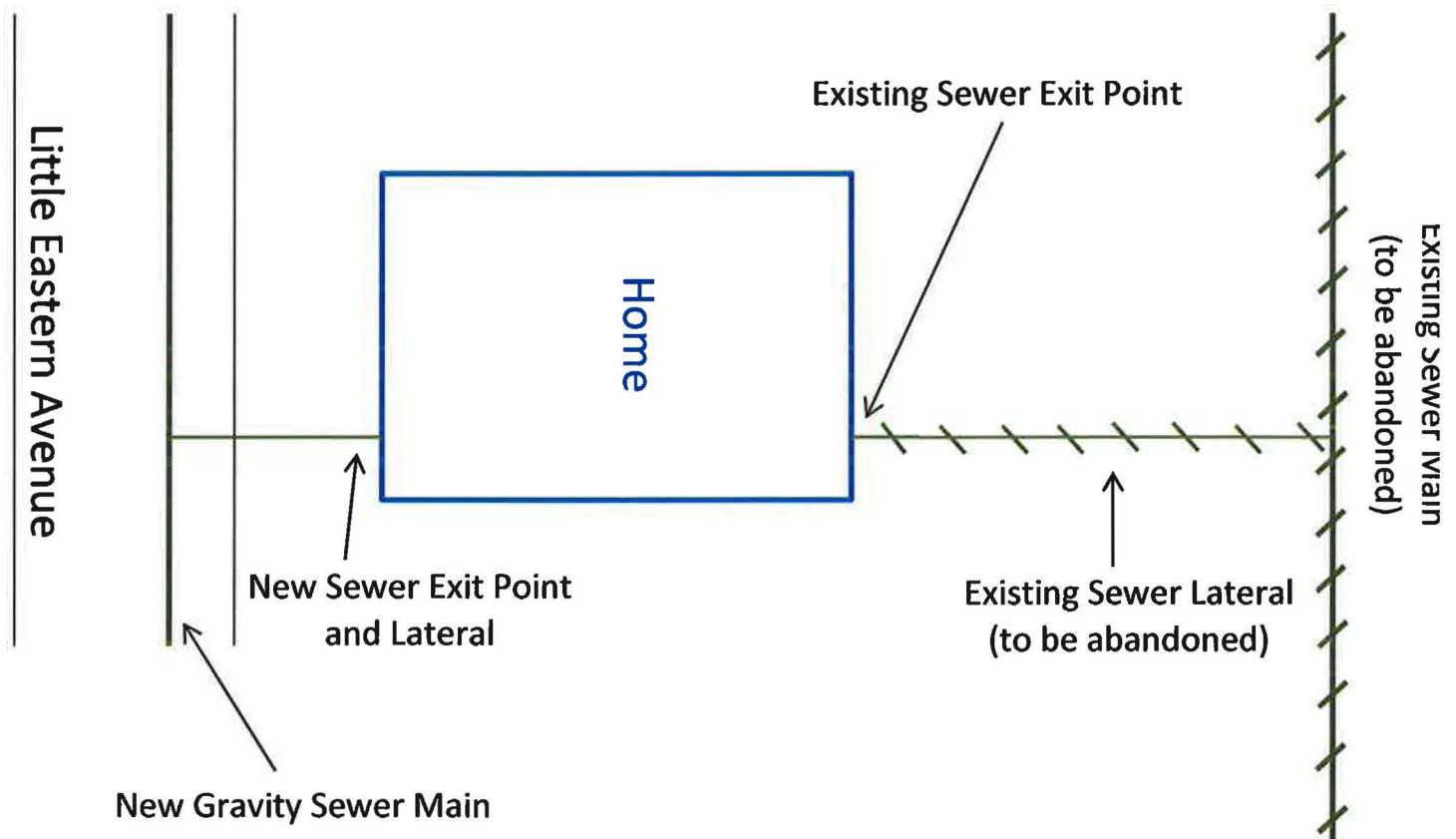
Sewer Main Alignment and Construction Method	Anticipated Number of Tree Impacts
Backyard via Open Cut	39
Backyard via HDD	18
Front Yard Gravity with Laterals around the Side via open cut	20
Front Yard Gravity with Laterals around the Side via HDD	Tree impacts for excavating drilling pits and creating a construction vehicle access pathway will vary by property.
Front Yard Gravity with New Connections at the Front of House	0
Front Yard Pressure Sewer with Grinder Pumps	0

Appendix B: Sketches of Front Yard Gravity Sewer Alignments

Option #1 – New Gravity Lateral Around the Side of Home



Option #2 – New Sewer Exit Point at the Front of Home



**Appendix C: Depths of Trenches Needed to Install Proposed Gravity Sewer
Laterals between Homes on Eastern Avenue**

Address	Estimated Trench Depth at Front Corner of House (feet)
6603 Eastern Avenue	13.3
6609 Eastern Avenue	14.6
6613 Eastern Avenue	6.7
6617 Eastern Avenue	12.3
6621 Eastern Avenue	8.1
6625 Eastern Avenue	12.7
6631 Eastern Avenue	12.2
6633 Eastern Avenue	13.3
6705 Eastern Avenue	17.9
6711 Eastern Avenue	17.1
6713 Eastern Avenue	12.1
6717 Eastern Avenue	13.6
6721 Eastern Avenue	12.4
6725 Eastern Avenue	12.7
6729 Eastern Avenue	13.6
6733 Eastern Avenue	12.0
6737 Eastern Avenue	14.4
6741 Eastern Avenue	10.9
6745 Eastern Avenue	10.6
6749 Eastern Avenue	11.2
6753 Eastern Avenue	13.6
6757 Eastern Avenue	16.6
6761 Eastern Avenue	17.4

Appendix D: Construction Age of Homes along Eastern Avenue

Address	Primary Structure Built
6601 Eastern Avenue	1905
6603 Eastern Avenue	1989
6609 Eastern Avenue	1928
6613 Eastern Avenue	1923
6617 Eastern Avenue	1928
6621 Eastern Avenue	1923
6625 Eastern Avenue	1923
6631 Eastern Avenue	1917
6633 Eastern Avenue	1918
6637 Eastern Avenue	1918
6701 Eastern Avenue	1918
6705 Eastern Avenue	1918
6711 Eastern Avenue	1916
6713 Eastern Avenue	1953
6717 Eastern Avenue	1918
6721 Eastern Avenue	1918
6725 Eastern Avenue	1923
6729 Eastern Avenue	1925
6733 Eastern Avenue	1923
6737 Eastern Avenue	1923
6741 Eastern Avenue	1928
6745 Eastern Avenue	1918
6749 Eastern Avenue	1923
6753 Eastern Avenue	1923
6757 Eastern Avenue	1923
6761 Eastern Avenue	1991

Appendix E: Plan Drawings for Gravity Sewer Main in Little Eastern Avenue
(Front Yard Gravity Option #1: Laterals around the Sides of Homes)

Please see the plans attached to the end of the appendices.

Plans for Front Yard Gravity Option #2 have not been developed. This alignment assumes a gravity sewer main between 6 and 10 feet deep in Little Eastern Avenue. The final design would depend on the elevation of new front yard sewer exit points for all homes in the 6600 and 6700 blocks of Eastern Avenue.

Appendix F: Picture Example of Sewer Cleanout



Reference: <http://www.aacounty.org/services-and-programs/sewer-cleanouts>

Appendix E: Plan Drawings for Gravity Sewer Main in Little Eastern Avenue
(Front Yard Gravity Option #1: Laterals around the Sides of Homes)

TAKOMA PARK

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS EASTERN AVENUE BETWEEN WALNUT AVENUE AND 5TH AVENUE TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND CONTRACT NO. BR/CR/LR5355C12

GENERAL NOTES

- CONTRACTOR SHALL FURNISH ALL MATERIALS EXCEPT WATER METERS.
- ALL WATER MAINS SHALL BE RESTRAINED JOINT, DUCTILE IRON CLASS 54.
- ALL GRAVITY SEWER PIPES AND FITTINGS TO BE PVC PIPE ASTM D2068, WALL THICKNESS CLASSIFICATION SDR 35.
- EXCEPT USE PVC FITTINGS WHERE INDICATED BY STANDARD DETAILS.
- ALL DUCTILE IRON PIPE TO BE POLYETHYLENE ENCASED IN ACCORDANCE WITH ANNA C105 METHOD & FIELD CONTRACT UP TO 3 FEET ON EITHER SIDE OF CONNECTION. AS PIPE EXPOSURE PERMITS, TESTING FOLLOWING ASTM D1556, ASTM D6838 OR ASTM D2837AT A MINIMUM RATE OF 1 TEST FOR EVERY 100 FEET OF RILL ALONG MAIN TRENCH AND AT EVERY
- LICENSED GEOTECHNICAL ENGINEER TO PERFORM COMPACTION TESTING FOLLOWING ASTM D1556, ASTM D6838 OR ASTM D2837AT A MINIMUM RATE OF 1 TEST FOR EVERY 100 FEET OF RILL ALONG MAIN TRENCH AND AT EVERY
- CONTRACTOR SHALL TEST PIT EXISTING WATER MAIN CONNECTION LOCATIONS. THERE IS THE POSSIBILITY OF ENCOUNTERING POURED PIPE IF FOUND. REPLACE WITH MECHANICAL JOINT PIPE AND FITTINGS. REMOVAL OF THE JOINT IS INCIDENTAL TO THE CONTRACT.
- EXISTING FIRE HYDRANTS AND VALVES TO BE REPLACED SHALL BE SALVAGED AND RETURNED TO WSSC ANACOSTIA WAREHOUSE. THE STANDARD SPECIFICATIONS SECTION 9110.
- CONNECT NEW SEWER MAIN TO PRECAST MANHOLES IN ACCORDANCE WITH STD. DETAIL S14.2.
- ALL WHCS ARE TO BE COPPER, TYPE "K", 1.5" DIAMETER. SEE STD. DETAIL W5.7.
- ALL GRAVITY SHCS ARE TO BE 4" DIAMETER PVC. SEE STD. DET. S25.0 AND S62.2. CONNECTIONS ARE TO BE TEST PITTED PRIOR TO CONSTRUCTION. NEW SHCS ARE TO BE INSTALLED AT CONSTANT GRADE TO THE NEW MAIN.
- ALL PRESSURE SHCS ARE TO BE 12" DIAMETER HDPE AND INCLUDE PRESSURE SHC SERVICE VALVE PER WSSC STD. DET. PR1.1.
- RECONNECT EXISTING SEWER HOUSE CONNECTIONS TO THE REPLACEMENT SEWER MAIN, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- PROVIDE TEMPORARY BYPASS PUMPING AS NEEDED TO MAINTAIN SEWER FLOW DURING CONSTRUCTION FOR THE SEWER REPLACEMENT.
- CONTRACTOR SHALL NOT STOCKPILE MATERIALS OR EQUIPMENT WITHIN THE DRAIN-LINE OF ANY TREES.
- PROVIDE TREE TRUNK PROTECTION FOR ALL TREES WITHIN 15 FEET OF ANY WORK. SEE STANDARD DETAIL S249.0, EXCEPT NOMINAL 2X10" OR 2X12" PINE BOARDS MAY BE USED.
- CONTRACTOR SHALL FIELD LOCATE ALL WATER AND SEWER HOUSE CONNECTIONS. THE CONTRACTOR AT NO COST TO WSSC SHALL REPAIR ANY DAMAGE TO HOUSE CONNECTIONS AND WATER MAINS CAUSED BY CONTRACTOR.
- RELOCATED AND/OR REPLACED WHCS SHALL BE PLACED IN LOCATIONS THAT MINIMIZE IMPACT TO TREES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING STORAGE AREAS AND FOR MOBILIZATION TO AND FROM SUCH AREAS AT NO ADDITIONAL COST TO THE COMMISSION.
- ALL SHUTDOWNS SHALL BE LIMITED TO 8 HOURS. ALL WATER MAIN VALVES NECESSARY FOR SHUTDOWNS TO BE LOCATED AND OPERATED BY WSSC'S UTILITY SERVICE GROUP REPRESENTATIVES PRIOR TO COMMENCEMENT OF SHUTDOWNS.
- CONTRACTOR MUST CONTACT THE FOLLOWING PERSONS/AGENCIES AT LEAST SEVEN (7) DAYS PRIOR TO S14.2:

DESIGNED BY: _____ DATE: _____

FIELD REVIEW BY: _____ DATE: _____

SEE SHEET NO. 2 FOR FINAL PAYMENT RESTORATION REQUIREMENTS. WORK SHALL BE DONE BY WSSC PAVING CONTRACTOR AFTER COMPLETION AND ACCEPTANCE OF UNDERGROUND UTILITY WORK.

SERVICE AREA 495A
HHG = 500'
LHG = 410'

WASHINGTON SUBURBAN SANITARY COMMISSION

THESE DOCUMENTS CONTAIN INFORMATION WHICH SHALL NOT BE DISCLOSED OR REPRODUCED WITHOUT THE WRITTEN APPROVAL OF WSSC.

ENGINEER: _____
ADDRESS: _____
CONTACT: _____

SLUG CREEK MINI DRAINAGE BASIN NO. 11
WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

SEDIMENT CONTROL NOTES

- UTILITY CONTRACTOR TO CONTACT WSSC ENVIRONMENTAL PROGRAMS UNIT AT (301) 206-6077 48 HOURS PRIOR TO STARTING ANY WORK UNDER THIS CONTRACT.
- ANY GROUND OR SURFACE WATER THAT IS PUMPED DURING THIS PROJECT SHALL BE DISCHARGED THROUGH A DEWATERING DEVICE APPROVED BY WSSC PRIOR TO BEING DISCHARGED OFFSITE.
- STREETS AND PAVED WALKWAYS SHALL BE KEPT IN BROOM SWEEP CONDITION AT ALL TIMES.
- INSTALL CURB INLET PROTECTION AT GRADE INLET PROTECTION AS NEEDED OR AS DIRECTED BY WSSC ENVIRONMENTAL STAFF. SEE STANDARD DETAIL S216.0.
- CONTRACTOR SHALL PROVIDE TEMPORARY STABILIZATION FOR ALL NON-PAVED DISTURBED AREAS BY THE CLOSE OF EACH WORK DAY.
- ANY EXCAVATED OR STOCKPILE MATERIAL LEFT OVERNIGHT SHALL BE COVERED WITH IMPERMEABLE MATERIAL. PROVIDE SEDIMENT CONTROL FOR ALL OFFSITE STAGNANT STOCKPILE AREAS.
- WHEN WORKING IN PAVED SURFACES, PLACE EXCAVATED MATERIAL ON HIGH SIDE OF TRENCH.
- INSTALL SILT FENCE AS NEEDED ON LOW SIDE OF EXCAVATED TRENCH WHEN WORKING IN NON-PAVED AREAS OR AS SHOWN ON PLANS OR AS DIRECTED BY WSSC ENVIRONMENTAL STAFF IN FIELD. SEE WSSC STANDARD DETAIL S241.0.
- SURF GENERATED BY PAVEMENT SAWING SHALL BE CONTAINED BY CONTRACTOR TO PREVENT SLURRY FROM ENTERING STORM DRAIN SYSTEM OR WATERWAY. USING APPROVED METHODS, DEVICES OR AS DIRECTED BY WSSC ENVIRONMENTAL STAFF, CONTRACTOR SHALL REMOVE AND DISPOSE OF CONTAINED SLURRY PROPERLY AT THE END OF EACH WORK DAY.

BLOCKING NOTES

- ALL WATER MAINS SHALL BE RESTRAINED JOINT AND FITTING.
- RESTRAIN ALL FIRE HYDRANTS TO WATER MAIN. SEE STANDARD DETAIL B2.1. DO NOT BLOCK FIRE HYDRANT OR FIRE HYDRANT TEE.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN AND TRANSVERSE - HORIZONTAL CONTROL/PROFILE
3-13	PLAN AND SEWER MAIN PROFILE
14-25	SIC PROFILES

WSSC

PERMIT REQUIREMENTS	
TREE	IS REQUIRED
NON-DA METAL WATERWAY	NOT REQUIRED
M.N.C.P.A.P.C.	NOT REQUIRED
FEDERAL AID	NOT REQUIRED
STATE HIGHWAY AID	NOT REQUIRED
STATE B.D. HEALTH	NOT REQUIRED
PRIVATE GEOTECH. CO.	NOT REQUIRED
SEDIMENT EROSION CONTROL	IS REQUIRED
M.D.E. CONST.	IS REQUIRED
CITY/TOWN	IS REQUIRED

AS BUILT DATA

CONTRACT NO.	
CONTRACTOR	
INSPECTOR	
L & G	
DATE STARTED	
DATE COMPLETED	
TYPE PIPE W	
TYPE MANHOLES	
DATE FINISHED	
FINISHED BY	

DRAWING INDEX

DRAWING NO.	DESCRIPTION
1 THRU 29	PLANS, PROFILES, DETAILS
S.C.1	SEGMENT CONTROL DETAILS

RESTORATION SCHEDULE

AREA	GRADING TYPE	RESTORATION
ALL AREAS	I	"A" OR PAVING

PROFESSIONAL CERTIFICATION

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DATE	UNIT COORDINATOR
DATE	REVIEWED BY
DATE	EXAMINED FOR
DATE	WATER I.E.E.S.S.
DATE	SEWER I.E.E.S.S.
DATE	JOBS NO.
DATE	JOBS NO.
DATE	JOBS NO.

CONTRACT BR/CR/LR5355C12

DATE: 4/12/2017 5:18 PM



DATE: 4/3/2017 4:20 PM

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E 1310893 06

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TRAVERSE P. I. 201

N 473756 81
E 1311010 96

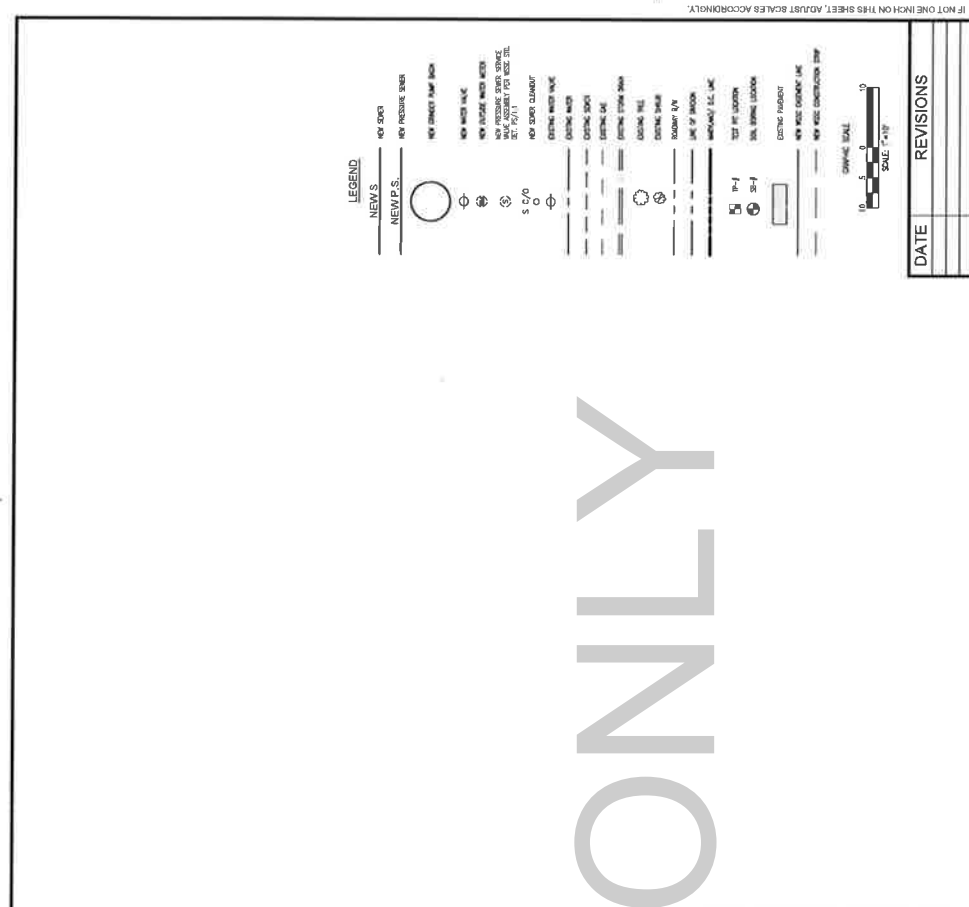
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DATE _____ REVIEWED BY _____

POSTED ALONGS FROM WINDMILL AVENUE TO BIR AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

BE REQUESTED WITHOUT PRIOR WSEC APPROVAL	CONTACT JEFF ZIEGENFUSS
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**SLUG CREEK MINI DRAINAGE BASIN NO. 11
WILMINGTON ELECTION DISTRICT NO. 13**

AND SEWER MAIN REPLACEMENTS LOCATIONS

**EASTERN AVENUE FROM WALNUT PARKWAY TO FARMHAME
TAYLOR PARK, MONTGOMERY COUNTY, MARYLAND**

LHG = 410°

WASHINGTON SUBURBAN SANITARY COMMISSION

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
WILMINGTON ELECTION DISTRICT NO. 13
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE

DATE	REVIEWED BY
UNIT COORDINATOR	

PROFESSIONAL CERTIFICATION
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 THAT THESE DOCUMENTS WERE PREPARED OR
 _____"



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SLIGO CREEK MINI DRAINAGE BASIN NO. 11
WHEATON ELECTION DISTRICT NO. 13
SEWER MAIN REPLACEMENTS/R
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

DATE	UNIT COORDINATOR
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[illegible]

Age Group	Option A	Option B	Option C	Option D
18-24	100	75	50	25
25-34	85	65	45	20
35-44	75	55	35	15
45-54	65	45	25	10
55-64	55	35	15	5
65+	45	25	10	2



MATCH LINE - SEE SHEET NO. 6

Cover

SERVICE ROAD

T TO 2ND AVENUE

EASTERN AVENUE

TO WALNUT AVENUE

6737 EASTERN AVE
FF EL.=258.0

6733 EASTERN AVE
FF EL.=258.3

6725 EASTERN AVE
FF EL.=259.2

4:1%
DRAIN CONNECTION
TO NEW 8" S
INV.=243.8 (F S)

5:1%
DRAIN CONNECTION
TO NEW 8" S
INV.=241.2 (F S)

4:1%
DRAIN CONNECTION
TO NEW 8" S
INV.=240.8 (F S)

4:1%
DRAIN CONNECTION
TO NEW 8" S
INV.=242.8 (F S)

EX. GROUND
@ C. NEW 8" S

SEE SHEET NO. 6

SEE SHEET NO. 8

EAST

WEST

SERVICE AREA 495A
HHG = 500'
HHG = 410'

STA. 4+40 TO STA. 5+80

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NAME _____
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WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

DATE: 4/15/2017 3:40 PM

DATE	REVIEWS
INFRASTRUCTURE SYSTEMS GROUP SEWER FRONT YARD STUDY 4/13/17	
SHEET _____ OF _____	GROUP LEADER _____
WATER INFRASTRUCTURE UNIT	
DATE _____	UNIT COORDINATOR _____
DATE _____	REVIEWED BY _____
CONTRACT BR/OR/LR/355C/12	
500	
300	208 NW 01, 208 NE 01
	7 OF 35

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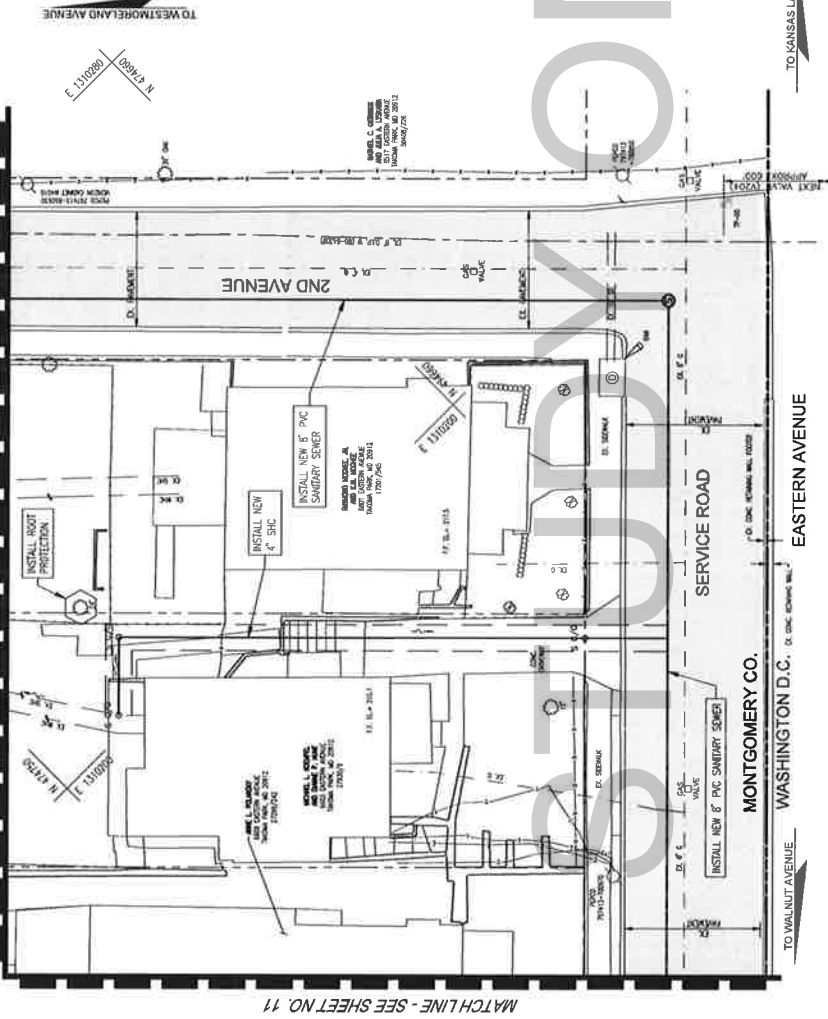
PROFESSIONAL CERTIFICATION	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY: THAT THE ABOVE INFORMATION IS TRUE AND CORRECT; APPROVED BY ME AND THAT I AM A <u>DAY LICENSED</u> ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. <u>20001</u> EXPIRATION DATE <u>01/01/2017</u> .
	WATER COLLECTION DISTRICT NO. 13

SLIGO CREEK MINI DRAINAGE BASIN NO. 11	AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND	

SLUGO CREEK MINI DRAINAGE BASIN NO. 11
WAGATON ELECTION DISTRICT NO. 13

AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

MATCH LINE - SEE SHEET NO. 13



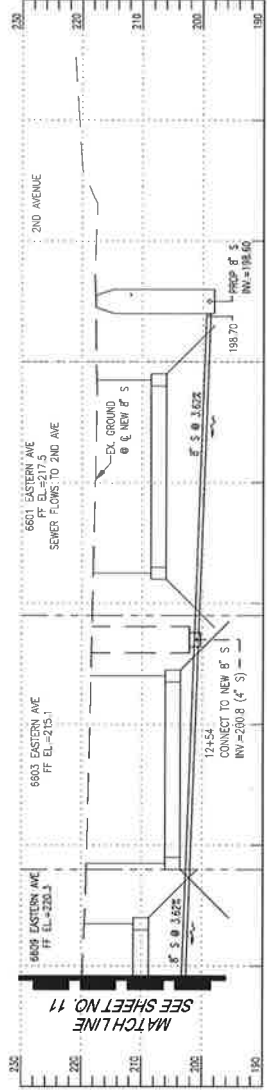
MATCH LINE - SEE SHEET NO. 11

TO KANSAS LANE

EASTERN AVENUE

WASHINGTON D.C.

TO WALNUT AVENUE



PROFILE OF 8\"/>

SCALE: 1\"/>

SERVICE AREA 495A
HHG = 500'
LHG = 410'

WASHINGTON SUBURBAN SANITARY COMMISSION

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THE WASHINGTON SUBURBAN
SANITARY COMMISSION.
CONTACT: JEFF ZIEGENFUS

ENGINEER
THE WILSON T. BALLARD COMPANY
12100 WILSON AVE
BETHESDA, MD 20817
CONTACT: JEFF ZIEGENFUS

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
SHEET NO. 13
WASHINGTON SUBURBAN SANITARY COMMISSION
THOMAS PARK, MONTGOMERY COUNTY, MARYLAND

CONTRACT BR/CR/LR5355C12

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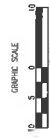
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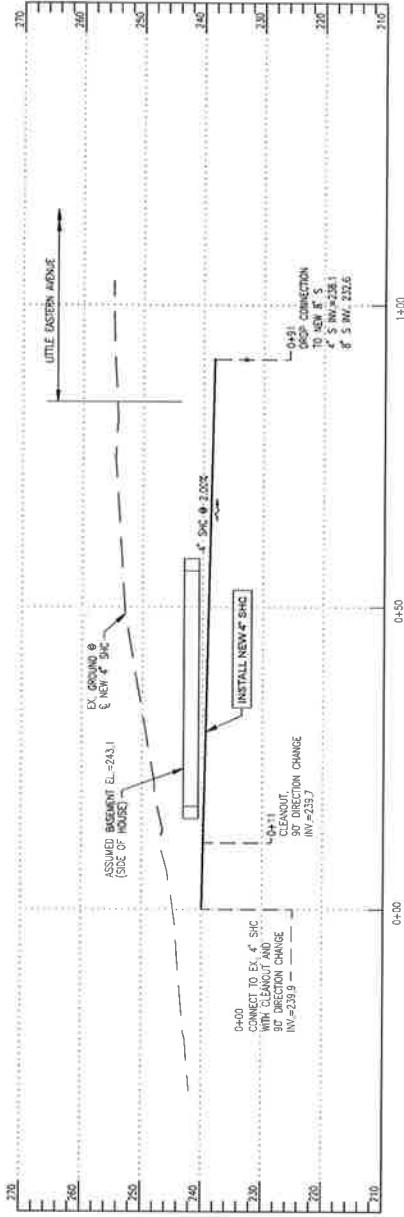
PROFESSIONAL CERTIFICATION
I, THE UNDERSIGNED, HEREBY CERTIFY
THAT I AM A PROFESSIONAL ENGINEER
APPROVED BY ME, AND THAT I AM A DAILY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE
STATE OF MARYLAND, LICENSE NO. 33651, EXPIRATION
DATE: 01/01/2022.

INFRASTRUCTURE SYSTEMS GROUP
SEWER FRONT YARD
STUDY 4/13/17
DATE 200 200 NW 01 200 NE 01 12 OF 25

WATER INFRASTRUCTURE UNIT
DATE 200 200 NW 01 200 NE 01 12 OF 25

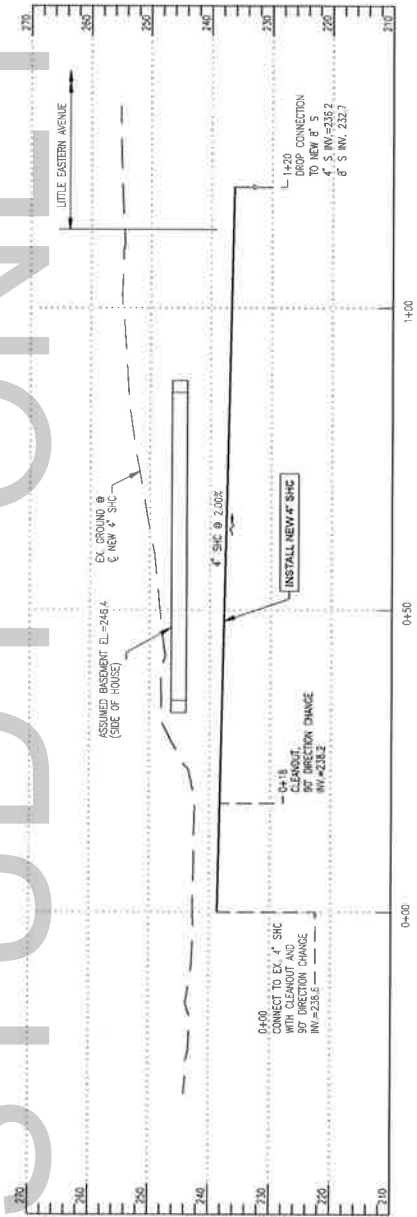
DATE	REVISIONS





PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION
6753 EASTERN AVENUE

SCALE: 1" = 10' HORIZ.
1" = 10' VERT.



PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION
6749 EASTERN AVENUE

SCALE: 1" = 10' HORIZ.
1" = 10' VERT.

SERVICE AREA 495A
HHG = 500'
LHG = 410'

WASHINGTON SUBURBAN SANITARY COMMISSION

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BY ANY MEANS, WITHOUT
THE WRITTEN APPROVAL OF
THE COMMISSION.

ENGINEER
17 CHANNING HILL COURT, DUNN MILLS, MD 21117
ADDRESS
CONTACT: 410-282-0548

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
UPPER MERIDIAN, MONTGOMERY COUNTY, MARYLAND

SUDG CREEK MINI DRAINAGE BASIN NO. 11
WATGTON ELECTION DISTRICT NO. 13

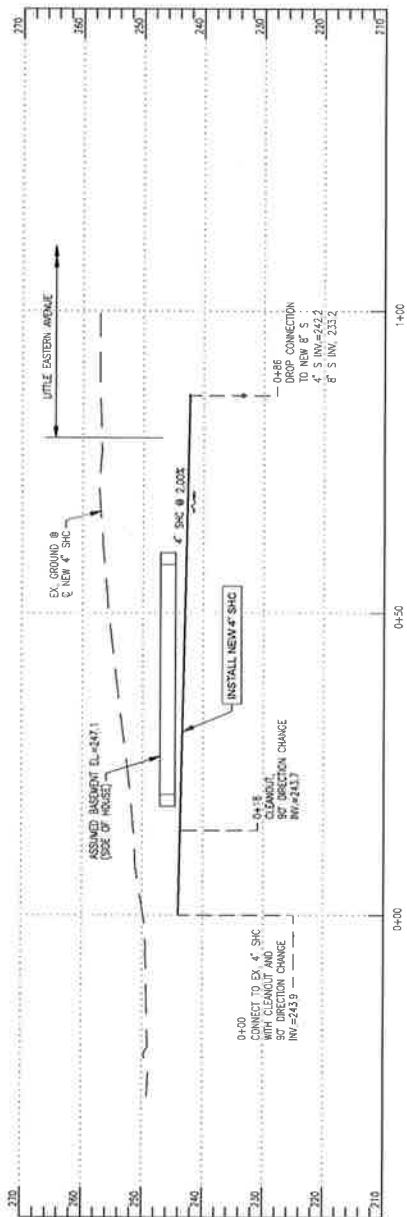
PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR REVISIONS WERE MADE BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38952, EXPIRATION DATE 11/30/2017."

DATE	REVISIONS

INFRASTRUCTURE SYSTEMS GROUP
SEWER FRONT YARD
STUDY 4/13/17

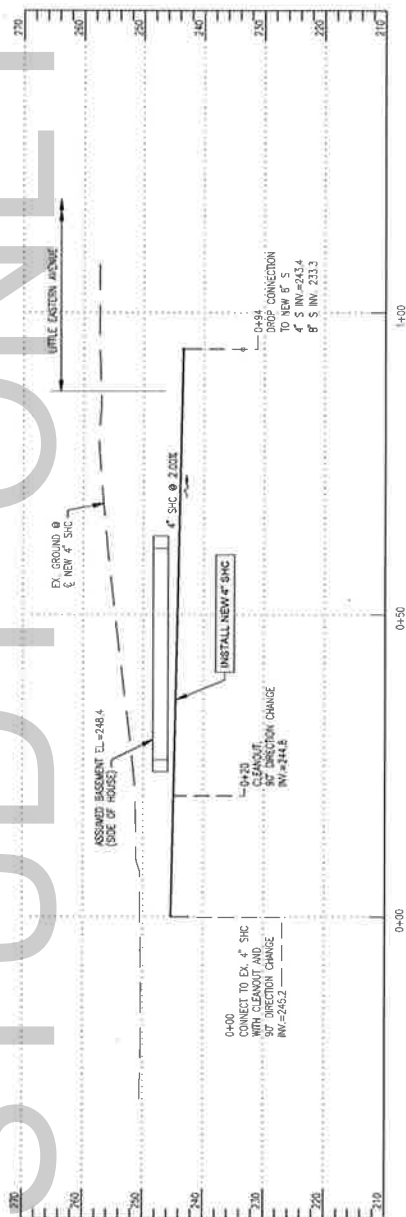
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WATER INFRASTRUCTURE UNIT
DATE: _____ UNIT COORDINATOR: _____
DATE: _____ REVIEWED BY: _____

CONTRACT BR/CRLR5355C12
SHEET 200 OF 208
DATE 4/13/2017 2:38 PM



PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION
6745 EASTERN AVENUE

SCALE: 1" = 10' HORIZ.
1" = 10' VERT.



PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION
6741 EASTERN AVENUE

SCALE: 1"=10' HORIZ.
1"=10' VERT.

PROFESSIONAL CERTIFICATION

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SLUGO CREEK MINI DRAINAGE BASIN NO. 11

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE E

DATE: 03/03/2017 2:01 PM

CONTROL RAC | BR/CLR/LK5335C12

505	200 MAY 01 2004	NO 2004
505	200 MAY 01 2004	NO 2004

16 OF 25

DATE: 01/09/17 2:41 PM

SERVICE AREA 495A
HHG = 500'
LHG = 410'

WASHINGTON SUBURBAN SANITARY COMMISSION

THESE DOCUMENTS CONTAIN ENGINEER:

NAME _____
ADDRESS _____
CITY _____
STATE _____
ZIP _____
PHONE _____
FAX _____
E-MAIL _____
CONTACT _____

SWANBOLD AND SPAIN, 1991

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
INVESTIGATION SECTION DISTRICT NO. 12

DATE: 03/03/2017 2:01 PM

CONTROL RAC | BR/CLR/LK5335C12

505	200 MAY 01 2004	NO 2004
505	200 MAY 01 2004	NO 2004

16 OF 25

DATE: 01/09/17 2:41 PM

WASHINGTON SUBURBAN SANITARY COMMISSION

© WILSON T. BALLARD COMPANY
GAYNOR MILL COURT, GAINESVILLE, MD 21117
(301) 363-0150

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

CONTRACT BR/CR/LR5355C12

503	
200 208 NW/01 208 NE 01	

DATE: 4/13/2017 3:03 PM	17 OF 25
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SEWER MAIN REPLACEMENTS/R
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

SCALE: 1"=10' HOR
1"=10' VERT

PROFESSIONAL CERTIFICATION

DATE _____ STUDY 4/13/17

GROUP LEADER _____

WATER INFRASTRUCTURE UNIT

DATE _____ UNIT COORDINATOR _____

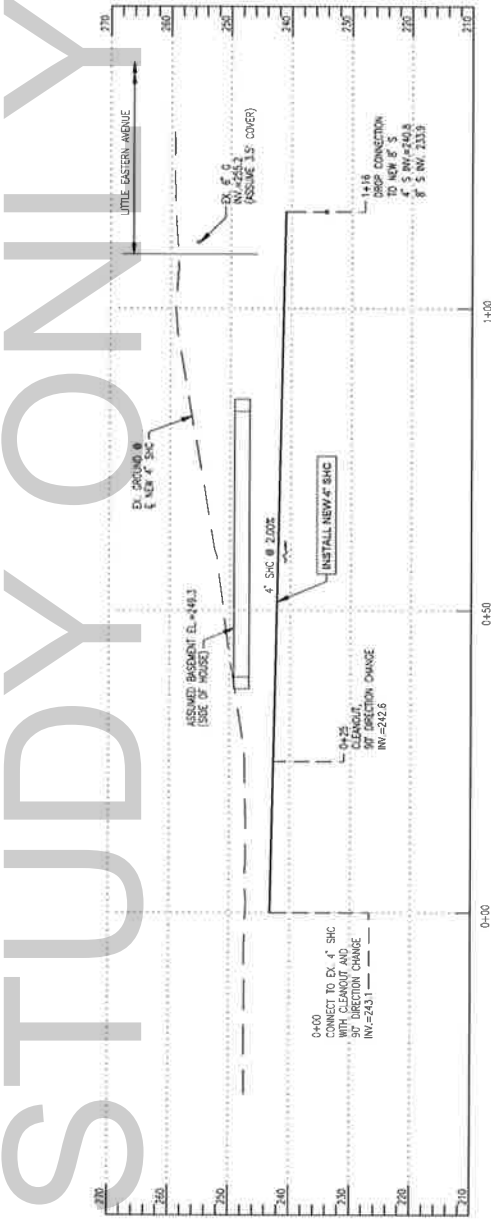
DATE _____ REVIEWED BY _____

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DATE: 6/15/2017 3:03 PM

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SCALE: 1"=10' HOR
1"=10' VERT

PROFESSIONAL CERTIFICATION

DATE _____ UNIT COORDINATOR _____

DATE _____ REVIEWED BY _____

500	CONTRACT BR/CR/LR5355C12
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200 208 NW 01, 208 NE 01

17 OF 25

DATE: 6/15/2017 3:03 PM



PROFESSIONAL CERTIFICATION

I, PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33063, EXPIRATION DATE: 01/15/2017.

[illegible]

INFRASTRUCTURE SYSTEMS GROUP
SEWER FRONT YARD
STUDY 4/13/17

DATE	UNIT COORDINATOR
WATER INFRASTRUCTURE UNIT	
DATE	GROUP LEADER

DATE _____ REVIEWED BY _____

CONTRACT BR/CR/LR5355C12	
505	
200	200 NW 01, 200 NE 01
	18 OF 25

DATE: 4/3/2017 3:14 PM

SERVICE AREA 495A
HHG = 500"
LHG = 410"

WASHINGTON SUBURBAN SANITARY COMMISSION

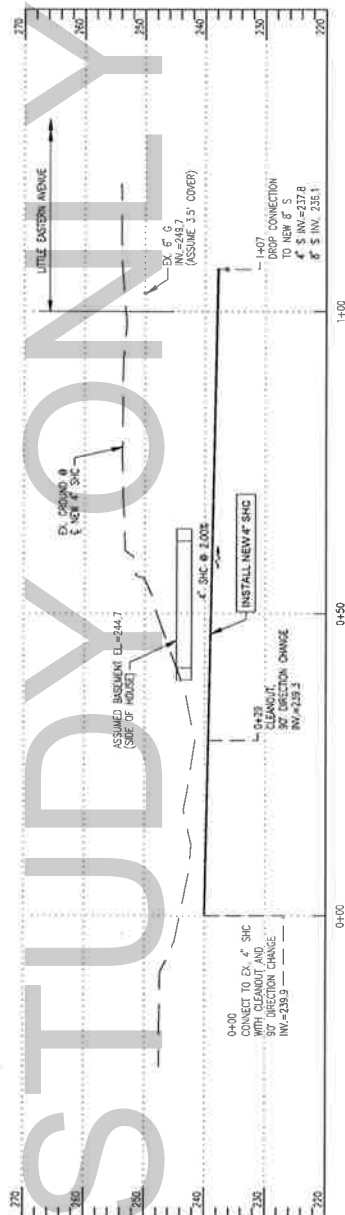
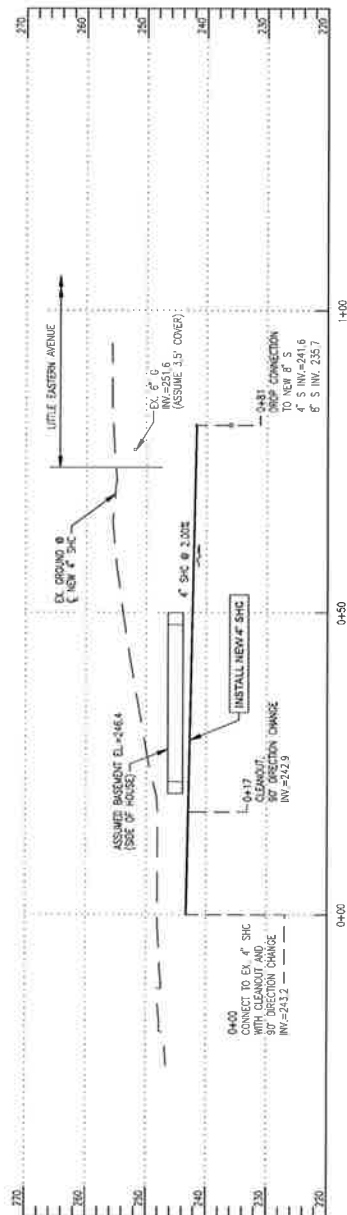
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PRIOR WSSC APPROVAL

THE WILSON T. BALLARD COMPANY
17 GWYNNS MILL COURT, OWINGS MILLS, MD 21117
(410) 363-0150
JEFF ZIEGENFUS

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

SUGO CREEK MINI DRAINAGE BASIN NO. 11

CONTRACT BR/CB/ B5355C13



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED AND APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS AND STATUTE OF MARYLAND, LICENSE NO.: 31953, EXPIRATION DATE: 01/15/2017.

[illegible]

INFRASTRUCTURE SYSTEMS GROUP
SEWER FRONT YARD
STUDY 4/13/17

DATE _____ GROUP LEADER _____

DATE _____ GROUND LEADER _____
 WATER INFRASPECTIVE UNIT

WATER INFRASTRUCTURE UNIT

CONTRACT BR/CRLR5355C12

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	20 OF 25

DATE: 6/15/2019 2:18 PM

SUGO CREEK MINI DRAINAGE BASIN NO. 11

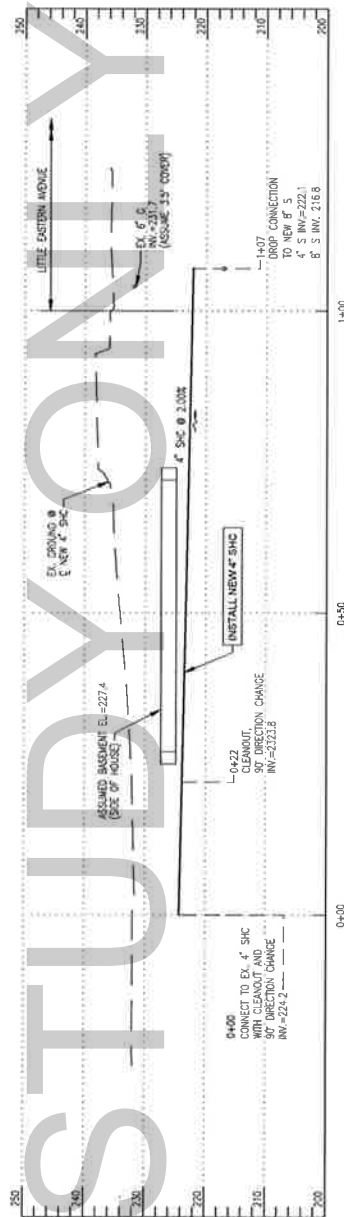
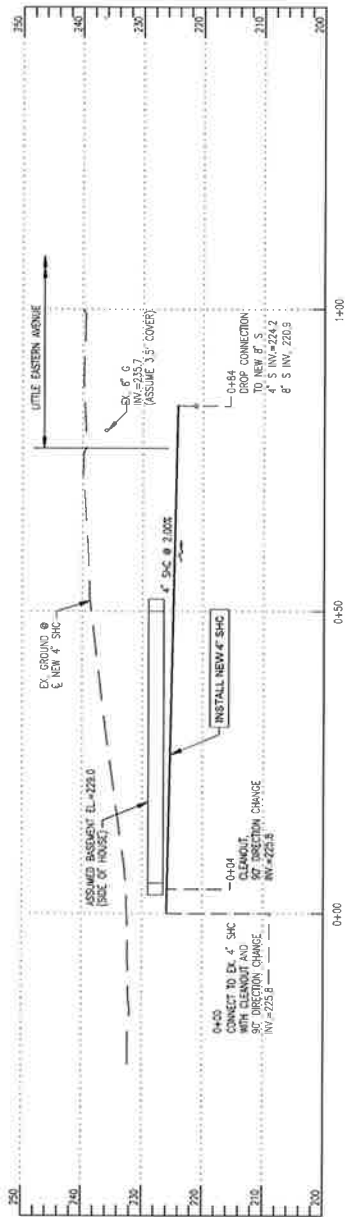
WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

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ENGINEER:
NAME: THE WALSH & BALLARD COMPANY
ADDRESS: 17 ONYING MILL COURT, ONYING MILLS, MD 21117
PHONE: (410) 354-1110
CONTACT: JEFF ZIEGENFELS

WASHINGTON SUBURBAN SANITARY COMMISSION

SERVICE AREA 495A
HHG = 500'
LHG = 410'



PROFESSIONAL CERTIFICATION

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY
THAT THESE DOCUMENTS WERE PREPARED OR
APPROVED BY ME, AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE
STATE OF MARYLAND, LICENSE NO.: 31063, EXPIRATION
DATE: 01/16/2017.

SLUGO CREEK MINI DRAINAGE BASIN NO. 11

WHEATON ELECTION DISTRICT NO. 13

SEWER MAIN REPLACEMENTS/R

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SERVICE AREA 495A
HHG = 500'
LHG = 410'

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WITHOUT
PRIOR WISC APPROVAL

SEWER MAIN REPLACEMENTS/REPAIRS
EASTERN AVENUE FROM WALNUT AVENUE TO 5TH AVENUE
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

WHEATON ELECTION DISTRICT NO. 13

SEWER MAIN REPLACEMENTS/R

THESE DOCUMENTS CONTAIN ENGINEER'S

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PRIVILEGED AND CONFIDENTIAL
INFORMATION WHICH SHALL NOT
BE REDISTRIBUTED WITHOUT
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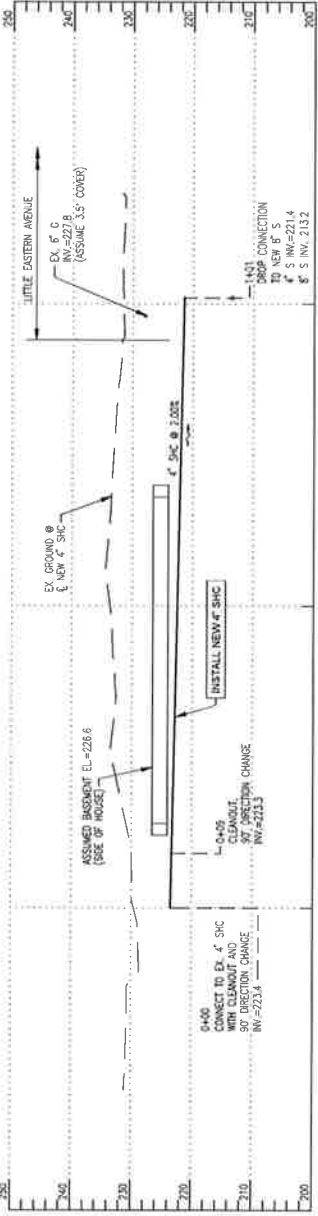
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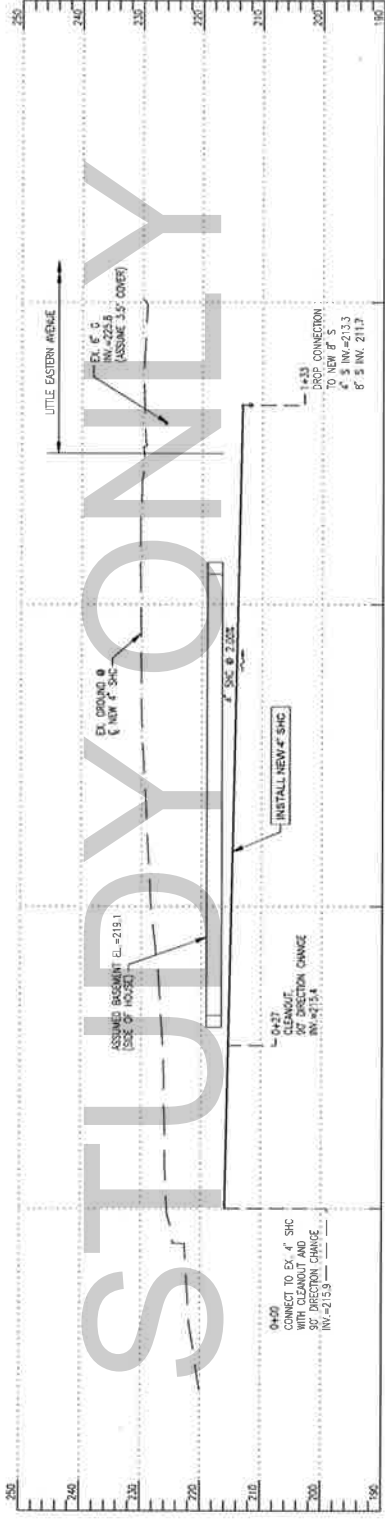
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PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION
6621 EASTERN AVENUE

SCALE: 1"=10' HORIZ.
1"=10' VERT.



PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION
6617 EASTERN AVENUE

SCALE: 1"=10' HORIZ.
1"=10' VERT.

SERVICE AREA 495A
HHG = 500'
LHG = 410'

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CONSENT OF THE ENGINEER.

ENGINEER:
NAME: THE WILSON ENGINEERING COMPANY
FIRM: 1100 COURT HOUSE HILL RD #21117
ADDRESS: WILSON, MD 21157
PHONE: 410-226-0498
FAX: 410-226-0498

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
TAKOMA PARK, MONTGOMERY COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY
THAT THE ABOVE DESCRIBED WORK
WAS PREPARED BY ME OR UNDER MY
SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE
STATE OF MARYLAND. MY LICENSE NO. 50001
DATE: 04/26/2017

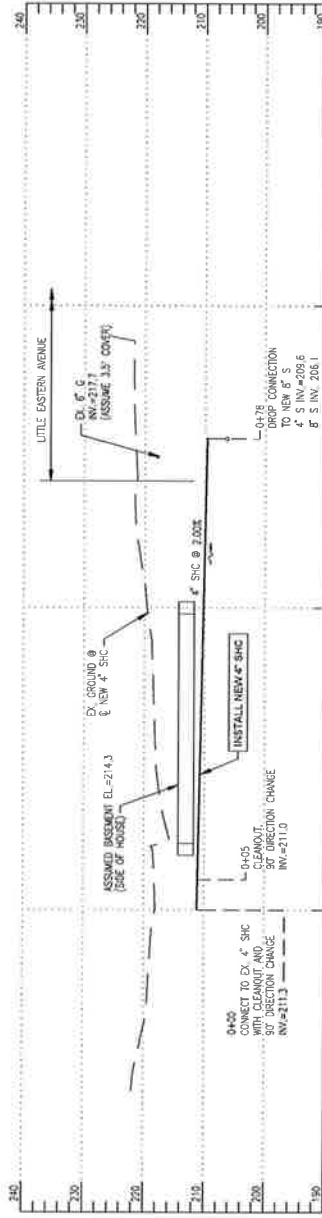
DATE	REVISIONS

INFRASTRUCTURE SYSTEMS GROUP
SEWER FRONT YARD
STUDY 4/13/17

DATE: _____
GROUP LEADER: _____
DATE: _____
UNIT COORDINATOR: _____
DATE: _____
REVIEWED BY: _____

CONTRACT BR/CR/LR5355C12
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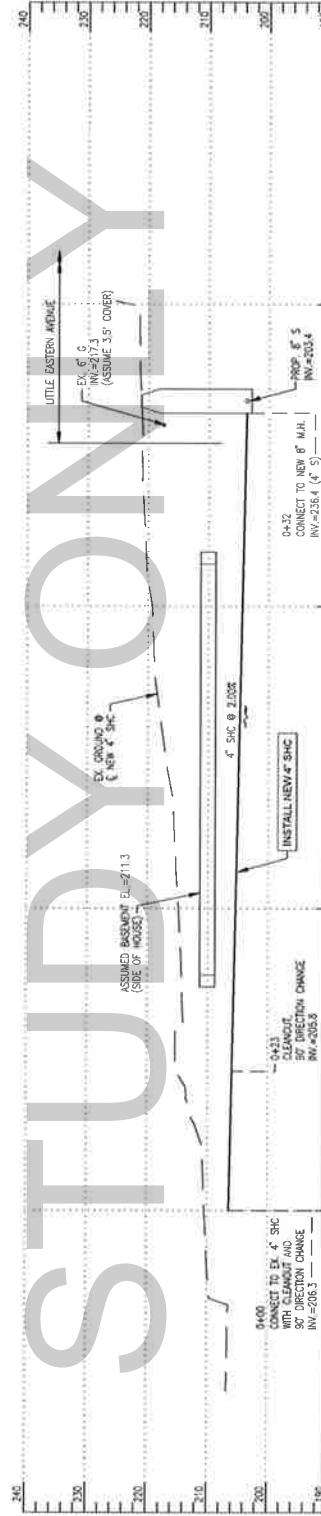
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0+400 0+450 1+400

PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION 6613 EASTERN AVENUE

SCALE: 1"=10' HORIZ.
1"=10' VERT.



0+400 0+450 1+400

PROFILE OF 4" SANITARY SEWER HOUSE CONNECTION 6608 EASTERN AVENUE

SCALE: 1"=10' HORIZ.
1"=10' VERT.

PROFESSIONAL CERTIFICATION

"I, the undersigned, hereby certify that these documents were prepared or designed by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 38851, Expiration Date: 12/31/2024.

CONTRACT BR/CRL/R5355C12

DATE 4/13/17
GROUP LEADER
DATE 4/13/17
UNIT COORDINATOR
DATE 4/13/17
REVIEWED BY

DATE 4/13/17

WATER AND SEWER MAIN REPLACEMENTS/RELOCATIONS
SANDY HILL COURT, DOWNS HILLS MD 21117
TACOMA PARK, MONTGOMERY COUNTY, MARYLAND

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CONSENT OF THE ENGINEER
PROVIDING THE APPROVAL



WASHINGTON SUBURBAN SANITARY COMMISSION

SERVICE AREA 495A
HHG = 500'
LHG = 410'

DATE 4/13/17

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WASHINGTON SUBURBAN SANITARY COMMISSION

SERVICE AREA 495A
HHG = 500'
LHG = 410'

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