



# Welcome to our Virtual Public Meeting Space!



- This meeting will be held in a discussion-type format. Please speak up and join the conversation.
  - If you are experiencing technical issues, please use the chat function and we will be happy to assist you.
  - You can also submit questions via chat.



# BLUEPRINT

## Walhalla Ravine



NEIGHBORS  
MEETING

# What Happened in Walhalla Ravine Study?

## *Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects* (Schueler and Stack, 2013) Protocol 1

*Protocol 1: Credit for Prevented Sediment during Storm Flow* -- This protocol provides an annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that would otherwise be delivered downstream from an actively enlarging or incising urban stream.

*Protocol 2: Credit for Instream and Riparian Nutrient Processing during Base Flow* -- This protocol provides an annual mass nitrogen reduction credit for qualifying projects that include design features to promote denitrification during base flow within the stream channel through hyporheic exchange within the riparian corridor.

*Protocol 3: Credit for Floodplain Reconnection Volume*-- This protocol provides an annual mass sediment and nutrient reduction credit for qualifying projects that reconnect stream channels to their floodplain over a wide range of storm events.

*Protocol 4: Credit for Dry Channel Regenerative Stormwater Conveyance (RSC) as an Upland Stormwater Retrofit*-- This protocol provides an annual nutrient and sediment reduction rate for the contributing drainage area to a qualifying dry channel RSC project. The rate is determined by the degree of stormwater treatment provided in the upland area using the retrofit rate adjustor curves developed by the Stormwater Retrofit Expert Panel.

## Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects

Joe Berg, Josh Burch, Deb Cappuccitti, Solange Filoso, Lisa Fraley-McNeal, Dave Goerman, Natalie Hardman, Sujay Kaushal, Dan Medina, Matt Meyers, Bob Kerr, Steve Stewart, Bettina Sullivan, Robert Walter and Julie Winters

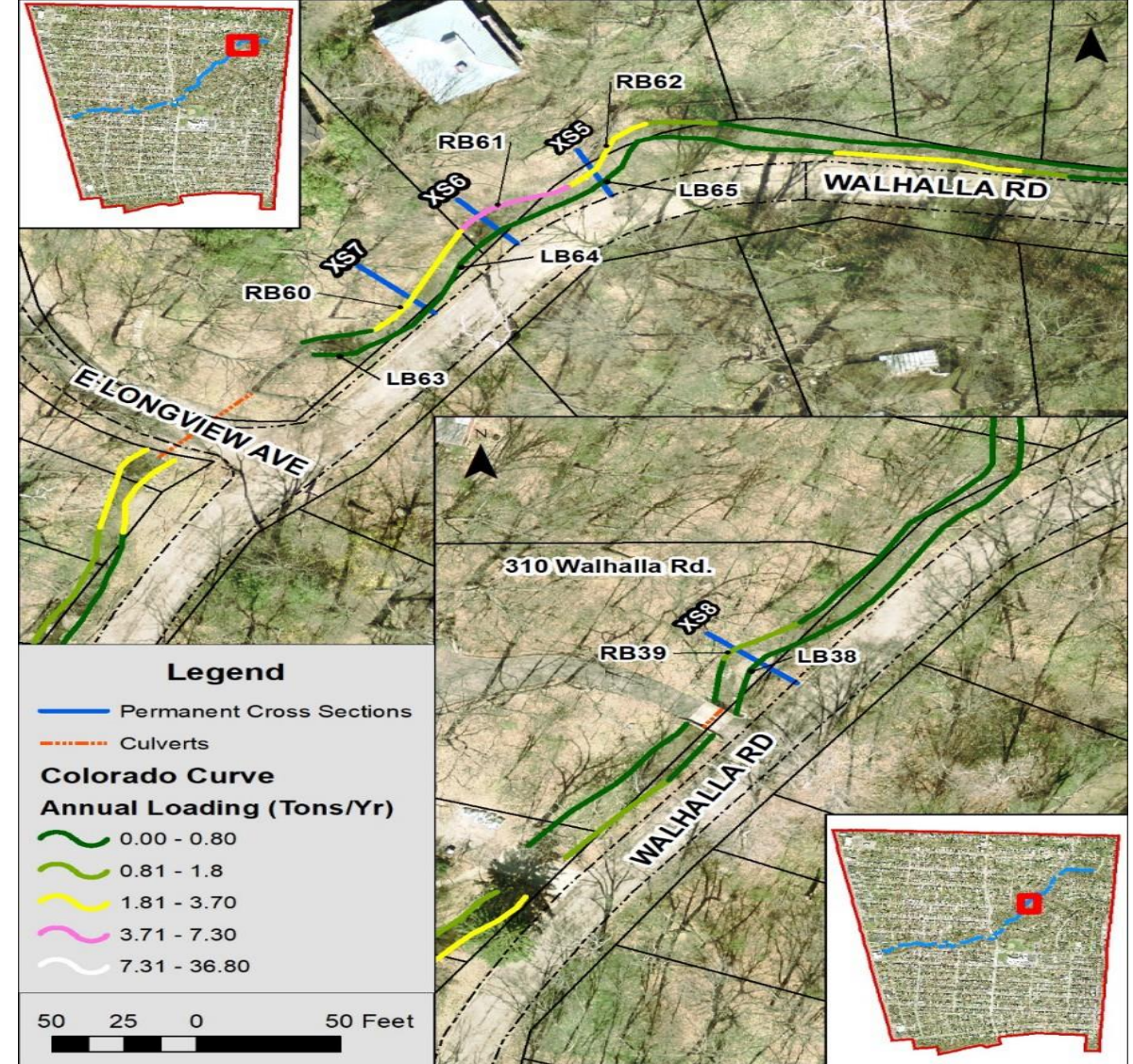
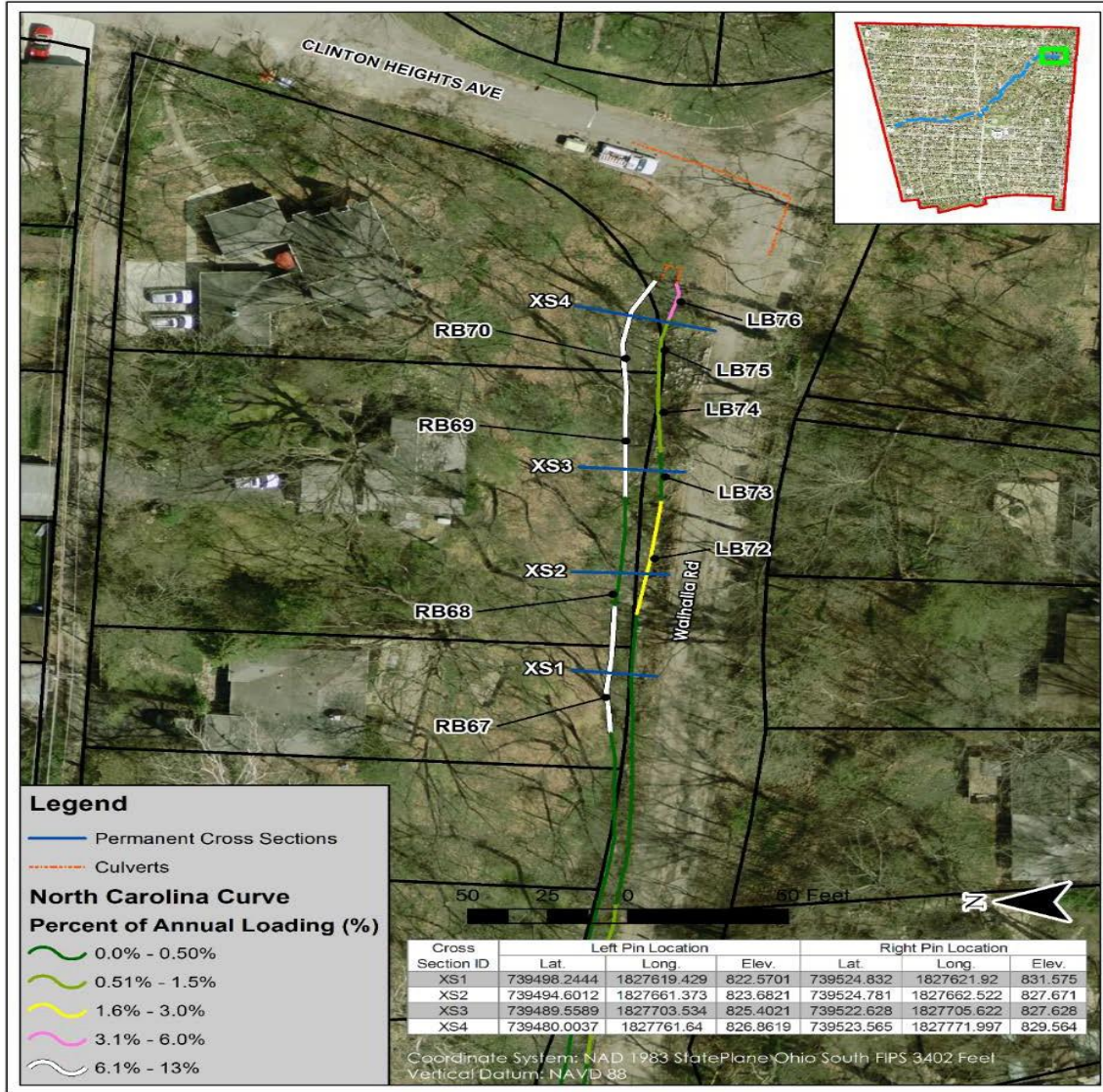
Accepted by Urban Stormwater Work Group (USWG): February 19, 2013  
Approved by Watershed Technical Work Group (WTWG): April 5, 2013  
Final Approval by Water Quality Goal Implementation Team (WQGIT): May 13, 2013  
Test-Drive Revisions Approved by the USWG : January 17, 2014  
Test-Drive Revisions Approved by the WTWG: August 28, 2014  
Test-Drive Revisions Approved by the WQGIT: September 8, 2014



Prepared by:  
Tom Schueler, Chesapeake Stormwater Network  
and  
Bill Stack, Center for Watershed Protection

# Walhalla Ravine Study Cont.

1. Prediction of the stream reaches expected to experience the highest bank erosion rates - BANCS (Banks Assessment for Non-point source Consequences of Sediment) assessment
  - Predicted 5.4 tons/year TSS reduction
2. Prediction Validation - Monitored 8 permanent cross-sections for one to two years (June 2018 - Oct. 2020)
3. Applied 50% efficiency
  - Measured 4.2 tons/year TSS reduction



**XS 1-4**  
 Surveyed in  
 Jun. 2018  
 Jun. 2019  
 Oct. 2020

# Prediction Validation

**XS 5-8**  
 Surveyed in  
 Oct. 2019  
 Oct. 2020

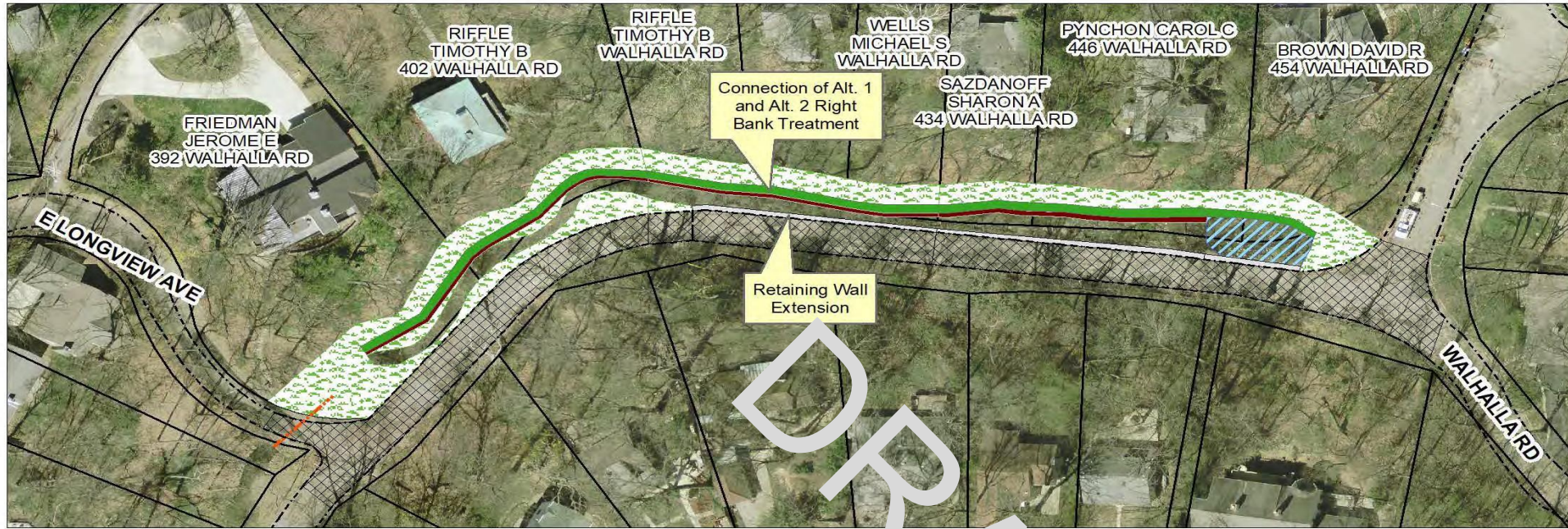
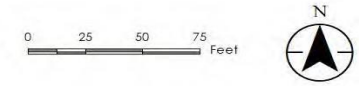


Figure No. **4**  
**Walhalla Ravine Restoration Alternative 1&2.1 Combined**

Client/Project  
 City of Columbus  
 BluePrint Tulane/Findlay

Project Location  
 Walhalla Ravine  
 Columbus, OH

173409197  
 Prepared by JMR on 2020-12-7

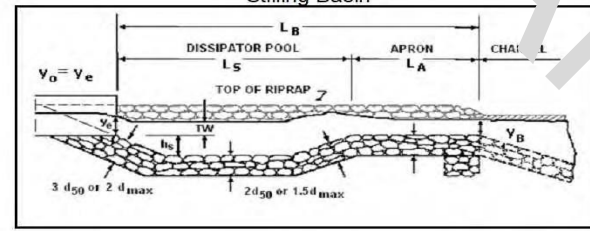


- Legend**
- Edge of Pavement
  - ▭ Parcel Boundary
  - Culverts
- Alternative Items**
- Imbricated Stone Toe
  - ▭ Retaining Wall
  - Soil Lifts
  - ▨ Stilling Basin
  - ▩ Mill and Overlay
  - Seeding

**Left Bank Treatment**  
 Retaining Wall

**Channel Modifications**  
 Stilling Basin

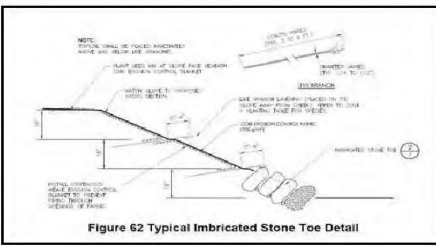
**Estimated Total Project Cost**



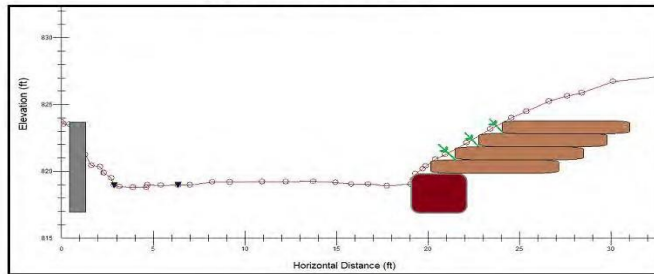
Retaining Wall	\$125,821
Imbricated Stone Toe with Coir Wrapped Soil Lifts	\$303,242
"U" Cross Vanes	\$53,175
Stilling Basin	\$15,215
Walhalla Road Structural Repair	\$40,934
General Construction Items (ie. Mobilization, SWP3, MOT, Road Resurfacing)	\$192,043
Contingency (30%)	\$219,129
<b>Total</b>	<b>\$949,559</b>

**Right Bank Treatment**

Imbricated Stone Toe w/ Coir Wrapped Soil Lifts



**Typical Cross Section**



- Notes**
- Coordinate System: NAD 1983 HARN StatePlane Ohio South FIPS 3402
  - Feet
  - Data Sources include:  
 Orthophotography: Ohio Statewide Imaging Program

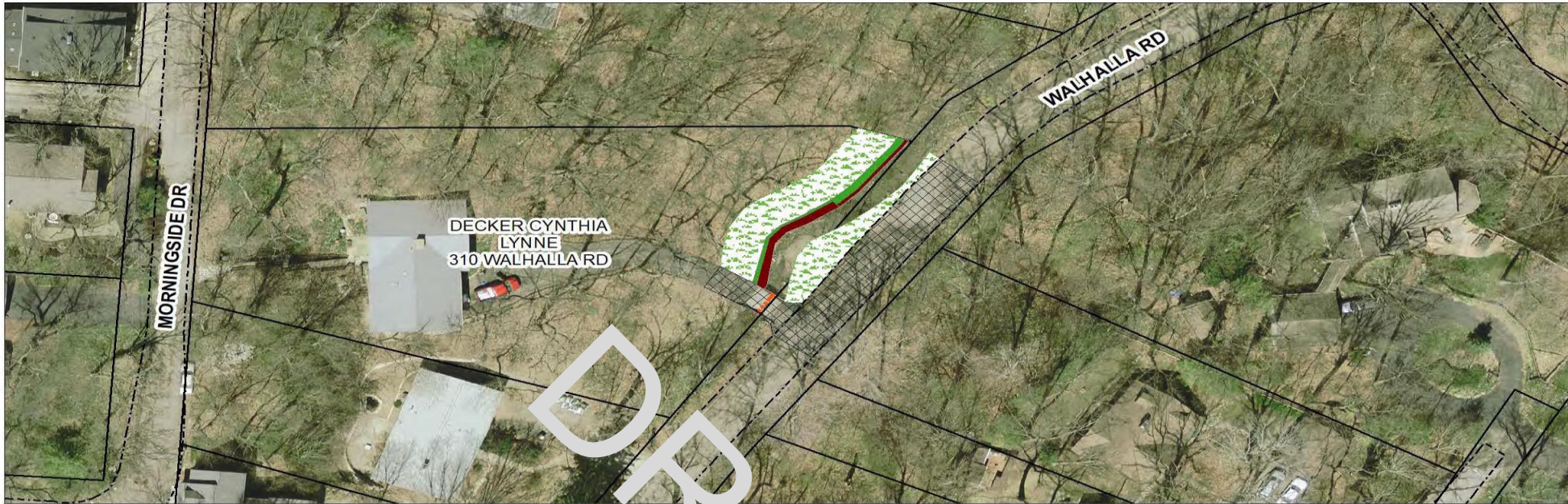
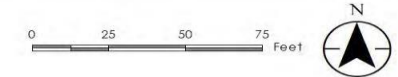


Figure No. **8**  
 Title **Walhalla Ravine Restoration Alternative 3.1**  
 Client/Project  
 City of Columbus  
 BluePrint Tulane/Findley  
 Project Location  
 Walhalla Ravine  
 Columbus, OH  
 173409197  
 Prepared by JMR on 2020-12-7



- Legend**
- Edge of Pavement
  - ▭ Parcel Boundary
  - Culverts
- Alternative Items**
- Imbricated Stone Toe
  - Soil Lifts
  - ▨ Mill and Overlay
  - Seeding

**Left Bank Treatment**

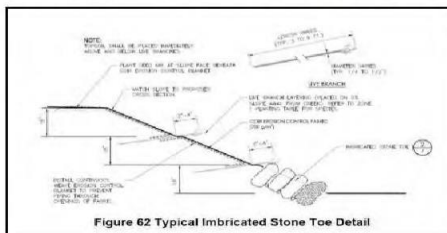
None

**Estimated Total Project Cost**

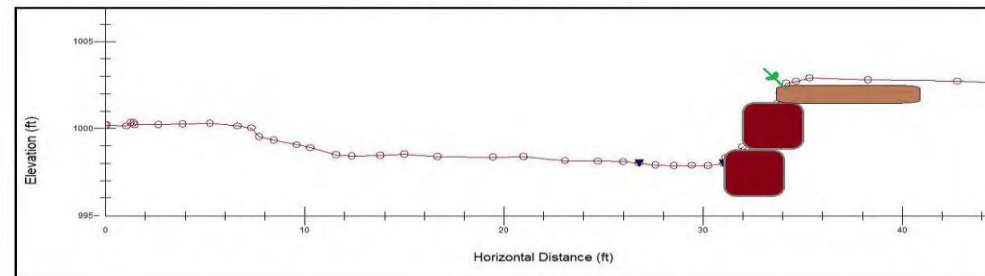
Imbricated Stone Toe with Coir Wrapped Soil Lifts	\$29,828
"U" Cross Vanes	\$15,805
General Construction Items (ie. Mobilization, SWP3, MOT, Road Resurfacing)	\$57,921
Contingency (30%)	\$31,066
<b>Total</b>	<b>\$134,620</b>

**Right Bank Treatment**

Imbricated Stone Toe w/ Coir Wrapped Soil Lifts



**Typical Cross Section**



- Notes**
- Coordinate System: NAD 1983 HARN StatePlane Ohio South FIPS 3402
  - Feet
  - Data Sources Include:  
 Orthophotography: Ohio Statewide Imaging Program

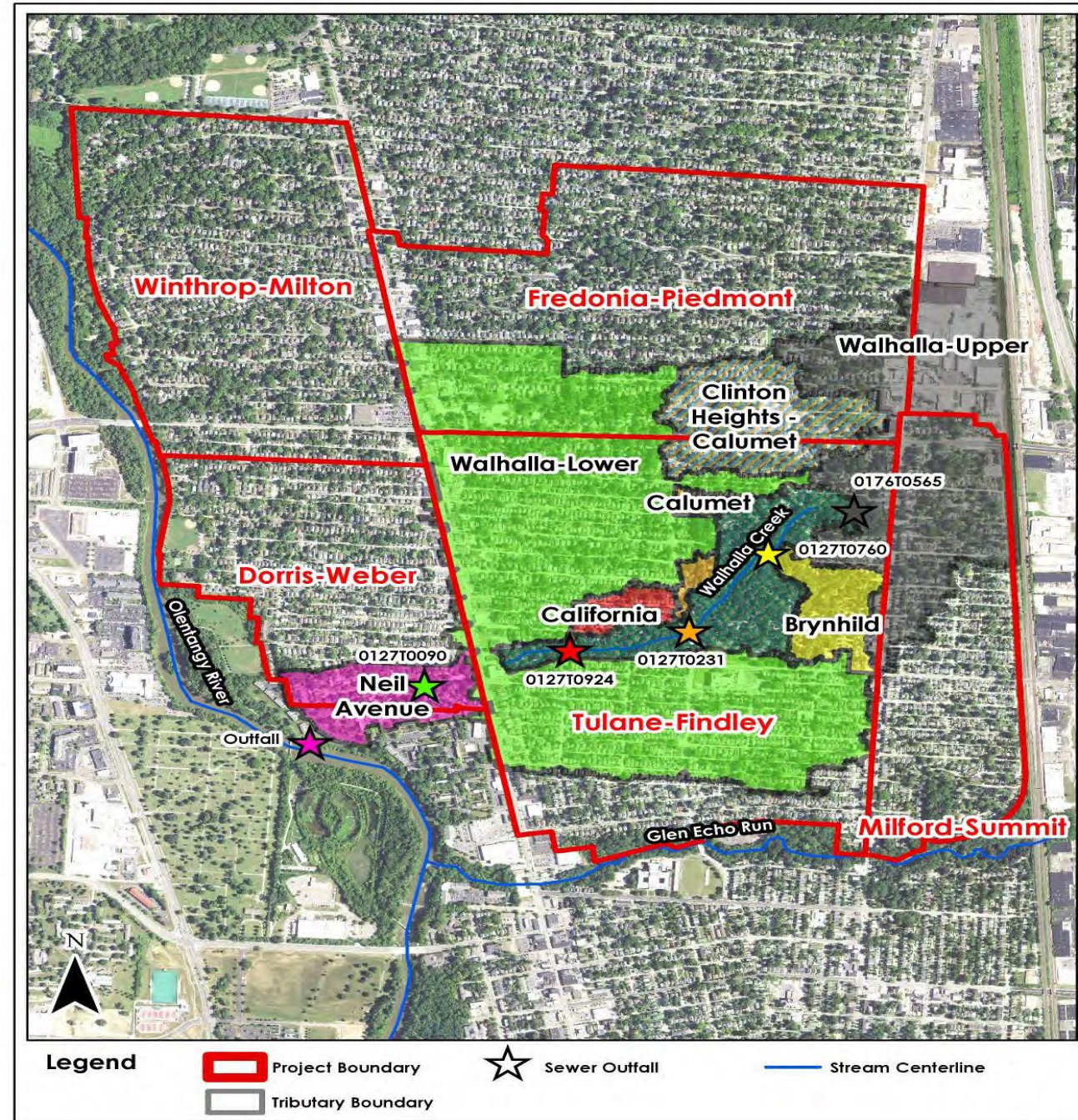
# Blueprint Columbus Clintonville 3 – Walhalla Ravine Restoration

April 12, 2021  
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presentation\nov\_2020\walhalla\_tm\_final\_v6.docx

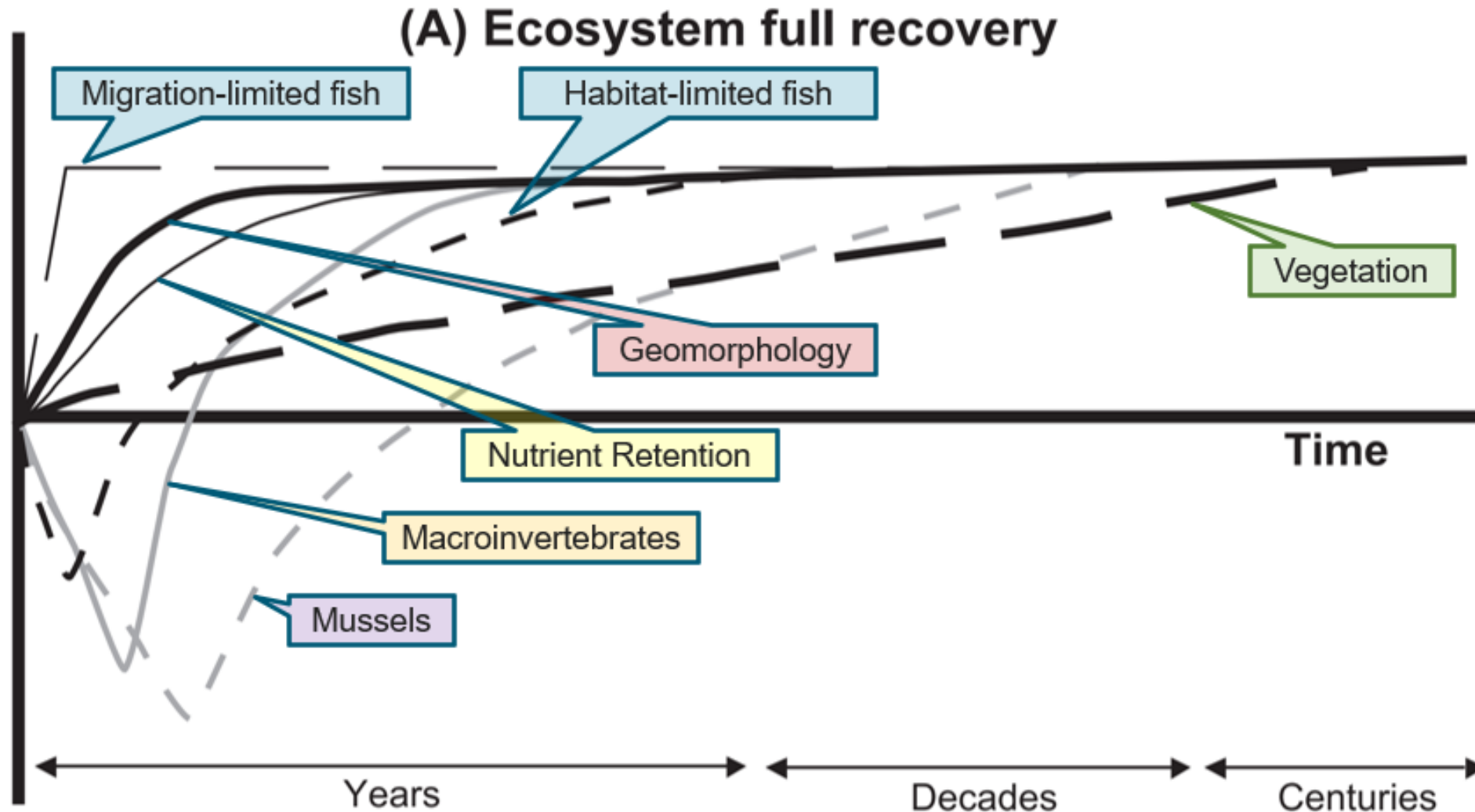
Design with community in mind

**Figure 2 Walhalla  
Ravine Tributary Areas**





# Ecosystem Recovery





DISCUSSION



## Open Discussion

- Previously submitted questions
  - Residential water lines
  - Previous attempts at bank stabilization
  - Abandoned gas lines
  - Impact to Wildlife



## NEXT STEPS

➔ Walhalla Ravine design continues

➔ Clintonville 3- 30% Public Meeting (November 2021)

- Expect a rendering of the stream restoration at this meeting

