

Making the Connection

Linking Urban Streams and People

Presented by:

Will Wilhelm, P.E., CFM, CPESC

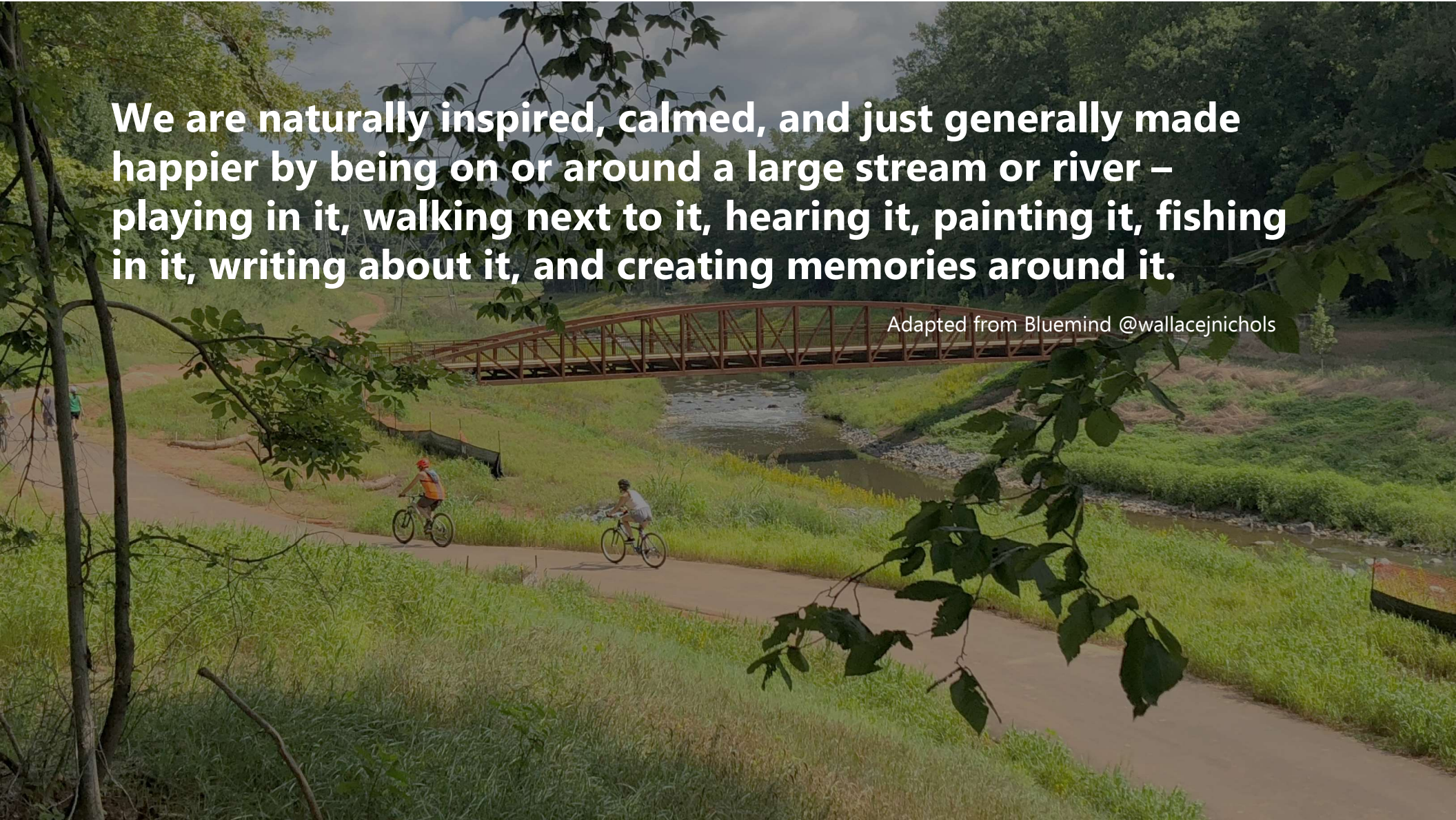
Kimley»»Horn





We are naturally inspired, calmed, and just generally made happier by being on or around a large stream or river – playing in it, walking next to it, hearing it, painting it, fishing in it, writing about it, and creating memories around it.

Adapted from Bluemind @wallacejnichols



A scenic landscape featuring a calm river in the foreground, a dense forest of green trees in the middle ground, and majestic, snow-capped mountains in the background under a clear blue sky. On the right side of the river, a wedding party is walking along a dirt path. In the foreground, a bride in a white gown and a groom in a dark suit are walking towards the camera. Behind them, several other guests in formal attire are visible, some standing and some walking. The overall atmosphere is peaceful and celebratory in a natural setting.

**“In every walk with nature,
one receives far more than he seeks.”**

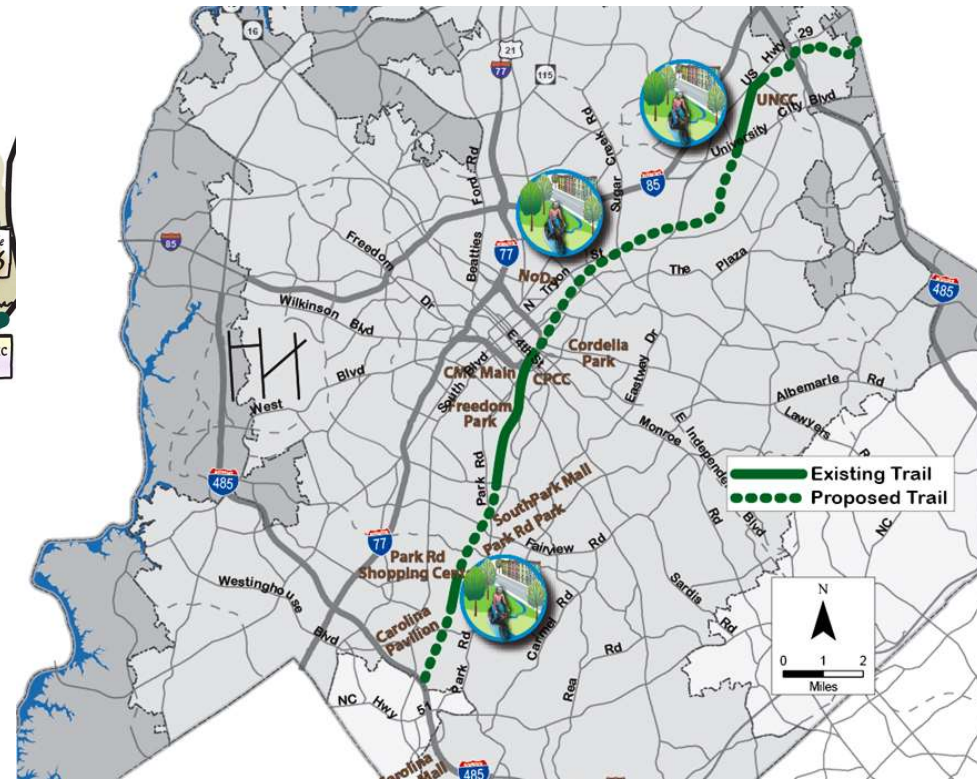
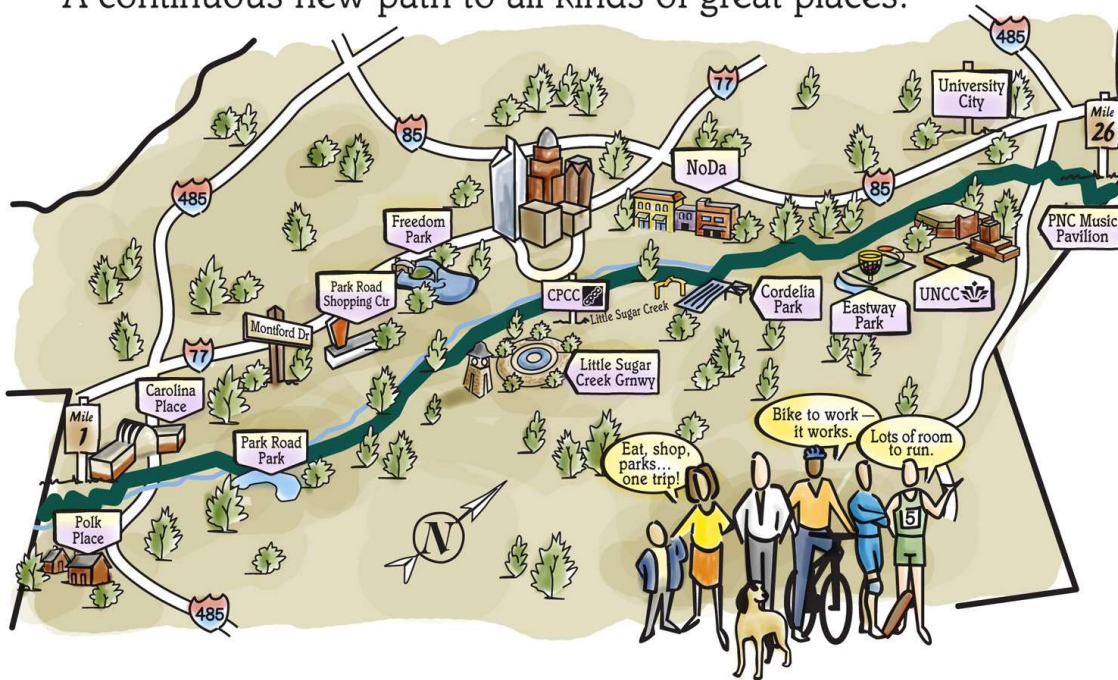
John Muir

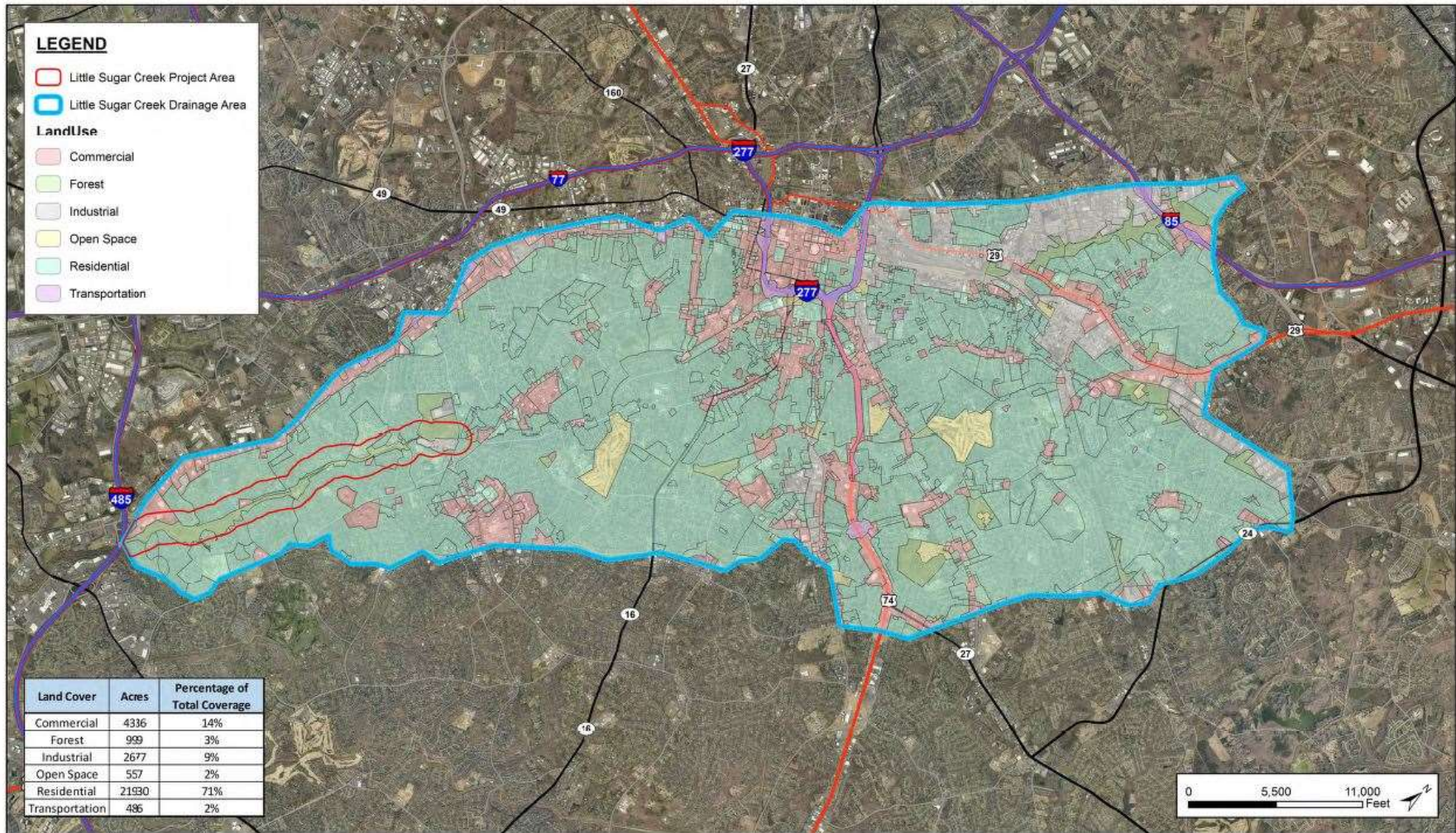
Little Sugar Creek, Charlotte, NC Greenway and Stream Restoration



CROSS CHARLOTTE TRAIL

A continuous new path to all kinds of great places.





Title

Project Site Land Cover

Prepared For:



Project

Little Sugar Creek (Tyvola Rd. to -485) Stream Restoration
Mecklenburg County, North Carolina

Date
8/5/2015

Figure 3

Prepared By: Kimley»Horn





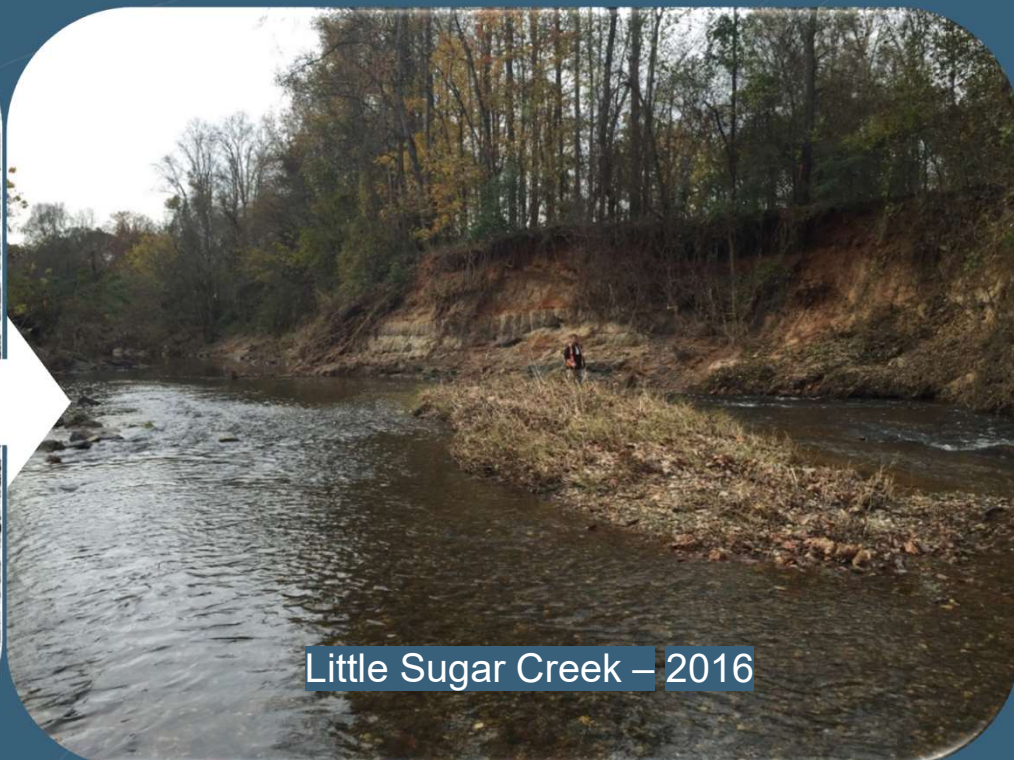


Fishing poles, clothes and streams have changed



Little Sugar Creek – 1894

Courtesy of Rusty Rozzelle



Little Sugar Creek – 2016

The desire of people to be near water has *not* changed



Little Sugar Creek – 1894

Courtesy of Rusty Rozzelle



Little Sugar Creek – 2018



















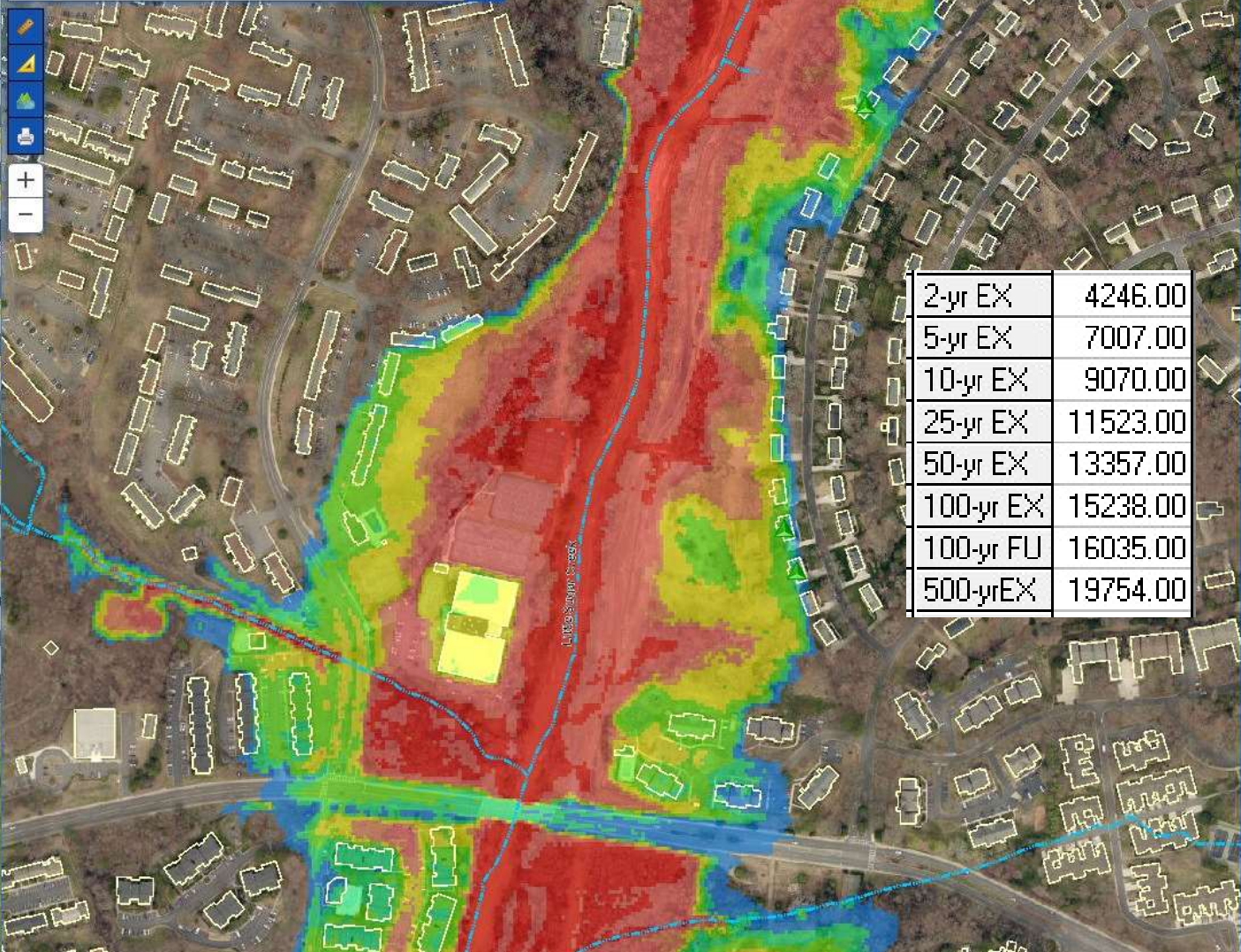




Design Challenges

Type Address/Parcel ID/Owner Name/Lndmark 🔍

Streets Aerials



2-yr EX	4246.00
5-yr EX	7007.00
10-yr EX	9070.00
25-yr EX	11523.00
50-yr EX	13357.00
100-yr EX	15238.00
100-yr FU	16035.00
500-yr EX	19754.00

- FEMA Floodplain
- Community Floodplain
- FEMA Floodways
- Community Floodways

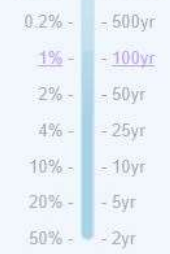
Use FIRM Current for flood insurance and local regulatory purposes.

3D Floodzones



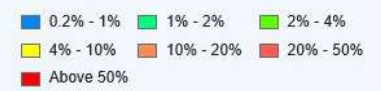
Annual Chance Floodzone

Future - Future



Play Stop

Annual Chance of Flooding



Enhanced datasets are non-regulatory and derived from latest available flood models, which may not be reflected on FIRM Current.

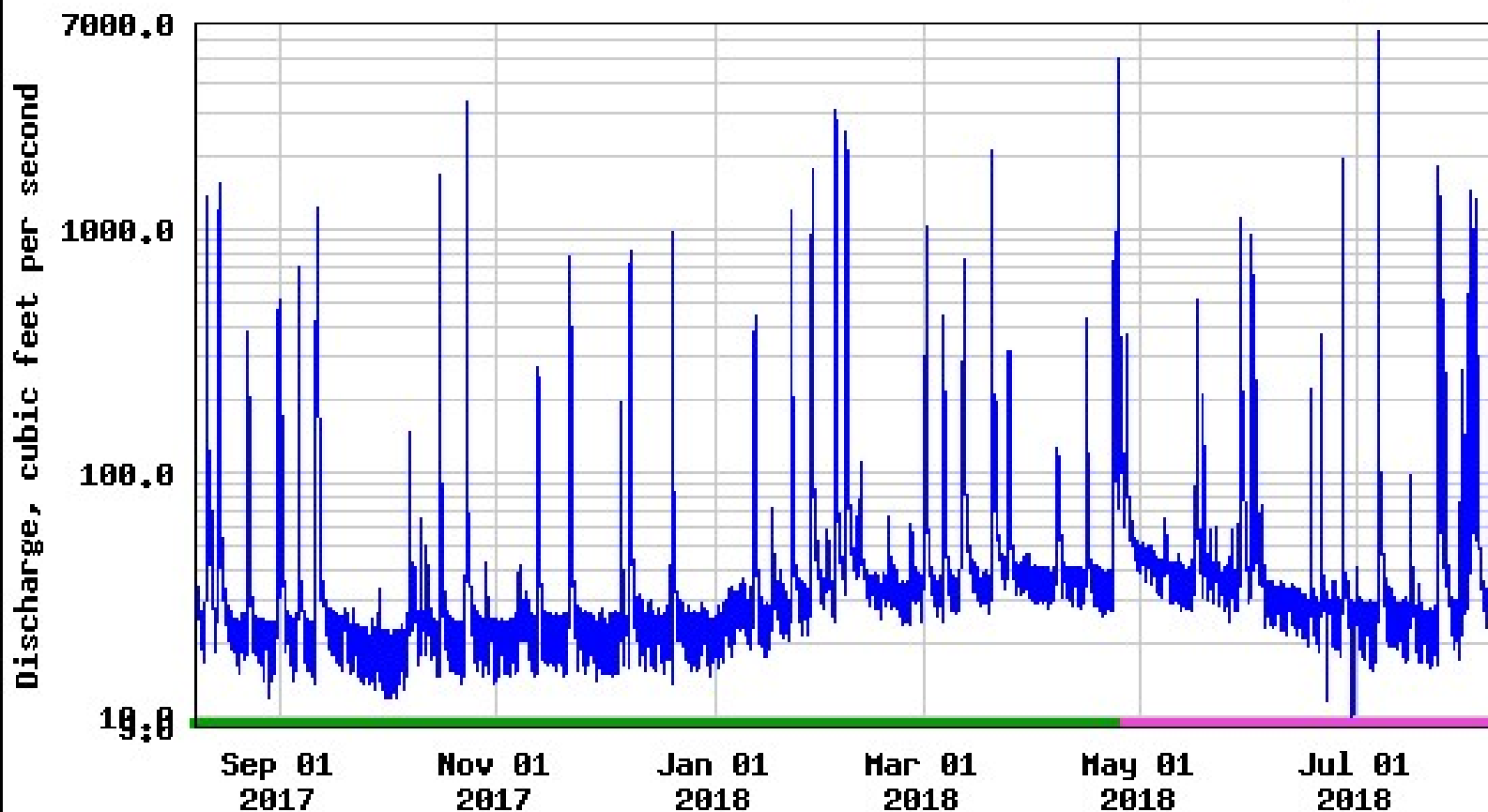
2004/2009 FIRM Floodlines

- FEMA Floodplain
- Community Floodplain
- FEMA Floodways
- Community Floodways

Pre 2004 FEMA Floodlines

- Floodplains
- Floodways

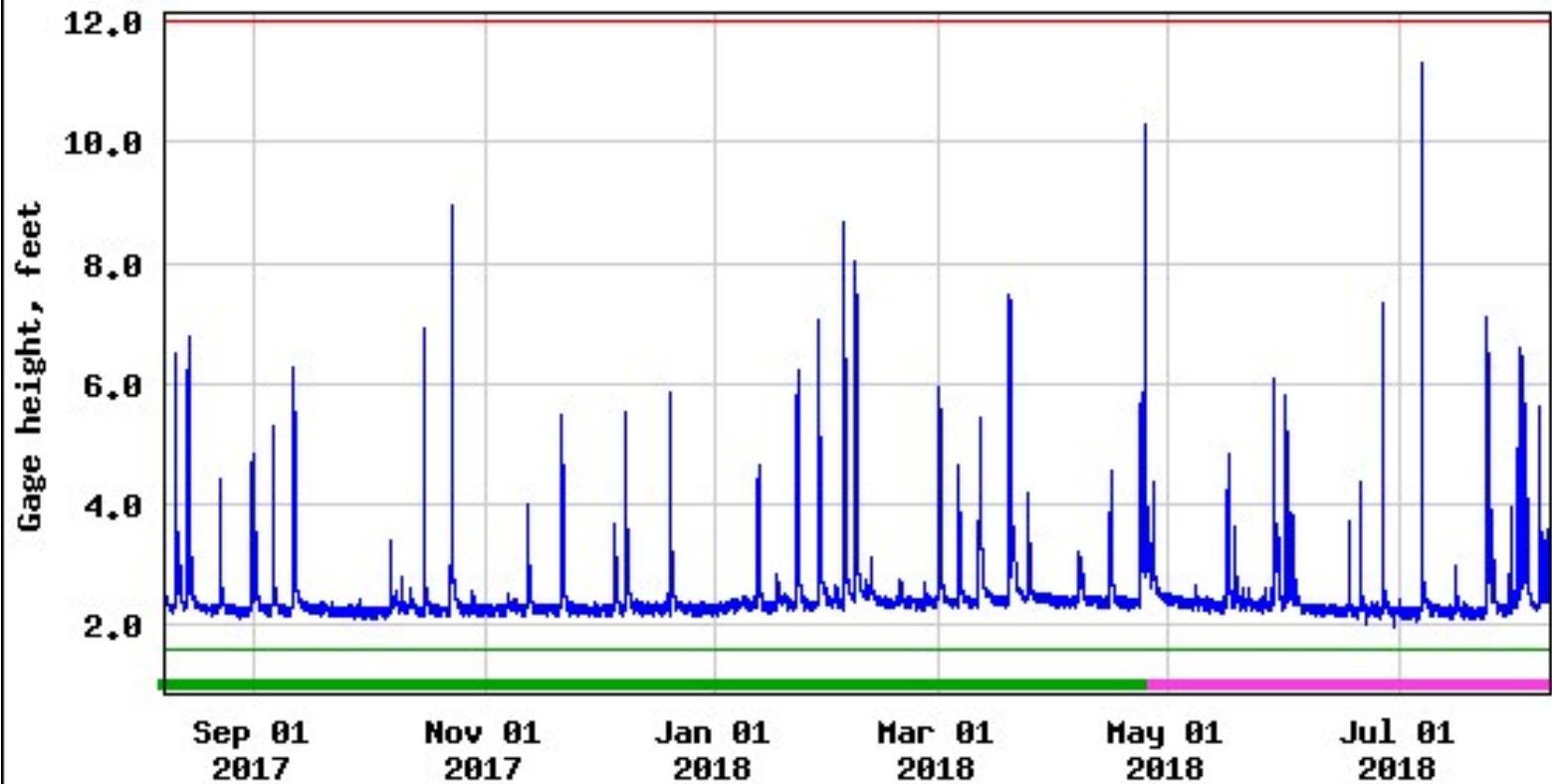
USGS 02146507 LITTLE SUGAR C AT ARCHDALE DR AT CHARLOTTE, NC



— Discharge
— Period of approved data
— Period of provisional data

Graph courtesy of the U.S. Geological Survey

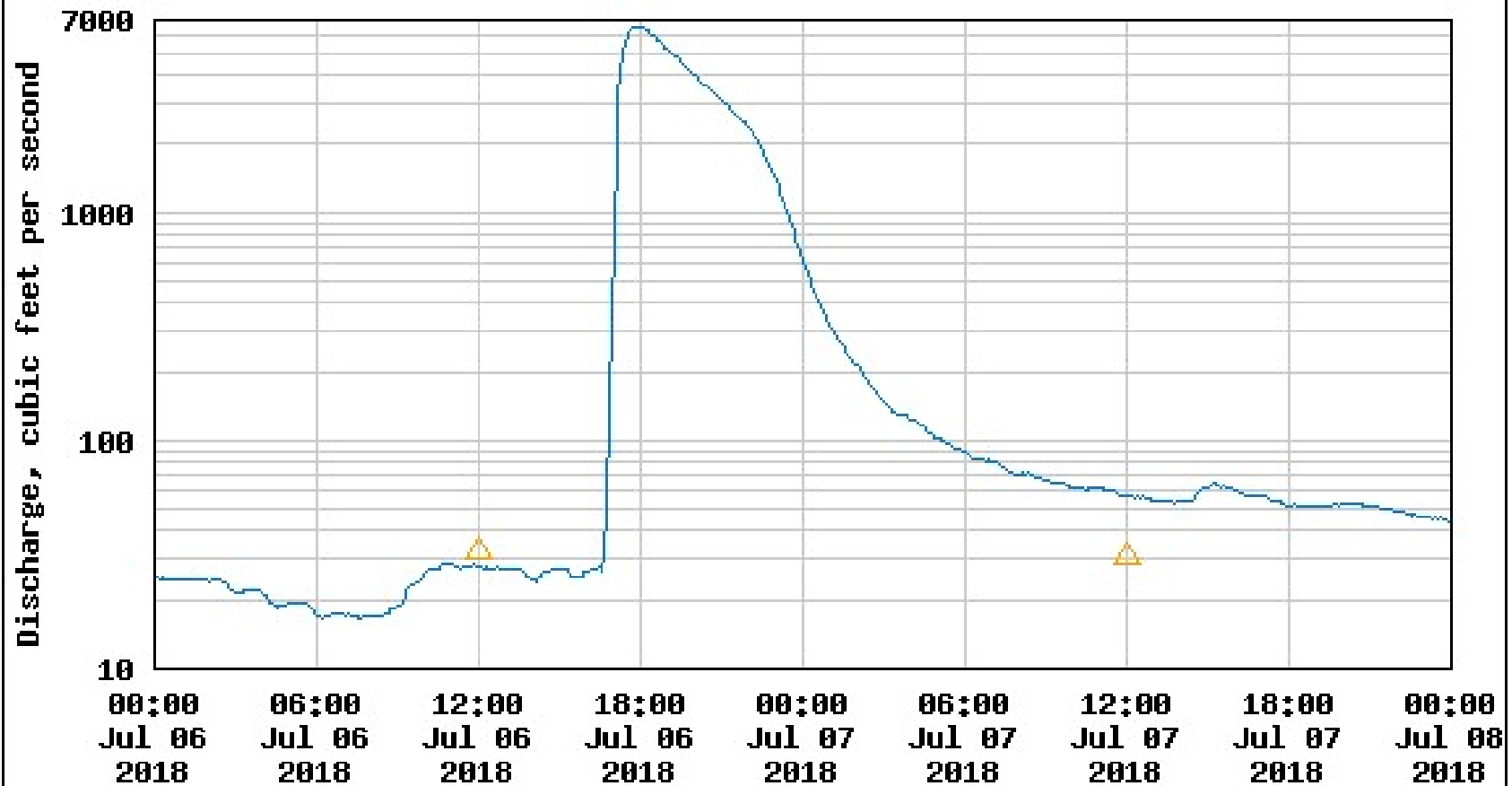
USGS 02146507 LITTLE SUGAR C AT ARCHDALE DR AT CHARLOTTE, NC



- Gage height
- National Weather Service Floodstage
- Period of approved data
- Operational limit (minimum)
- Period of provisional data

Graph courtesy of the U.S. Geological Survey

USGS 02146507 LITTLE SUGAR C AT ARCHDALE DR AT CHARLOTTE, NC

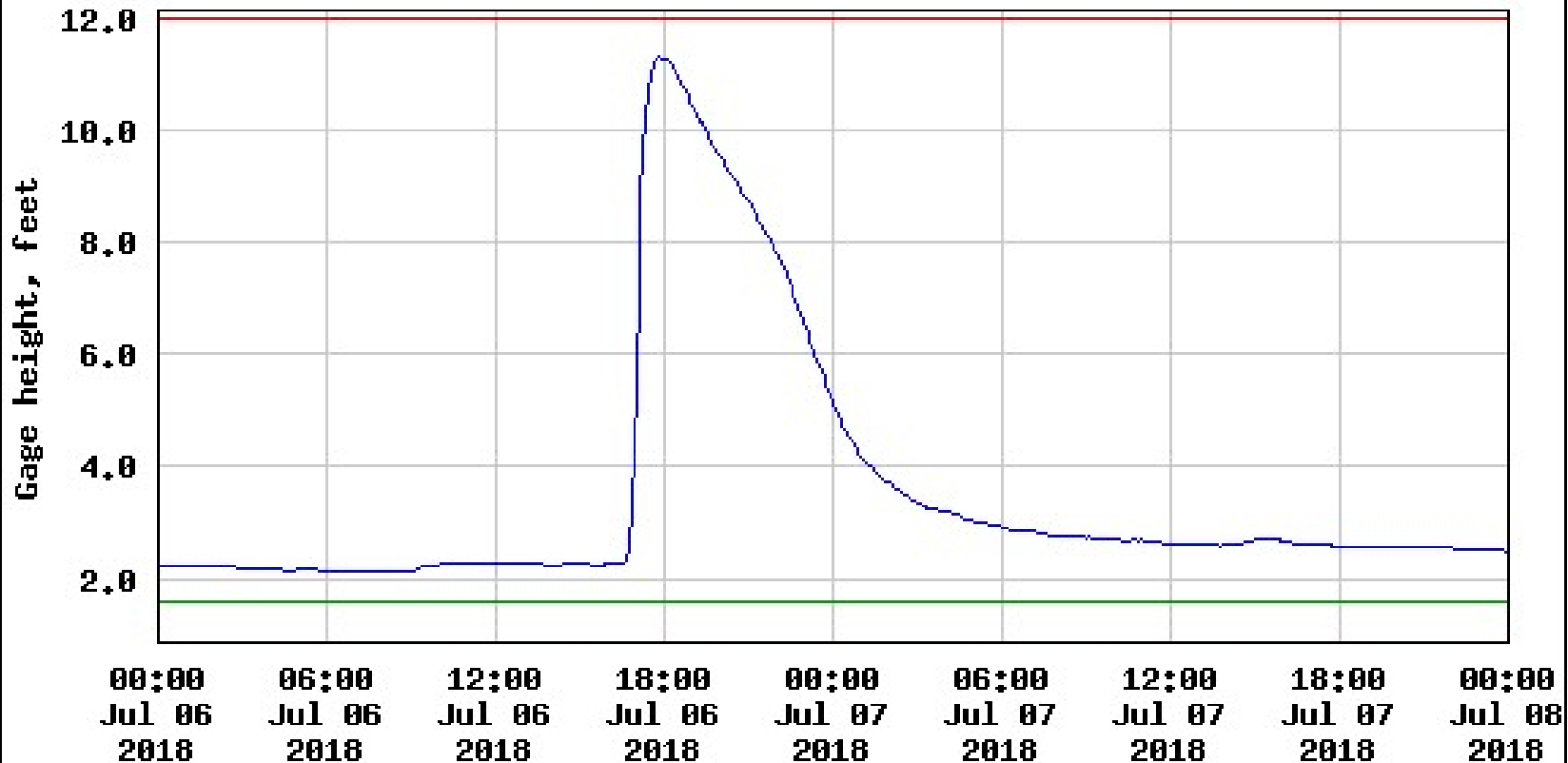


---- Provisional Data Subject to Revision ----

△ Median daily statistic (40 years) — Discharge

Graph courtesy of the U.S. Geological Survey

USGS 02146507 LITTLE SUGAR C AT ARCHDALE DR AT CHARLOTTE, NC



---- Provisional Data Subject to Revision ----

— Gage height

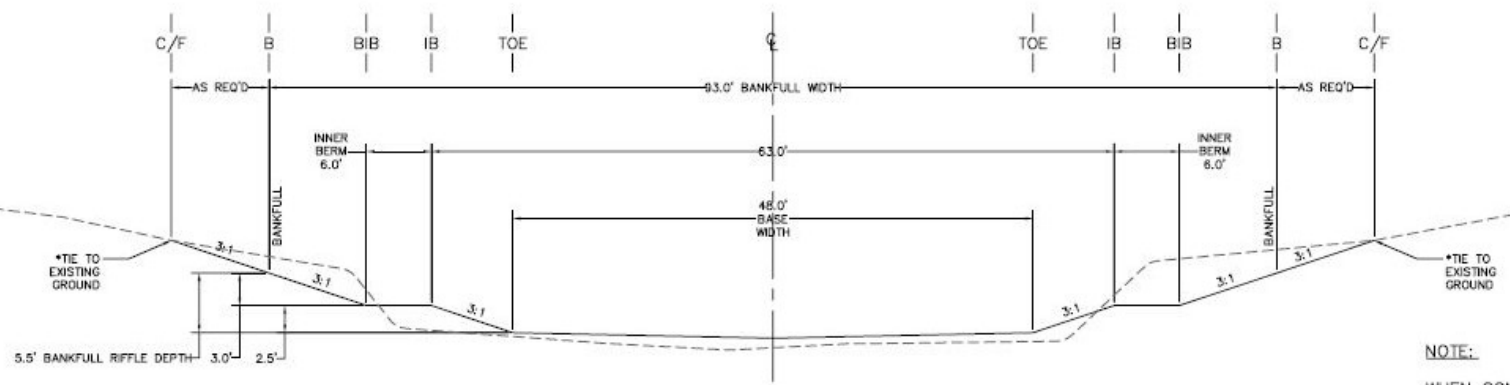
— Operational limit (minimum)

— National Weather Service Floodstage

Graph courtesy of the U.S. Geological Survey





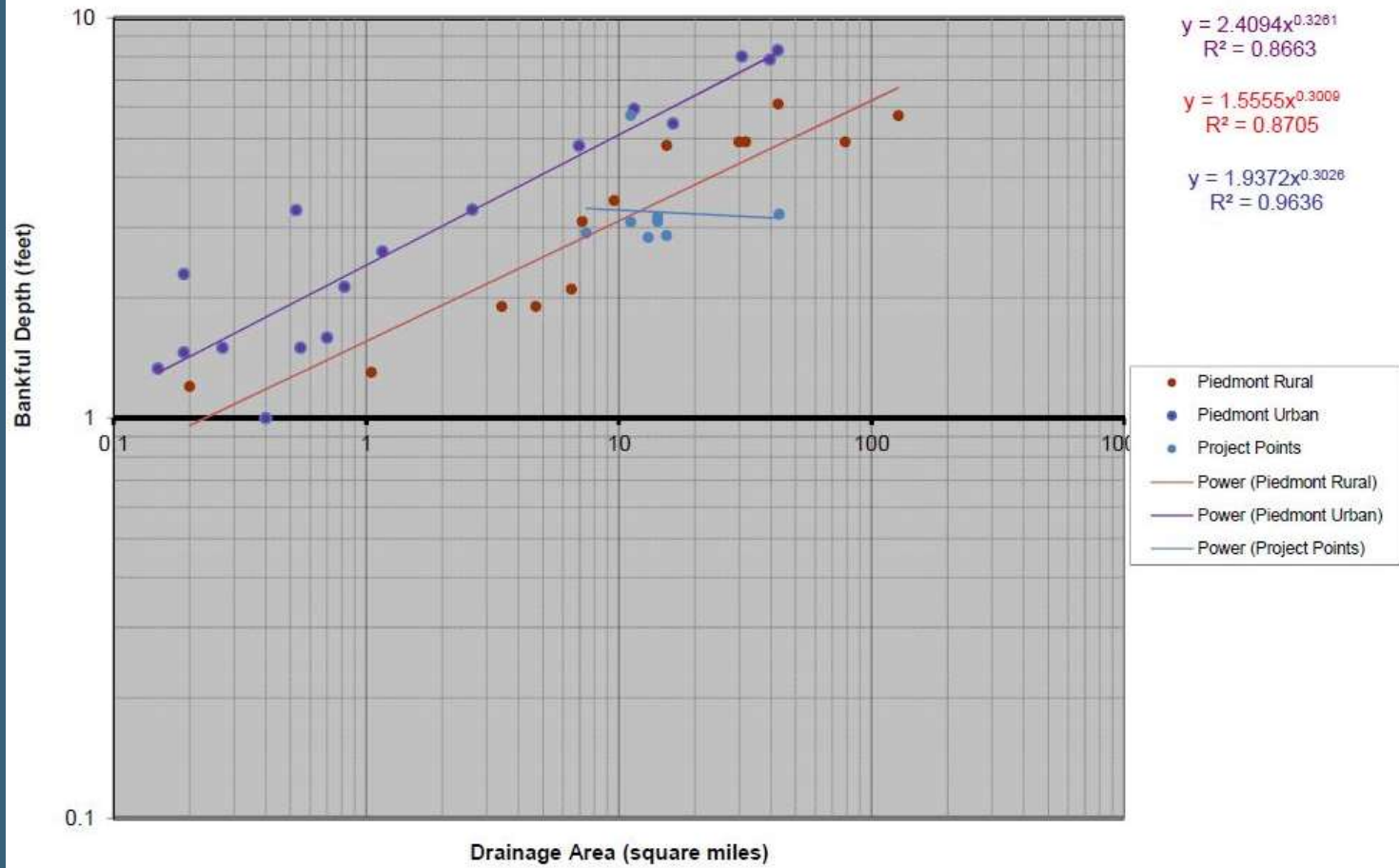


LITTLE SUGAR CREEK
RIFFLE TYPICAL
 LAY BACK BANK AND BUILD OUT TOES
 SEE PLAN VIEW
 NOT TO SCALE

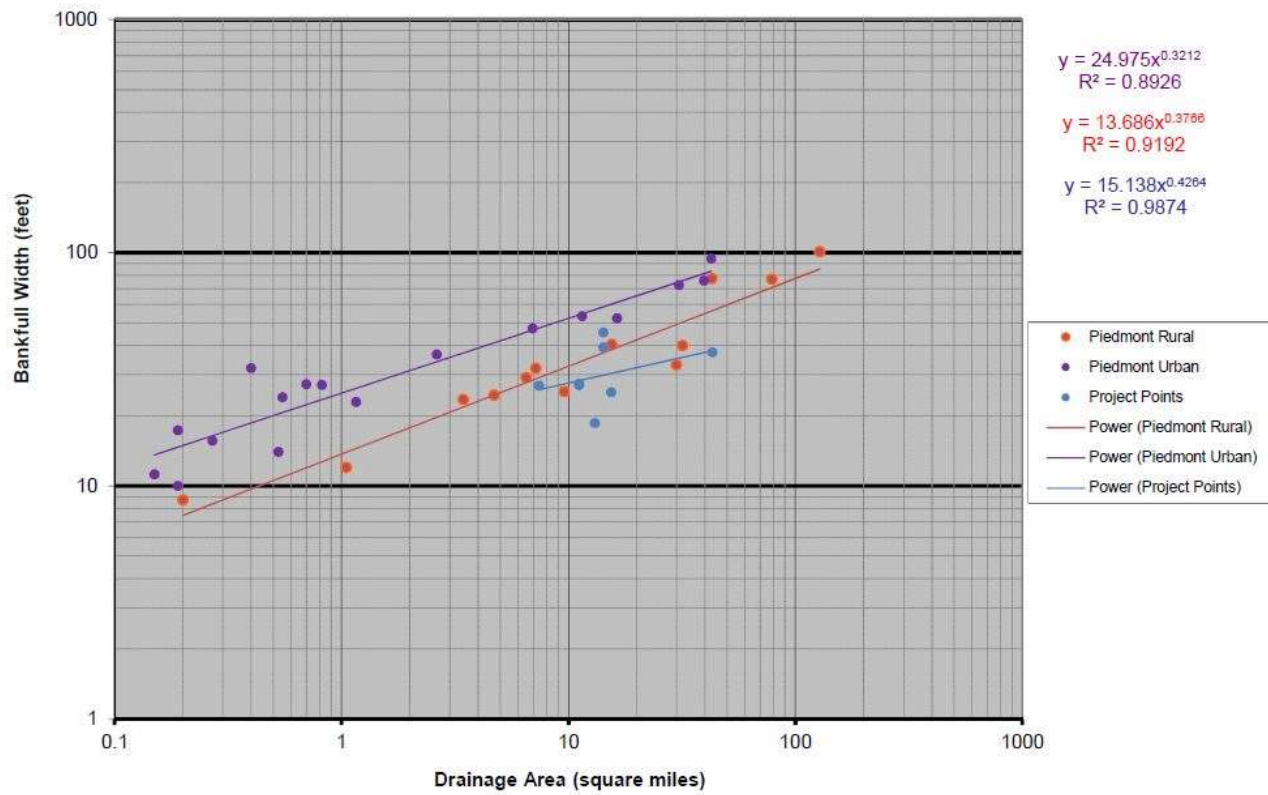
NOTE:

WHEN CONSTRUCTING CHANNEL TOES OUT OF FILL THEY SHOULD BE BROUGHT TO GRADE IN 8" LIFTS AND MECHANICALLY COMPACTED. ADD 5" OF TOPSOIL AND COIR MATTING TO BRING TO FINAL GRADE.

North Carolina Rural Piedmont Regional Curves: Drainage Area vs. Bankful Depth



North Carolina Rural Piedmont Regional Curves: Drainage Area vs. Low Flow Width


















I go to nature to be soothed
and healed, and to have my
senses put in order.

John Burroughs

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