STORM SEWER STR. G1450 LOCATED ON
426 EAST COLUMBIA STREET.

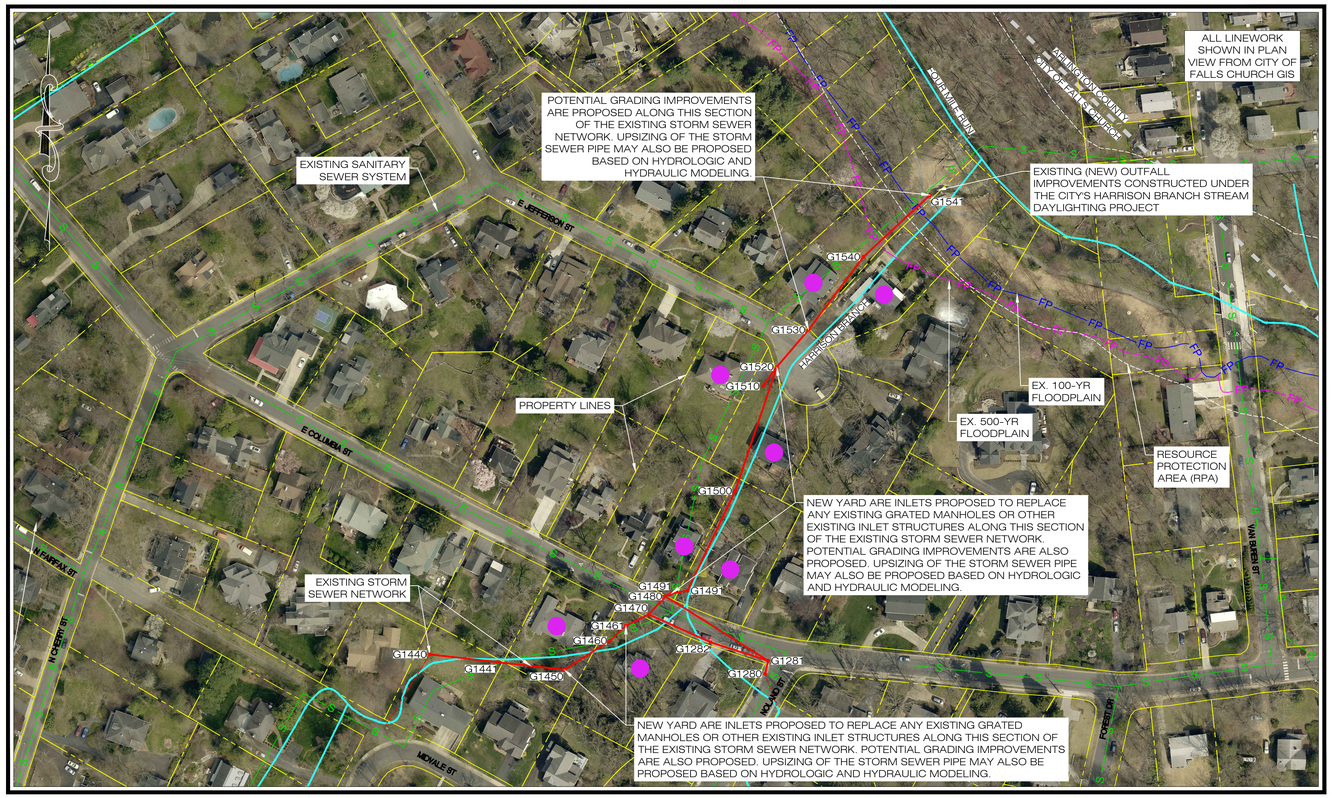
STORM SEWER STR. G1461 LOCATED ON
432 EAST COLUMBIA STREET.

LOOKING SOUTHWEST TOWARD STORM SEWER
STRUCTURE G1510 AND UPSTREAM SWALE FROM
STORM SEWER STR. G1520 WITHIN THE CULDESAC ON
EAST JEFFERSON STREET.

STORM SEWER STR. G1530 WITHIN THE CULDESAC ON
EAST JEFFERSON STREET, LOOKING NORTHEAST.
(IMAGE FROM GOOGLE STREET VIEW, SEPT. 2017)

2/4 EXISTING CONDITIONS PHOTOS

NOT TO SCALE



1/4 E. COLUMBIA & HARRISON BRANCH PROJECT CONCEPTUAL LAYOUT

1" = 100'

GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
1 inch = 100 ft.

CONCEPTUAL PLAN NARRATIVE

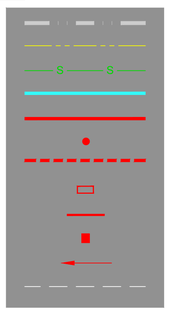
THE GOAL OF THIS PROJECT IS TO ANALYZE THE AREA OF SIGNIFICANT FLOODING THAT OCCURS BETWEEN 426 AND 432 E. COLUMBIA STREET, BETWEEN 429 AND 431 E. COLUMBIA STREET, BETWEEN 408 AND 410 E. JEFFERSON STREET, AND BETWEEN 419 AND 500 E. JEFFERSON STREET IN THE CITY OF FALLS CHURCH; THESE SUBJECT PROPERTIES ARE REPRESENTED IN PLAN VIEW WITH A PURPLE DOT. THE STORM SEWER NETWORK IN THE SUBJECT PROBLEM AREA WILL BE MODELED TO DETERMINE ITS CAPACITY DURING A 10-YEAR STORM EVENT.

PREVIOUSLY COMPLETED HYDROLOGY INDICATED THAT THE CONTRIBUTING DRAINAGE AREA OF HARRISON BRANCH (TO THE OUTFALL INTO FOUR MILE RUN) IS 70.52 ACRES, 28.3% IMPERVIOUS, WITH A CURVE NUMBER OF 81.

THIS CONCEPTUAL PLAN CONSIDERS POTENTIAL GRADING/CHANNEL IMPROVEMENTS BETWEEN HOUSES, POSSIBLE MODIFICATIONS TO INLET TOPS (e.g., POTENTIALLY IMPROVING EXISTING GRATE INLETS TO STANDARD YARD INLET TOPS WITH HIGHER CAPACITY THROATS), AND PROPOSED PIPE IMPROVEMENTS TO INCREASE OVERALL SYSTEM CAPACITY AND CONVEYANCE.

CONCEPTUAL PLAN LEGEND

JURISDICTIONAL BOUNDARY
PROPERTY LINES
EXISTING SANITARY SEWER
STREAM CENTERLINE
EXISTING STORM SEWER PIPE
EXISTING STORM STRUCTURE
PROPOSED STORM SEWER PIPE
PROPOSED CURB INLET
PROPOSED CULVERT PIPE
PROPOSED JUNCTION BOX
DIRECTIONAL ARROW
RESOURCE PROTECTION AREA



ALL INFORMATION HEREON, INCLUDING THE PLAN AND COST ESTIMATE, IS IN DRAFT FORM AT A CONCEPTUAL LEVEL OF DESIGN, PRODUCED AS AN INTERIM PRODUCT. INFORMATION WILL CHANGE AS SUBSEQUENT LEVELS OF DESIGN ARE COMPLETED.

CONCEPTUAL PLAN CONSTRAINTS

No.	Constraint	Cost	Schedule	Constructability	Comments
1	Overhead utility lines are present along E. Columbia St and E. Jefferson St.		🟢		Easement language will need to be examined. If necessary permissions would need to be obtained from easement-holders.
2	A small portion of the downstream storm sewer pipe, to be potentially upsized, is in a Resource Protection Area (RPA).			🟢	Limits of disturbance will need to be restricted to the minimum area required for installation of improvements.
3	A small portion of the downstream storm sewer pipe, to be potentially upsized, is in the exisitng 100-year floodplain.			🟢	Limits of disturbance will need to be restricted to the minimum area required for installation of improvements.
4	Sanitary sewer lines exist along E. Columbia St, E. Jefferson St, and along Harrison Branch that could impact potential upsizing of the storm sewer pipes located underneath and along the street and grading improvements between affected homes.	🟢		🟢	Pending survey, proposed pipe horizontal and vertical alignment will be located to minimimize conflicts with sanitary sewer; however, care must be taken in construction to protect existing pipe and avoid damage during excavation.
5	A water line exists along E. Columbia St (not shown) that could impact potential upsizing of the storm sewer pipe located underneath the street.	🟡		🟢	Pending survey, proposed pipe horizontal and vertical alignment will be located to minimimize conflicts with waterline; however, care must be taken in construction to protect existing pipe and avoid damage during excavation. If waterline is found to be in conflict, waterline may be relocated.
6	There may be other unknown utilities in the area of proposed work that could cause a potential conflict.	🔴	🟡	🟡	Pending survey, proposed pipe horizontal and vertical alignment will be located to minimimize conflicts with existing utilities; however, care must be taken in construction to protect existing pipe and avoid damage during excavation. If utilities are found to be in conflict, they may be relocated.
7	Grading, storm sewer pipe, and inlet improvements may be required on private property.	🟢	🟡	🟢	Permissions will need to be obtained.
8	Mature trees, fences, sheds, etc. potentially impacted by any construction between storm sewer structures G1450 and G1491 as well as between G1540 and G1541. Potential work could be very close to the existing houses as well.	🟡	🟢	🟡	Permissions will need to be obtained and coordination with homeowners will be required.
9	The downstream outfall into Four Mile Run, where upsizing of the storm sewer network is proposed, was recently improved via a City capital improvement project. Additional modifications would not be ideal.	🟡	🟡	🔴	The outfall may have to be reconstructed again if improvements are made to the upstream storm sewer network.
10	Once a full hydrologic and hydraulic analysis of the existing conditions has been completed, the results will determine feasibility of the project and the proposed design shown may be altered.				To be determined.

Legend

🟢 Minimal Impact

🟡 Moderate Impact

🔴 Significant Impact

Project: City of Falls Curch Watershed Master Plan: E. Columbia & Harrison Branch Project					
Design Assumptions: Grading, Storm Sewer Inlet, and Storm Sewer Pipe Improvements					
Estimate Type: Conceptual Construction Cost Estimate					
Prepared by: GKY & Associates, Inc.					
Date: January 15, 2020					
#	ITEM	QUANTITY	UNIT	UNIT COST	COST
1	**EROSION & SEDIMENT CONTROL**				
2	Erosion and Sediment Controls	1	LS	$75,000 / LS	$75,000
3	**EROSION & SEDIMENT CONTROL SUB TOTAL:**				**$75,000**
4	**PROPOSED IMPROVEMENTS**				
5	54" RCP CL III Pipe	1,100	LF	$500 / LF	$550,000
6	EW-2 Endwall for 54" Pipe	1	EA	$9,000 / EA	$9,000
7	Imbricated Stone for Plunge Pool	50	TN	$200 / TN	$10,000
8	Yard Inlet Structure	8	EA	$8,000 / EA	$64,000
9	DI-4, Curb Inlet, for 54" Pipe	4	EA	$25,000 / EA	$100,000
15	Pavement Restoration	1	LS	$100,000 / LS	$100,000
16	**PROPOSED IMPROVEMENTS SUB TOTAL:**				**$833,000**
17	**MISCELLANEOUS**				
18	Mobilization	1	EA	$30,000 / EA	$30,000
19	Maintenance of Traffic	1	LS	$50,000 / LS	$50,000
20	Utility Coordination and/or Relocation	1	LS	$90,000 / LS	$100,000
21	Construction Design, Survey, and Stakeout	1	LS	$90,000 / LS	$90,000
22	**MISCELLANEOUS SUB TOTAL:**				**$270,000**
23					
24	**PROJECT SUB TOTAL:**				**$1,178,000**
25	**CONTINGENCY (45% of PROJECT SUB TOTAL):**				**$530,100**
26	**PROJECT TOTAL:**				**$1,708,100**

3/4 E. COLUMBIA & HARRISON BRANCH PROJECT CONCEPTUAL COST ESTIMATE

GKY & Associates, inc.

GKY & ASSOCIATES, INC.
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SUITE 1850
CHANTILLY, VIRGINIA 20151
PHONE (703) 870-7000
FAX (703) 870-7039
www.gky.com

E. COLUMBIA & HARRISON BRANCH PROJECT CONCEPTUAL PLAN

WATERSHED MANAGEMENT PLAN PROJECTS
CITY OF FALLS CHURCH, VIRGINIA

NOT FOR CONSTRUCTION

DATE	DESCRIPTION
-	-

H SCALE: 1" = 100'
H DATUM: NAD83
V SCALE: N/A
V DATUM: NGVD29

DESIGNED: SM/CA
DRAFTED: SM/AJ
CHECKED: BK

PROJECT#: 2016-006
CONTRACT#: TO#30

SHEET: 4 OF 9