Appendix A PRELIMINARY CONCEPT PLAN

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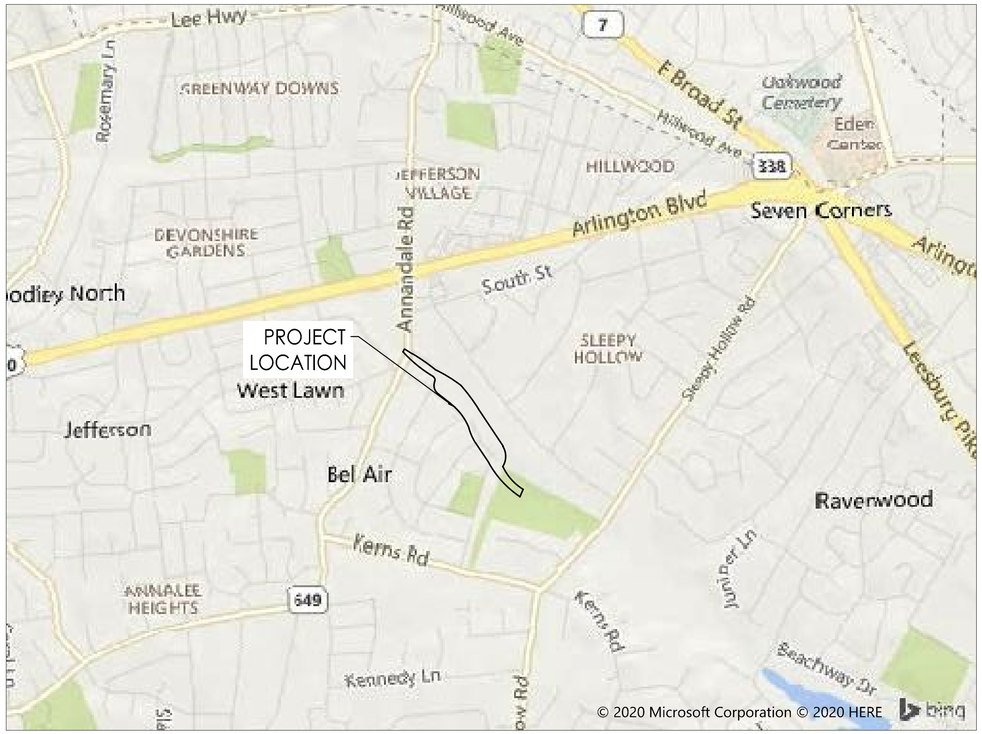
FAIRFAX COUNTY
FALLS CHURCH, VA

TRIPPS RUN AT BARRETT ROAD FLOOD MITIGATION PRELIMINARY CONCEPT PLAN



VICINITY MAP
1"=1000'

INDEX OF SHEETS

SHEET NO.	TITLE
1	COVER SHEET
2	EXISTING CONDITIONS
3	OVERVIEW
4	PLAN VIEW - SCENARIO 2
5 - 7	PLAN AND PROFILE - SCENARIO 3
8 - 10	PLAN AND PROFILE - SCENARIO 4
11	TYPICAL SECTIONS
12 - 14	TYPICAL TREATMENT DETAILS

2020.10.01
PROJECT NUMBER: 203401435

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Client/Project
Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Existing Conditions

Project No.
203401435

Scale
1" = 150'

Revision
0

Sheet
2 of 14

Drawing No.
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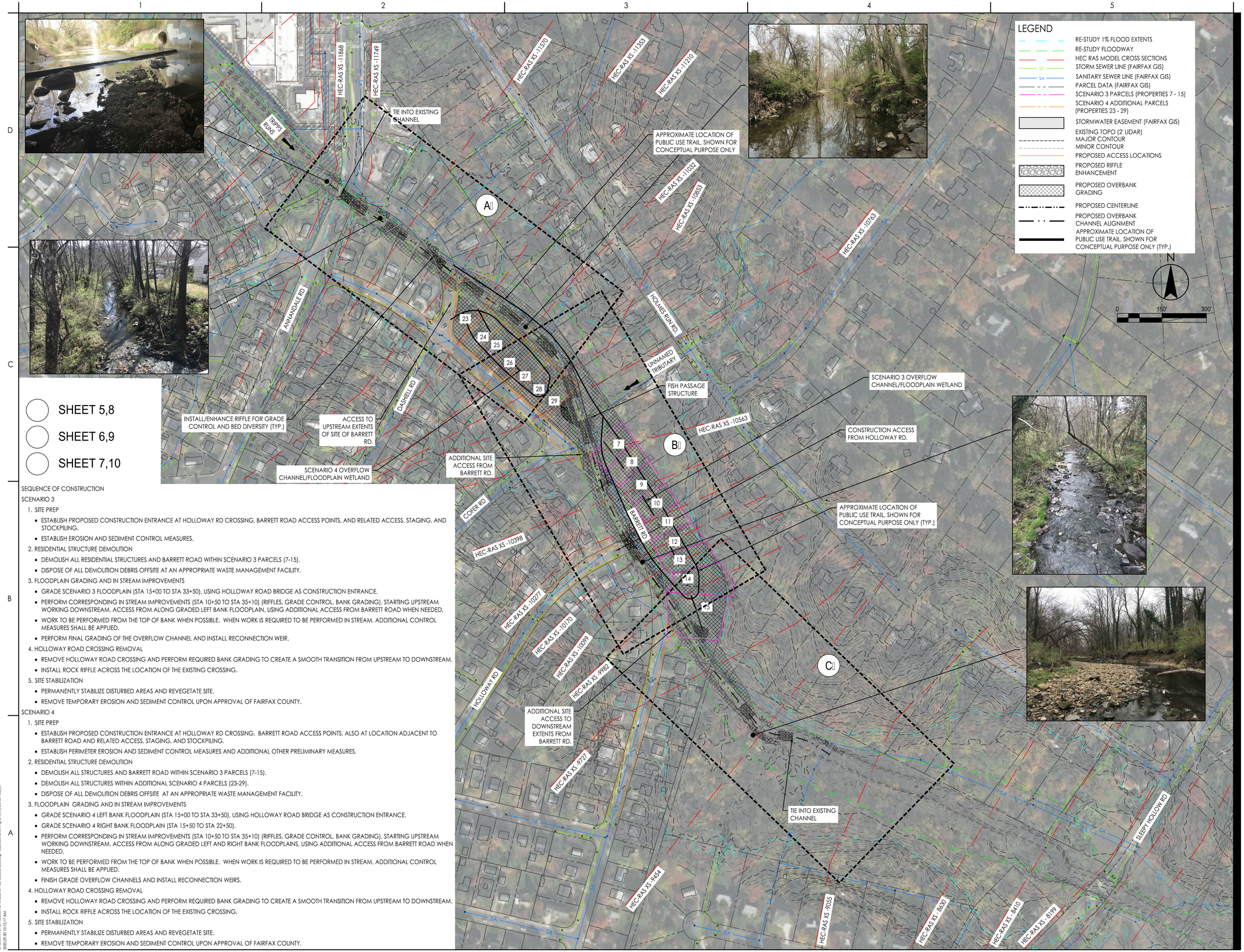

SEQUENCE OF CONSTRUCTION

SCENARIO 3

1. SITE PREP
   - ESTABLISH PROPOSED CONSTRUCTION ENTRANCE AT HOLLOWAY RD CROSSING, BARRETT ROAD ACCESS POINTS, AND RELATED ACCESS, STAGING, AND STOCKPILING.
   - ESTABLISH EROSION AND SEDIMENT CONTROL MEASURES.
2. RESIDENTIAL STRUCTURE DEMOLITION
   - DEMOLISH ALL RESIDENTIAL STRUCTURES AND BARRETT ROAD WITHIN SCENARIO 3 PARCELS (7-15).
   - DISPOSE OF ALL DEMOLITION DEBRIS OFFSITE AT AN APPROPRIATE WASTE MANAGEMENT FACILITY.
3. FLOODPLAIN GRADING AND IN STREAM IMPROVEMENTS
   - GRADE SCENARIO 3 FLOODPLAIN (STA 15+00 TO STA 33+50), USING HOLLOWAY ROAD BRIDGE AS CONSTRUCTION ENTRANCE.
   - PERFORM CORRESPONDING IN STREAM IMPROVEMENTS (STA 10+50 TO STA 35+10) (RIFFLES, GRADE CONTROL, BANK GRADING), STARTING UPSTREAM WORKING DOWNSTREAM. ACCESS FROM ALONG GRADED LEFT BANK FLOODPLAIN, USING ADDITIONAL ACCESS FROM BARRETT ROAD WHEN NEEDED.
   - WORK TO BE PERFORMED FROM THE TOP OF BANK WHEN POSSIBLE. WHEN WORK IS REQUIRED TO BE PERFORMED IN STREAM, ADDITIONAL CONTROL MEASURES SHALL BE APPLIED.
   - PERFORM FINAL GRADING OF THE OVERFLOW CHANNEL AND INSTALL RECONNECTION WEIR.
4. HOLLOWAY ROAD CROSSING REMOVAL
   - REMOVE HOLLOWAY ROAD CROSSING AND PERFORM REQUIRED BANK GRADING TO CREATE A SMOOTH TRANSITION FROM UPSTREAM TO DOWNSTREAM.
   - INSTALL ROCK RIFFLE ACROSS THE LOCATION OF THE EXISTING CROSSING.
5. SITE STABILIZATION
   - PERMANENTLY STABILIZE DISTURBED AREAS AND REVEGETATE SITE.
   - REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL UPON APPROVAL OF FAIRFAX COUNTY.

SCENARIO 4

1. SITE PREP
   - ESTABLISH PROPOSED CONSTRUCTION ENTRANCE AT HOLLOWAY RD CROSSING, BARRETT ROAD ACCESS POINTS, ALSO AT LOCATION ADJACENT TO BARRETT ROAD AND RELATED ACCESS, STAGING, AND STOCKPILING.
   - ESTABLISH PERIMETER EROSION AND SEDIMENT CONTROL MEASURES AND ADDITIONAL OTHER PRELIMINARY MEASURES.
2. RESIDENTIAL STRUCTURE DEMOLITION
   - DEMOLISH ALL STRUCTURES AND BARRETT ROAD WITHIN SCENARIO 3 PARCELS (7-15).
   - DEMOLISH ALL STRUCTURES WITHIN ADDITIONAL SCENARIO 4 PARCELS (23-29).
   - DISPOSE OF ALL DEMOLITION DEBRIS OFFSITE AT AN APPROPRIATE WASTE MANAGEMENT FACILITY.
3. FLOODPLAIN GRADING AND IN STREAM IMPROVEMENTS
   - GRADE SCENARIO 4 LEFT BANK FLOODPLAIN (STA 15+00 TO STA 33+50), USING HOLLOWAY ROAD BRIDGE AS CONSTRUCTION ENTRANCE.
   - GRADE SCENARIO 4 RIGHT BANK FLOODPLAIN (STA 15+50 TO STA 22+50).
   - PERFORM CORRESPONDING IN STREAM IMPROVEMENTS (STA 10+50 TO STA 35+10) (RIFFLES, GRADE CONTROL, BANK GRADING), STARTING UPSTREAM WORKING DOWNSTREAM. ACCESS FROM ALONG GRADED LEFT AND RIGHT BANK FLOODPLAINS, USING ADDITIONAL ACCESS FROM BARRETT ROAD WHEN NEEDED.
   - WORK TO BE PERFORMED FROM THE TOP OF BANK WHEN POSSIBLE. WHEN WORK IS REQUIRED TO BE PERFORMED IN STREAM, ADDITIONAL CONTROL MEASURES SHALL BE APPLIED.
   - FINISH GRADE OVERFLOW CHANNELS AND INSTALL RECONNECTION WEIRS.
4. HOLLOWAY ROAD CROSSING REMOVAL
   - REMOVE HOLLOWAY ROAD CROSSING AND PERFORM REQUIRED BANK GRADING TO CREATE A SMOOTH TRANSITION FROM UPSTREAM TO DOWNSTREAM.
   - INSTALL ROCK RIFFLE ACROSS THE LOCATION OF THE EXISTING CROSSING.
5. SITE STABILIZATION
   - PERMANENTLY STABILIZE DISTURBED AREAS AND REVEGETATE SITE.
   - REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL UPON APPROVAL OF FAIRFAX COUNTY.

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Client/Project
Fairfax County

Tripps Run at Barrett Road Flood Mitigation Preliminary Concept Plan

Falls Church, VA

Title
Overview

Project No. 203401435

Scale 1" = 150'

Revision 0

Sheet 3 of 14

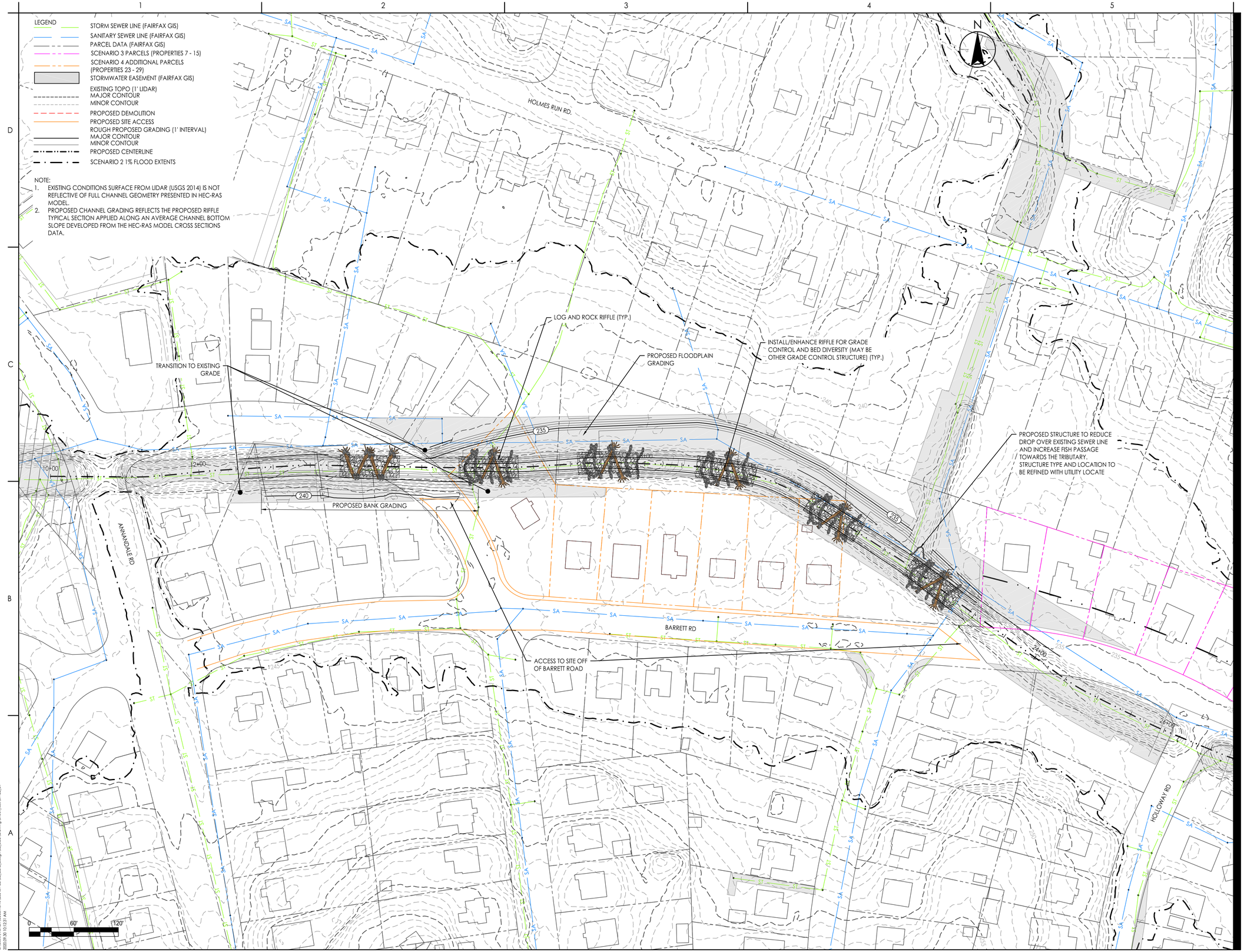
Drawing No. -

LEGEND

- STORM SEWER LINE (FAIRFAX GIS)
- SANITARY SEWER LINE (FAIRFAX GIS)
- PARCEL DATA (FAIRFAX GIS)
- SCENARIO 3 PARCELS (PROPERTIES 7 - 15)
- SCENARIO 4 ADDITIONAL PARCELS (PROPERTIES 23 - 29)
- STORMWATER EASEMENT (FAIRFAX GIS)
- EXISTING TOPO (1' LIDAR)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED DEMOLITION
- PROPOSED SITE ACCESS
- ROUGH PROPOSED GRADING (1' INTERVAL)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED CENTERLINE
- SCENARIO 2 1% FLOOD EXTENTS

NOTE:

1. EXISTING CONDITIONS SURFACE FROM LIDAR (USGS 2014) IS NOT REFLECTIVE OF FULL CHANNEL GEOMETRY PRESENTED IN HEC-RAS MODEL.
2. PROPOSED CHANNEL GRADING REFLECTS THE PROPOSED RIFFLE TYPICAL SECTION APPLIED ALONG AN AVERAGE CHANNEL BOTTOM SLOPE DEVELOPED FROM THE HEC-RAS MODEL CROSS SECTIONS DATA.



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Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan View - Scenario 2

Project No.
203401435

Scale
1" = 60'

Revision
0

Sheet
4 of 14

Drawing No.
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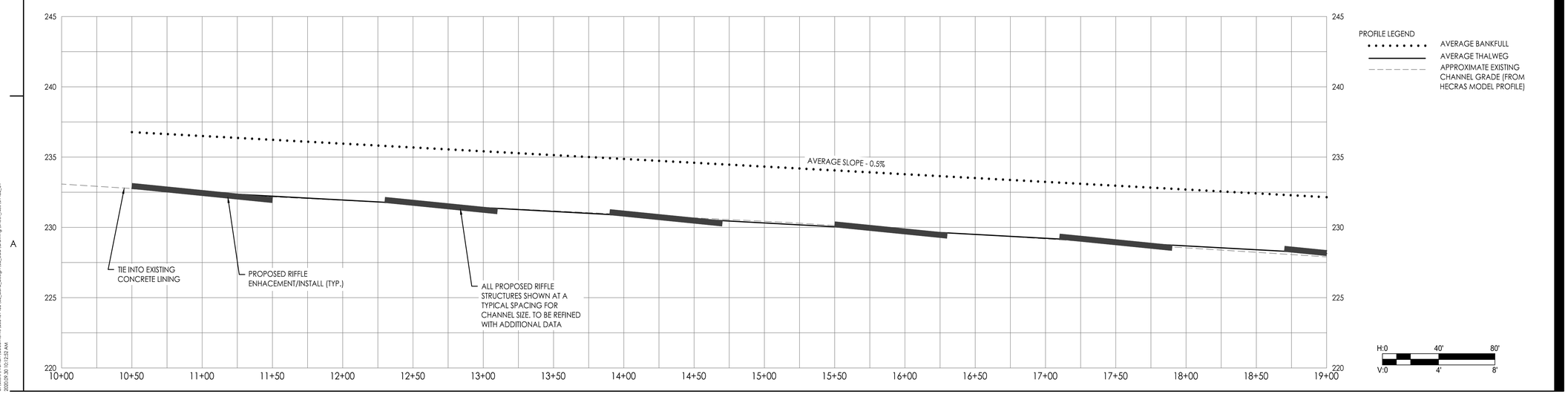

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Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan Profile - Scenario 3

Project No. 203401435

Scale 1" = 40'

Revision 0

Sheet 5 of 14

Drawing No. -

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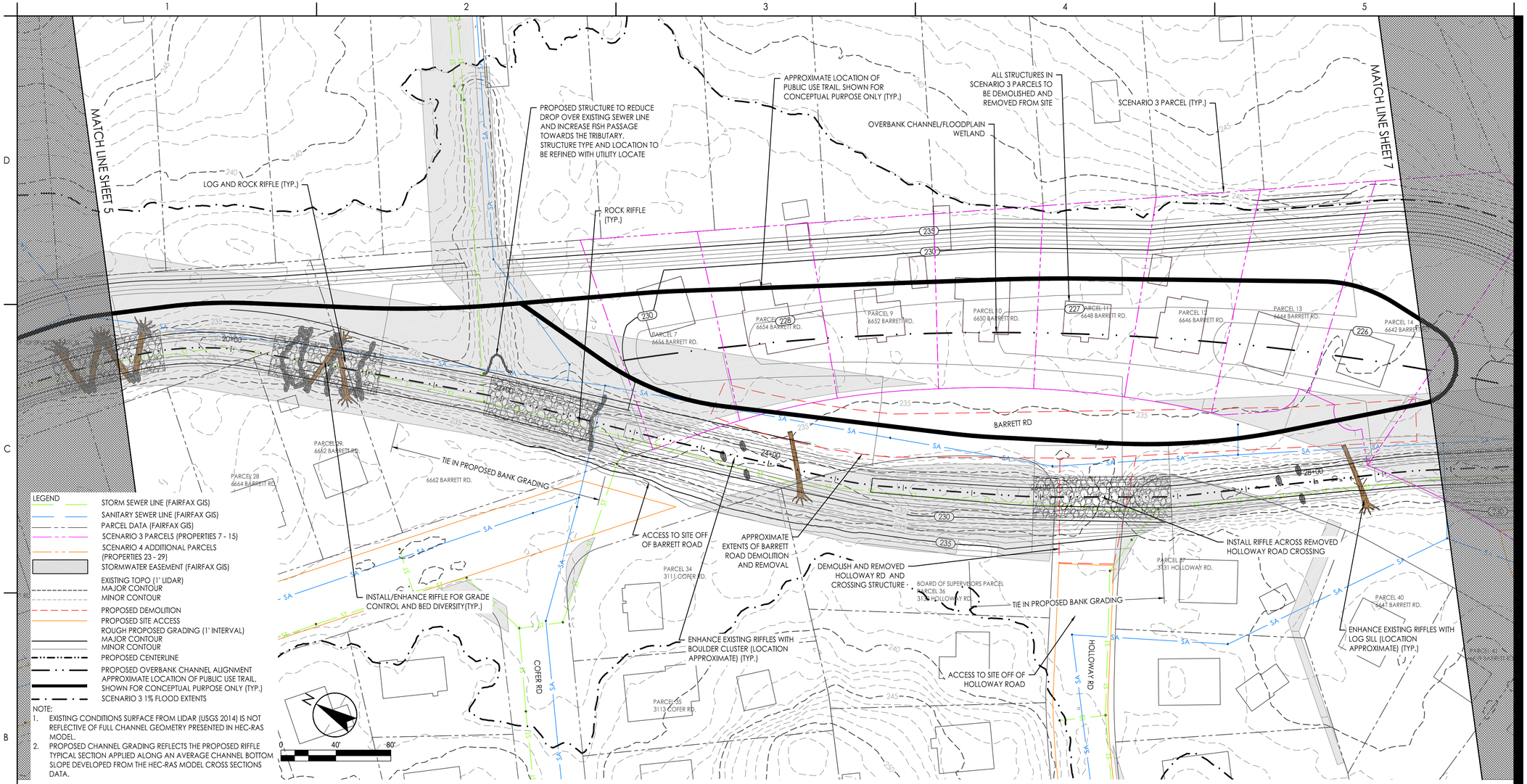
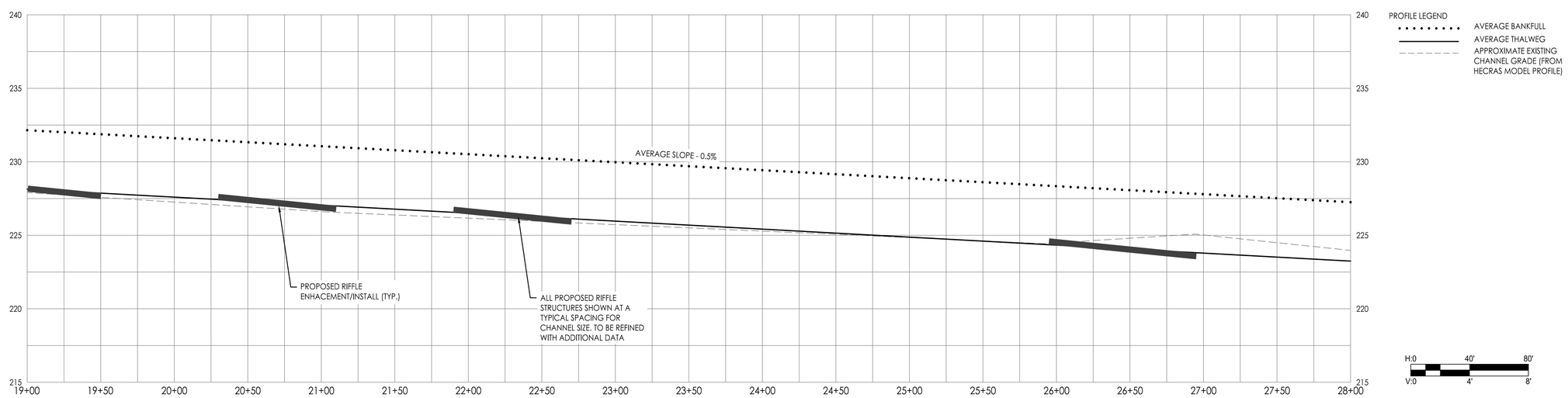


NOTE:
1. EXISTING CONDITIONS SURFACE FROM LIDAR (USGS 2014) IS NOT REFLECTIVE OF FULL CHANNEL GEOMETRY PRESENTED IN HEC-RAS MODEL.
2. PROPOSED CHANNEL GRADING REFLECTS THE PROPOSED RIFFLE TYPICAL SECTION APPLIED ALONG AN AVERAGE CHANNEL BOTTOM SLOPE DEVELOPED FROM THE HEC-RAS MODEL CROSS SECTIONS DATA.



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Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan Profile - Scenario 3

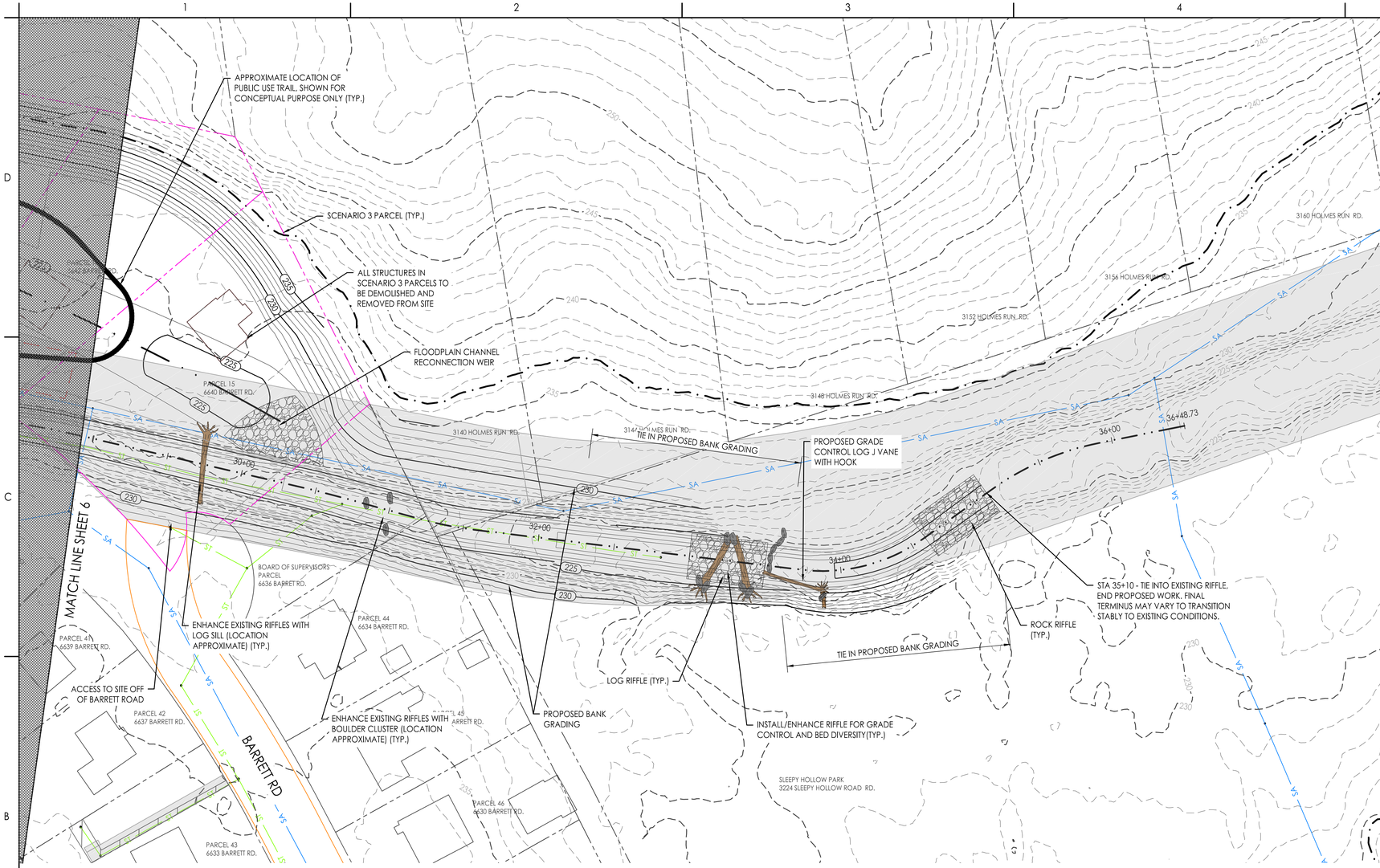
Project No. 203401435

Scale 1" = 40'

Revision 0

Sheet 6 of 14

Drawing No.

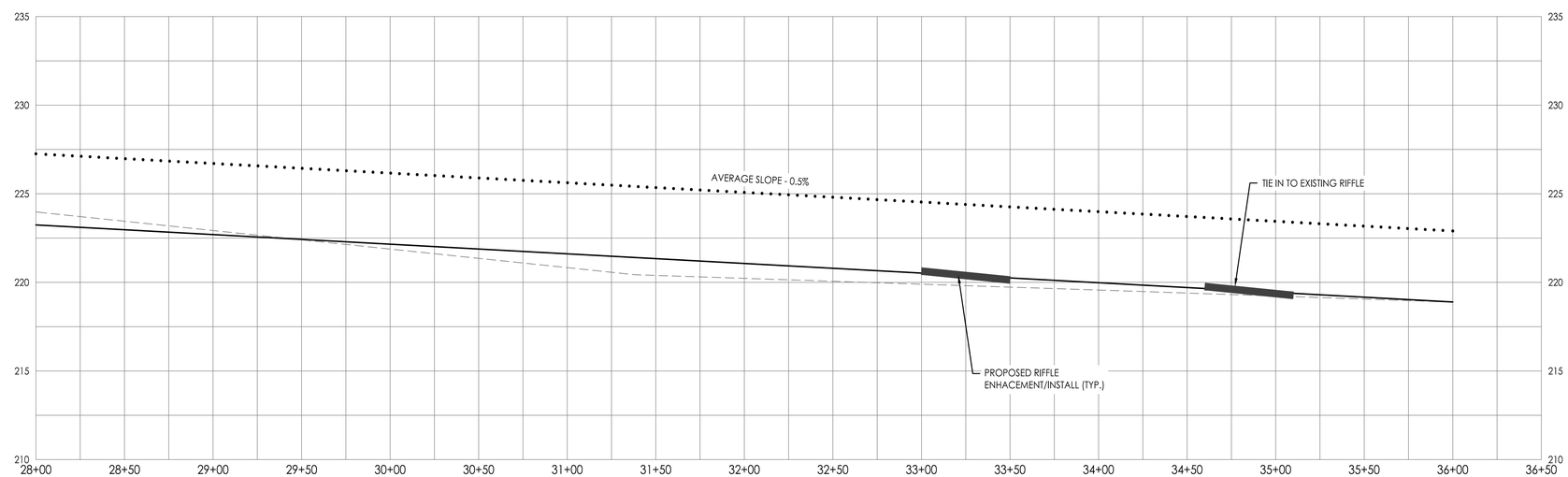


LEGEND

- STORM SEWER LINE (FAIRFAX GIS)
- SANITARY SEWER LINE (FAIRFAX GIS)
- PARCEL DATA (FAIRFAX GIS)
- SCENARIO 3 PARCELS (PROPERTIES 7 - 15)
- SCENARIO 4 ADDITIONAL PARCELS (PROPERTIES 23 - 29)
- STORMWATER EASEMENT (FAIRFAX GIS)
- EXISTING TOPO (1' LIDAR)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED DEMOLITION
- PROPOSED SITE ACCESS
- ROUGH PROPOSED GRADING (1' INTERVAL)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED CENTERLINE
- PROPOSED OVERBANK CHANNEL ALIGNMENT
- APPROXIMATE LOCATION OF PUBLIC USE TRAIL, SHOWN FOR CONCEPTUAL PURPOSE ONLY (TYP.)
- SCENARIO 3 1% FLOOD EXTENTS

NOTE:

1. EXISTING CONDITIONS SURFACE FROM LIDAR (USGS 2014) IS NOT REFLECTIVE OF FULL CHANNEL GEOMETRY PRESENTED IN HEC-RAS MODEL.
2. PROPOSED CHANNEL GRADING REFLECTS THE PROPOSED RIFFLE TYPICAL SECTION APPLIED ALONG AN AVERAGE CHANNEL BOTTOM SLOPE DEVELOPED FROM THE HEC-RAS MODEL CROSS SECTIONS DATA.



PROFILE LEGEND

- AVERAGE BANKFULL
- AVERAGE THALWEG
- APPROXIMATE EXISTING CHANNEL GRADE (FROM HECRAS MODEL PROFILE)

H:0 40' 80'
V:0 4' 8'

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Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan Profile - Scenario 3

Project No. 203401435

Scale 1" = 40'

Revision 0

Sheet 7 of 14

Drawing No. -

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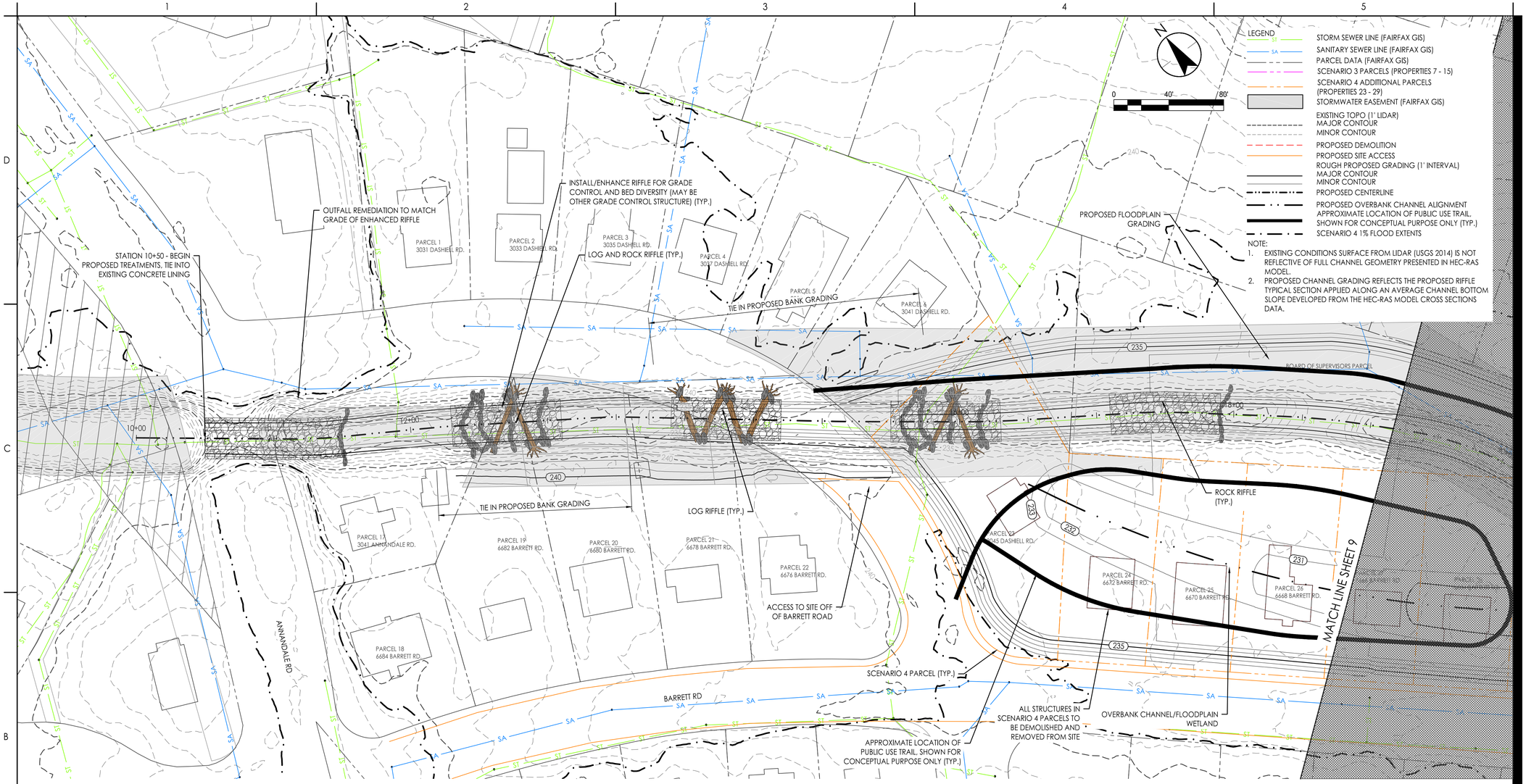

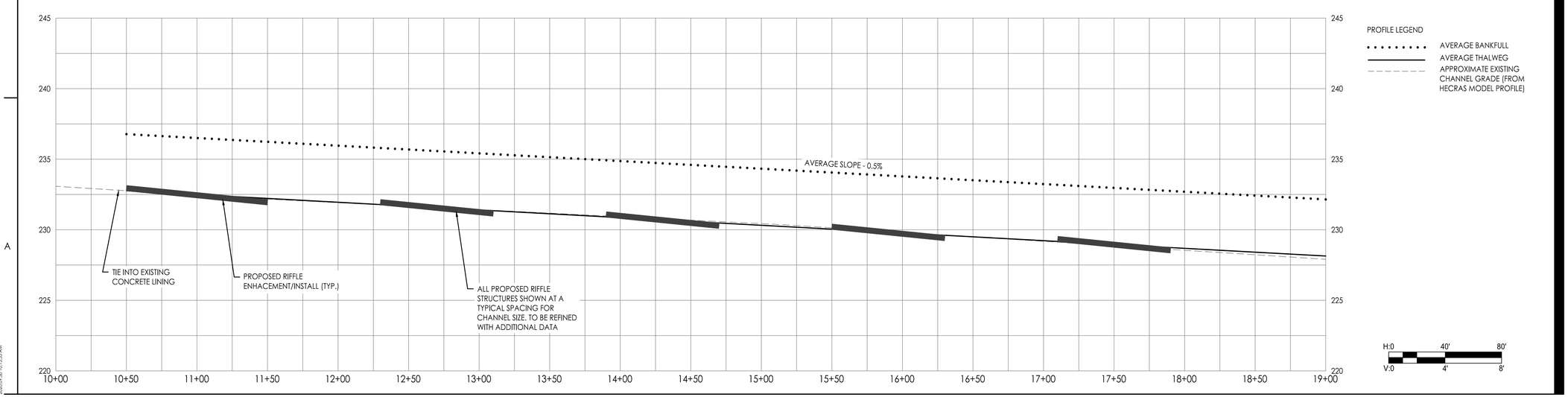

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Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan Profile - Scenario 4

Project No. 203401435

Scale 1" = 40'

Revision 0

Sheet 8 of 14

Drawing No. -

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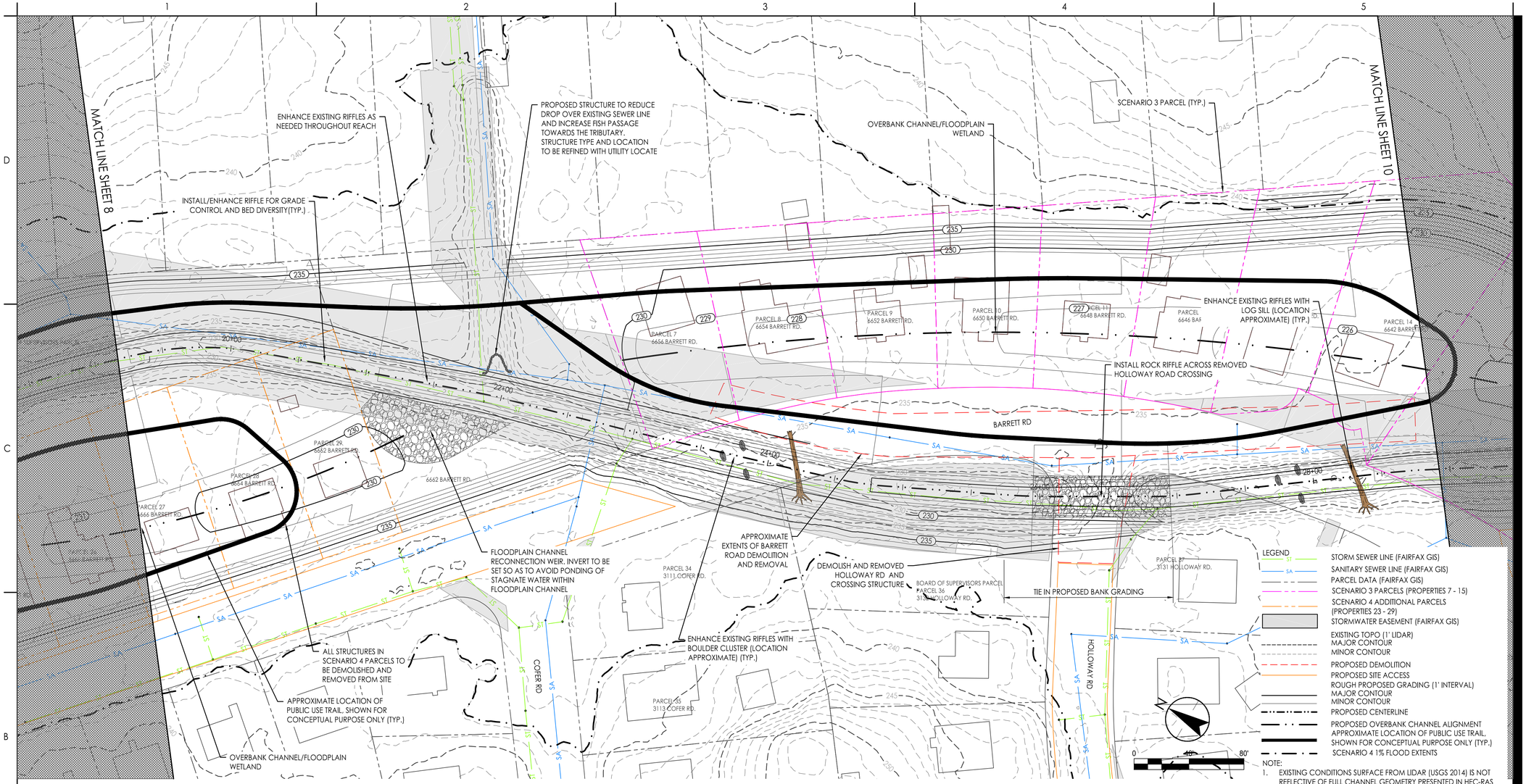
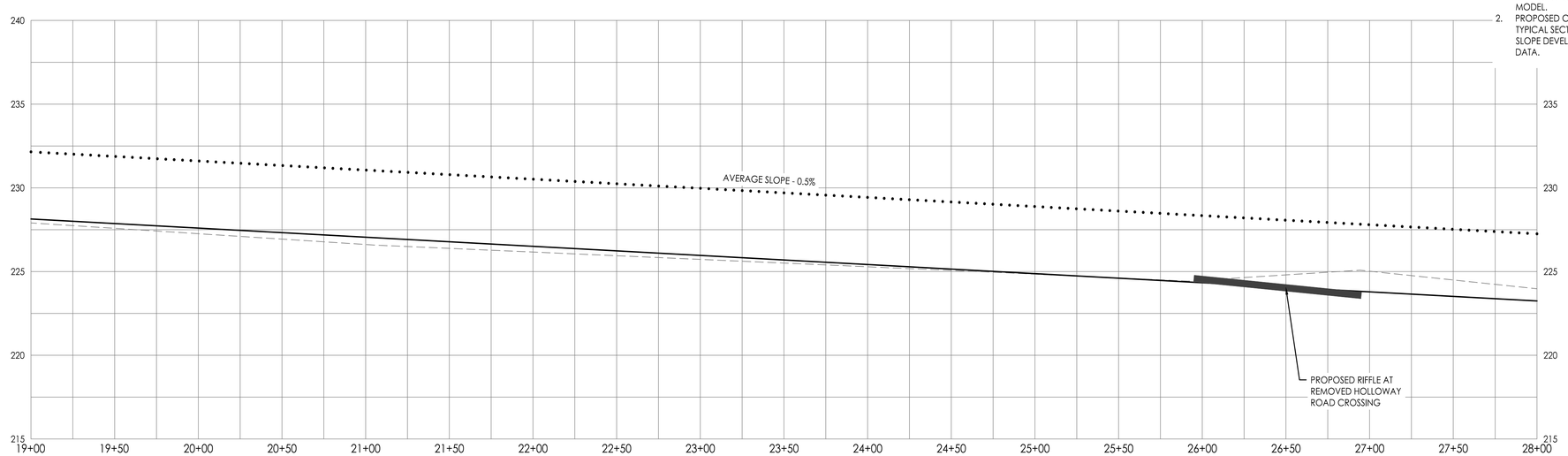


LEGEND

- STORM SEWER LINE (FAIRFAX GIS)
- SANITARY SEWER LINE (FAIRFAX GIS)
- PARCEL DATA (FAIRFAX GIS)
- SCENARIO 3 PARCELS (PROPERTIES 7 - 15)
- SCENARIO 4 ADDITIONAL PARCELS (PROPERTIES 23 - 29)
- STORMWATER EASEMENT (FAIRFAX GIS)
- EXISTING TOPO (1' LIDAR)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED DEMOLITION
- PROPOSED SITE ACCESS
- ROUGH PROPOSED GRADING (1' INTERVAL)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED CENTERLINE
- PROPOSED OVERBANK CHANNEL ALIGNMENT
- APPROXIMATE LOCATION OF PUBLIC USE TRAIL, SHOWN FOR CONCEPTUAL PURPOSE ONLY (TYP.)
- SCENARIO 4 1% FLOOD EXTENTS

NOTE:

1. EXISTING CONDITIONS SURFACE FROM LIDAR (USGS 2014) IS NOT REFLECTIVE OF FULL CHANNEL GEOMETRY PRESENTED IN HEC-RAS MODEL.
2. PROPOSED CHANNEL GRADING REFLECTS THE PROPOSED RIFFLE TYPICAL SECTION APPLIED ALONG AN AVERAGE CHANNEL BOTTOM SLOPE DEVELOPED FROM THE HEC-RAS MODEL CROSS SECTIONS DATA.



PROFILE LEGEND

- AVERAGE BANKFULL
- AVERAGE THALWEG
- APPROXIMATE EXISTING CHANNEL GRADE (FROM HECRAS MODEL PROFILE)

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Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan Profile - Scenario 4

Project No. 203401435

Scale 1" = 40'

Revision 0

Sheet 9 of 14

Drawing No. -

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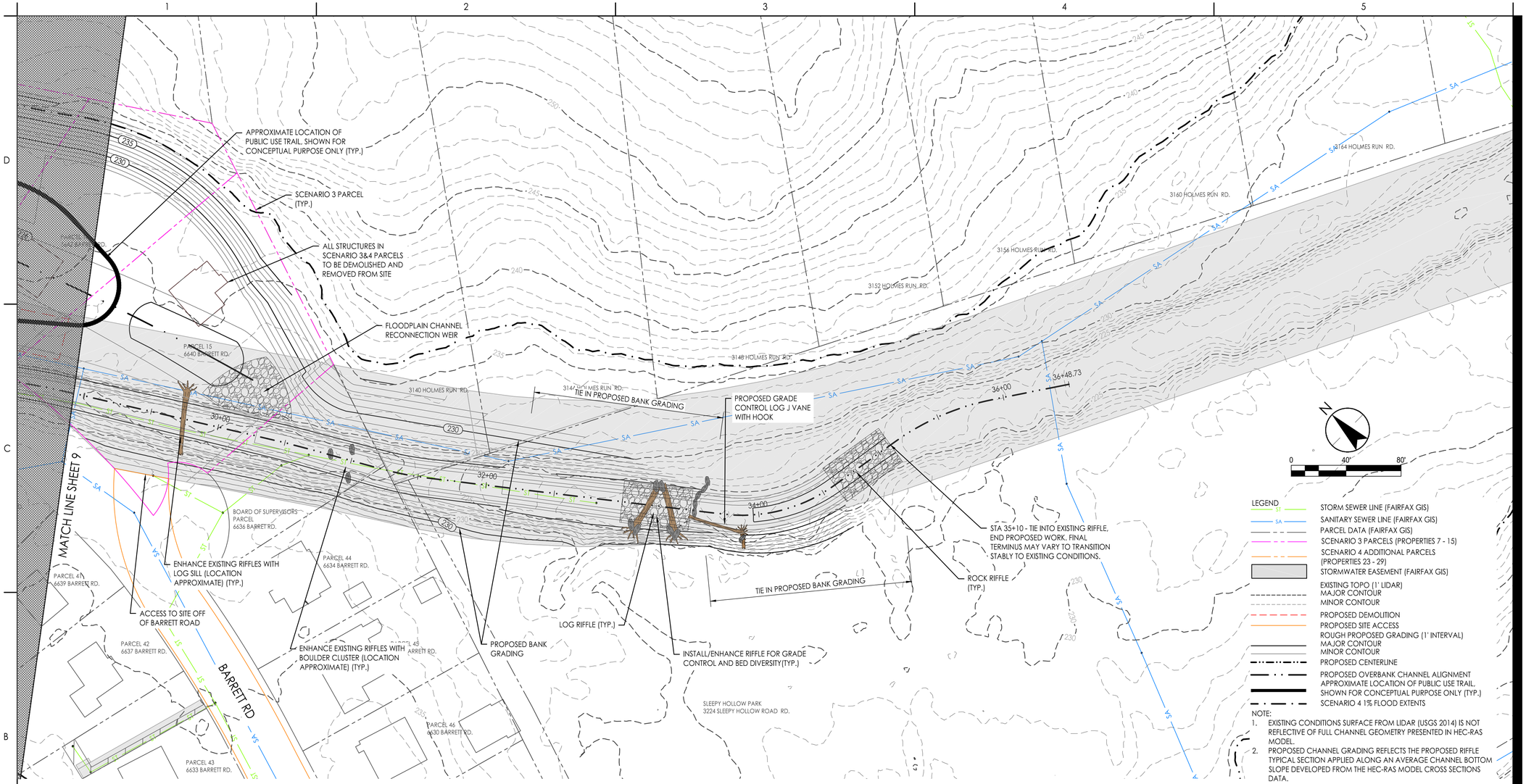
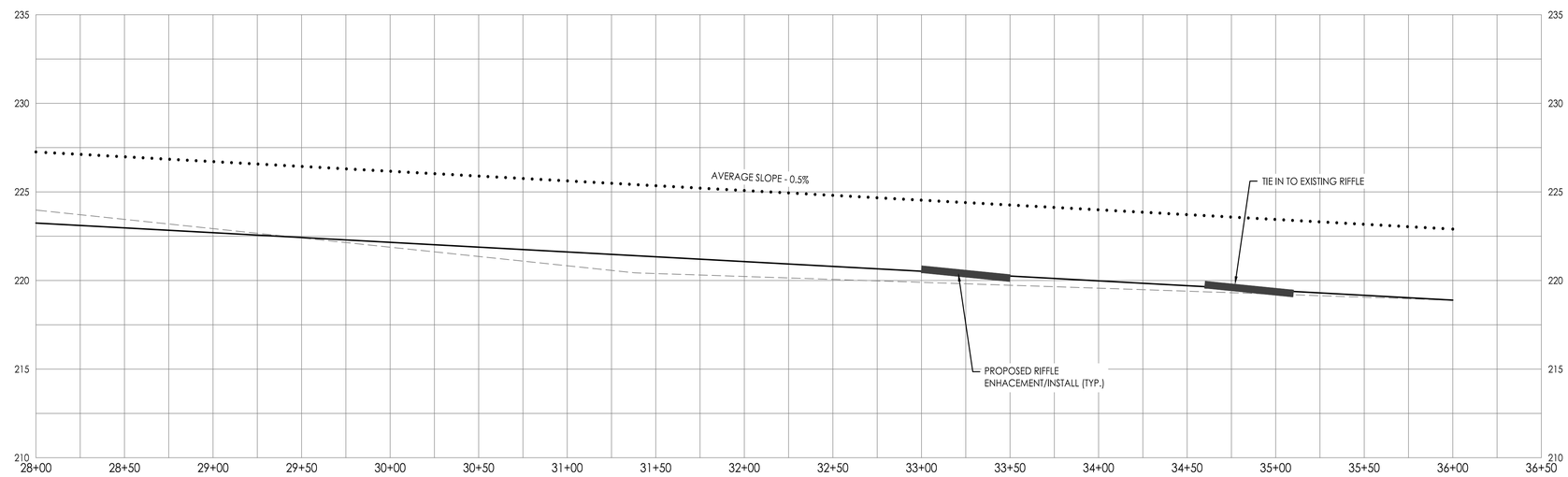


LEGEND

- ST — STORM SEWER LINE (FAIRFAX GIS)
- SA — SANITARY SEWER LINE (FAIRFAX GIS)
- PARCEL DATA (FAIRFAX GIS)
- SCENARIO 3 PARCELS (PROPERTIES 7 - 15)
- SCENARIO 4 ADDITIONAL PARCELS (PROPERTIES 23 - 29)
- STORMWATER EASEMENT (FAIRFAX GIS)
- EXISTING TOPO (1' LIDAR)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED DEMOLITION
- PROPOSED SITE ACCESS
- ROUGH PROPOSED GRADING (1' INTERVAL)
  - MAJOR CONTOUR
  - MINOR CONTOUR
- PROPOSED CENTERLINE
- PROPOSED OVERBANK CHANNEL ALIGNMENT
- APPROXIMATE LOCATION OF PUBLIC USE TRAIL, SHOWN FOR CONCEPTUAL PURPOSE ONLY (TYP.)
- SCENARIO 4 1% FLOOD EXTENTS

NOTE:

1. EXISTING CONDITIONS SURFACE FROM LIDAR (USGS 2014) IS NOT REFLECTIVE OF FULL CHANNEL GEOMETRY PRESENTED IN HEC-RAS MODEL.
2. PROPOSED CHANNEL GRADING REFLECTS THE PROPOSED RIFFLE TYPICAL SECTION APPLIED ALONG AN AVERAGE CHANNEL BOTTOM SLOPE DEVELOPED FROM THE HEC-RAS MODEL CROSS SECTIONS DATA.



PROFILE LEGEND

- AVERAGE BANKFULL
- AVERAGE THALWEG
- APPROXIMATE EXISTING CHANNEL GRADE (FROM HECRAS MODEL PROFILE)

H:0 40' 80'
V:0 4' 8'

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0			

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File Name: 01435_OV	NLR	JBG	CSA	2020.09.30
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Client/Project
Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Plan Profile - Scenario 4

Project No. 203401435

Scale 1" = 40'

Revision 0

Sheet 10 of 14

Drawing No. -

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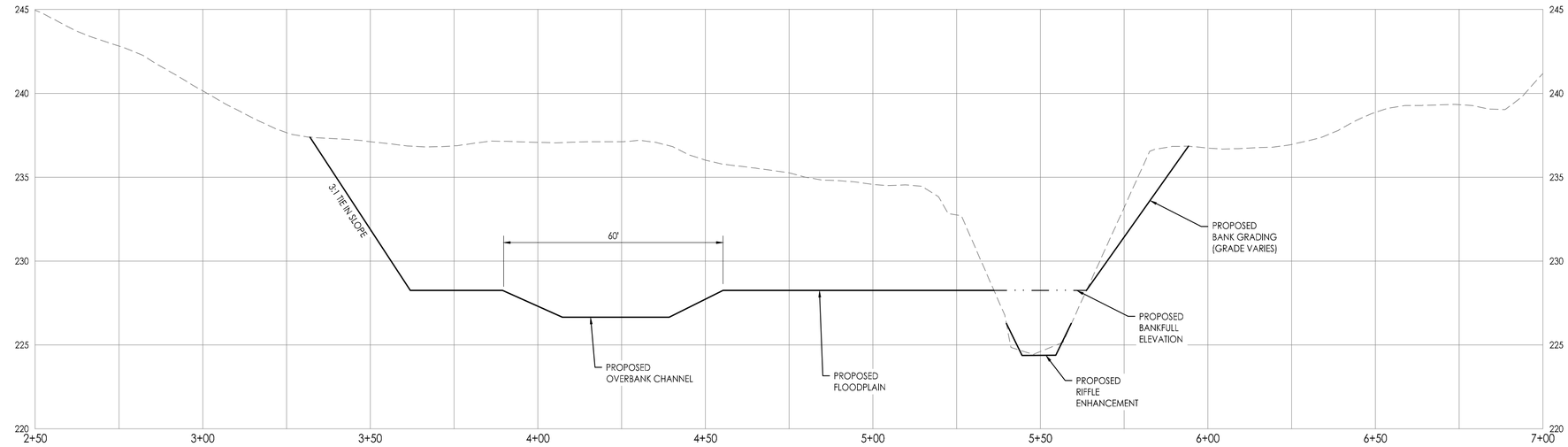
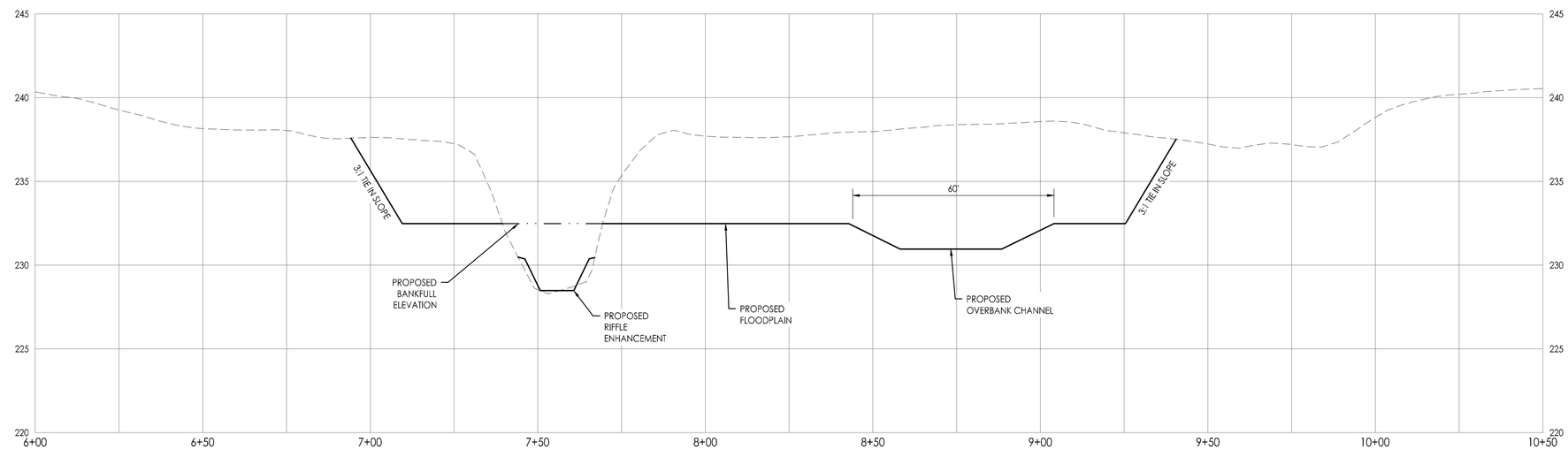
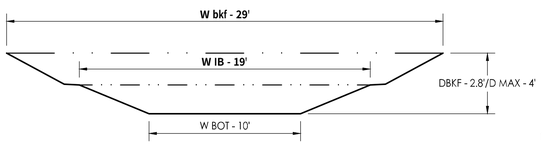
SCENARIO 3 TYPICAL CROSS SECTION



SCENARIO 4 TYPICAL CROSS SECTION





NOTE: TYPICAL RIFFLE CHANNEL TO BE REFINED WITH MORE ACCURATE SITE ASSESSMENT DATA

TYPICAL RIFFLE CROSS SECTION
Bc STREAM TYPE

LEGEND

EXISTING GRADE
PROPOSED GRADE

NOTE:
1. EXISTING GRADE REFLECTS EXISTING CONDITIONS GEOMETRY USED IN HEC-RAS MODELING.
2. PROPOSED IN CHANNEL GRADING LIMITED TO CHANNEL BOTTOM ADJUSTMENTS AND GRADE CONTROL INSTALL

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Fairfax County

Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Typical Sections

Project No. 203401435

Scale AS SHOWN

Revision 0

Sheet 11 of 14

Drawing No.

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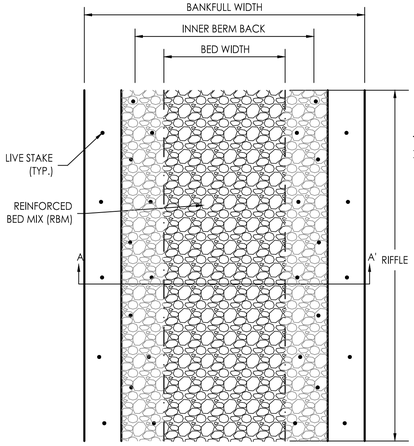
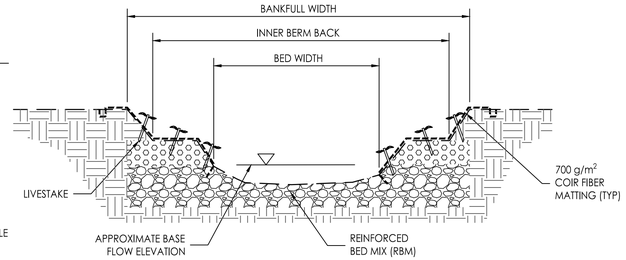


PLAN VIEW



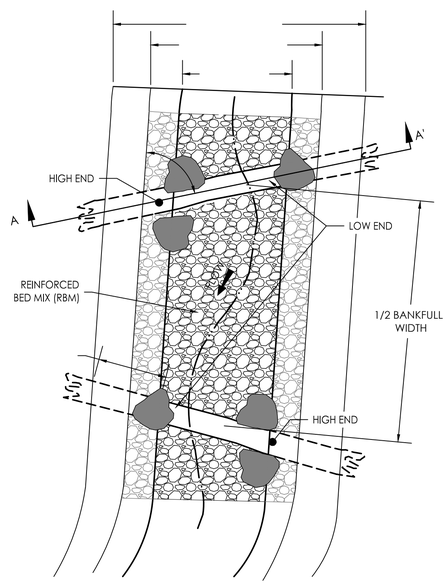
CROSS SECTION A-A'

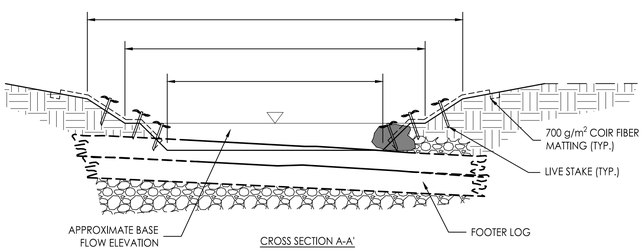
ROCK RIFFLE DETAIL

ROCK RIFFLE EXAMPLE

BOULDER GRADE CONTROL STRUCTURE EXAMPLE

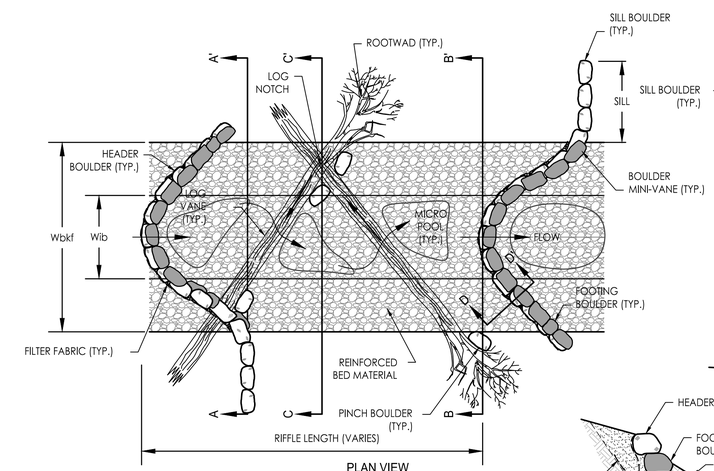
LOG AND ROCK RIFFLE EXAMPLE



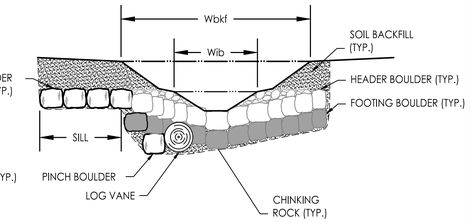


CROSS SECTION A-A'

LOG RIFFLE



PLAN VIEW



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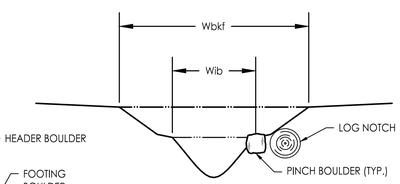
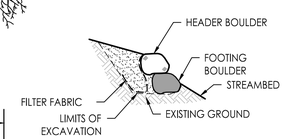
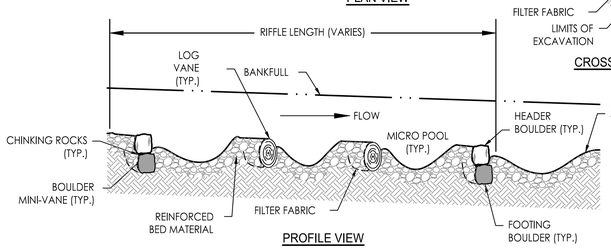


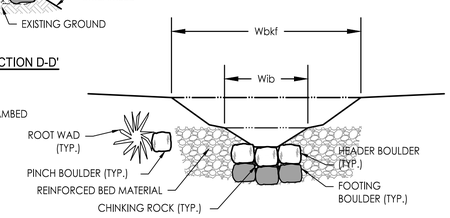
CROSS SECTION C-C'



CROSS SECTION D-D'



PROFILE VIEW



CROSS SECTION B-B'

LOG AND ROCK RIFFLE

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Tripps Run at Barrett Road Flood Mitigation
Preliminary Concept Plan

Falls Church, VA

Title
Typical Treatment Details

Project No. 203401435

Scale NOT TO SCALE

Revision 0

Sheet 12 of 14

Drawing No.

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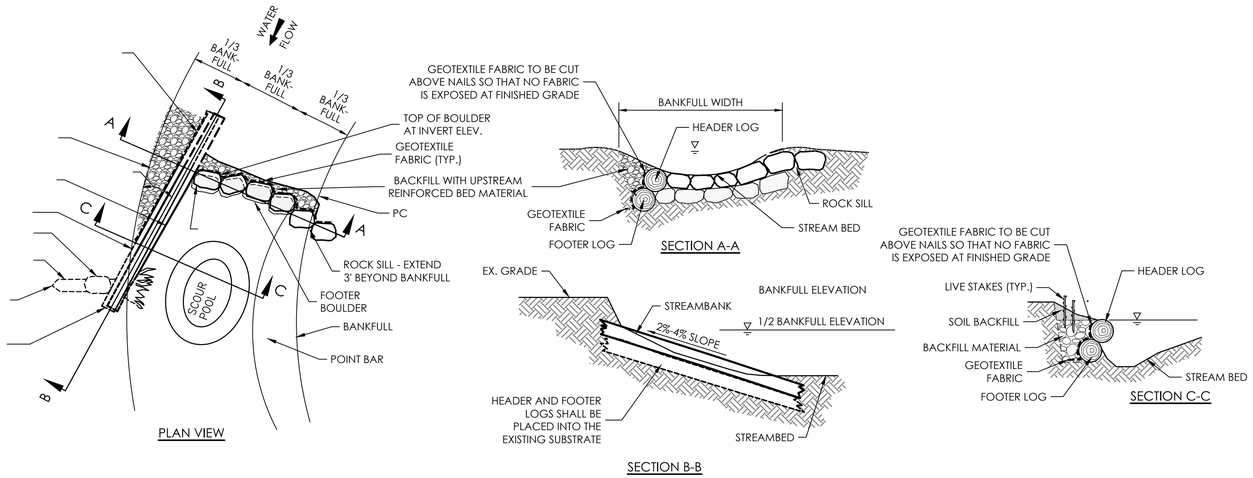
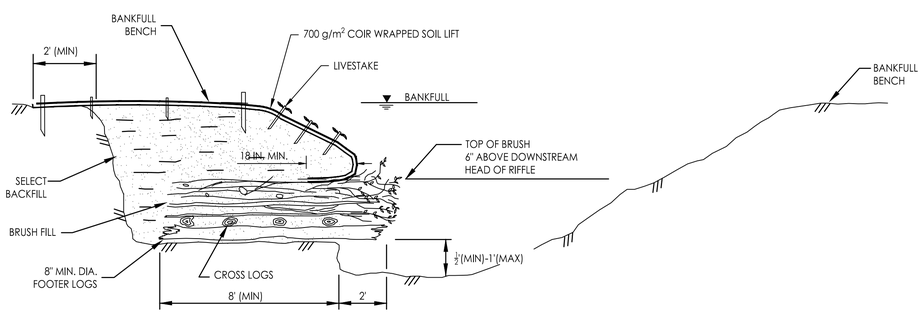


LOG VANE WITH BOULDER HOOK DETAIL

WOOD TOE EXAMPLE

LOG VANE WITH BOULDER HOOK EXAMPLE



WOOD TOE SECTION
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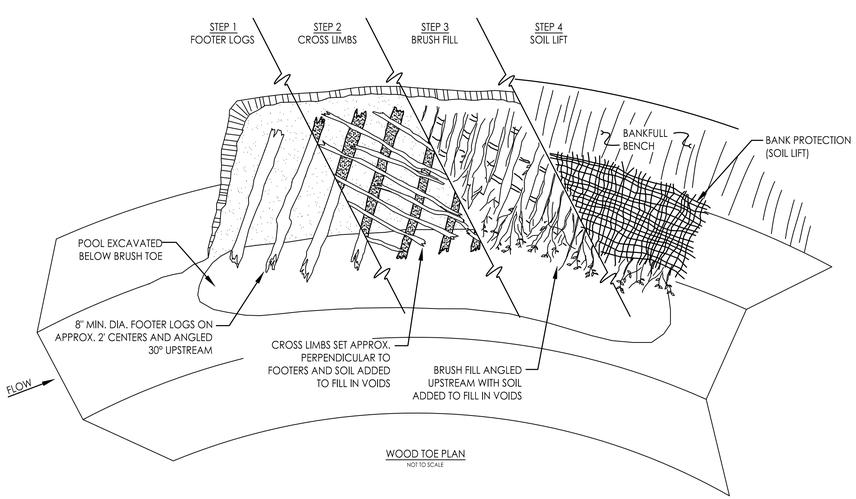

WOOD TOE PLAN
NOT TO SCALE

WOOD TOE DETAIL

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Preliminary Concept Plan

Falls Church, VA

Title
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Project No. 203401435

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Revision 0

Sheet 13 of 14

Drawing No. -

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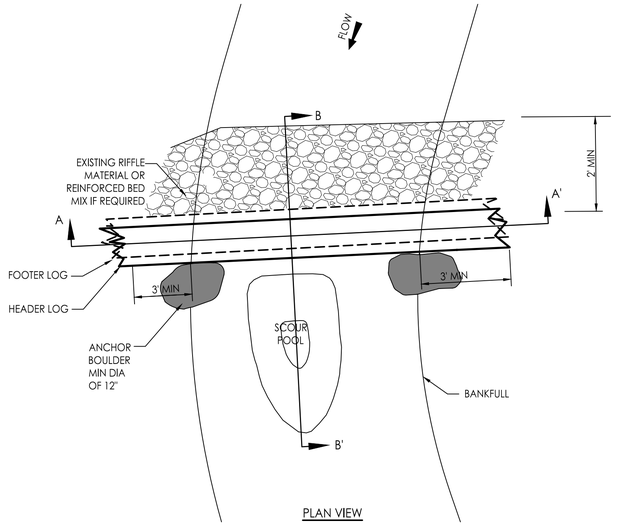
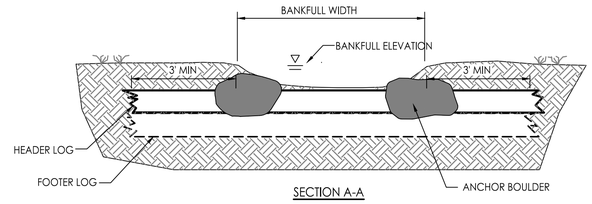
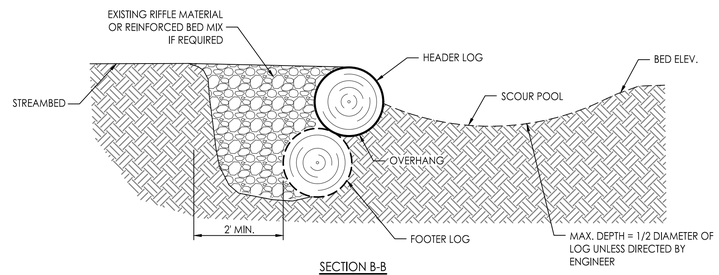


PLAN VIEW



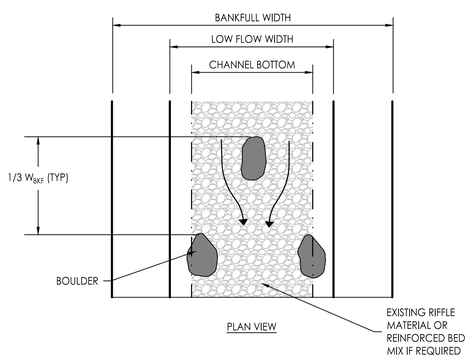
SECTION A-A



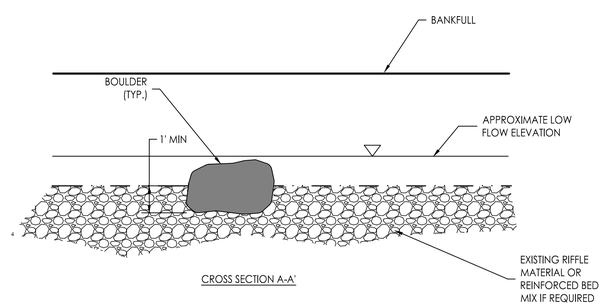
SECTION B-B

LOG SILL DETAIL

LOG SILL EXAMPLE



PLAN VIEW



CROSS SECTION A-A'

BOULDER CLUSTER

BOULDER CLUSTER EXAMPLE

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Preliminary Concept Plan

Falls Church, VA

Title
Typical Treatment Details

Project No. 203401435

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Revision 0

Sheet 14 of 14

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