APPENDIX B
FIELD FORMS

Section 1 - General Information

Site Name	000109 Holmes Run
Project Type	Outfall
Site Latitude	38.83065
Site Longitude	-77.13487
Date	03/15/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☑ Alexandria Staff ☐ Other
Watershed	Holmes Run
Drainage Area	49.5 ac.

Section 2 - Field Photos

Image 1

From outfall towards Holmes Run

Image 2

Image 2 - caption, description, etc.:

Outfall

Image 3

Image 3 - caption, description, etc.:

Bedrock ds tie in

Image 4

Image 4 - caption, description, etc.:

Bank sample location

Image 5

Image 5 - caption, description, etc.:

Ds tie in at vane arm

Image 6

Side view of outfall

Image 7

Glenn Hills Park sign

Image 8

Looking downstream

Image 9

Looking upstream towards outfall

Image 10

Below concrete apron

Section 3 - General Site Observations

High Visibility?

- (●) Yes
- ( ) No

Construction Access

- (●) Easy
- ( ) Medium
- ( ) Hard

Steep Slopes?

- (●) Yes
- ( ) No

Bedrock Outcroppings?

- (●) Yes
- ( ) No

Bedrock Details:	Bedrock out croppings throughout the Southall channel. channel is cut down

Critical Infrastructure at risk?

- (●) Yes
- ( ) No

Infrastructure Details:	Pipe outfall apron cut through concrete. Pipe scouring. Outfall channel side slope and bottom concrete broken

Storm Sewer at Project Start?

- (●) Yes
- ( ) No

Size:	5.5 ft
Material:	Rcp

Storm Sewer at Project End?

- ( ) Yes
- (●) No

Ex. Utilities?

- ( ) Yes
- (●) No

Utility Crossing?

- ( ) Yes
- (●) No

Section 4 - Channel

CHANNEL GEOMETRY	
Width	30 ft
Depth	8 ft
Slope (%)	10

CHANNEL FEATURES	
Evolution Stage	3
Rosgen Type	G1 / G4
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☑ Pools ☐ Runs ☐ Other
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☑ Mid. Channel Bars ☐ Cutoffs ☐ Meanders ☐ Other
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☑ Headcuts ☑ Knickpoints ☑ Other
"Other" Vert. Instability:	Cutting to bedrock
Grade Control?	◉ Yes ○ No
Grade Control Details:	☐ Utility X-ing ☑ Bedrock ☐ Trees/Roots ☐ Other
Tribs Along Reach?	○ Yes ◉ No

BED	
Bed Load Supply?	(•) Yes ( ) No
Supply Size (mm):	90
Supply Source:	Upland areas discharging through outlet pipe? Or there is 2 ft deep plunge pool which has eroded the bed and created a mid channel bar in the concrete apron with particle sizes of sand , gravel and cobble up to 100 mm in size.
Bed Substrate	[x] Sand [x] Gravel [x] Cobble [x] Boulder [x] Lined [x] Other
"Other" Bed Substrate:	Bedrock, concrete
Bed Sample Taken?	( ) Yes (•) No
Bed D50 (mm)	

BANKS	
Bank Material	[x] Silt [x] Sand [ ] Gravel [ ] Cobble [ ] Lined [ ] Other
Bank Sample Taken?	( ) Yes (•) No
Bank D50 (mm)	Bedrock with a mixture of sand gravel and cobble up to 100 mm

WATER	
Appearance	Clear, cold
Odor?	( ) Yes (•) No
Algae?	(•) Yes ( ) No

Section 5 - Floodplain

Floodplain

- (●) Confined
- ( ) Open

Structures w/in Floodplain

- ( ) Yes
- (●) No

Floodplain Constriction?

- ( ) Yes
- (●) No

Floodplain Scour?

- ( ) Yes
- (●) No

Debris Line/HW Mark?

- (●) Yes
- ( ) No

Line/Mark Details:	Algae line on channel revetment

Channel Restriction/BW Effects?

- ( ) Yes
- (●) No

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [ ] Shrubs
- [x] Trees

Riparian Width

Right hand side is a high terrace, the left riverbank is sufficiently wide

Observed Invasives

- [x] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [ ] Multi-flora Rose
- [ ] Privet
- [ ] Kudzu
- [x] Bamboo
- [ ] Other

Observed Habitat/Fauna

Ducks, robins

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

03/27/2018 09:22:51 AM GMT-04:00

Section 1 - General Information

Site Name	000166 Holmes Run (Fox Chase)
Project Type	Outfall
Site Latitude	38.81393
Site Longitude	-77.11219
Date	03/16/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☑ Alexandria Staff ☐ Other
Watershed	Holmes Run
Drainage Area	22 ac.

Section 2 - Field Photos

Image 1 Outfall looking downstream

Image 2 Concrete apron

Image 3 Left eroded bank

Image 4 Toe of slope

Image 5 Field data collection

Image 6 Downstream headcut #1

Image 7 Downstream headcut #2

Image 8 Downstream headcut #3

Image 9 Storm inlet covered with debris

Image 10 Taking bank measurement

Section 3 - General Site Observations

High Visibility?

- ( ) Yes
- (•) No

Construction Access

- (•) Easy
- ( ) Medium
- ( ) Hard

Steep Slopes?

- (•) Yes
- ( ) No

Bedrock Outcroppings?

- ( ) Yes
- (•) No

Critical Infrastructure at risk?

- (•) Yes
- ( ) No

Infrastructure Details:	36" RCP outfall undermined

Storm Sewer at Project Start?

- (•) Yes
- ( ) No

Size:	36
Material:	RCP

Storm Sewer at Project End?

- ( ) Yes
- (•) No

Ex. Utilities?

- (•) Yes
- ( ) No

Utilities:	[ ] Gas [ ] Water [ ] Sewer [✓] Electric [ ] Telecom [✓] Poles [ ] Other

Utility Crossing?

- ( ) Yes
- (•) No

Section 4 - Channel

CHANNEL GEOMETRY	
Width	15 ft
Depth	2 ft
Slope (%)	1

CHANNEL FEATURES	
Evolution Stage	2
Rosgen Type	G4
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☑ Pools ☐ Runs ☑ Other
"Other" Feature(s):	Scour hole
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☐ Mid. Channel Bars ☐ Cutoffs ☐ Meanders ☑ Other
"Other" Lat. Instability:	Pipe outfall directed at bank causing bank erosion
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☑ Headcuts ☑ Knickpoints ☐ Other
Grade Control?	◉ Yes ○ No
Grade Control Details:	☐ Utility X-ing ☐ Bedrock ☐ Trees/Roots ☑ Other
"Other" Grade Control:	Culvert apron invert
Tribs Along Reach?	○ Yes ◉ No

BED	
Bed Load Supply?	○ Yes ● No
Bed Substrate	☐ Sand ☐ Gravel ☐ Cobble ☐ Boulder ☐ Lined ☐ Other
Bed Sample Taken?	○ Yes ○ No
Bed D50 (mm)	90 (Largest observed particle)

BANKS	
Bank Material	☐ Silt/Clay ☐ Sand ☐ Gravel ☐ Cobble ☐ Lined ☐ Other
Bank Sample Taken?	○ Yes ● No
Bank D50 (mm)	NA

WATER	
Appearance	Some oil spots, trash
Odor?	○ Yes ● No
Algae?	○ Yes ● No

Section 5 - Floodplain

Floodplain

- ○ Confined
- ◉ Open

Structures w/in Floodplain

- ○ Yes
- ◉ No

Floodplain Constriction?

- ○ Yes
- ◉ No

Floodplain Scour?

- ○ Yes
- ◉ No

Debris Line/HW Mark?

- ◉ Yes
- ○ No

Line/Mark Details:	Debris tapped in brush along the reach

Channel Restriction/BW Effects?

- ◉ Yes
- ○ No

Restriction/BW Details:	☑ Debris ☐ Culvert ☐ Bridge ☐ Dams ☑ Dump Sites ☑ Other
"Other" Restriction:	Lots of debris/trash in the channel

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [x] Shrubs
- [x] Trees

Riparian Width

Extensive

Observed Invasives

- [x] English Ivy
- [ ] Japanese Stiltgrass
- [x] Mile-a-minute
- [x] Multi-flora Rose
- [x] Privet
- [ ] Kudzu
- [ ] Bamboo
- [ ] Other

Observed Habitat/Fauna

Birds, woodpecker

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

03/27/2018 09:38:47 AM GMT-04:00

Section 1 - General Information

Site Name	JBFNC Holmes Run
Project Type	Outfall
Site Latitude	38.82823
Site Longitude	-77.13294
Date	03/15/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☐ Alexandria Staff ☐ Other
Watershed	Holmes Run
Drainage Area	9.1 Acres

Section 2 - Field Photos

Image 1

Image 1 - caption, description, etc.

the end of the outfall

Image 2 Downstream extent

Image 3 Downstream extent

Image 4 Cantilevered outfall

Image 5 Overhanging concrete apron

Image 6 Exposed bedrock

Image 7 Looking downstream from outfall

Image 8 Right overbank

Image 9 Headwall apron interface

Image 10 Upstream storm sewer manhole

Image 10 - caption, description, etc.:

upstream inlet

Section 3 - General Site Observations

High Visibility?

- (●) Yes
- ( ) No

Construction Access

- ( ) Easy
- (●) Medium
- ( ) Hard

Steep Slopes?

- (●) Yes
- ( ) No

Bedrock Outcroppings?

- (●) Yes
- ( ) No

Bedrock Details:	Cut down to bedrock at the end of the apron

Critical Infrastructure at risk?

- (●) Yes
- ( ) No

Infrastructure Details:	Outfall apron cracking and hanging over air

Storm Sewer at Project Start?

- (●) Yes
- ( ) No

Size:	18 inch
Material:	RCP

Storm Sewer at Project End?

- ( ) Yes
- (●) No

Ex. Utilities?

- ( ) Yes
- (●) No

Utility Crossing?

- ( ) Yes
- (●) No

Section 4 - Channel

CHANNEL GEOMETRY	
Width	15 ft
Depth	7 ft
Slope (%)	20

CHANNEL FEATURES	
Evolution Stage	2
Rosgen Type	G1
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☐ Pools ☐ Runs ☑ Other
"Other" Feature(s):	Eroded ephemeral gully
Lat. Instability?	○ Yes ◉ No
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☑ Headcuts ☑ Knickpoints ☑ Other
"Other" Vert. Instability:	Knickpoint has migrated up under the concrete apron
Grade Control?	◉ Yes ○ No
Grade Control Details:	☐ Utility X-ing ☑ Bedrock ☐ Trees/Roots ☑ Other
"Other" Grade Control:	Head cut to the outfall apron
Tribs Along Reach?	◉ Yes ○ No
Trib Details:	☑ Natural ☐ Conc. Lined ☐ Pipes ☐ Other

BED	
Bed Load Supply?	○ Yes ◉ No
Bed Substrate	☐ Sand ☐ Gravel ☐ Cobble ☑ Boulder ☐ Lined ☑ Other
"Other" Bed Substrate:	Bedrock
Bed Sample Taken?	○ Yes ◉ No
Bed D50 (mm)	Bedrock

BANKS	
Bank Material	☐ Silt ☑ Sand ☑ Gravel ☑ Cobble ☐ Lined ☐ Other
Bank Sample Taken?	◉ Yes ○ No
Sample Location:	Left bank, approx. 40' DS of outfall
Bank D50 (mm)	70 mm ,D100 is 220 mm

WATER	
Appearance	Ephemeral
Odor?	○ Yes ◉ No
Algae?	○ Yes ◉ No

Section 5 - Floodplain

Floodplain

- (●) Confined
- ( ) Open

Structures w/in Floodplain

- ( ) Yes
- (●) No

Floodplain Constriction?

- ( ) Yes
- (●) No

Floodplain Scour?

- ( ) Yes
- (●) No

Debris Line/HW Mark?

- ( ) Yes
- (●) No

Channel Restriction/BW Effects?

- (●) Yes
- ( ) No

Restriction/BW Details:	☐ Debris ☐ Culvert ☐ Bridge ☐ Dams ☐ Dump Sites ☑ Other
"Other" Restriction:	Trail at the bottom where the channel opens up, channel sheet flows across trail

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [ ] Shrubs
- [x] Trees

Riparian Width

Steep down hillside

Observed Invasives

- [ ] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [x] Multi-flora Rose
- [x] Privet
- [ ] Kudzu
- [ ] Bamboo
- [ ] Other

Observed Habitat/Fauna

None

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

03/27/2018 09:24:12 AM GMT-04:00

Section 1 - General Information

Site Name	Dual90in Cameron Run
Project Type	Outfall
Site Latitude	38.80391
Site Longitude	-77.09719
Date	03/16/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☐ Alexandria Staff ☐ Other
Watershed	Cameron Run
Drainage Area	473.6 ac.

Section 2 - Field Photos

Image 1 Looking up towards road

Image 2 Measuring drop from invert

Image 3 Ex. CMP pipe

Image 4 Eroded CMP

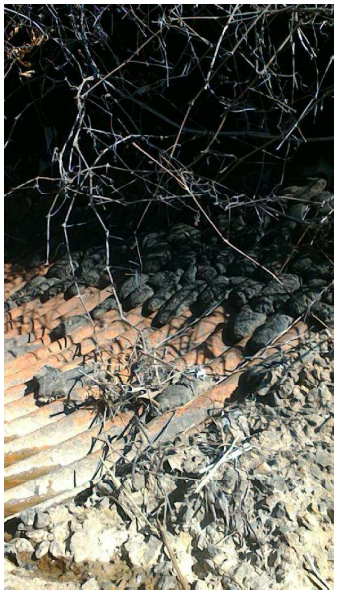


Image 5 Downstream from outfall

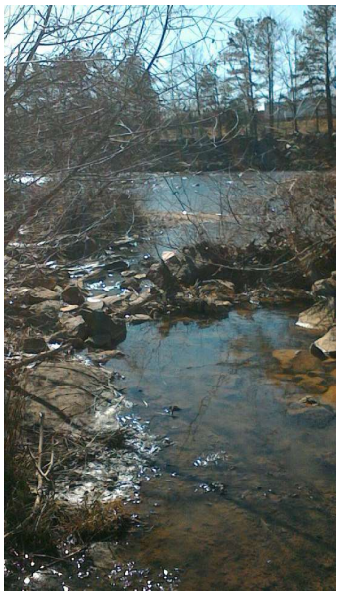


Image 6 Bed material below outfall

Image 7 Looking downstream from road

Image 8 Flow from CMP

Section 3 - General Site Observations

High Visibility?

- ( ) Yes
- (•) No

Construction Access

- (•) Easy
- ( ) Medium
- ( ) Hard

Steep Slopes?

- (•) Yes
- ( ) No

Bedrock Outcroppings?

- ( ) Yes
- (•) No

Critical Infrastructure at risk?

- (•) Yes
- ( ) No

Infrastructure Details:	Dual 90in cmp pipe hanging and beginning to undercut. Existing lining deteriorating

Storm Sewer at Project Start?

- (•) Yes
- ( ) No

Size:	90
Material:	CMP, lined

Storm Sewer at Project End?

- ( ) Yes
- (•) No

Ex. Utilities?

- ( ) Yes
- (•) No

Utility Crossing?

- ( ) Yes
- (•) No

Section 4 - Channel

CHANNEL GEOMETRY	
Width	0 - N/A
Depth	0 □□.□□
Slope (%)	0 □□.□□

CHANNEL FEATURES	
Evolution Stage	N/A
Rosgen Type	N/A
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☐ Pools ☐ Runs ☑ Other
"Other" Feature(s):	Scour hole
Lat. Instability?	○ Yes ◉ No
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☐ Headcuts ☑ Knickpoints ☑ Other
"Other" Vert. Instability:	Knickpoint at pipe ends. Scour hole
Grade Control?	◉ Yes ○ No
Grade Control Details:	☐ Utility X-ing ☐ Bedrock ☐ Trees/Roots ☑ Other
"Other" Grade Control:	Pipe invert out
Tribs Along Reach?	○ Yes ◉ No

BED	
Bed Load Supply?	○ Yes ◉ No
Bed Substrate	☑ Sand ☐ Gravel ☐ Cobble ☐ Boulder ☐ Lined ☑ Other
"Other" Bed Substrate:	Riprap. Upstream lake blocks sediment supply
Bed Sample Taken?	○ Yes ◉ No
Bed D50 (mm)	

BANKS	
Bank Material	☐ Silt ☐ Sand ☐ Gravel ☐ Cobble ☑ Lined ☑ Other
"Other" Bank Material:	Riprap bank protection
Bank Sample Taken?	○ Yes ◉ No
Bank D50 (mm)	

WATER	
Appearance	Clear
Odor?	○ Yes ◉ No
Algae?	○ Yes ◉ No

Section 5 - Floodplain

Floodplain

- ○ Confined
- ◉ Open

Structures w/in Floodplain

- ○ Yes
- ◉ No

Floodplain Constriction?

- ○ Yes
- ◉ No

Floodplain Scour?

- ○ Yes
- ◉ No

Debris Line/HW Mark?

- ◉ Yes
- ○ No

Line/Mark Details:	Trash noted in brush

Channel Restriction/BW Effects?

- ◉ Yes
- ○ No

Restriction/BW Details:	☐ Debris ☐ Culvert ☐ Bridge ☐ Dams ☐ Dump Sites ☑ Other
"Other" Restriction:	Cameron run water surface elevation

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [x] Shrubs
- [ ] Trees

Riparian Width

N/A

Observed Invasives

- [ ] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [ ] Multi-flora Rose
- [x] Privet
- [ ] Kudzu
- [x] Bamboo
- [x] Other

"Other" Invasive(s):	Other prominent vine, see photos

Observed Habitat/Fauna

Birds, snail shells, small other shells

Large healthy trees?

- ( ) Yes
- (•) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

03/27/2018 09:32:20 AM GMT-04:00

wood.

Alexandria Stream Assessment

Section 1 - General Information

Site Name	Strawberry Run
Project Type	Stream
Site Latitude	38.81161
Site Longitude	-77.09453
Date	08/15/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☑ Alexandria Staff ☐ Other
Watershed	Strawberry Run
Drainage Area	173 ac.

Section 2 - Field Photos

Image 1

Upstream storm sewer outfall. 6ft dai. CMP

Image 2

Eroded right bank in upstream portion of reach

Image 3

Abandoned meander/floodplain. Evidence current channel has downcut approx. 4 ft.

Image 4

Broken concrete pieces (appears to be old curb & gutter) in the channel.

Image 5

Channel obstructions (downed tree & concrete) in the lower project reach.

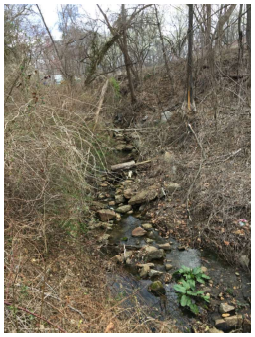
Image 6

Highly eroded, vertical bank.

Image 7

Highly eroded bank. English ivy provides minimal cover, no stabilization.

Image 8



Relatively stable section of stream channel. Located upstream of broken concrete segment.

Image 9

Pedestrian bridge at downstream project extents.

Section 3 - General Site Observations

High Visibility?

- (●) Yes
- ( ) No

Construction Access

- ( ) Easy
- ( ) Medium
- (●) Hard

Steep Slopes?

- (●) Yes
- ( ) No

Bedrock Outcroppings?

- ( ) Yes
- (●) No

Critical Infrastructure at risk?

- ( ) Yes
- (●) No

Storm Sewer at Project Start?

- (●) Yes
- ( ) No

Size:	6ft
Material:	CMP

Storm Sewer at Project End?

- ( ) Yes
- (●) No

Ex. Utilities?

- ( ) Yes
- (●) No

Utility Crossing?

- ( ) Yes
- (●) No

Section 4 - Channel

CHANNEL GEOMETRY	
Width	15 ft
Depth	8.5 ft
Slope (%)	2.3

CHANNEL FEATURES	
Evolution Stage	2/3
Rosgen Type	G4
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☐ Pools ☑ Runs ☐ Other
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☑ Mid. Channel Bars ☑ Cutoffs ☑ Meanders ☐ Other
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☐ Headcuts ☐ Knickpoints ☑ Other
"Other" Vert. Instability:	Abandoned meanders approx. 4ft above current channel bottom. Scour pools downstream of obstructions.
Grade Control?	◉ Yes ○ No
Grade Control Details:	☐ Utility X-ing ☐ Bedrock ☑ Trees/Roots ☑ Other
"Other" Grade Control:	Cross vanes in downstream portion from previous restoration.
Tribs Along Reach?	◉ Yes ○ No
Trib Details:	☑ Natural ☐ Conc. Lined ☑ Pipes ☐ Other

BED

Bed Load Supply?	(•) Yes ( ) No
Supply Size (mm):	D95 = 81 mm (point bar); D95 = 110 mm (riffle bed)
Supply Source:	Local banks
Bed Substrate	[x] Sand [x] Gravel [x] Cobble [ ] Boulder [x] Lined [ ] Other
Bed Sample Taken?	(•) Yes ( ) No
Bed D50 (mm)	50

BANKS	
Bank Material	[x] Silt [x] Sand [x] Gravel [x] Cobble [ ] Lined [x] Other
"Other" Bank Material:	Clay
Bank Sample Taken?	(•) Yes ( ) No
Sample Location:	BEHI 2
Bank D50 (mm)	NA

WATER	
Appearance	Murky, walking in stream kicks up lots of fine material
Odor?	( ) Yes (•) No
Algae?	(•) Yes ( ) No

Section 5 - Floodplain

Floodplain

- ( ) Confined
- (•) Open

Structures w/in Floodplain

- ( ) Yes
- (•) No

Floodplain Constriction?

- (•) Yes
- ( ) No

Constriction Details:	Necks down near bridge at downstream extents

Floodplain Scour?

- ( ) Yes
- (•) No

Debris Line/HW Mark?

- (•) Yes
- ( ) No

Line/Mark Details:	Debris

Channel Restriction/BW Effects?

- (•) Yes
- ( ) No

Restriction/BW Details:	[x] Debris [ ] Culvert [ ] Bridge [ ] Dams [ ] Dump Sites [x] Other
"Other" Restriction:	Downed trees

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [x] Shrubs
- [x] Trees

Riparian Width

100+

Observed Invasives

- [x] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [x] Multi-flora Rose
- [ ] Privet
- [ ] Kudzu
- [x] Bamboo
- [ ] Other

Observed Habitat/Fauna

Birds, deer, water striders

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

04/06/2018 02:54:12 PM GMT-04:00

Section 1 - General Information

Site Name	Taylor Run
Project Type	Stream
Site Latitude	38.82102
Site Longitude	-77.08026
Date	03/29/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☐ Alexandria Staff ☑ Other
Other Staff Name(s):	Christina Lash
Watershed	Taylor Run
Drainage Area	268.8 ac.

Section 2 - Field Photos

Image 1

Image 1 - caption, description, etc.

6ft rcp culvert at project start

Image 2 Looking downstream of project extent

Image 3 Bank profile

Image 4 Storm sewer outfall into Taylor Run

Image 5 Riprap bank protection

Image 6 Debris blockage

Image 7 Fallen trees

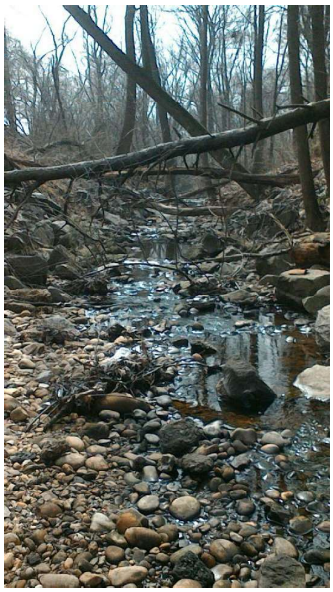
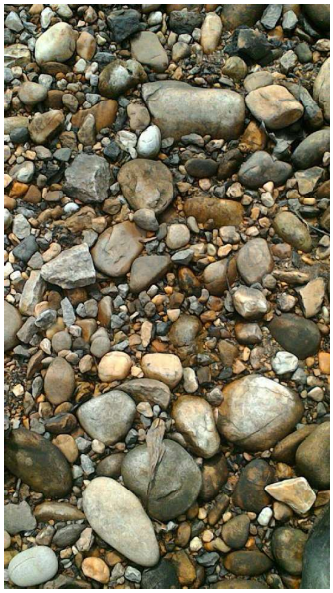


Image 8 Bed material



Section 3 - General Site Observations

High Visibility?

- (●) Yes
- ( ) No

Construction Access

- ( ) Easy
- (●) Medium
- ( ) Hard

Steep Slopes?

- (●) Yes
- ( ) No

Bedrock Outcroppings?

- ( ) Yes
- (●) No

Critical Infrastructure at risk?

- (●) Yes
- ( ) No

Infrastructure Details:	2 sanitary sewer xings

Storm Sewer at Project Start?

- (●) Yes
- ( ) No

Size:	6 ft
Material:	RCP

Storm Sewer at Project End?

- ( ) Yes
- (●) No

Ex. Utilities?

- (●) Yes
- ( ) No

Utilities:	[ ] Gas [ ] Water [✓] Sewer [ ] Electric [ ] Telecom [ ] Poles [ ] Other

Utility Crossing?

- (●) Yes
- ( ) No

Utility Crossing Details:	2 sanitary sewer xings

Section 4 - Channel

CHANNEL GEOMETRY	
Width	20 ft
Depth	4.5-10 ft
Slope (%)	1.7

CHANNEL FEATURES	
Evolution Stage	2
Rosgen Type	G4
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☐ Pools ☑ Runs ☐ Other
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☑ Mid. Channel Bars ☐ Cutoffs ☑ Meanders ☐ Other
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☐ Headcuts ☑ Knickpoints ☐ Other
Grade Control?	◉ Yes ○ No
Grade Control Details:	☑ Utility X-ing ☐ Bedrock ☐ Trees/Roots ☐ Other
Tribs Along Reach?	◉ Yes ○ No
Trib Details:	☐ Natural ☑ Conc. Lined ☑ Pipes ☐ Other

BED	
Bed Load Supply?	(●) Yes ( ) No
Supply Size (mm):	D95 = 100 mm (point bar); D95 = 81 mm (riffle bed)
Supply Source:	Upstream Bed and Banks
Bed Substrate	[ ] Sand [ ] Gravel [ ] Cobble [ ] Boulder [ ] Lined [ ] Other
Bed Sample Taken?	(●) Yes ( ) No
Bed D50 (mm)	43

BANKS	
Bank Material	[ ] Silt/Clay [ ] Sand [ ] Gravel [ ] Cobble [ ] Lined [ ] Other
Bank Sample Taken?	( ) Yes ( ) No
Bank D50 (mm)	□□

WATER	
Appearance	
Odor?	(●) Yes ( ) No
Odor Description:	Swampy, rotten
Algae?	(●) Yes ( ) No

Section 5 - Floodplain

Floodplain

- (●) Confined
- ( ) Open

Structures w/in Floodplain

- ( ) Yes
- (●) No

Floodplain Constriction?

- ( ) Yes
- (●) No

Floodplain Scour?

- ( ) Yes
- (●) No

Debris Line/HW Mark?

- (●) Yes
- ( ) No

Line/Mark Details:	

Channel Restriction/BW Effects?

- (●) Yes
- ( ) No

Restriction/BW Details:	☐ Culvert ☑ Debris ☐ Bridge ☐ Dams ☐ Dump Sites ☐ Other

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [ ] Shrubs
- [x] Trees

Riparian Width

50 ft plus

Observed Invasives

- [x] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [x] Multi-flora Rose
- [ ] Privet
- [ ] Kudzu
- [ ] Bamboo
- [ ] Other

Observed Habitat/Fauna

Ducks, water strikers, small fish

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

04/06/2018 02:54:44 PM GMT-04:00

Section 1 - General Information

Site Name	Timber Branch
Project Type	Stream
Site Latitude	38.81846
Site Longitude	-77.07342
Date	03/28/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☐ Alexandria Staff ☐ Other
Watershed	Timber Branch
Drainage Area	262.4 ac.

Section 2 - Field Photos

Image 1

Image 1 - caption, description, etc.

Downstream project extents

Image 2

Image 2 - add caption, description, etc.:
Pebble count taken

Image 3

Image 3 - add caption, description, etc.:
Bar sample taken

Section 3 - General Site Observations

High Visibility?

- (•) Yes
- ( ) No

Construction Access

- (•) Easy
- ( ) Medium
- ( ) Hard

Steep Slopes?

- ( ) Yes
- (•) No

Bedrock Outcroppings?

- ( ) Yes
- (•) No

Critical Infrastructure at risk?

- ( ) Yes
- (•) No

Storm Sewer at Project Start?

- (•) Yes
- ( ) No

Size:	Approx. 5' x 8' Box
Material:	Concrete

Storm Sewer at Project End?

- (•) Yes
- ( ) No

Size:	4 , 1FT DIAM
Material:	Pvc

Ex. Utilities?

- (•) Yes
- ( ) No

Utilities:

- [ ] Gas
- [ ] Water
- [x] Sewer
- [ ] Electric
- [ ] Telecom
- [ ] Poles
- [ ] Other

Utility Crossing?

- ( ) Yes
- (•) No

Section 4 - Channel

CHANNEL GEOMETRY	
Width	20 ft
Depth	8 ft
Slope (%)	1.7

CHANNEL FEATURES	
Evolution Stage	3
Rosgen Type	G3
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☐ Pools ☑ Runs ☐ Other
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☐ Mid. Channel Bars ☐ Cutoffs ☐ Meanders ☑ Other
"Other" Lat. Instability:	Channel debris and sediment
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☐ Headcuts ☑ Knickpoints ☐ Other
Grade Control?	◉ Yes ○ No
Grade Control Details:	☐ Utility X-ing ☐ Bedrock ☑ Trees/Roots ☐ Other
Tribs Along Reach?	◉ Yes ○ No
Trib Details:	☐ Natural ☐ Conc. Lined ☑ Pipes ☐ Other

BED	
Bed Load Supply?	(•) Yes ( ) No
Supply Size (mm):	D95 = 150 mm (Point Bar); D95 = 240 mm (Riffle Bed)
Supply Source:	Bed and bank erosion
Bed Substrate	[x] Sand [x] Gravel [x] Cobble [ ] Boulder [ ] Lined [ ] Other
Bed Sample Taken?	(•) Yes ( ) No
Bed D50 (mm)	120 mm (Active Riffle)

BANKS	
Bank Material	[x] Silt [x] Sand [x] Gravel [x] Cobble [ ] Lined [x] Other
"Other" Bank Material:	Clay lenses
Bank Sample Taken?	(•) Yes ( ) No
Sample Location:	Behind locations
Bank D50 (mm)	N/A

WATER	
Appearance	Clear
Odor?	( ) Yes (•) No
Algae?	(•) Yes ( ) No

Section 5 - Floodplain

Floodplain

- (●) Confined
- ( ) Open

Structures w/in Floodplain

- ( ) Yes
- (●) No

Floodplain Constriction?

- ( ) Yes
- (●) No

Floodplain Scour?

- ( ) Yes
- (●) No

Debris Line/HW Mark?

- (●) Yes
- ( ) No

Line/Mark Details:	

Channel Restriction/BW Effects?

- (●) Yes
- ( ) No

Restriction/BW Details:	[ ] Debris [✓] Culvert [✓] Bridge [ ] Dams [ ] Dump Sites [✓] Other
"Other" Restriction:	Severe angle downstream

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [ ] Shrubs
- [x] Trees

Riparian Width

50ft plus

Observed Invasives

- [x] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [x] Multi-flora Rose
- [ ] Privet
- [ ] Kudzu
- [ ] Bamboo
- [ ] Other

Observed Habitat/Fauna

Deer, ducks, small fish

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

04/06/2018 04:28:26 PM GMT-04:00

Section 1 - General Information

Site Name	Unnamed Tributary Near Walleston Ct.
Project Type	Stream
Site Latitude	38.81563
Site Longitude	-77.08056
Date	03/29/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☑ Alexandria Staff ☑ Other
Other Staff Name(s):	Christina Lash
Watershed	Taylor Run
Drainage Area	140.8 ac.

Section 2 - Field Photos

Photo 1. Eroded bank

Photo 2. Tight radius causing accelerated bank erosion

Photo 3. Riprap revetment placed by homeowner along right overbank

Photo 4. Dam/debris blockage at downstream project extents

Section 3 - General Site Observations

High Visibility?

- (•) Yes
- ( ) No

Construction Access

- ( ) Easy
- (•) Medium
- ( ) Hard

Steep Slopes?

- ( ) Yes
- (•) No

Bedrock Outcroppings?

- ( ) Yes
- (•) No

Critical Infrastructure at risk?

- (•) Yes
- ( ) No

Infrastructure Details:	Backyards of homes

Storm Sewer at Project Start?

- ( ) Yes
- (•) No

Storm Sewer at Project End?

- ( ) Yes
- (•) No

Ex. Utilities?

- (•) Yes
- ( ) No

Utilities:

- [ ] Gas
- [ ] Water
- [x] Sewer
- [ ] Electric
- [ ] Telecom
- [ ] Poles
- [ ] Other

Utility Crossing?

- (•) Yes
- ( ) No

Utility Crossing Details:	San sewer crosses twice

Section 4 - Channel

CHANNEL GEOMETRY	
Width	22 ft
Depth	5-10 ft
Slope (%)	1.6

CHANNEL FEATURES	
Evolution Stage	2/3
Rosgen Type	G4
Trend	○ Aggrading ◉ Degrading
Features	☐ Riffles ☐ Pools ☑ Runs ☑ Other
"Other" Feature(s):	Debris, lots of channel armoring
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☑ Mid. Channel Bars ☐ Cutoffs ☑ Meanders ☑ Other
"Other" Lat. Instability:	Debris and blockage
Vert. Instability?	◉ Yes ○ No
Vert. Instability Details:	☑ Headcuts ☑ Knickpoints ☐ Other
Grade Control?	○ Yes ◉ No
Tribs Along Reach?	◉ Yes ○ No
Trib Details:	☑ Natural ☐ Conc. Lined ☑ Pipes ☐ Other

BED	
Bed Load Supply?	○ Yes ○ No
Bed Substrate	☐ Sand ☐ Gravel ☐ Cobble ☐ Boulder ☐ Lined ☐ Other
Bed Sample Taken?	○ Yes ○ No
Bed D50 (mm)	49

BANKS	
Bank Material	☐ Silt ☐ Sand ☐ Gravel ☐ Cobble ☐ Lined ☐ Other
Bank Sample Taken?	○ Yes ○ No
Bank D50 (mm)	N/A

WATER	
Appearance	Stagnant water
Odor?	◉ Yes ○ No
Odor Description:	Swampy
Algae?	◉ Yes ○ No

Section 5 - Floodplain

Floodplain

- ○ Confined
- ◉ Open

Structures w/in Floodplain

- ◉ Yes
- ○ No

Structure Details:	Homes

Floodplain Constriction?

- ○ Yes
- ◉ No

Floodplain Scour?

- ○ Yes
- ◉ No

Debris Line/HW Mark?

- ◉ Yes
- ○ No

Line/Mark Details:	Homeowner showed where water reaches during flood stage. Homeowner also shared pictures during flooding.

Channel Restriction/BW Effects?

- ◉ Yes
- ○ No

Restriction/BW Details:	☑ Debris ☐ Culvert ☐ Bridge ☑ Dams ☐ Dump Sites ☑ Other
"Other" Restriction:	Debris has built up at ds project extents causing a 2 to 3 ft high dam

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [ ] Tall Grass
- [x] Shrubs
- [x] Trees

Riparian Width

Extensive at upstream portions but gets much smaller downstream

Observed Invasives

- [x] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [x] Multi-flora Rose
- [ ] Privet
- [ ] Kudzu
- [x] Bamboo
- [ ] Other

Observed Habitat/Fauna

Salamander, small fish, water striders, birds, deer

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

04/06/2018 02:56:08 PM GMT-04:00

Section 1 - General Information

Site Name	Holmes Run
Project Type	Stream
Site Latitude	38.82950
Site Longitude	-77.13321
Date	03/28/2018
Staff	☑ Troy Biggs ☑ Mike Hepp ☐ Alexandria Staff ☐ Other
Watershed	Holmes Run
Drainage Area	10,624 ac.

Section 2 - Field Photos

Photo 1. Bank erosion and point bar development within channel

Photo 2. Upstream project extents looking downstream

Photo 3. Pedestrian trail undermined at downstream project extents just upstream of Beauregard Street

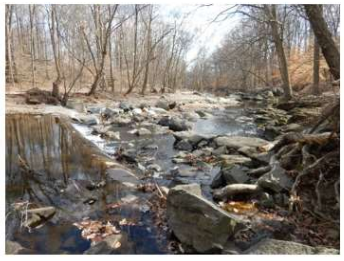


Photo 4. Sanitary sewer crossing and exposed bedrock

Section 3 - General Site Observations

High Visibility?

- (●) Yes
- ( ) No

Construction Access

- ( ) Easy
- (●) Medium
- ( ) Hard

Steep Slopes?

- ( ) Yes
- (●) No

Bedrock Outcroppings?

- (●) Yes
- ( ) No

Bedrock Details:	

Critical Infrastructure at risk?

- (●) Yes
- ( ) No

Infrastructure Details:	Trail, sidewalk, San sewer

Storm Sewer at Project Start?

- ( ) Yes
- (●) No

Storm Sewer at Project End?

- (●) Yes
- ( ) No

Size:	
Material:	CMP

Ex. Utilities?

- (●) Yes
- ( ) No

Utilities:	[ ] Gas [ ] Water [✓] Sewer [ ] Electric [ ] Telecom [ ] Poles [ ] Other

Utility Crossing?

- (●) Yes
- ( ) No

Utility Crossing Details:	Multiple San sewer xings

Section 4 - Channel

CHANNEL GEOMETRY	
Width	100 ft
Depth	5 - 10 (+) d
Slope (%)	0.7

CHANNEL FEATURES	
Evolution Stage	3 / 4
Rosgen Type	F3 / F4
Trend	○ Aggrading ◉ Degrading
Features	☑ Riffles ☑ Pools ☑ Runs ☐ Other
Lat. Instability?	◉ Yes ○ No
Lat. Instability Details:	☐ Mid. Channel Bars ☑ Cutoffs ☑ Meanders ☐ Other
Vert. Instability?	○ Yes ◉ No
Grade Control?	◉ Yes ○ No
Grade Control Details:	☑ Utility X-ing ☑ Bedrock ☐ Trees/Roots ☐ Other
Tribs Along Reach?	◉ Yes ○ No
Trib Details:	☑ Natural ☐ Conc. Lined ☑ Pipes ☐ Other

BED	
Bed Load Supply?	(●) Yes ( ) No
Supply Size (mm):	D50 = 16 mm, D95 = 58 mm (point bar); D95 = 420 mm (riffle bed)
Supply Source:	Upstream Bed and Banks
Bed Substrate	☐ Sand ☐ Gravel ☐ Cobble ☐ Boulder ☐ Lined ☐ Other
Bed Sample Taken?	(●) Yes ( ) No
Bed D50 (mm)	74 mm

BANKS	
Bank Material	☐ Silt ☐ Sand ☐ Gravel ☐ Cobble ☐ Lined ☐ Other (Traces of Clay)
Bank Sample Taken?	(●) Yes ( ) No
Sample Location:	BEHI Location #6
Bank D50 (mm)	N/A

WATER	
Appearance	Clear
Odor?	( ) Yes (●) No
Algae?	(●) Yes ( ) No

Section 5 - Floodplain

Floodplain

- ○ Confined
- ◉ Open

Structures w/in Floodplain

- ○ Yes
- ◉ No

Floodplain Constriction?

- ◉ Yes
- ○ No

Constriction Details:	

Floodplain Scour?

- ○ Yes
- ◉ No

Debris Line/HW Mark?

- ◉ Yes
- ○ No

Line/Mark Details:	Debris lines

Channel Restriction/BW Effects?

- ◉ Yes
- ○ No

Restriction/BW Details:	☐ Debris ☑ Culvert ☑ Bridge ☐ Dams ☐ Dump Sites ☑ Other
"Other" Restriction:	Natural channel constriction

Section 6 - Vegetation

Riparian Area Maintained?

- ( ) Yes
- (•) No

Riparian Veg.

- [ ] Turf Grass
- [x] Tall Grass
- [x] Shrubs
- [x] Trees

Riparian Width

100 ft plus

Observed Invasives

- [ ] English Ivy
- [ ] Japanese Stiltgrass
- [ ] Mile-a-minute
- [x] Multi-flora Rose
- [ ] Privet
- [ ] Kudzu
- [ ] Bamboo
- [ ] Other

Observed Habitat/Fauna

Ducks, squirrels, geese, small fish

Large healthy trees?

- (•) Yes
- ( ) No

Section 7 - Sign and Complete Assessment

Please sign to complete this assessment

Signature Time and Date

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