

FORT STEVENS STORMWATER RETROFIT PROJECT

PUBLIC STAKEHOLDER CONSTRUCTION KICKOFF MEETING

September 21, 2021

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GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

AGENDA

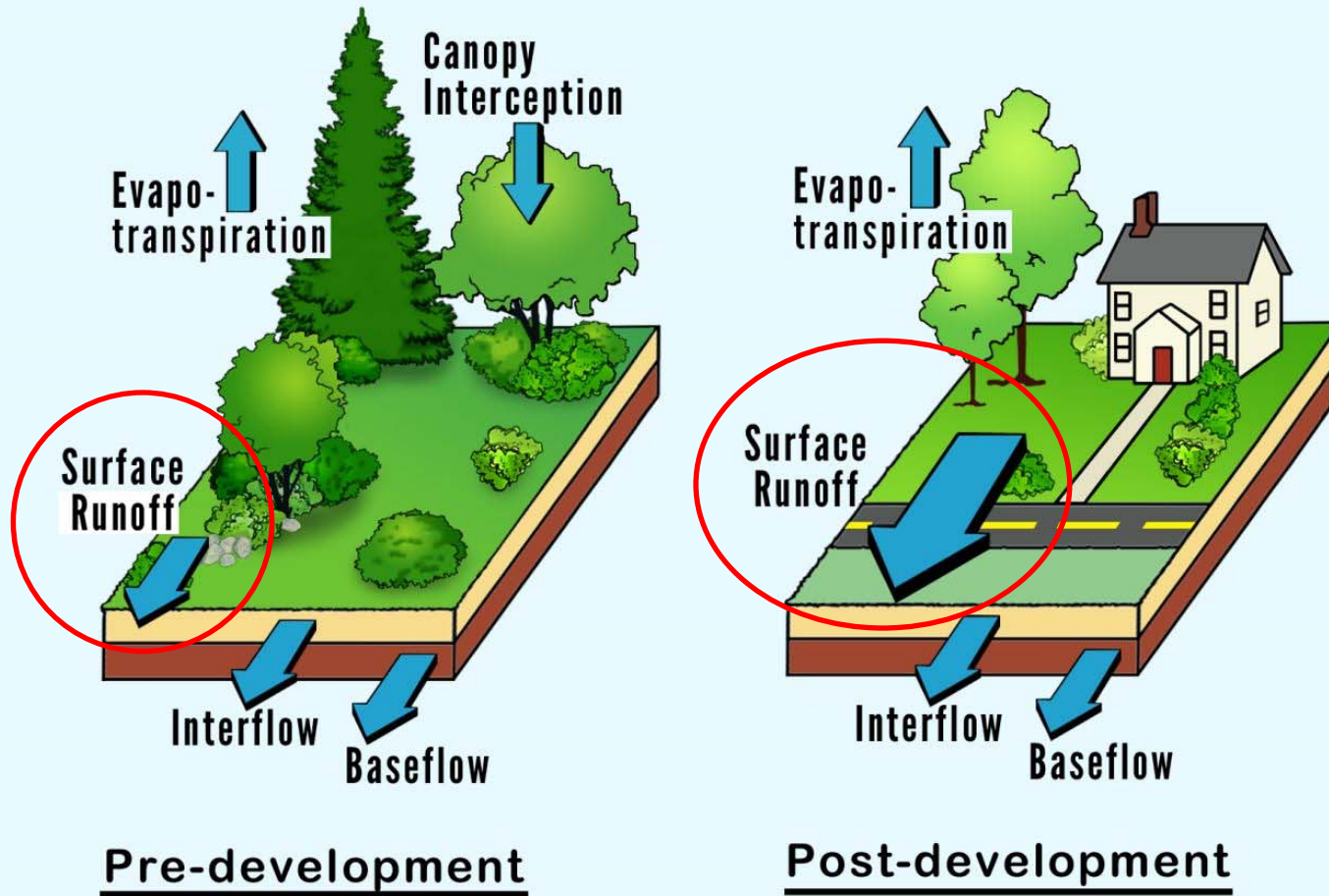
- Project Area & Background
- Existing Conditions
- Project Objectives
- Restoration Approaches
- Construction Details
- Timeline
- FAQs
- Q&A

PROJECT LOCATION



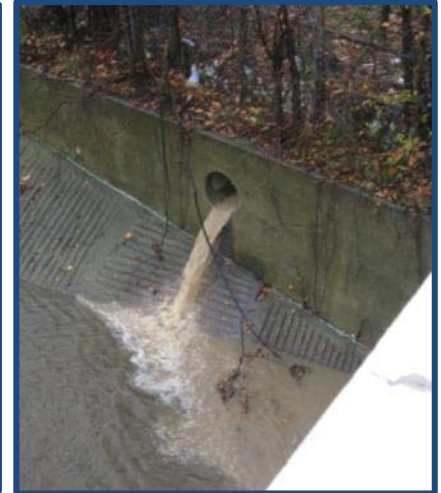
BACKGROUND

Figure 1.1 Water Balance at a Developed and Underdeveloped Site
(Source: Schueler, 1987)

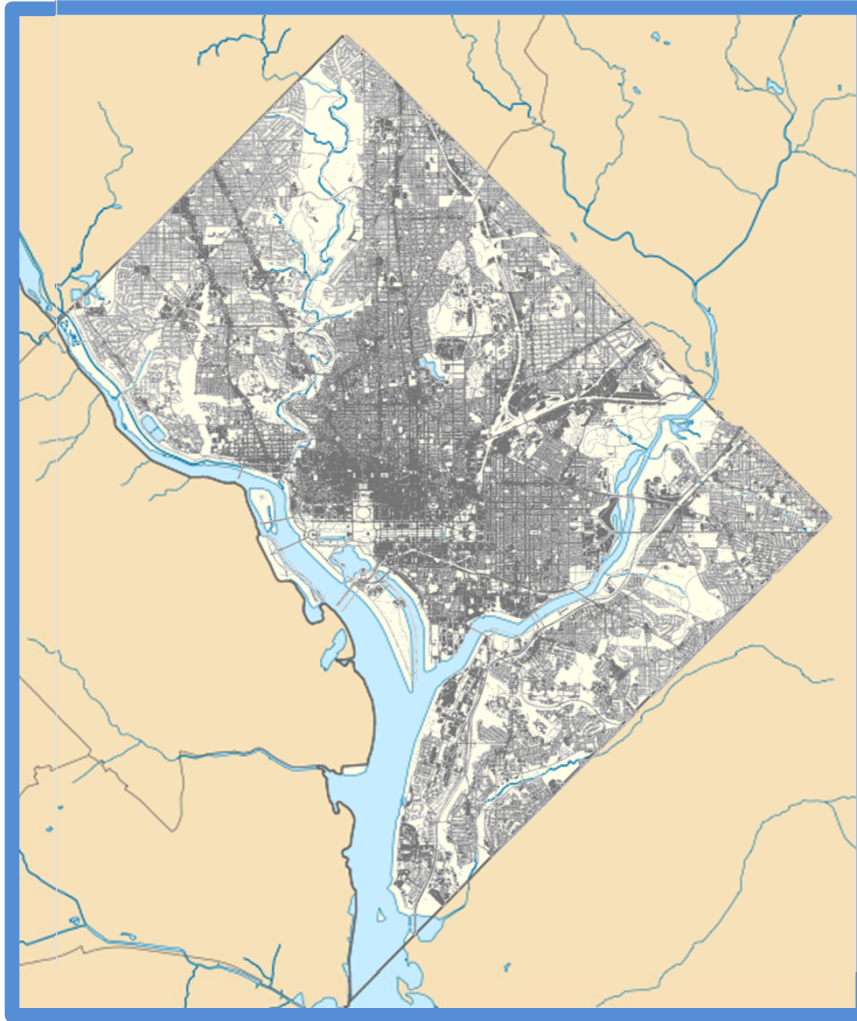


Surface runoff is minimal in an undeveloped site, but dominates the water balance at a highly impervious site.

PROBLEM OF STORMWATER POLLUTION



DISTRICT OF COLUMBIA LAND USE



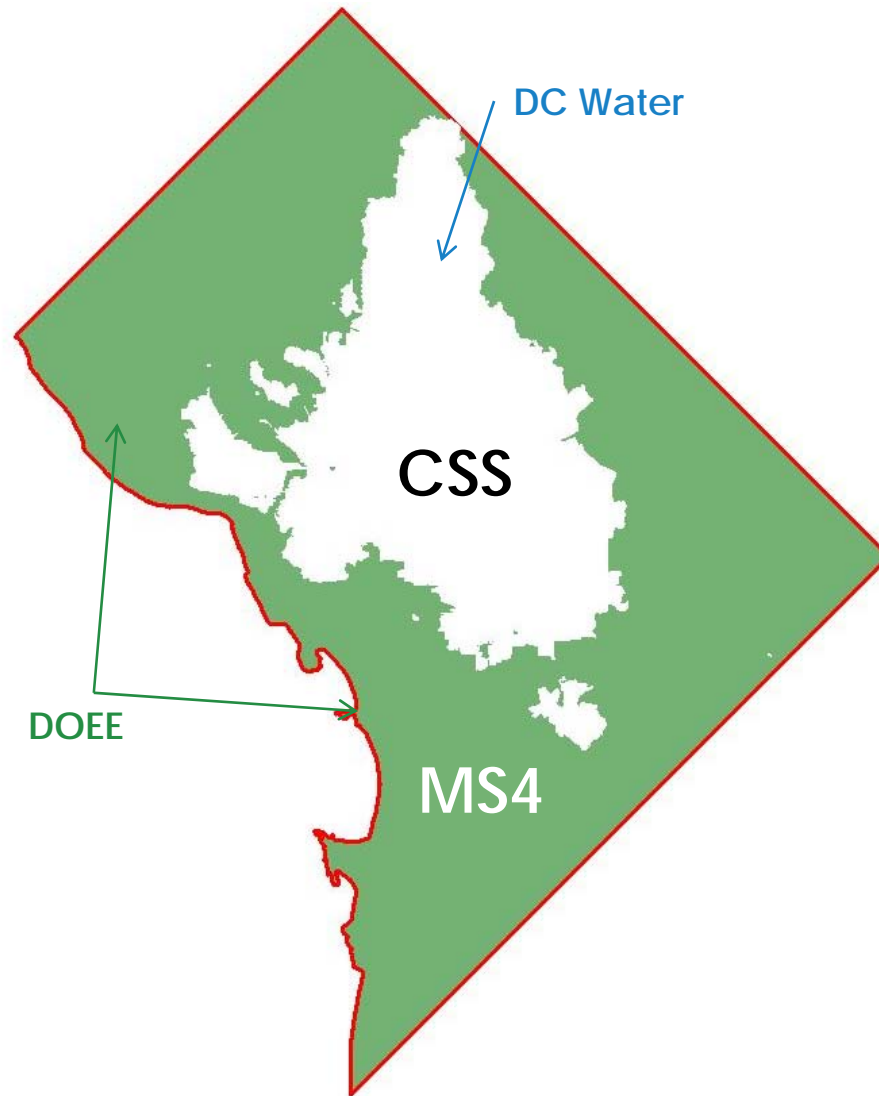
Total Area
68.3 mi²

Land Area
61.3 mi²

Impervious Area
26.6 mi²
*Approx 43%
of Land Area*

A single 1.2 inch storm falling on this area produces about 525 million gallons of stormwater runoff.

DC'S RESTORATION APPROACHES



EXISTING CONDITIONS







EXISTING CONDITIONS





PROJECT OBJECTIVES

- Treat maximum amount of stormwater from the site in the most cost-effective way
- Work only on District land
- Minimal impacts to the community
- Development of a community amenity
- Educational opportunities



RESTORATION APPROACH

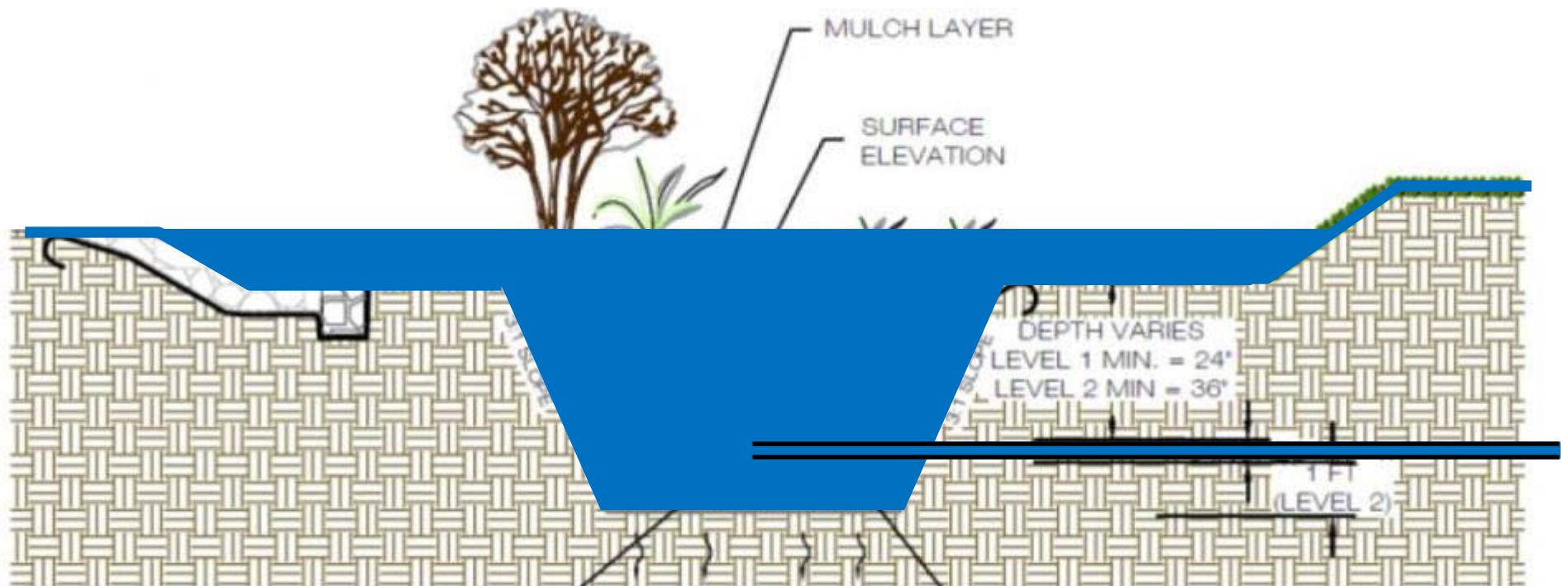
Most stormwater practices all work the same way: “they collect stormwater runoff and use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat” (EPA).

Slow it down, Spread it Out, Soak it In!

BIORETENTION



BIORETENTION: HOW IT WORKS



FINAL DESIGN

| EXISTING SITE | PROPOSED SITS | | | | | | | | TOTAL | |
|-----------------------------|---------------|--------|--------|--------|--------|--------|-------|--------|-------|---------|
| | DA-1A | DA-1B | DA-1C | DA-1D | DA-2A | DA-2B | DA-2C | DA-2D | | |
| DRAINAGE AREA (SF) | 204,915 | 18,840 | 27,890 | 35,590 | 39,450 | 30,440 | 8,800 | 93,810 | 9,230 | 204,915 |
| TIME OF CONCENTRATION (MIN) | 4.5 | 3.6 | 4.0 | 3.5 | 33.6 | 3.5 | 36.8 | 9.6 | | |
| CURVE NUMBER | 80 | 90 | 90 | 90 | 90 | 90 | 83 | 87 | 83 | 80 |
| 2-YEAR PEAK FLOW (GPM) | 10.13 | 1.09 | 2.82 | 3.4 | 3.86 | 3.04 | 0.27 | 0.24 | 0.53 | 4.64 |
| 10-YEAR PEAK FLOW (GPM) | 20.33 | 1.97 | 5.23 | 5.99 | 6.64 | 5.26 | 0.54 | 0.48 | 1.16 | 9.63 |

NOTE: BMP-1, BMP-2 & BMP-4 RECEIVE A PORTION OF THE FLOW FROM THESE COMBINED DRAINAGE AREAS (CONTROLLED BY THE DRAINAGE MARKERS). EXCESS FLOW IS AN EPISODE DIRECTLY TO THE EXISTING STORMWATER PUMPING SYSTEM.

| BMP SUMMARY | BMP-1 | BMP-2 | BMP-3 | BMP-4 |
|------------------------|-----------------------|----------------------|-----------------------|-----------------------|
| TYPE | STANDARD BIORETENTION | RAINWATER HARVESTING | ENHANCED BIORETENTION | STANDARD BIORETENTION |
| BMP SIZE | 1,043 CF | 37,968 GAL | 1,233 CF | 4,884 CF |
| RETENTION BASE | 50% REMOVAL | 40% REMOVAL | 100% REMOVAL | 50% REMOVAL |
| STORMWATER RETENTION | 1,184 CF | 2,008 CF | 1,233 CF | 2,092 CF |
| BIORETENTION SOIL AREA | 1,300 SF | NA | 530 SF | 2,905 SF |

LEGEND



GRAPHIC SCALE



REFER TO SHEET C210 FOR ENLARGED BIORETENTION PLANS AND STORMWATER PLAN NARRATIVE



TREES, SHRUB, PERENNIAL, FERNS & GRASS IMAGES



Serviceberry (AME CAN)



Brilliant Chokeberry (ARO BRI)



Buttonbush (CEP OCC)



Mt. Airy Fothergilla (FOT AIR)



Annabelle Hydrangea (HYD ANN)



Shamrock Inkberry (ILE SHA)



Sparkberry Winterberry (ILE SPA)



Little Henry Virginia Sweetspire (ITE LIT)



Gro-Low Fragrant Sumac (RHJ GRO)



Winterthur Smooth Witherod (VIB WIN)



Blue Star (AMS STO)



Butterfly Milkweed (ASC TUB)



Marginal Wood Fern (DRY MAR)



Joe Pye Weed (EUT DUB)



Autumn Bride Coral Bells (HEU AUT)



Blue Flag Iris (IRI VER)



Wild Bergamot (MON CLA)



Cinnamon Fern (OSM CIN)



Switch Grass (PAN SHE)



Mountain Mint (PYC VIR)



Black-eyed Susan (RUD FUL)



Goldenrod (SOL FIR)

PLANT SCHEDULE FULL SITE

| INSTR | QTY | BOTANICAL / COMMON NAME | SIZE | CONDITION | REMARKS |
|---------|-----|--|--------|-----------|---------|
| AME CAN | 3 | <i>Ambrosia artemisiifolia</i> / Serviceberry | 8-15' | Cont. | 3x 5mm |
| BRI BR | 16 | <i>Brickellia ericoides</i> / Brilliant Red Chokeberry | 24-30" | Cont. | |
| CEP OCC | 9 | <i>Chaenactis occidentalis</i> / Buttonbush | 24-30" | Cont. | |
| FOT AIR | 17 | <i>Fothergilla gardenii</i> / Mt. Airy Fothergilla | 2-3' | Cont. | |
| HYD ANN | 22 | <i>Hydrangea arborescens</i> / Annabelle Hydrangea | 24-30" | Cont. | |
| ILE SPA | 73 | <i>Illex glabra</i> / Sparkberry / Winterberry | 24-30" | Cont. | |
| ILE SHA | 71 | <i>Illex verticillata</i> / Shamrock Inkberry / Sparkberry | 24-30" | Cont. | |
| ITE LIT | 14 | <i>Ironia virginica</i> / Little Henry Virginia Sweetspire | 24-30" | Cont. | |
| RHJ GRO | 46 | <i>Rhus aromatica</i> / Gro-Low Fragrant Sumac | 2-3' | Cont. | |
| VIB WIN | 19 | <i>Viburnum nudum</i> / Winterthur Smooth Witherod | 24-30" | Cont. | |
| OSM CIN | 179 | <i>Osmunda cinnamomea</i> / Cinnamon Fern | 1-2' | Cont. | |
| AME LTD | 180 | <i>Aster multiflorus</i> / Butterfly Milkweed | 1-2' | Per. | |
| ASC TUB | 182 | <i>Asclepias tuberosa</i> / Butterfly Milkweed | 1-2' | Per. | |
| DRY MAR | 183 | <i>Dryopteris marginalis</i> / Marginal Wood Fern | 1-2' | Per. | |
| HEU AUT | 184 | <i>Hebe x exoniensis</i> / Autumn Bride Coral Bells | 1-2' | Per. | |
| IRI VER | 185 | <i>Iris versicolor</i> / Blue Flag Iris | 1-2' | Per. | |
| MON CLA | 186 | <i>Monarda mollis</i> / Wild Bergamot | 1-2' | Per. | |
| PAN SHE | 187 | <i>Panicum virgatum</i> / Switchgrass | 1-2' | Per. | |
| PYC VIR | 188 | <i>Pyrola rotundifolia</i> / Mountain Mint | 1-2' | Per. | |
| RUD FUL | 189 | <i>Rudbeckia hirta</i> / Black-eyed Susan | 1-2' | Per. | |
| SOL FIR | 190 | <i>Solidago rigida</i> / Goldenrod | 1-2' | Per. | |

★ ★ ★
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DPR II - 4 PARKS
 STORMWATER
 IMPROVEMENTS

FORT STEVENS
 COMMUNITY CENTER
 1327 VAN BUREN STREET NW
 WASHINGTON, DC

Natural Resources Design
 an ecologically focused design firm
 Washington, DC
 1008 SHEPHERD ST. NE
 WASHINGTON, DC, 20017
 202.489.8214
 www.NaturalResourcesDesign.com
 C&E# LSP88160022021



PLANT IMAGES

Designed: M. ZERBAS
 Drawn: M. ZERBAS
 Checked: J. HENRYMAN

Date: DECEMBER 12, 2019
 Revisions:

L130

CONSTRUCTION DETAILS



GENERAL INFORMATION

- All work to occur on weekdays (M-F)
- Work hours are 7AM–5 PM
- Construction vehicles on site:
 - Up to 2 dump trucks
 - 1 track excavator
 - 1 bobcat
 - 2 powered dump buggies
 - Several crew pick-up trucks
- DOEE Community Point of Contact:

Cecilia Lane

Cecilia.lane@dc.gov

202-535-1961

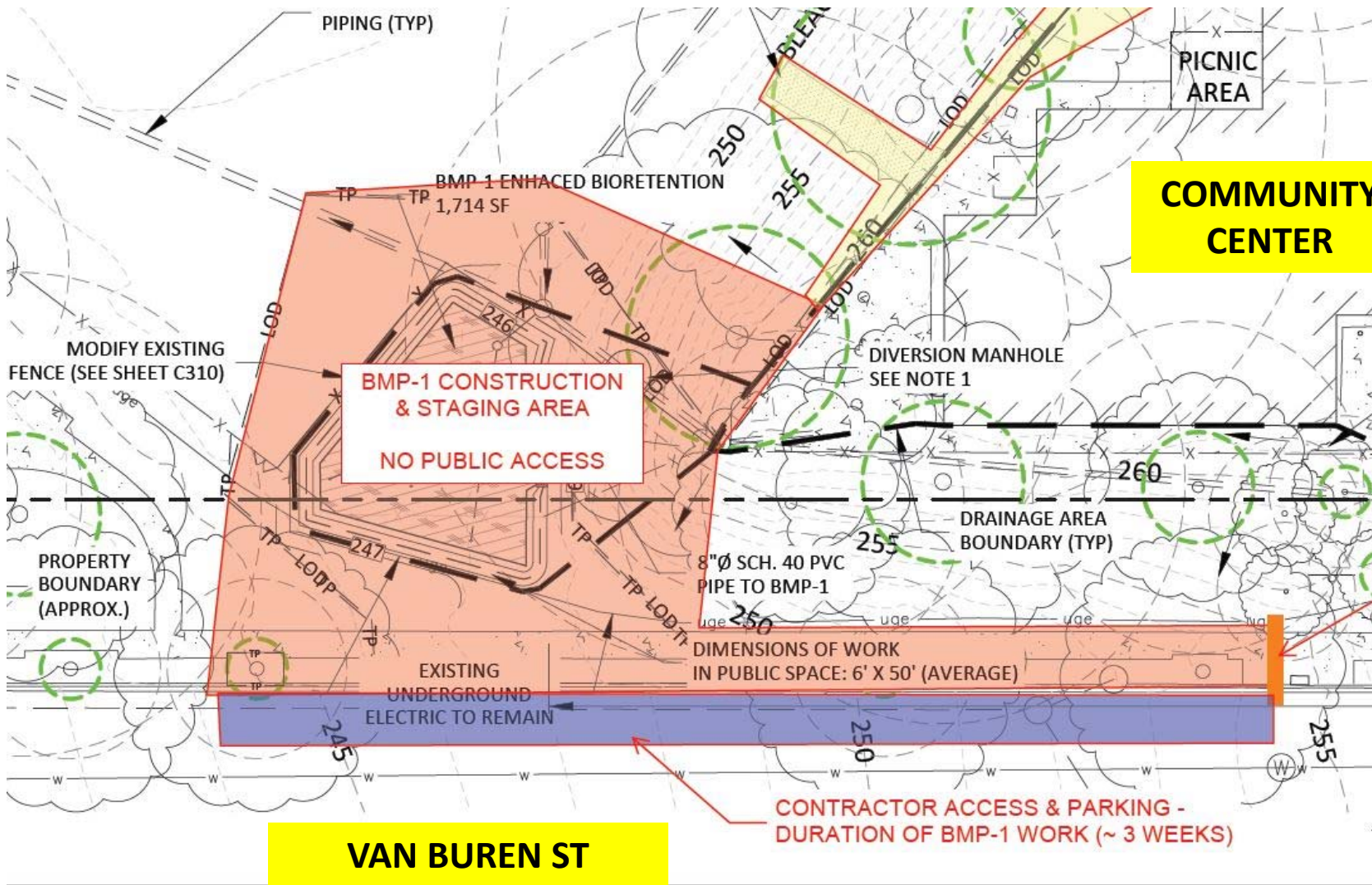


SITE ACCESS / BMP-1: VAN BUREN ST

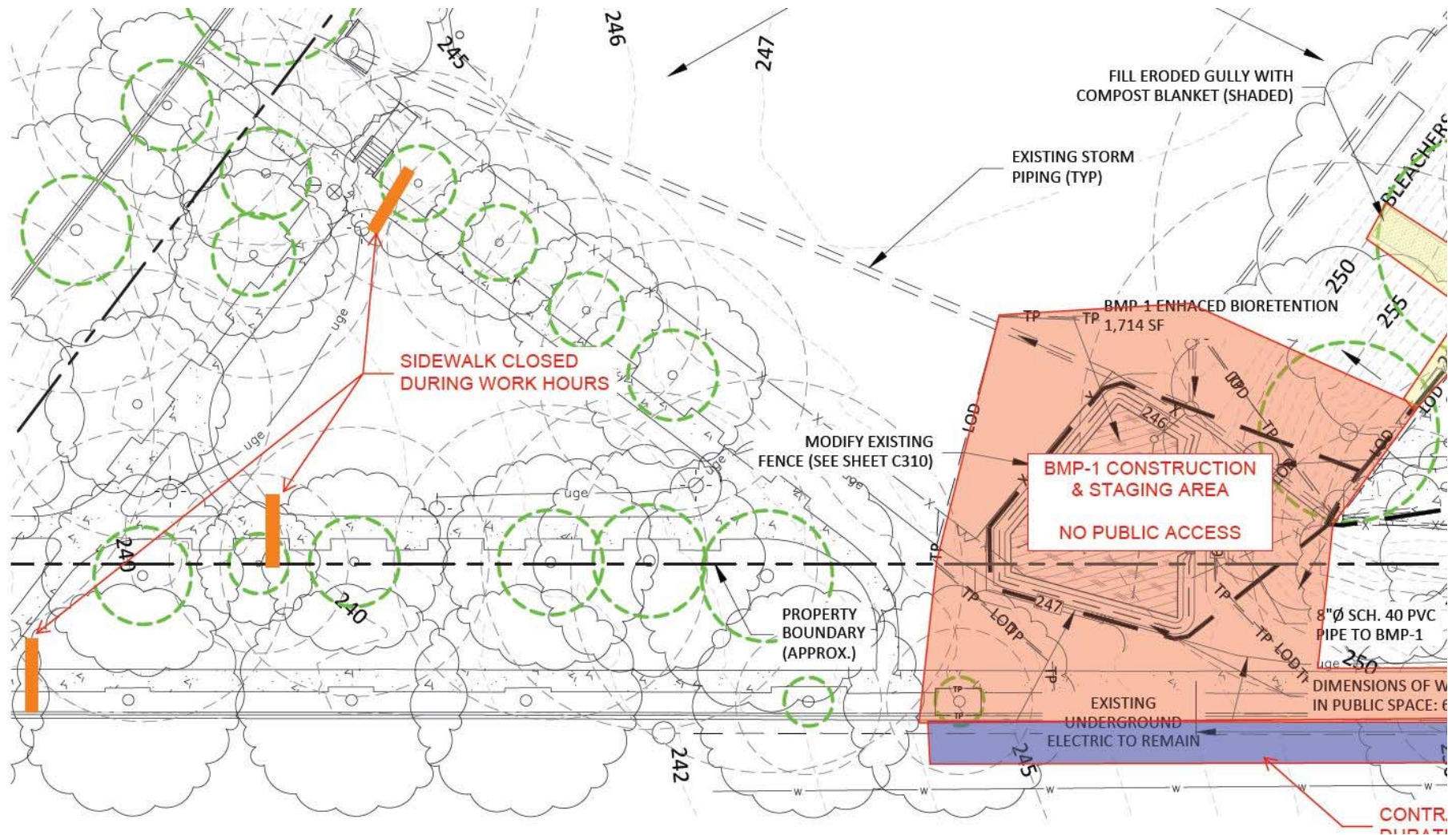


**CONSTRUCTION
ACCESS - BMP 1**

**SOCCER
FIELD**



CONSTRUCTION ACCESS - triangle park



SITE ACCESS / TENNIS COURTS



TENNIS
COURTS STEPS
NO ACCESS ~ 1
WEEK

USE
ALTERNATIVE
ENTRANCE

SITE ACCESS / BMP-2: ALLEYWAY

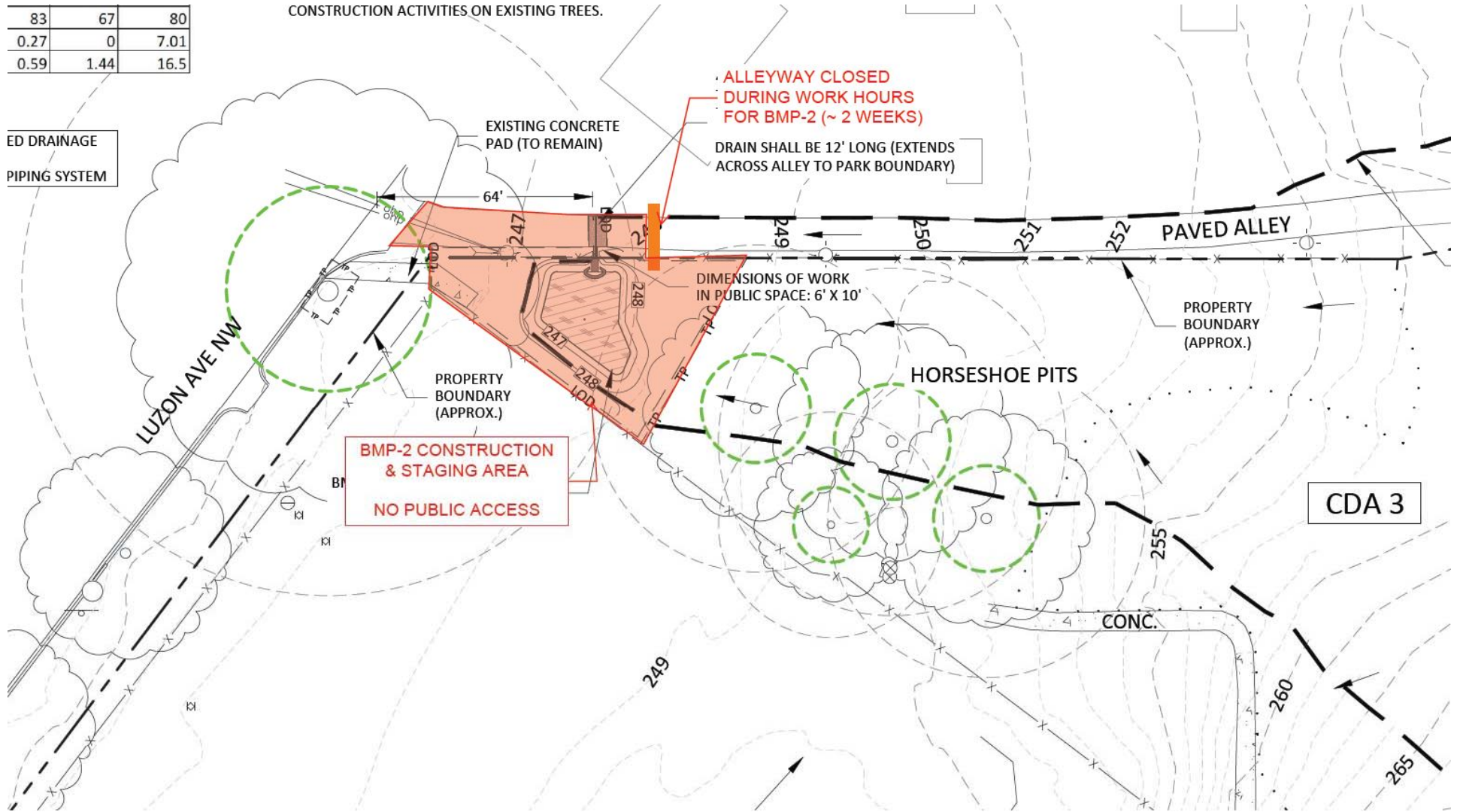


CONSTRUCTION ACCESS - Alley

| | | |
|------|------|------|
| 83 | 67 | 80 |
| 0.27 | 0 | 7.01 |
| 0.59 | 1.44 | 16.5 |

CONSTRUCTION ACTIVITIES ON EXISTING TREES.

ED DRAINAGE
PIPING SYSTEM



PROJECT TIMELINE

- May 2019: contract awarded
- May – August 2019: field assessment (topographic survey, geotechnical investigations etc.)
- August – January 2020: design development
- 3 public meetings:
 - Concept designs on 9/10/19
 - Semi-final designs (~65%): 12/17/19
 - Second Semi-final designs (~65%): 1/13/21
 - **Construction kickoff meeting (timeline): 9/21/2021**
- December 2021: construction complete
- DOEE responsible for ongoing maintenance

FAQs

- How do we find our project sites?
 - Enthusiastic landowners!
 - Funding sources
 - Large areas of untreated impervious cover
 - More impactful locations
- What can I do?
 - RiverSmart Homes
 - Rain Gardens
 - Permeable Pavers
 - Rain Barrels
 - Tree Planting
 - “BayScaping”



<https://www.riversmarthomes.org/>

QUESTIONS



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