

APPENDIX I: USACE Notice of Jurisdictional Determination

Durham-Orange Light Rail Transit Project



October 2016

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action Id. SAW-2012-00957 County: Durham-Orange U.S.G.S. Quad: NC-Southwest Durham

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner: GoTriangle

Address: P.O. Box 13787

Research Triangle Park, NC 27709



Telephone Number:

Size (acres) 400
Nearest Waterway Little-New Hope Creek
USGS HUC 03030002

Nearest Town Durham-Chapel Hill
River Basin Haw
Coordinates Latitude: 35.958951
Longitude: -78.981665

Location description: Proposed Durham-Orange Light Rail corridor from UNC Hospitals in Chapel Hill, Orange County, North Carolina, to Austin Avenue in Durham, Durham County, North Carolina adjacent to Little Creek and New Hope Creek in the Haw River Basin.

Per your request dated September 4, 2014, this determination is modified to include addendum 1 thru 3 verification of jurisdictional waters as defined by in field flagging and provided mapping included with reference request.

Per your request dated May 19, 2015, this determination is modified to include addendum 4 verification of jurisdictional waters as defined by in field flagging and provided mapping included with reference request.

Per your request dated June 19, 2015, this determination is modified to include the addendum changes verification of jurisdictional waters as defined by field inspections of June 3, 2015, and provided mapping included with the reference request.

Per your request dated August 8, 2016, this determination is modified to include the addendum changes verification of jurisdictional waters as defined by field inspections of September 7, 2016, and provided mapping included with the reference request.

Per your request dated October 7, 2016, this determination is modified to include the addendum to verification of jurisdictional waters to include the S. Alston Avenue / NCCU campus connector as define by provided mapping included with the referenced request.

Indicate Which of the Following Apply:

A. Preliminary Determination

- Based on preliminary information, there may be waters of the U.S. including wetlands on the above described project area . We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

B. Approved Determination

- There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☒ There are waters of the U.S. including wetlands on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We strongly suggest you have the waters of the U.S. including wetlands on your project area delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

☒ The waters of the U.S. including wetlands on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☐ The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Morehead City, NC, at (252) 808-2808 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **John Thomas at 919-554-4884 x25 or John.T.Thomas.JR@usace.army.mil.**

C. Basis For Determination: *There are stream channels within your project site which are tributaries of Little Creek & New Hope which flows into the Haw River and the Atlantic Ocean. .*

D. Remarks:

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

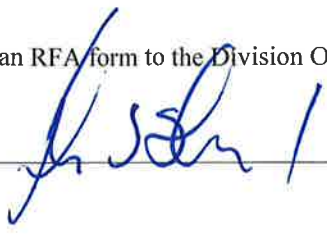
This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **12/12/2016.**

****It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.****

Corps Regulatory Official:

A handwritten signature in blue ink, appearing to be 'J. Sch', is written over a horizontal line.

Date: 10/12/2016

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at <http://regulatory.usacesurvey.com/>.

Cc: Brandon Phillips, 900 West Trade Street, Suite 715, Charlotte, NC 28202-1144

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: GoTriangle	File Number: SAW-2012-00957	Date: 6/29/15
Attached is:		See Section below
☐ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐ PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐ PERMIT DENIAL		C
☐ APPROVED JURISDICTIONAL DETERMINATION		D
☒ PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Attn: John Thomas**

If you only have questions regarding the appeal process you may also contact:

Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, John Thomas,

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele,
Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RALEIGH REGULATORY FIELD OFFICE
US ARMY CORPS OF ENGINEERS
3331 HERITAGE TRADE DRIVE, SUITE 105
WAKE FOREST, NORTH CAROLINA 27587

RALEIGH
NC 275
13 OCT '16
PM 6 L



GoTriangle
P.O. Box 13787
Research Triangle Park, NC 27709

27709-378787





Mr. John Thomas
U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

October 7, 2016

**SUBJECT: Request for Jurisdictional Determination – Addendum #6
Durham-Orange Light Rail Transit Project
Durham and Orange Counties, North Carolina
STV Project No. 2516306
USACE Action ID 201200957**

Dear Mr. Thomas:

In cooperation with AECOM (formerly URS Corporation), and on behalf of Go Triangle (formerly Triangle Transit Authority), STV Engineers, Inc. (STV) has requested and received written verification from the U.S. Army Corps of Engineers (USACE) of the location and extent of jurisdictional waters of the U.S. located within the study area alignment corridors associated with the proposed Durham to Orange Light Rail Transit (D-O LRT) project. The USACE issued the original Notification of Jurisdictional Determination for the D-O LRT project on May 12, 2014 (USACE Action ID 201200957). Additional study areas were added to the corridor after this Notification of Jurisdictional Determination was issued and the most recent revised Notification of Jurisdictional Determination was issued on September 13, 2016. During the processing of the September 13, 2016 Notification of Jurisdictional Determination, the study area was expanded to accommodate the North Carolina Central University (NCCU) campus.

The additional areas that have been added to the study area are being provided to you in this letter and the attached figures. STV is requesting an update to the Notification of Jurisdictional Determination for the D-O LRT project to include the additional areas within the expanded study area to the NCCU campus. A complete set of revised figures depicting the expanded study area is attached for your use.

Background and Methodology

STV Senior Environmental Specialist Brandon J. Phillips, CHMM and Environmental Scientist Joshua Kotheimer, WPIT conducted a field review of the expanded corridor alignment to NCCU on September 12, 2016. Prior to the site visits, STV reviewed various resources, including, aerial photography, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Series Maps of Durham County (1976), North Carolina, U.S. Geological



Survey (USGS) topographic quadrangle maps, and the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping to help identify potential jurisdictional waters of the U.S.

Findings of Field Review

No potential jurisdictional waters of the U.S. have been identified within the expanded study corridor. The expanded study area is primarily urban and developed with limited areas of undeveloped, vegetated areas. Vegetation in these few undeveloped areas is dominated by invasive species. The expanded study area has been identified by a yellow outline on the attached Figures 1, 2, 2D, 3, 3D, 4, 4FF, and 4GG. Please replace the previously submitted Figures with the revised Figure set that is attached to this submittal. More information on the upland areas within the expanded study area discussed above can be found on the Wetland Determination Data Form that is attached.

Closing

We respectfully request an updated verification and jurisdictional determination from the USACE regarding the absence of jurisdictional waters of the U.S. within the recently expanded D-O LRT study area. Please contact the undersigned at (704) 372-1885 should you have any questions or concerns regarding this request.

Sincerely,

STV Engineers, Inc.

A blue ink signature of Brandon J. Phillips.

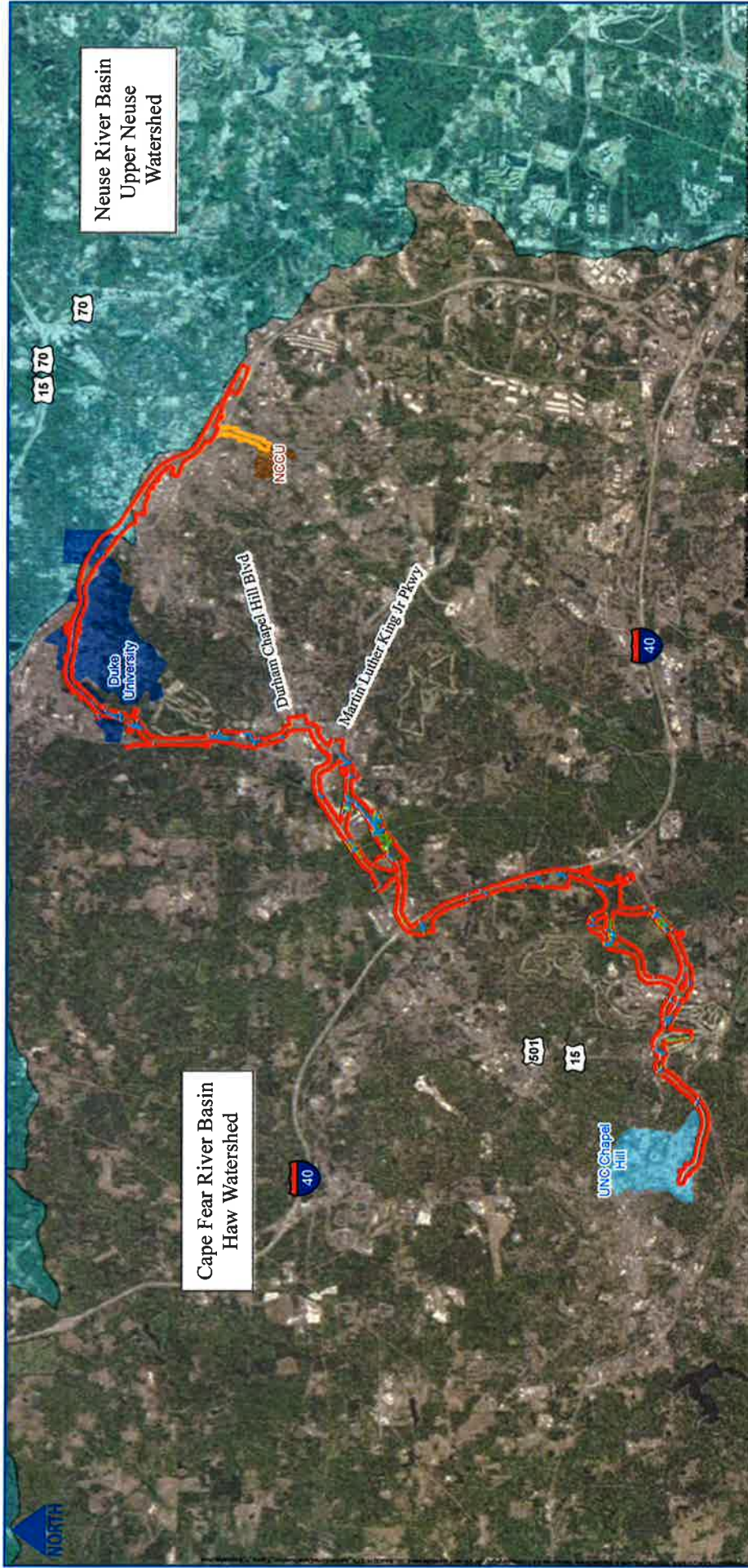
Brandon J. Phillips, CHMM
Sr. Environmental Specialist

A blue ink signature of Michael A. Iagnocco.

Michael A. Iagnocco, PWS
Sr. Scientist

Attachments:

Revised D-O-LRT Project Water Resources Figures (September 2016)
Wetland Determination Data Form



- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
- Potentially Jurisdictional Wetland
- Potentially Jurisdictional Pond



Water Resources - Figure 1

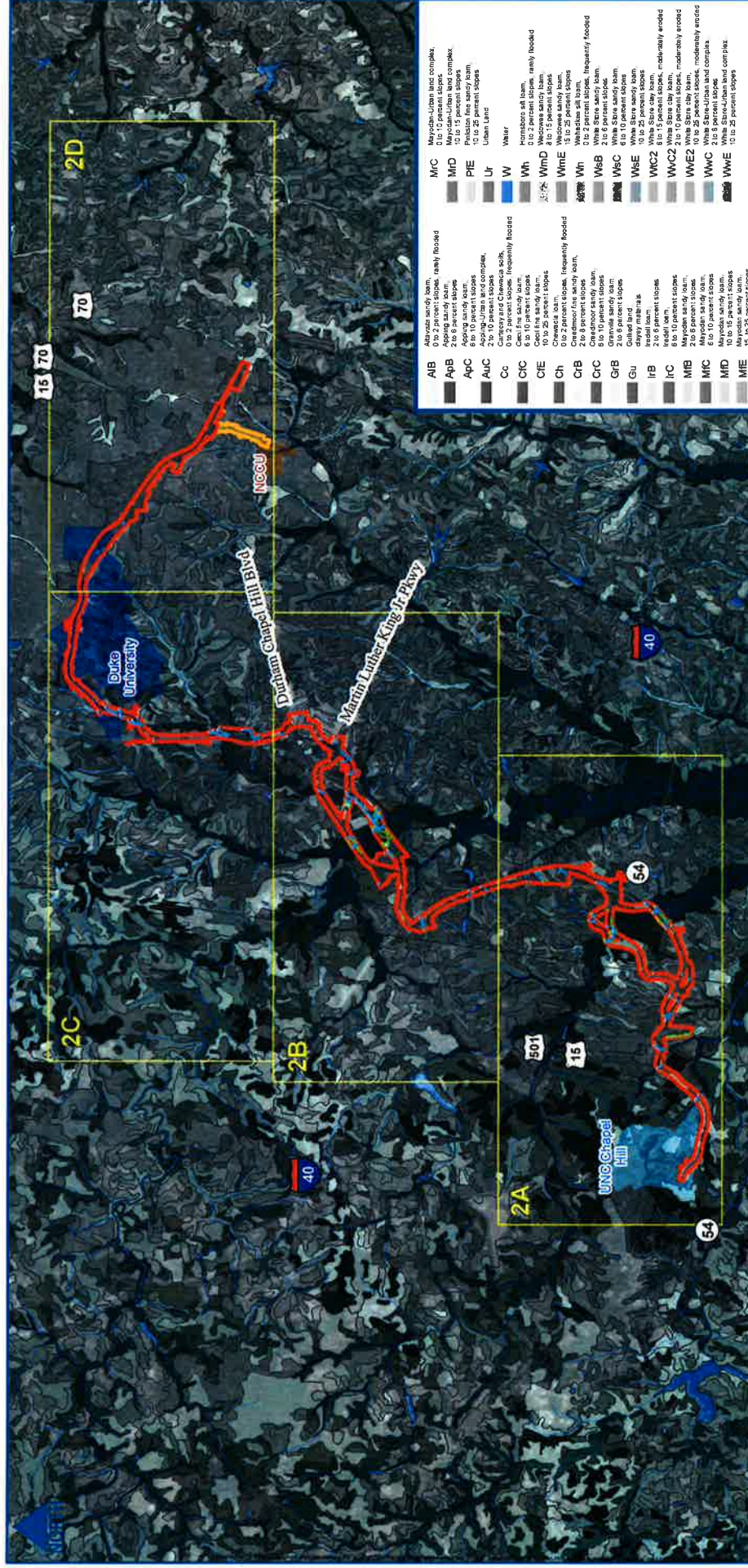
DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT

Our Transit FUTURE.

0 1 2 Miles

Draft September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



Water Resources - Figure 2

DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT

Scale: 0 1 2 Miles

Draft September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



Legend:

- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
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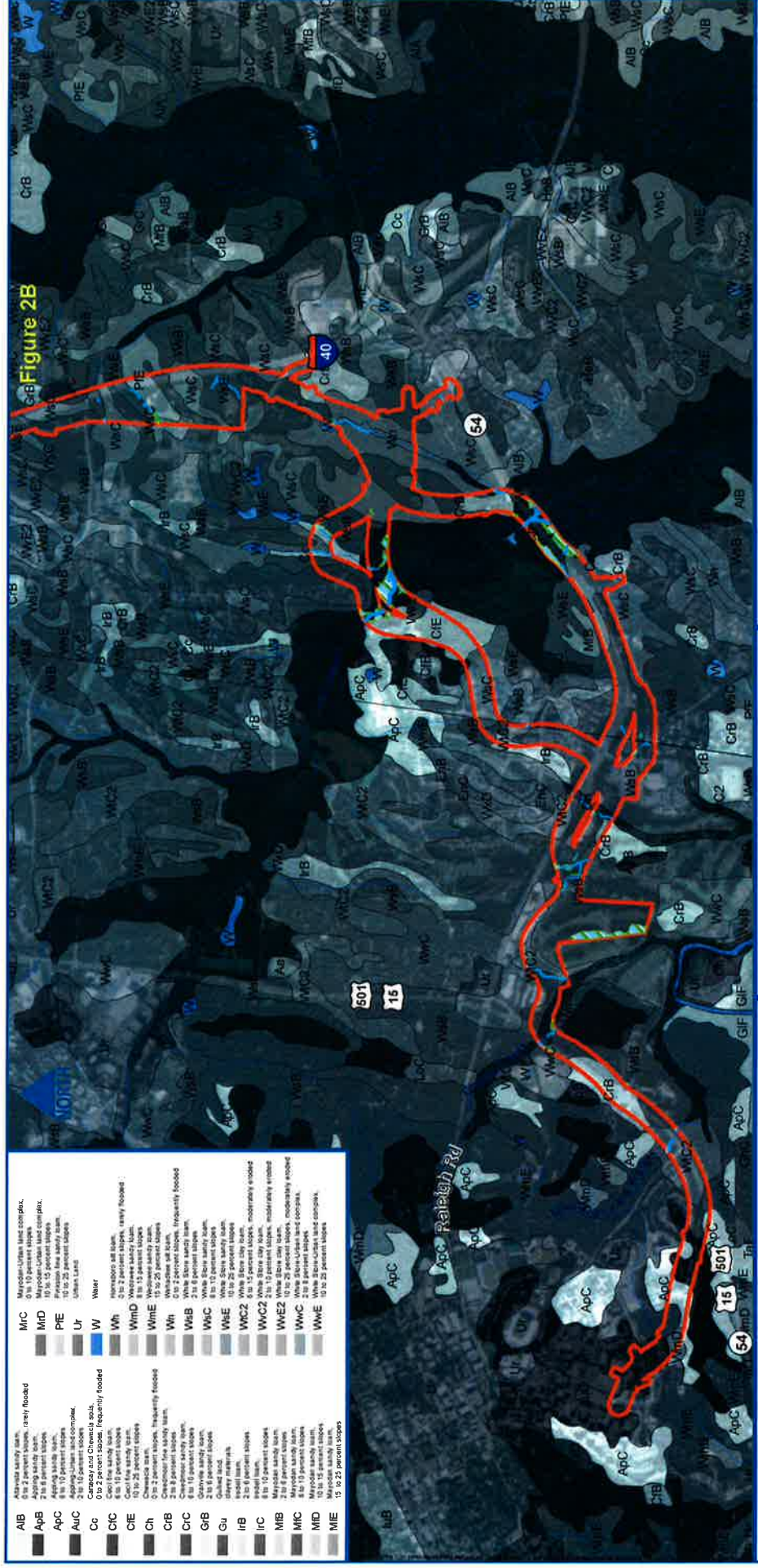


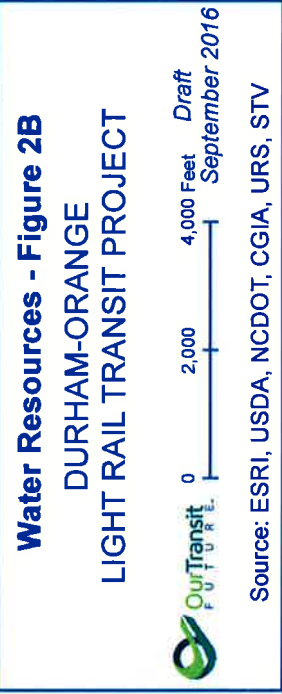
Figure 2B

Water Resources - Figure 2A DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT

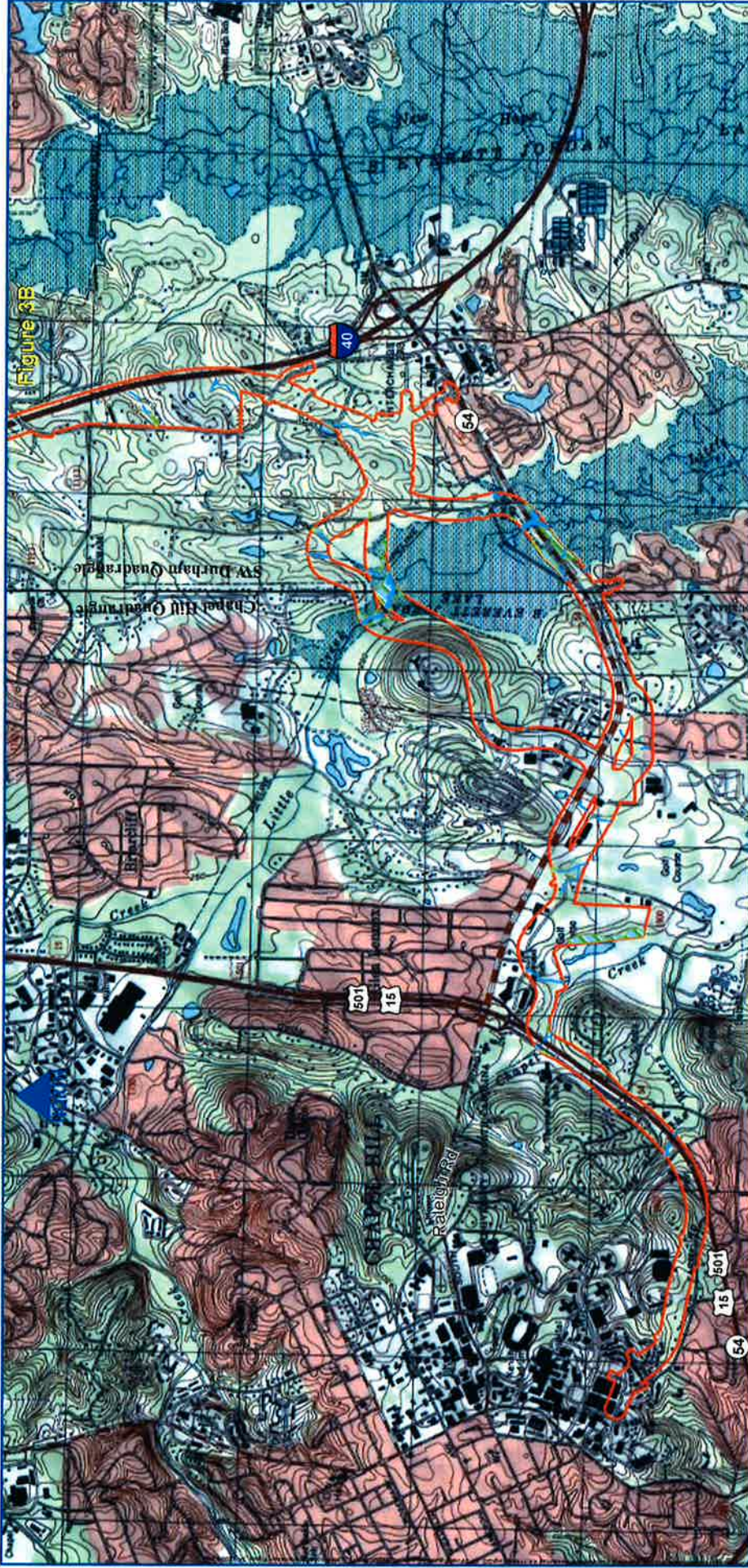

 0 2,000 4,000 Feet Draft
 September 2016
 Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
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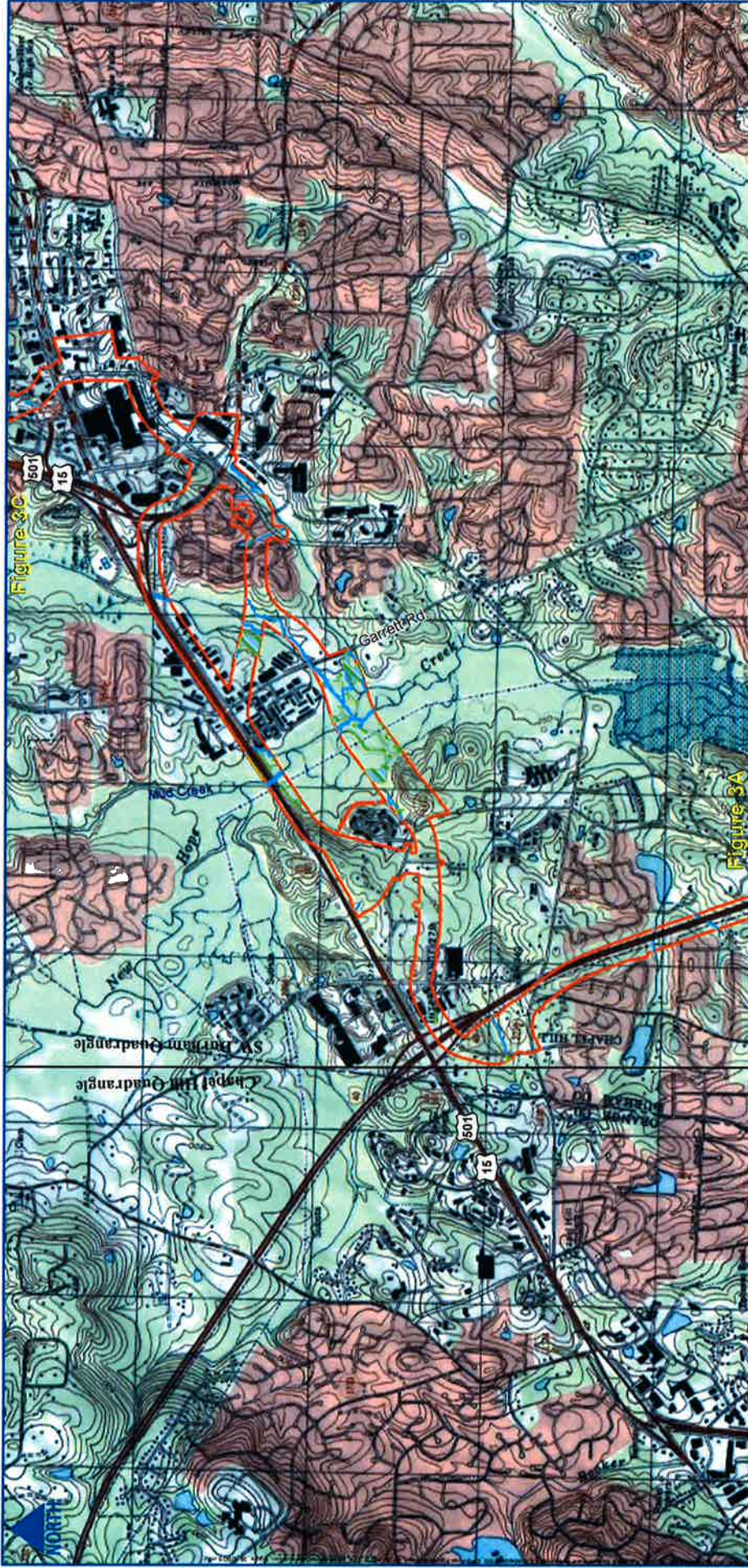
Water Resources - Figure 3A **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit 0 2,000 4,000 Feet *Draft*
FUTURE September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



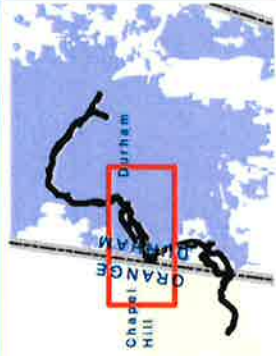
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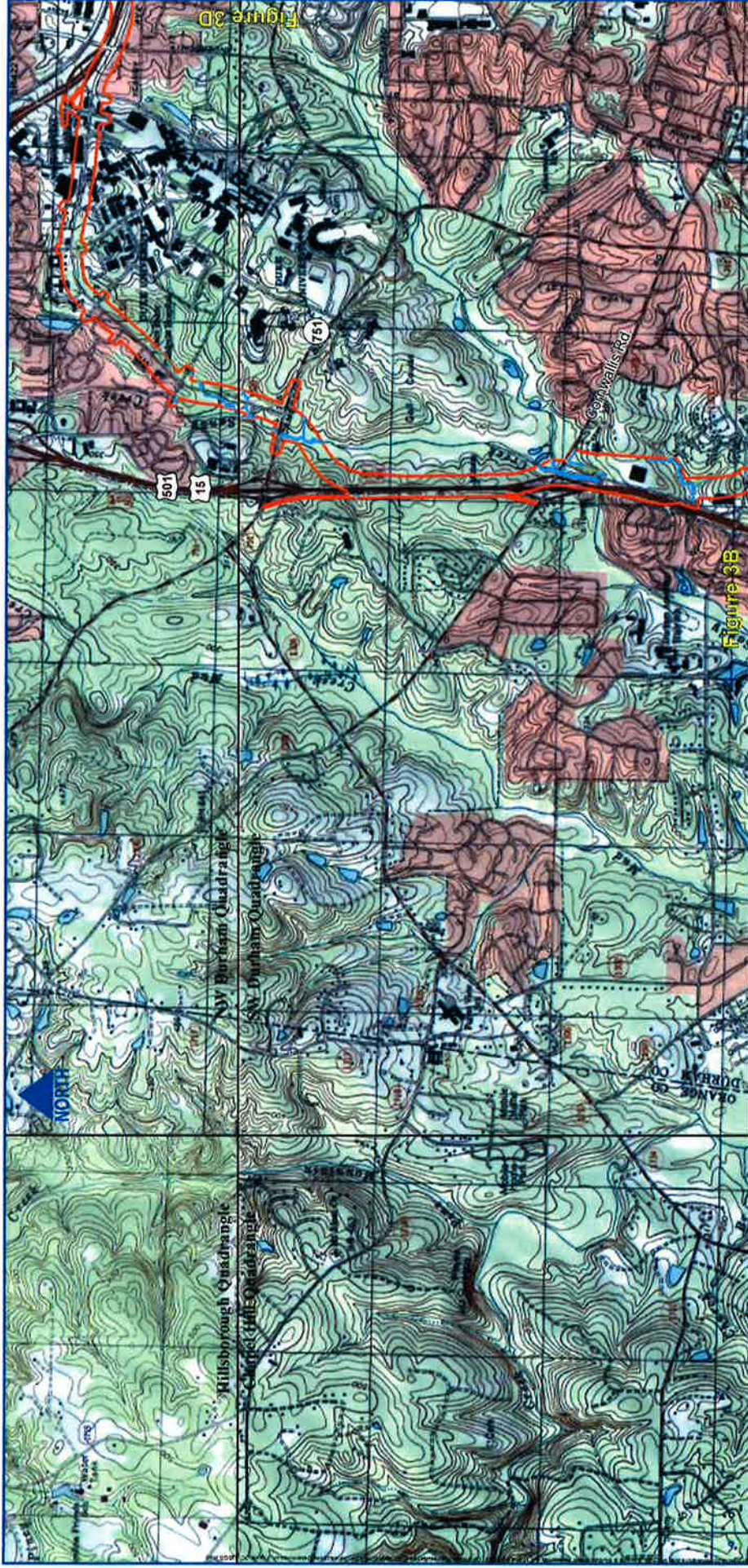
Water Resources - Figure 3B
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

Our Transit 0 2,000 4,000 Feet **Draft**
September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



- Previously USACE Verified Area
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Water Resources - Figure 3C **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**


 0 2,000 4,000 Feet Draft
 September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



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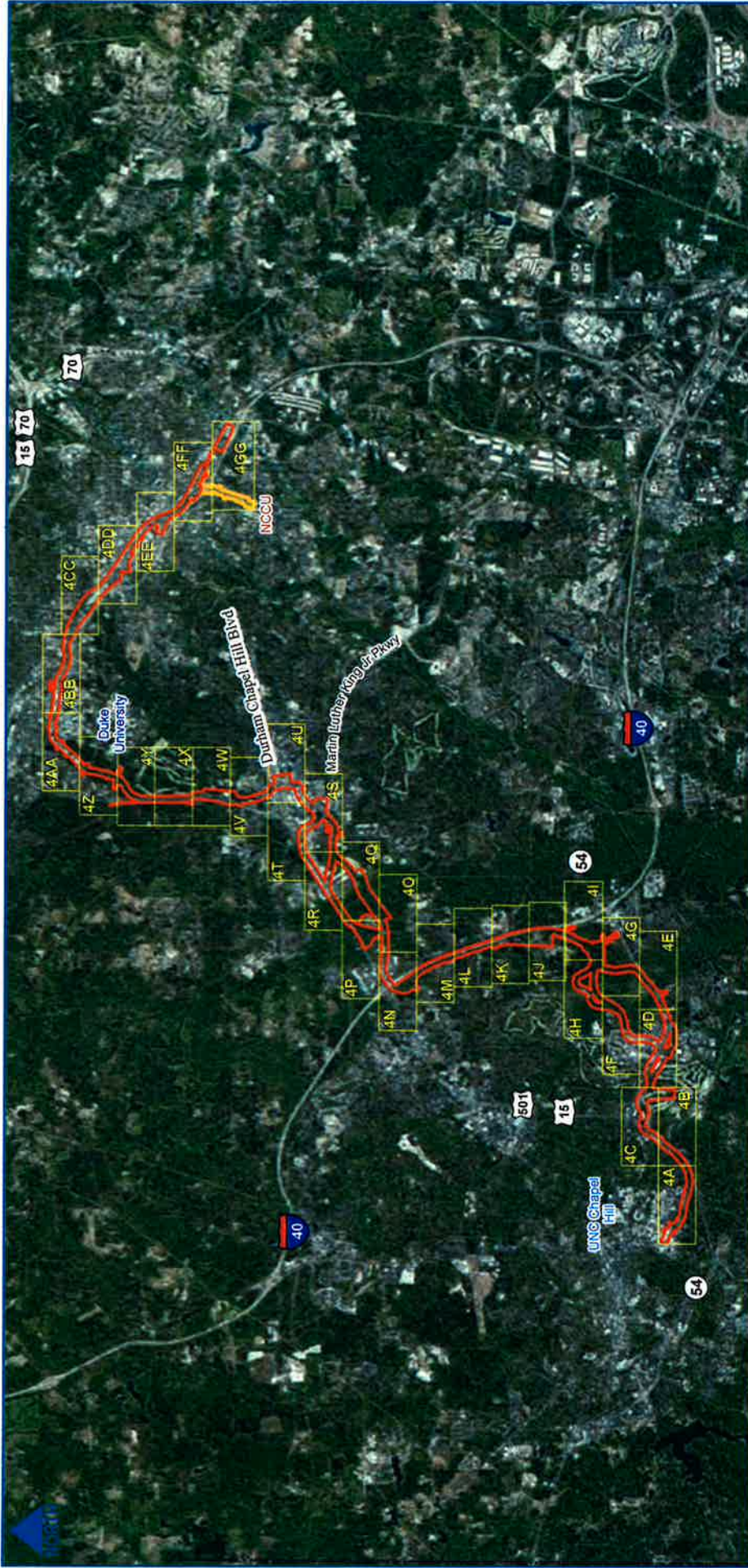
Water Resources - Figure 3D
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

Our Transit FUTURE 0 2,000 4,000 Feet *Draft*
 September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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Water Resources - Figure 4 **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 1 2 Miles *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV





Water Resources - Figure 4A **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet *Draft* September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



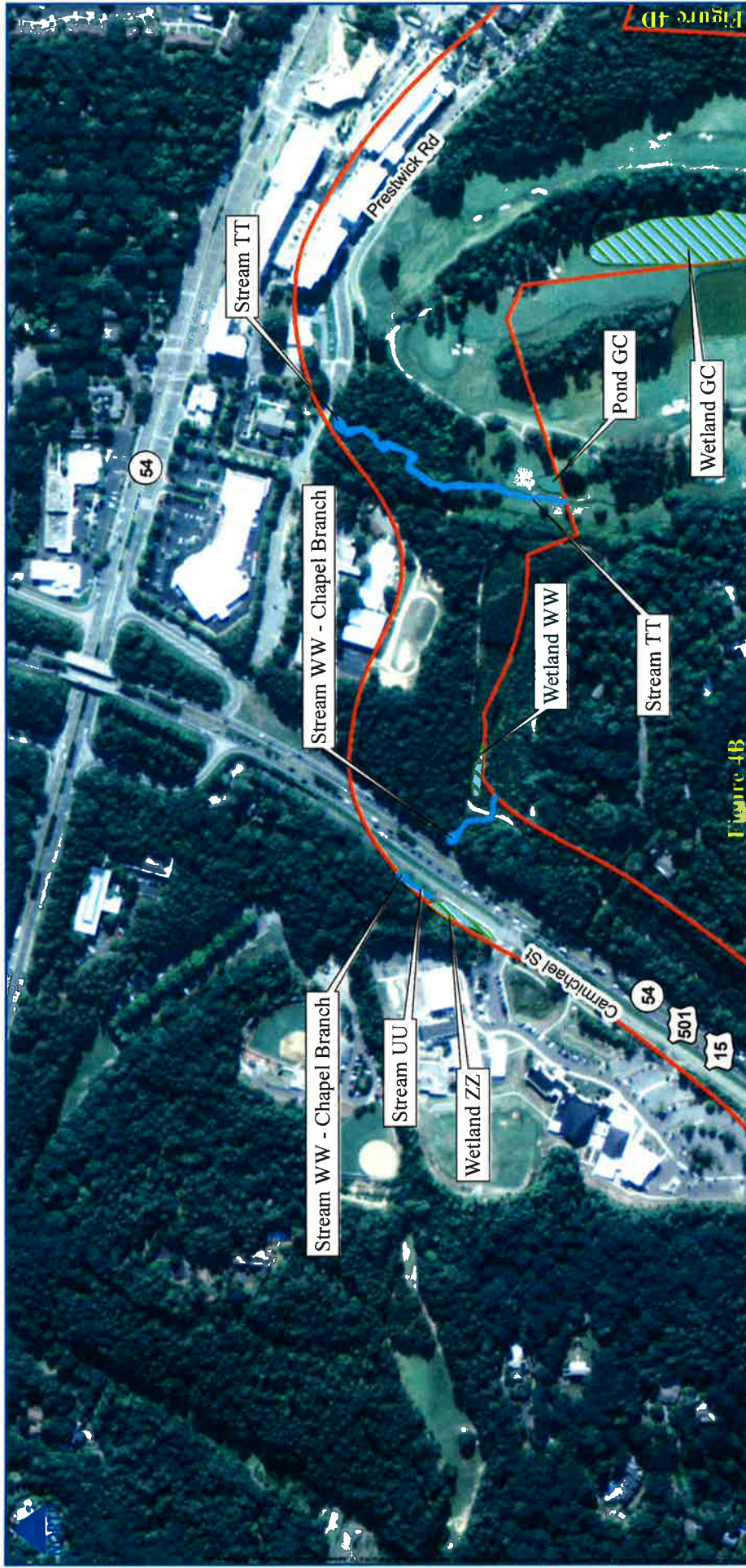


Water Resources - Figure 4B **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet *Draft* September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

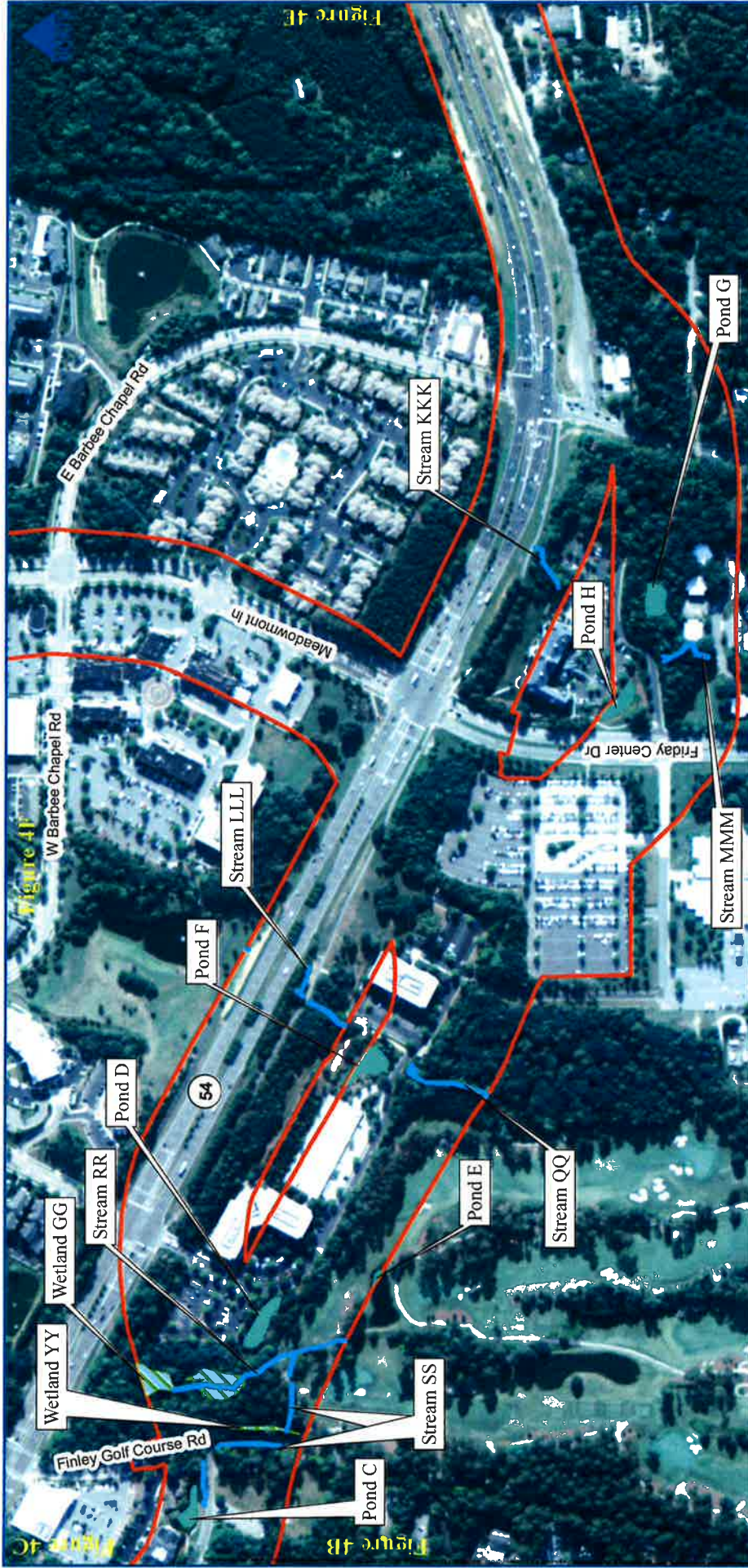




Water Resources - Figure 4C **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet *Draft* September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



Water Resources - Figure 4D **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**


 0 300 600 Feet
 Draft September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



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Figure 4G

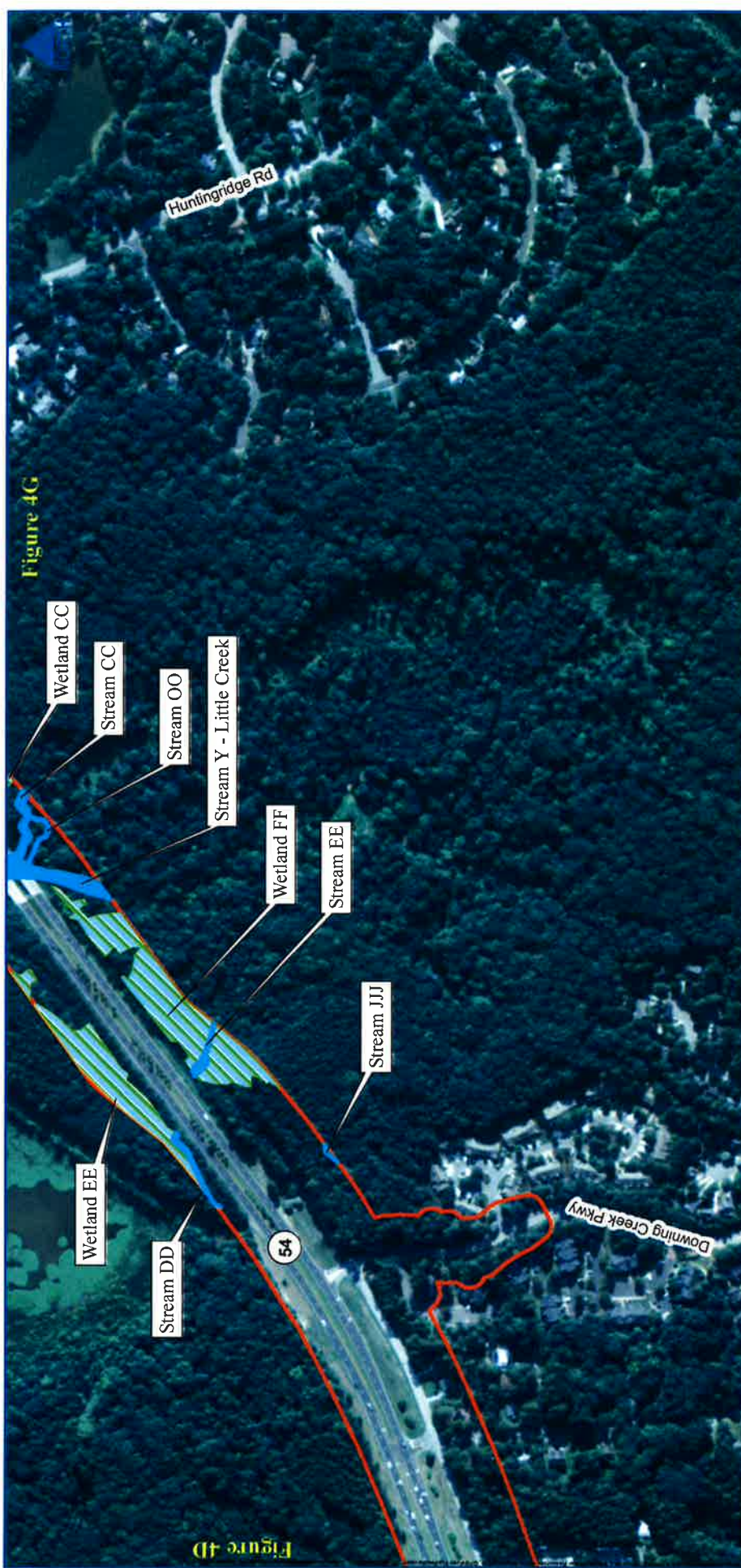


Figure 4D

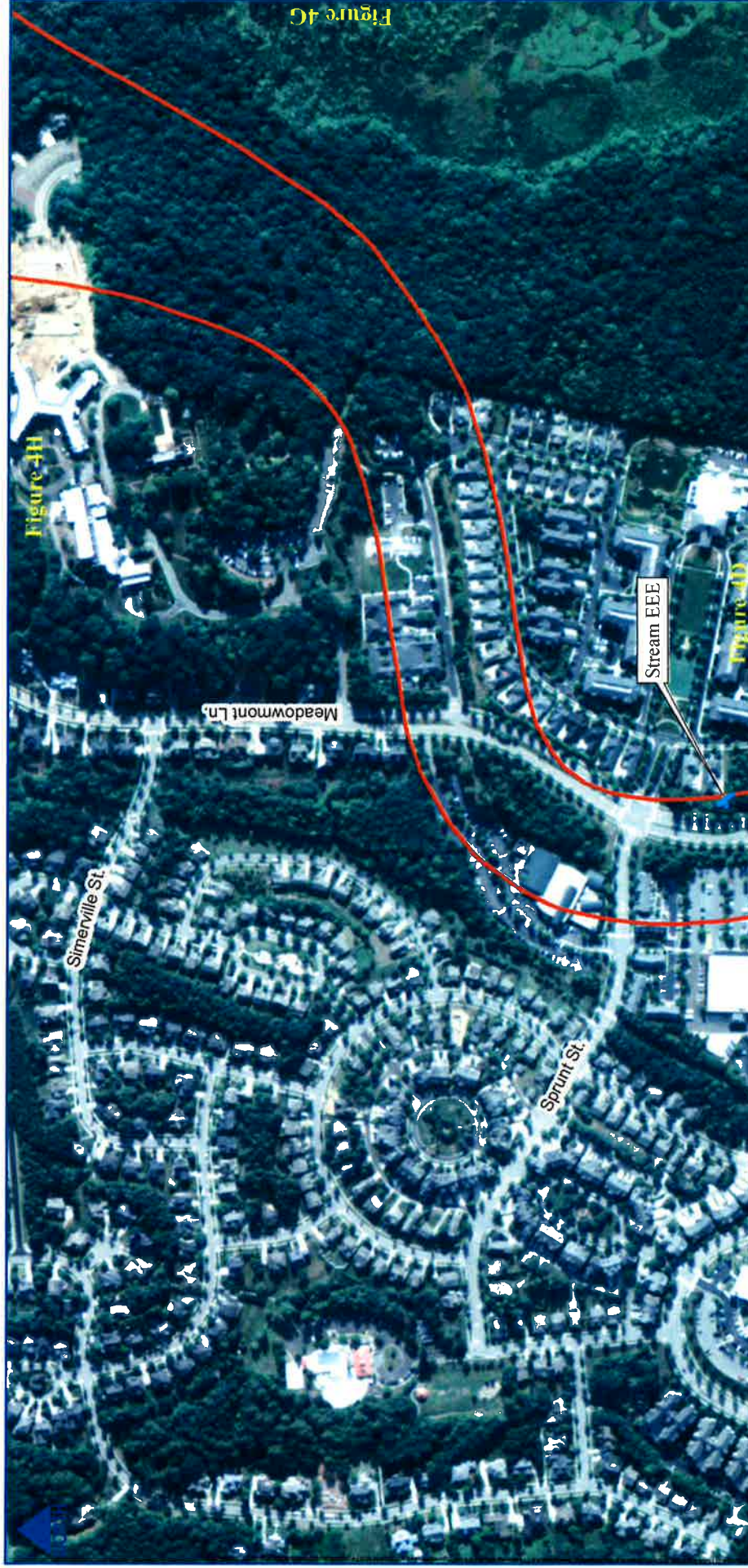
Water Resources - Figure 4E **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit **F U T U R E** **Draft** **September 2016**

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



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Water Resources - Figure 4F **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

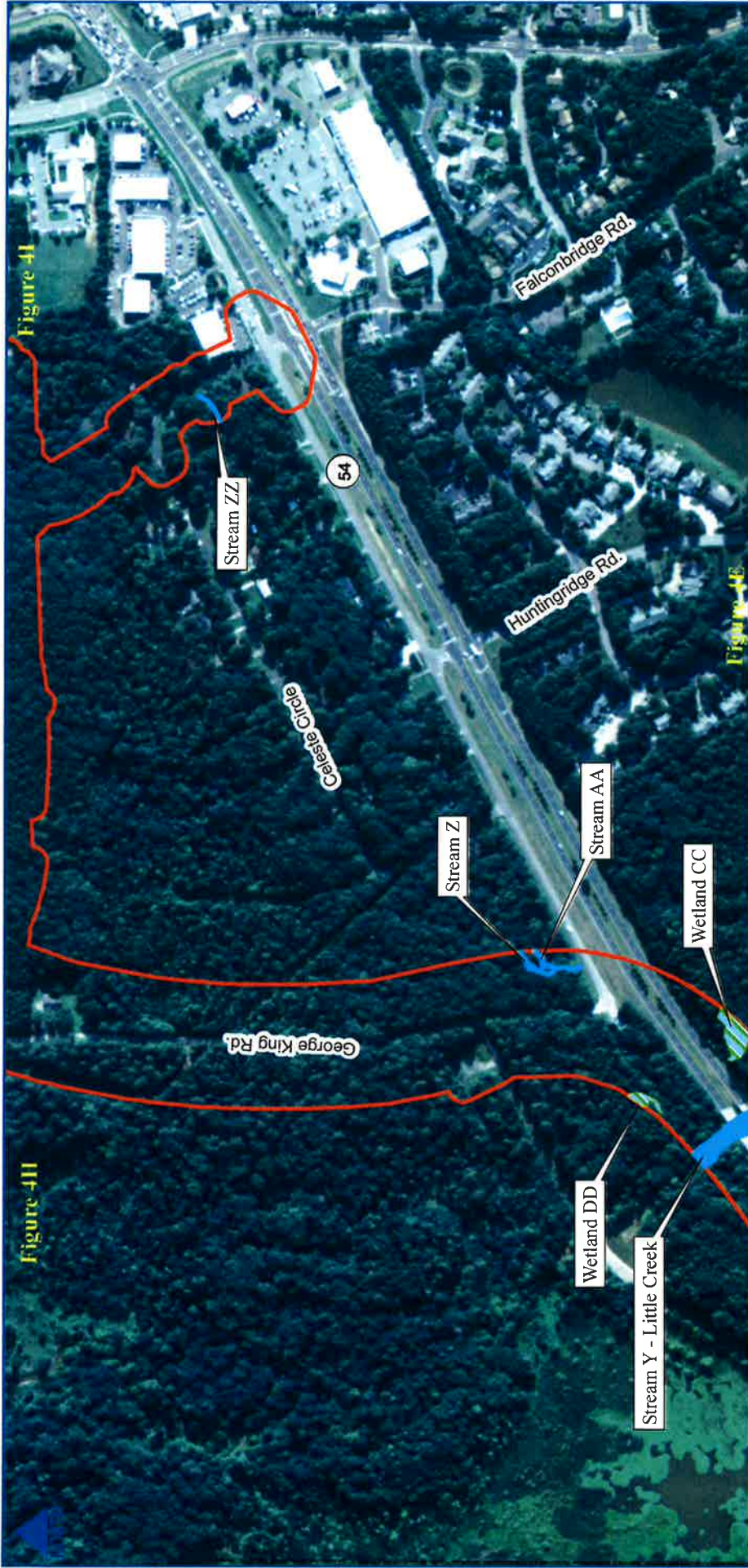
OurTransit **FUTURE** **Draft**
 0 300 600 Feet **September 2016**

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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Figure 4G



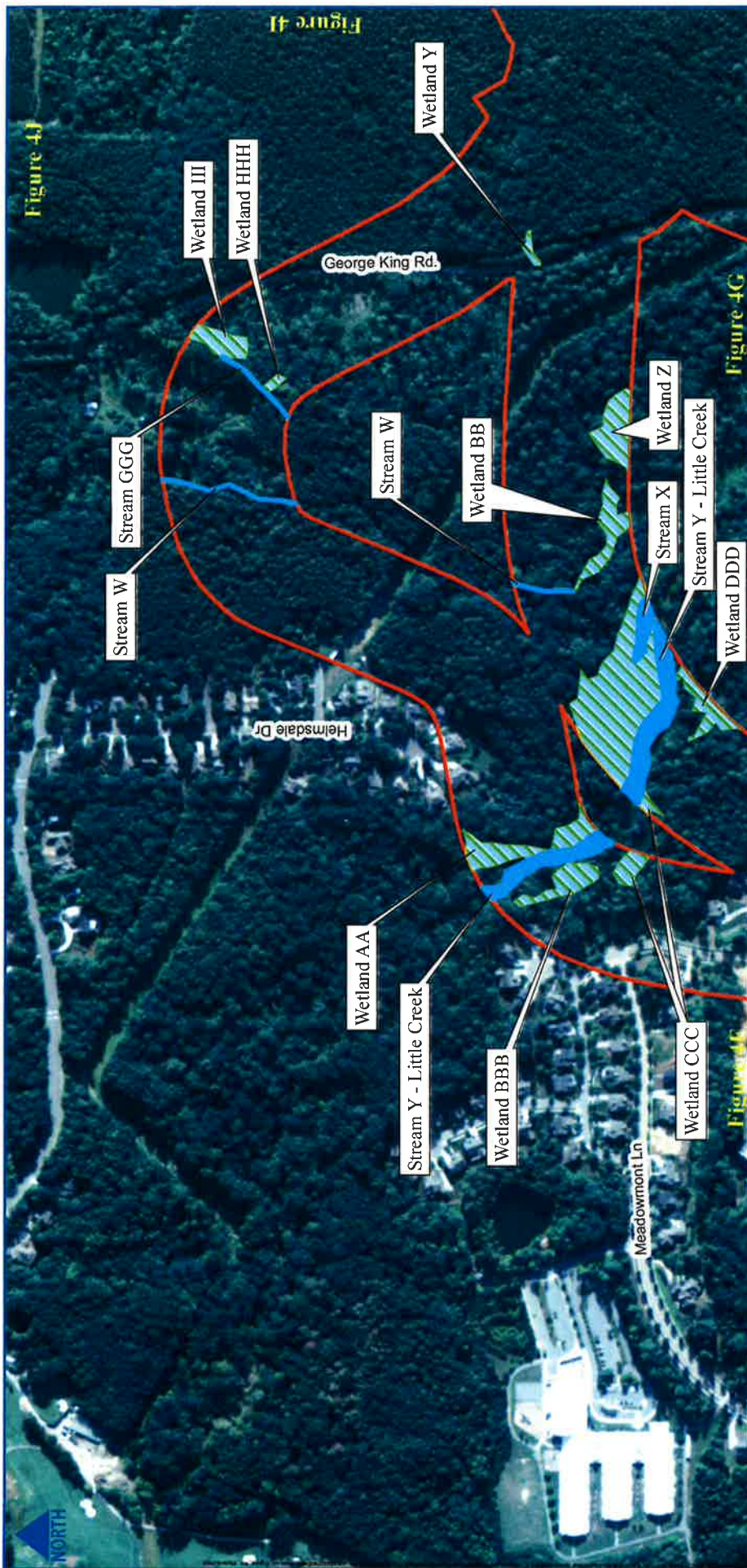
Water Resources - Figure 4G **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

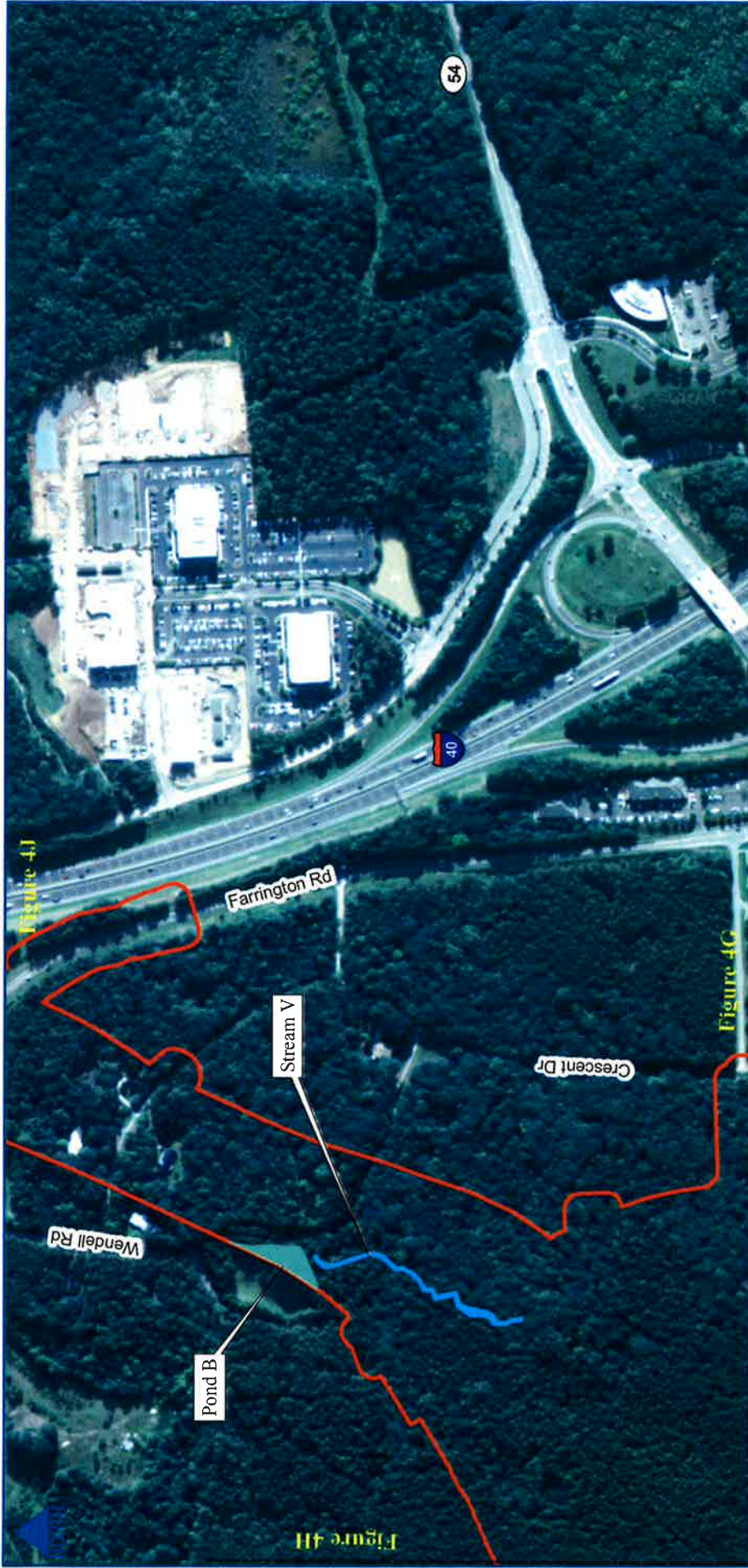
OurTransit FUTURE 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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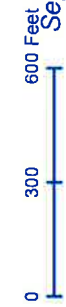






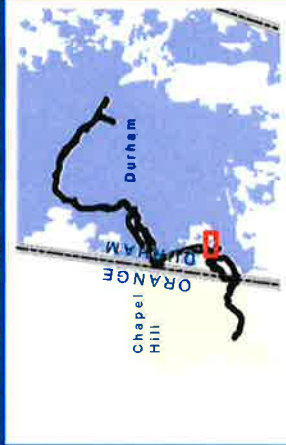
Water Resources - Figure 4I
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

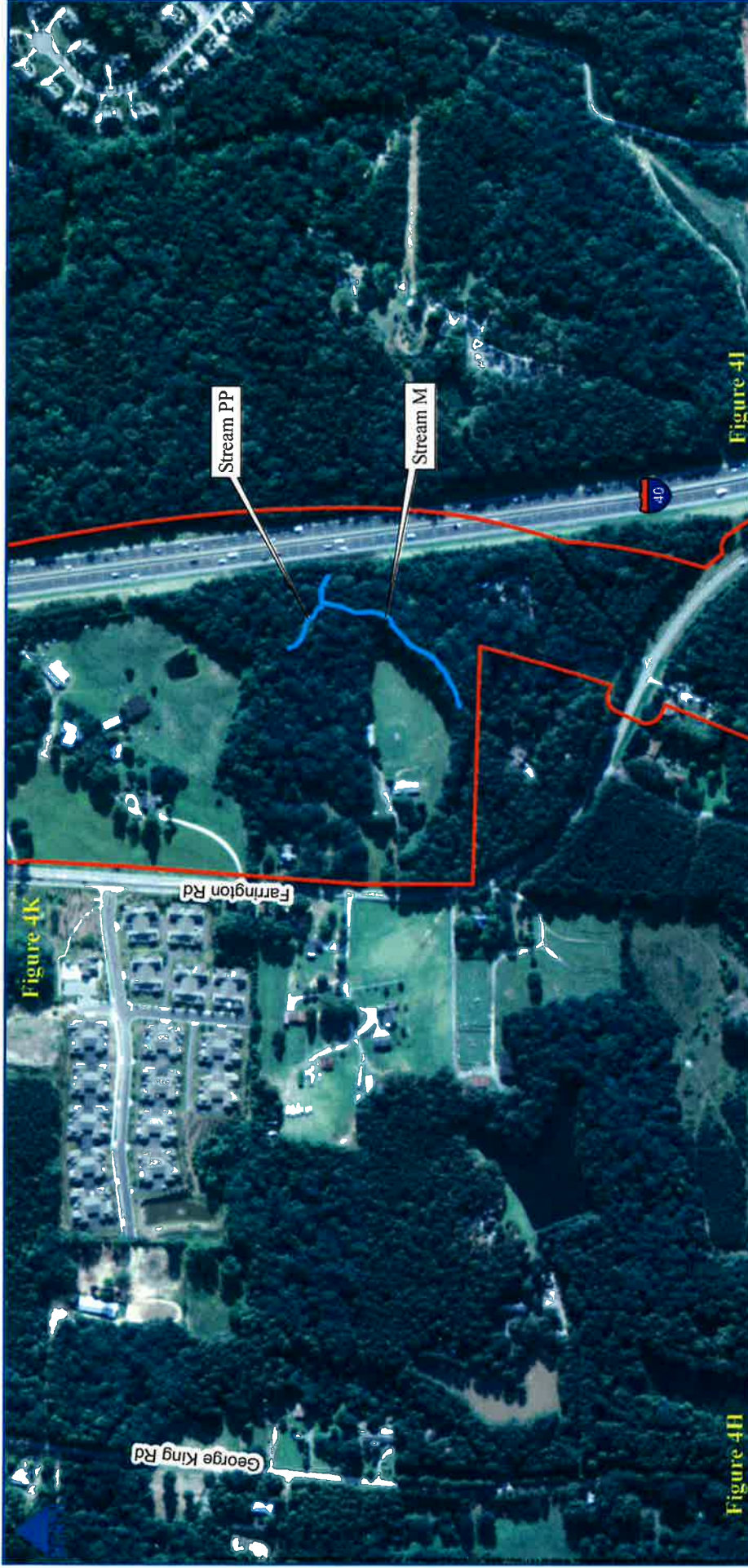
 **Our Transit**
FUTURE
 Draft September 2016



Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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Water Resources - Figure 4J **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet **Draft September 2016**

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



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Figure 4I



Figure 4J

Water Resources - Figure 4K **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

Our Transit FUTURE

0 300 600 Feet

Draft September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



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Water Resources - Figure 4L
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

Our Transit FUTURE 0 300 600 Feet *Draft September 2016*

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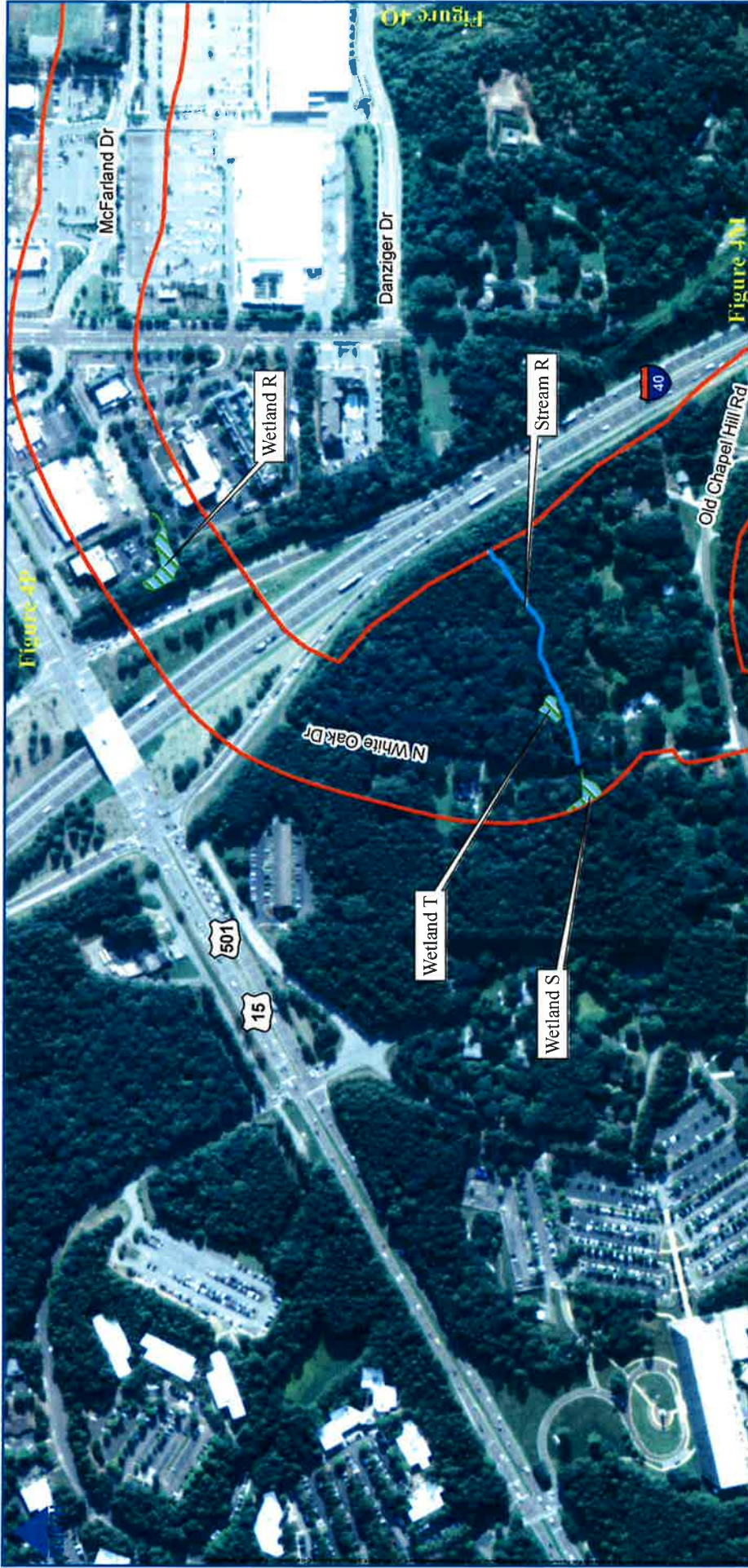
Water Resources - Figure 4M **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

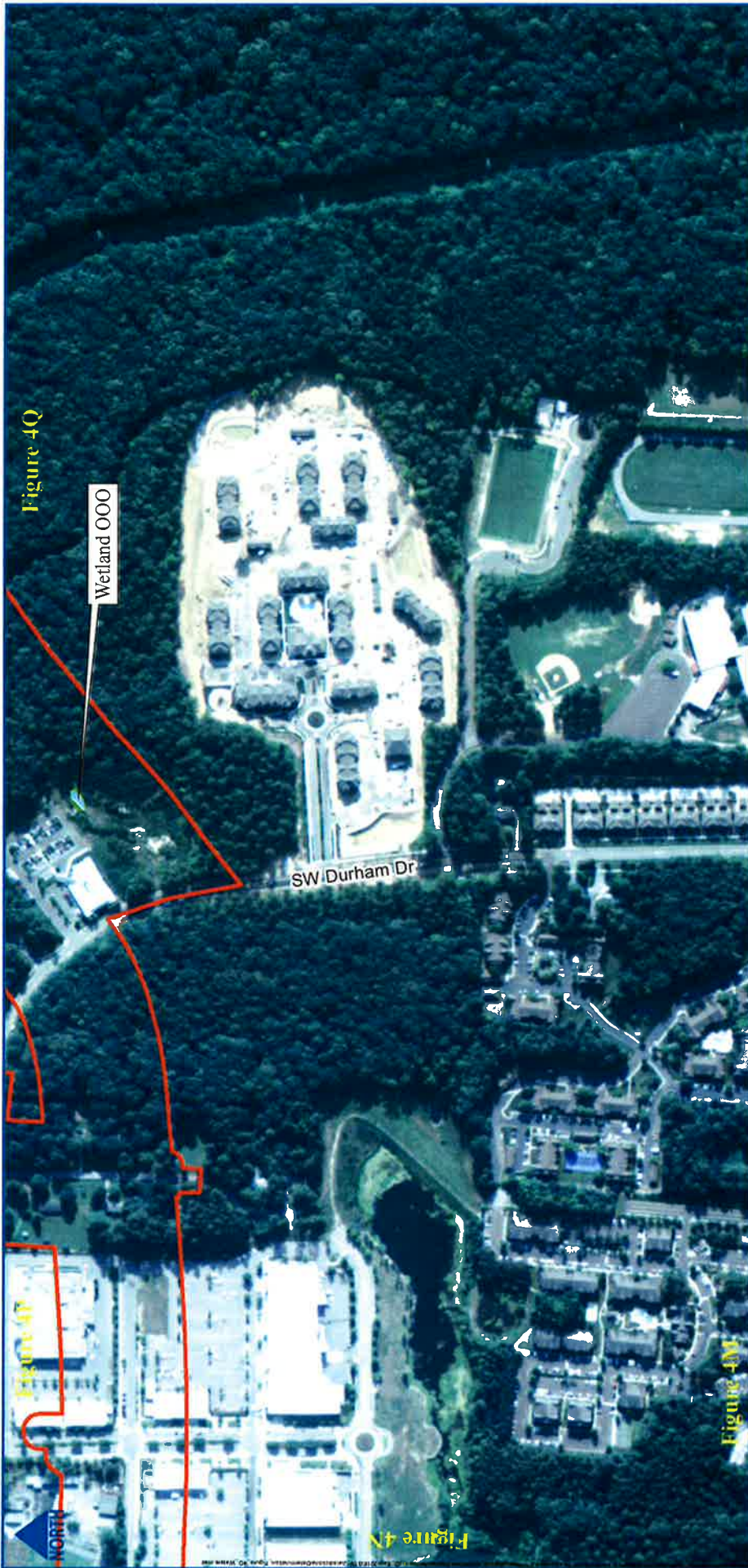
OurTransit **FUTURE** **Draft**
 0 300 600 Feet
 September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
- Potentially Jurisdictional Wetland
- Potentially Jurisdictional Pond







Water Resources - Figure 4Q **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

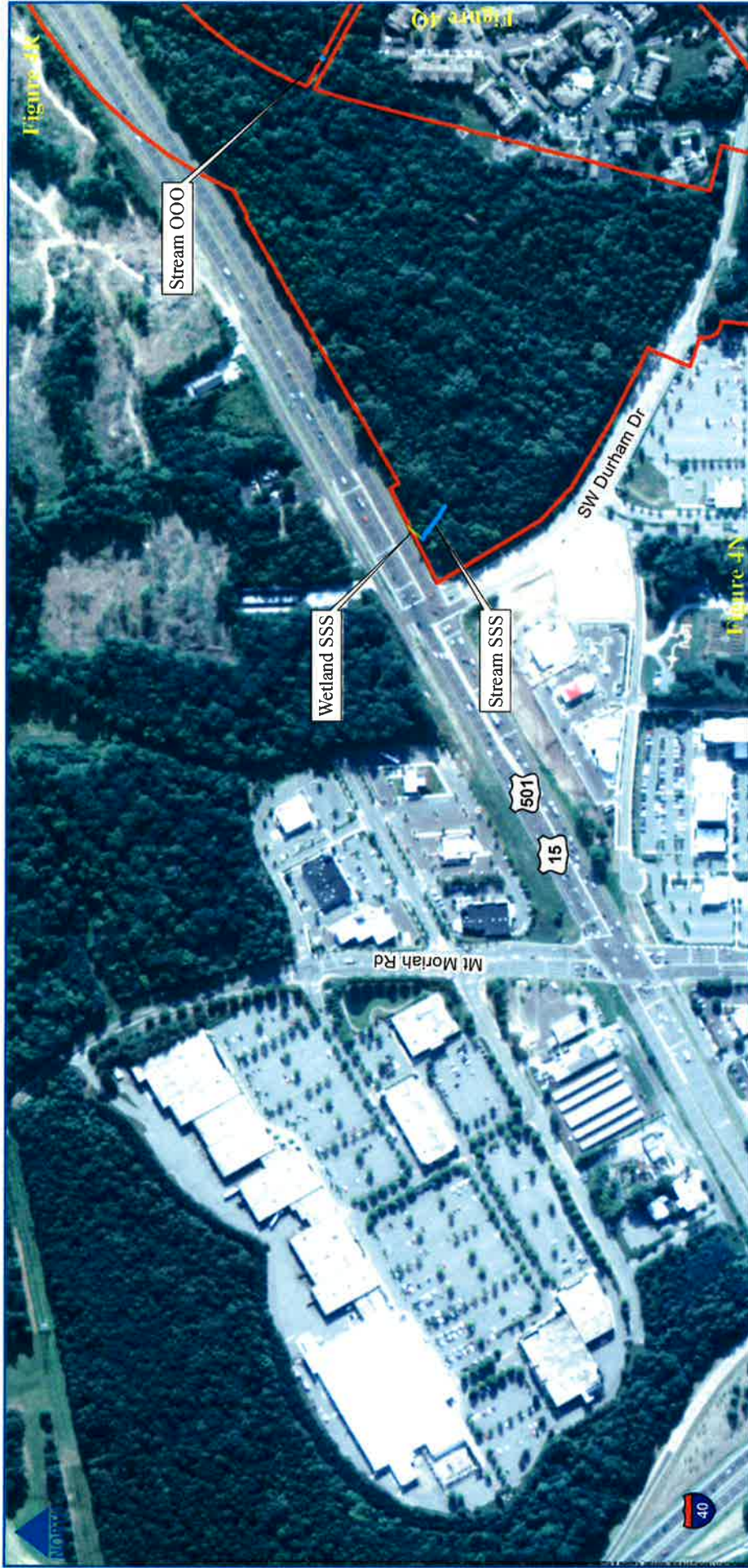
OurTransit **Draft**
September 2016

0 300 600 Feet

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
- Potentially Jurisdictional Wetland
- Potentially Jurisdictional Pond





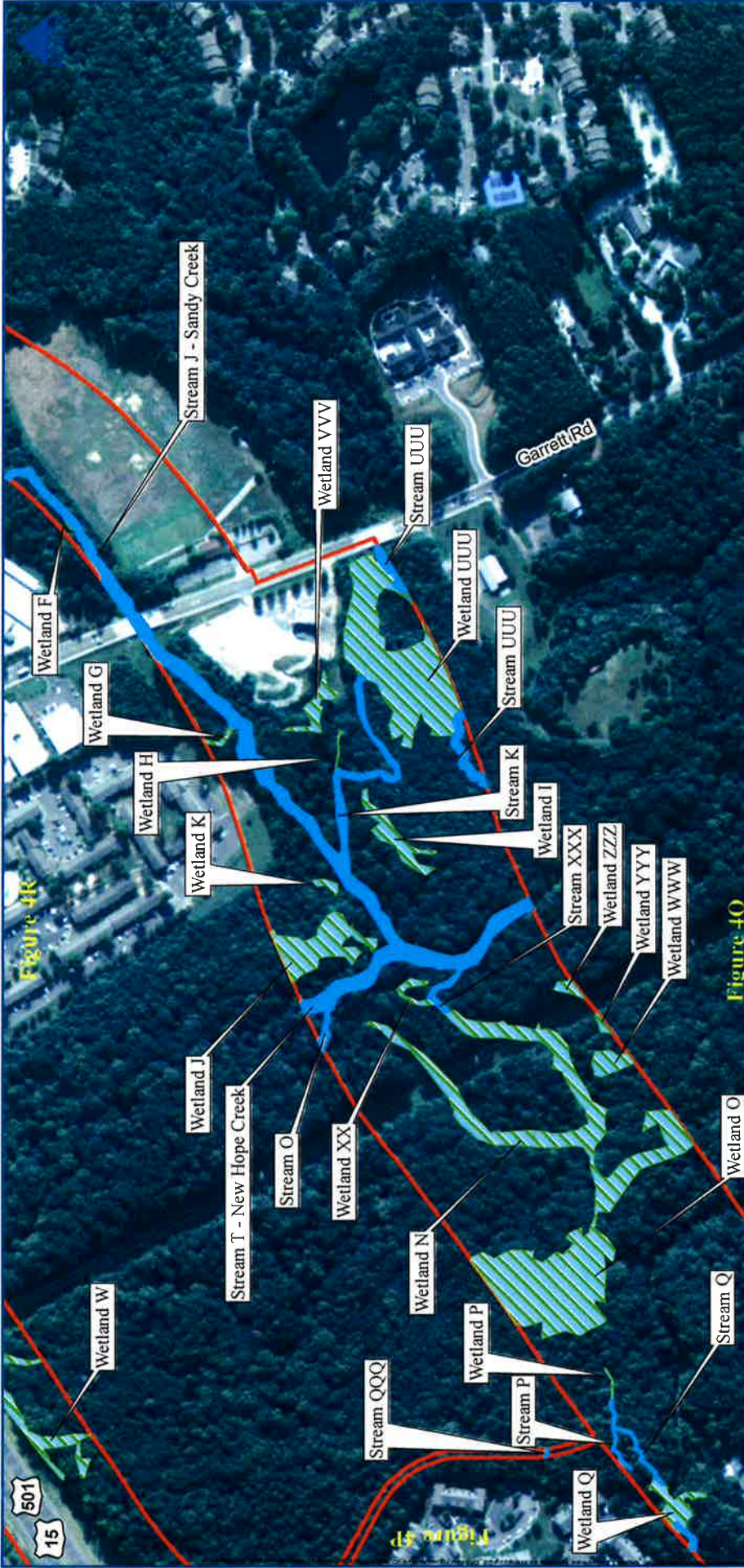
Water Resources - Figure 4P **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
- Expanded Study Area
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Water Resources - Figure 4Q
 DURHAM-ORANGE
 LIGHT RAIL TRANSIT PROJECT

OurTransit FUTURE
 Draft September 2016

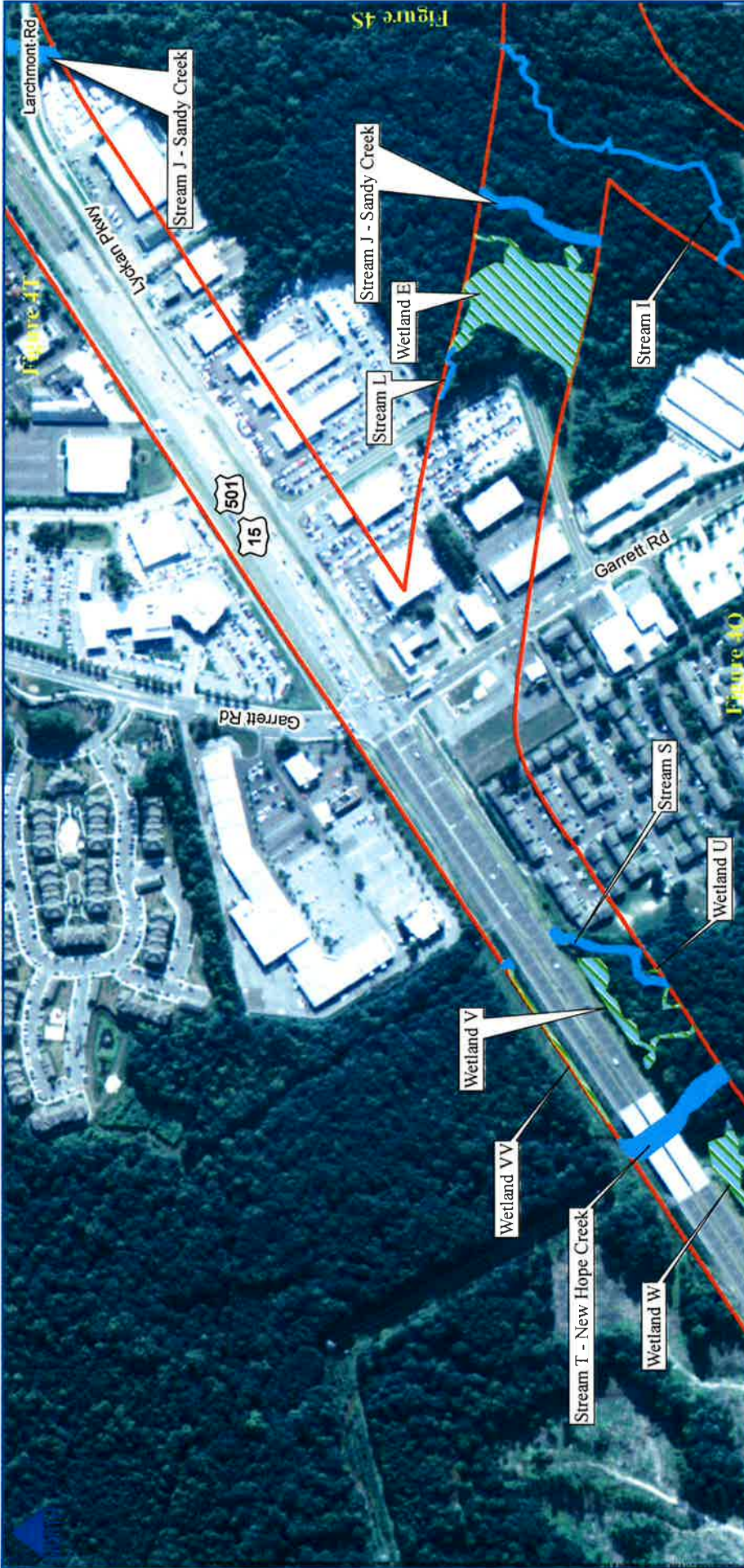
0 300 600 Feet

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



Figure 4Q

Figure 4R

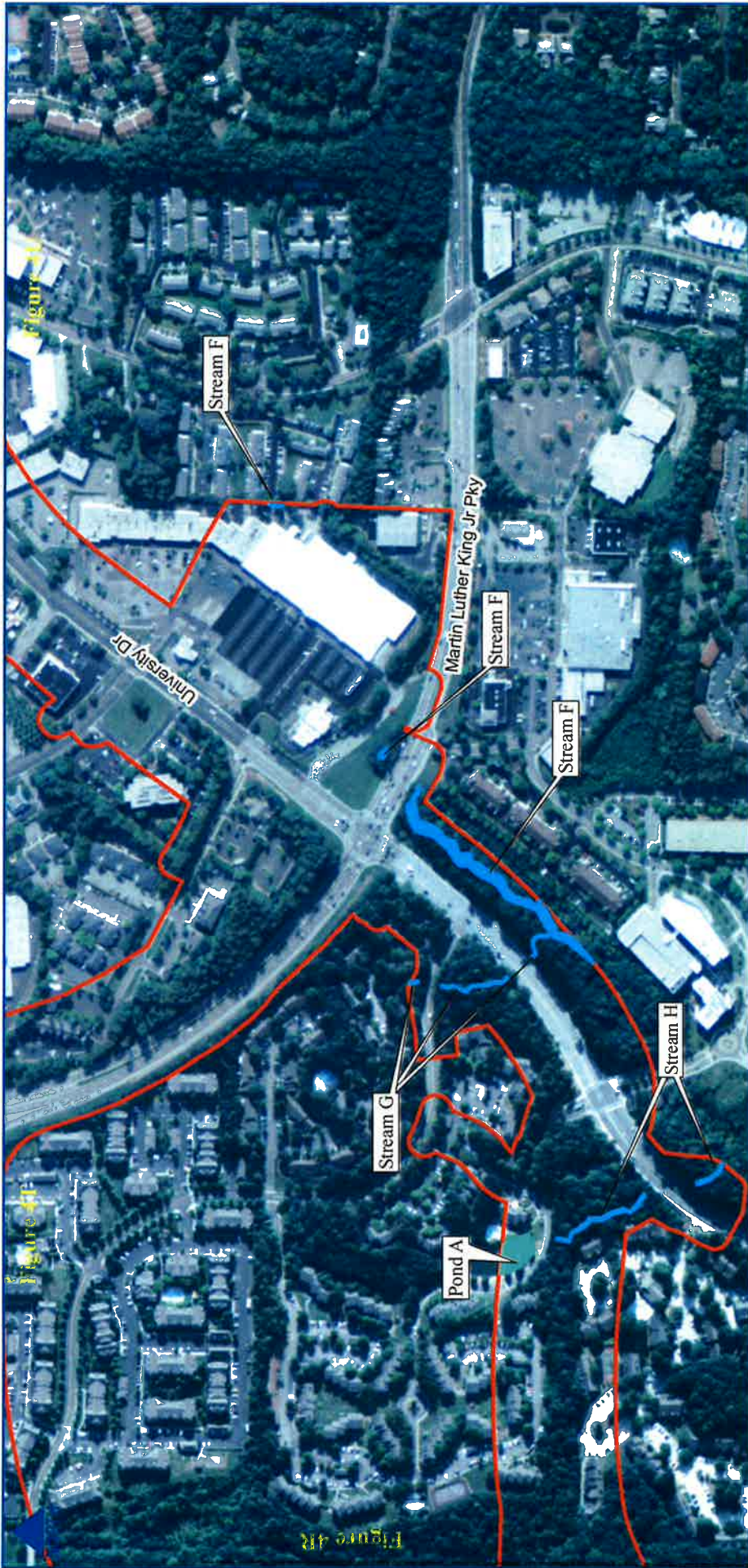


Water Resources - Figure 4R

DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT

Our Transit FUTURE. 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



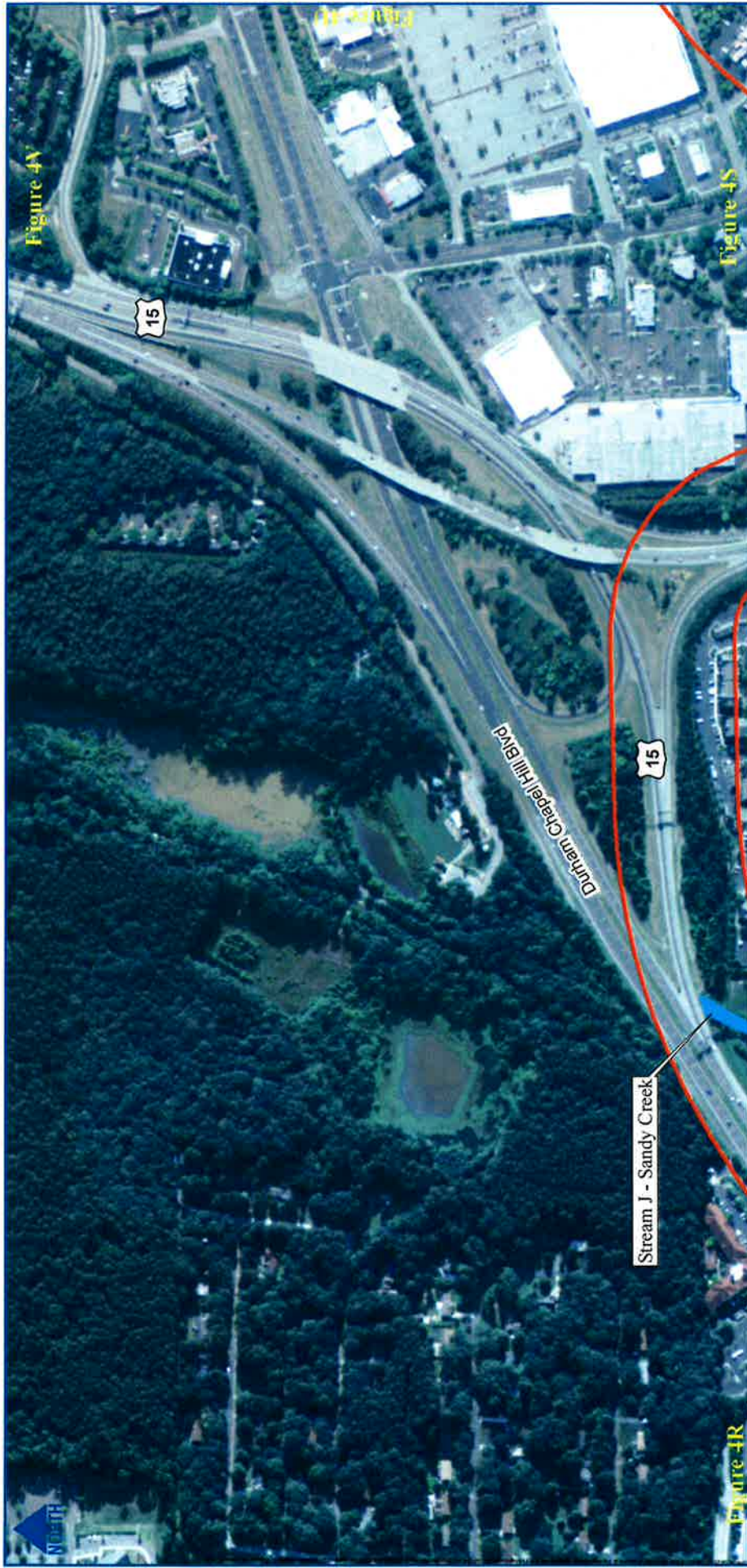
Water Resources - Figure 4S **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

Our Transit FUTURE. 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



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- Expanded Study Area
- Potentially Jurisdictional Stream
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- Potentially Jurisdictional Pond



Water Resources - Figure 4T **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

Our Transit FUTURE 0 300 600 Feet *Draft* September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
- Potentially Jurisdictional Wetland
- Potentially Jurisdictional Pond



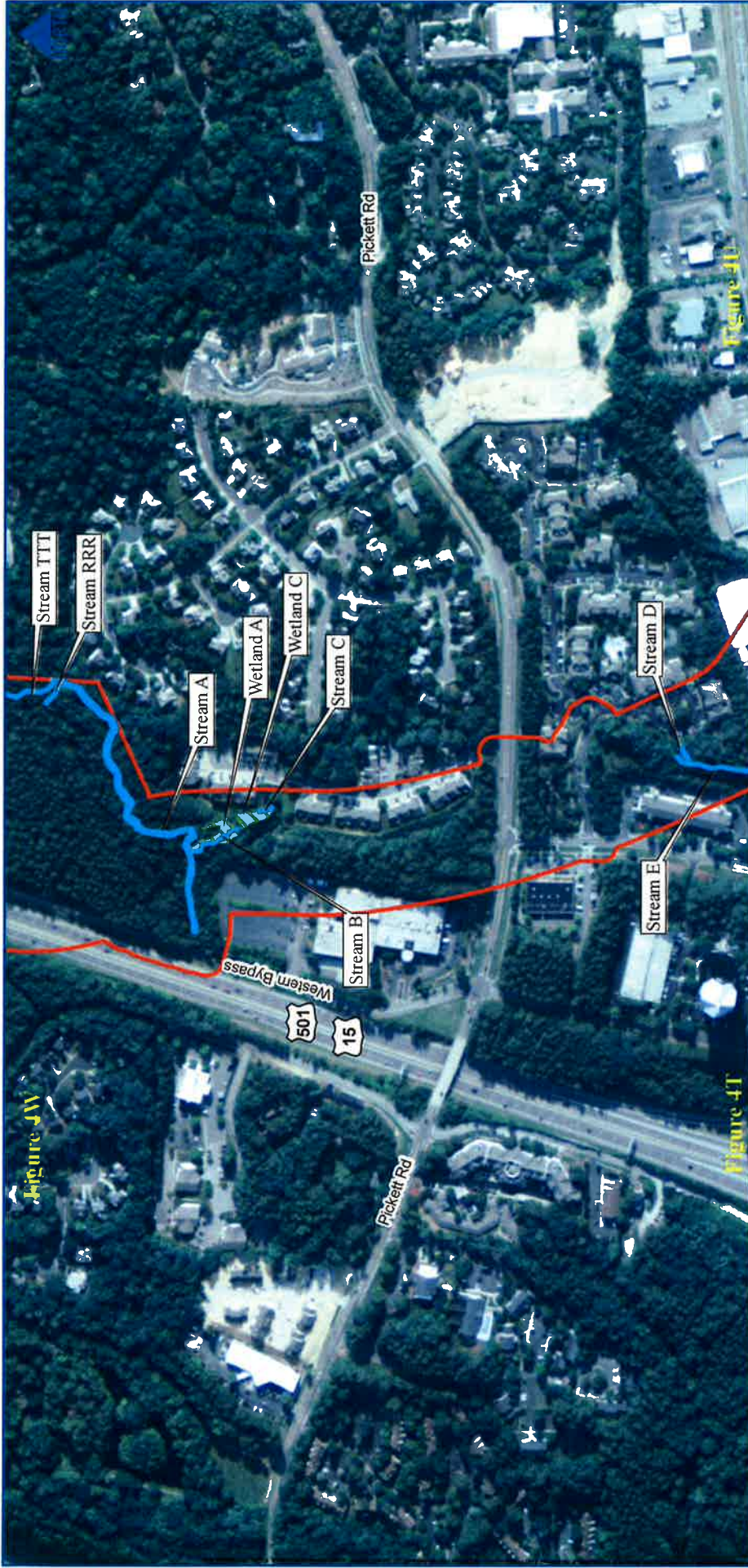
Water Resources - Figure 4U **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

Our Transit FUTURE. 0 300 600 Feet *Draft* September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
- Potentially Jurisdictional Wetland
- Potentially Jurisdictional Pond



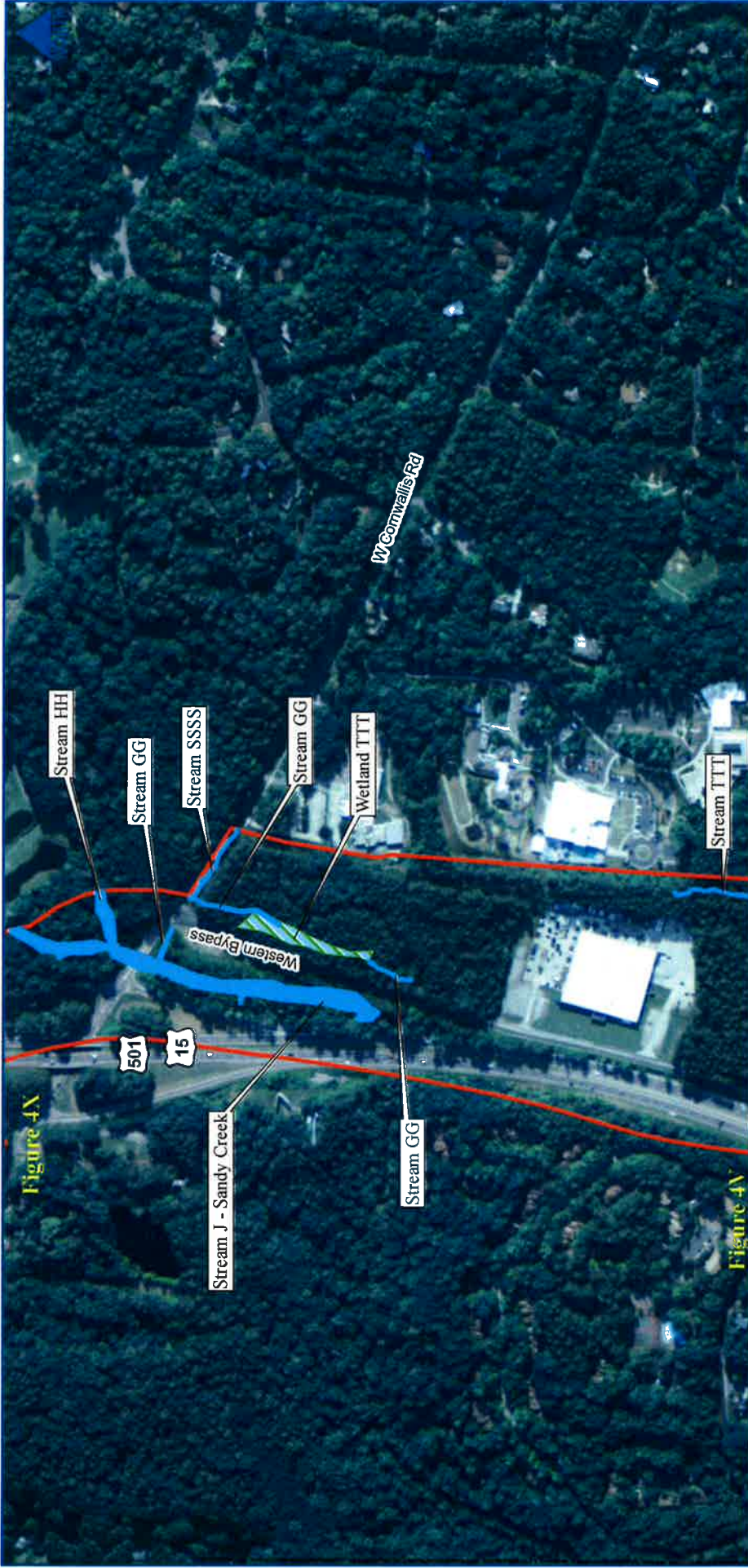
Water Resources - Figure 4V
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

Our Transit FUTURE. 0 300 600 Feet *Draft*
 September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
- Expanded Study Area
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- Potentially Jurisdictional Pond





Water Resources - Figure 4W

DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT

OurTransit
FUTURE

Draft
September 2016

0 300 600 Feet

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
- Expanded Study Area
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- Potentially Jurisdictional Pond





Water Resources - Figure 4X **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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- Expanded Study Area
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- Potentially Jurisdictional Pond





Water Resources - Figure 4Y **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**


 0 300 600 Feet

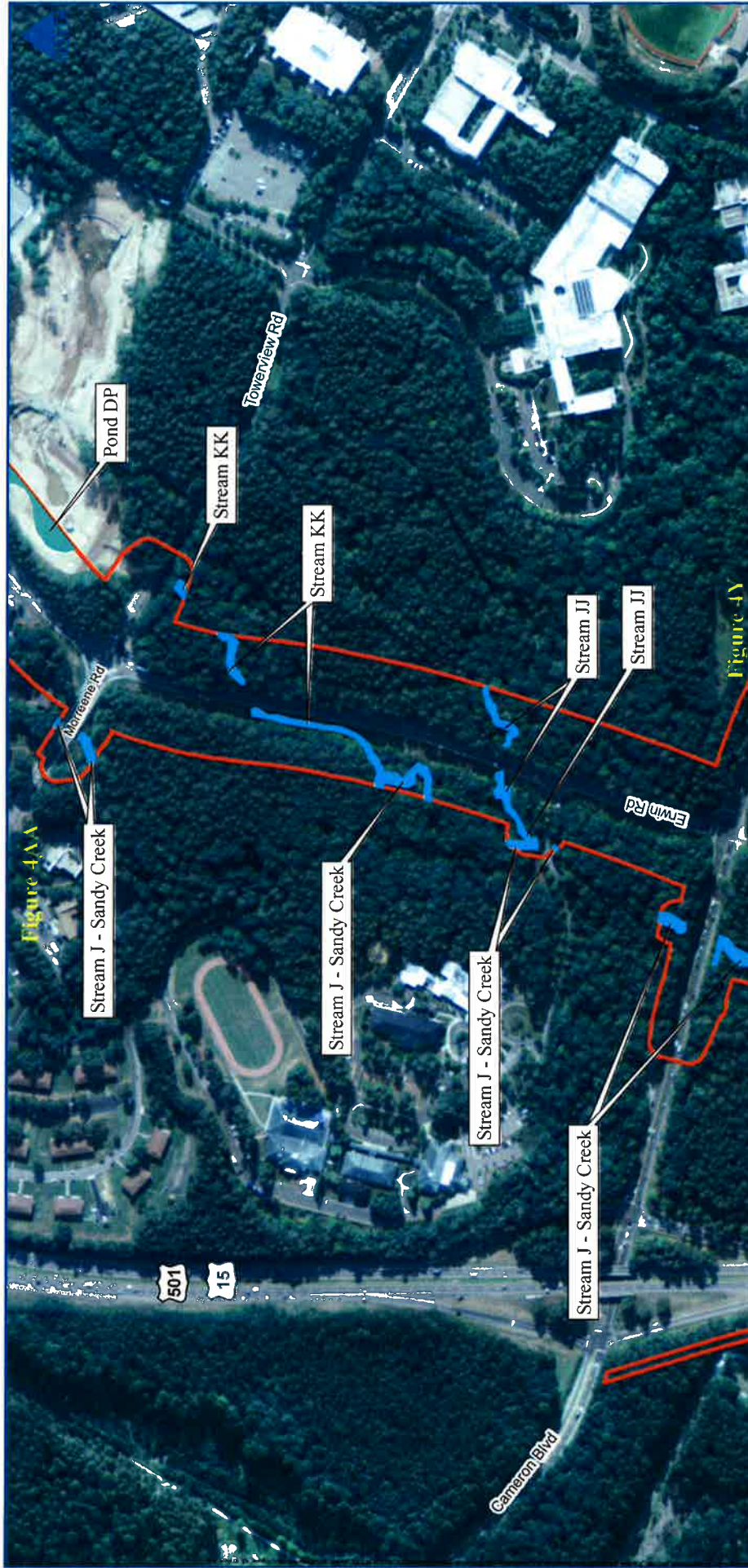
 Draft

 September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
- Potentially Jurisdictional Wetland
- Potentially Jurisdictional Pond





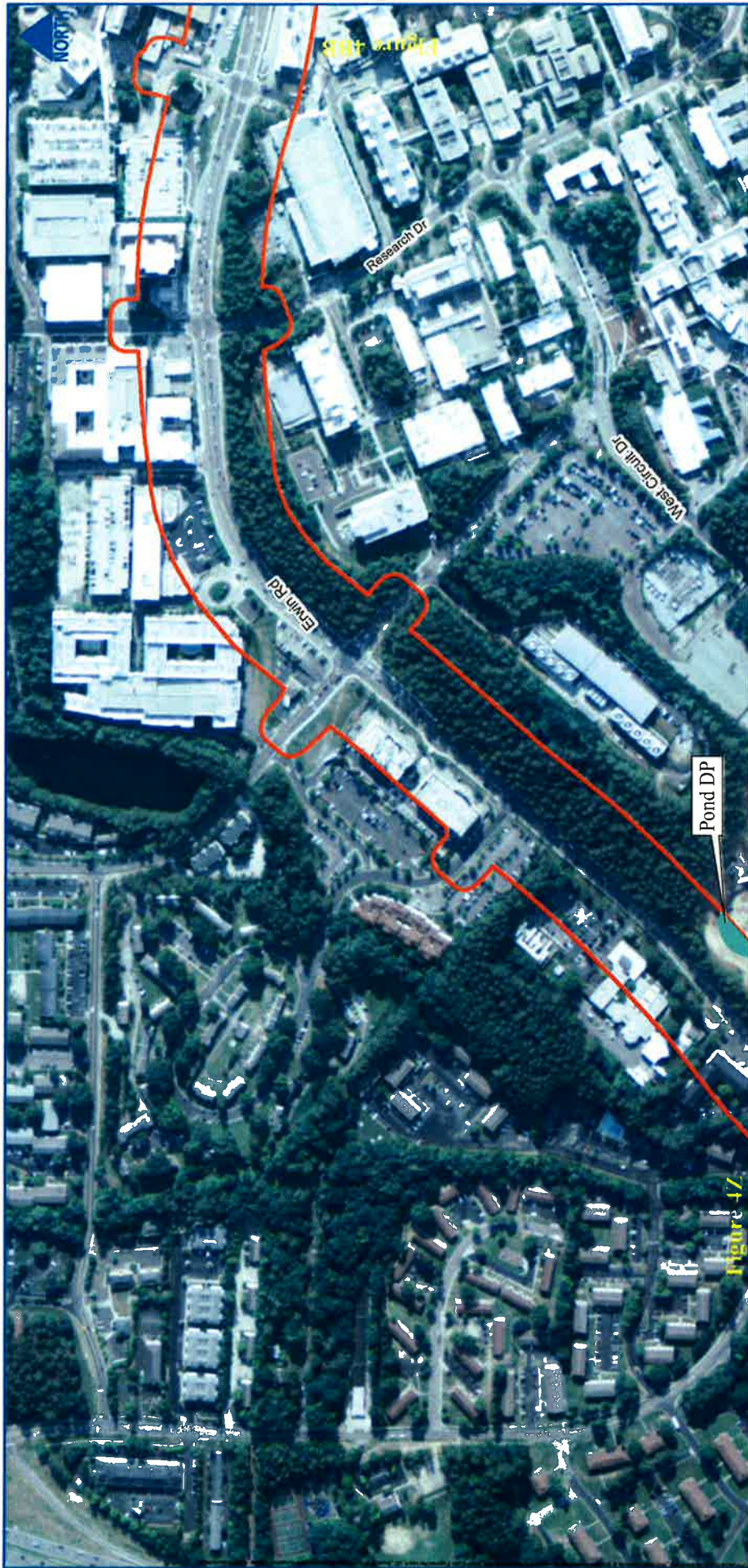
Water Resources - Figure 4Z **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit **FUTURE** 0 300 600 Feet *Draft* *September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
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- Potentially Jurisdictional Pond



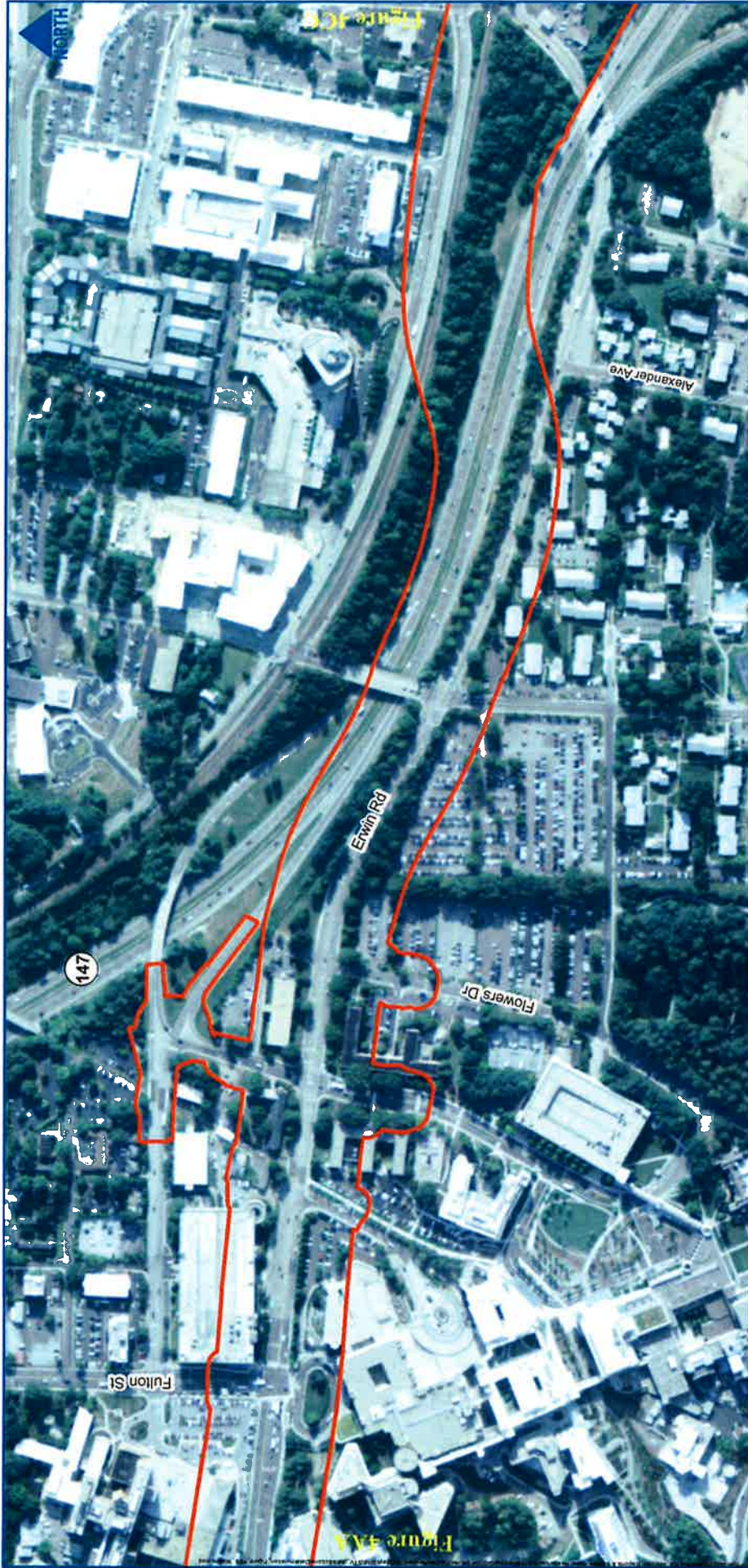
Water Resources - Figure 4AA
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

OurTransit **FUTURE** 0 300 600 Feet *Draft* *September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
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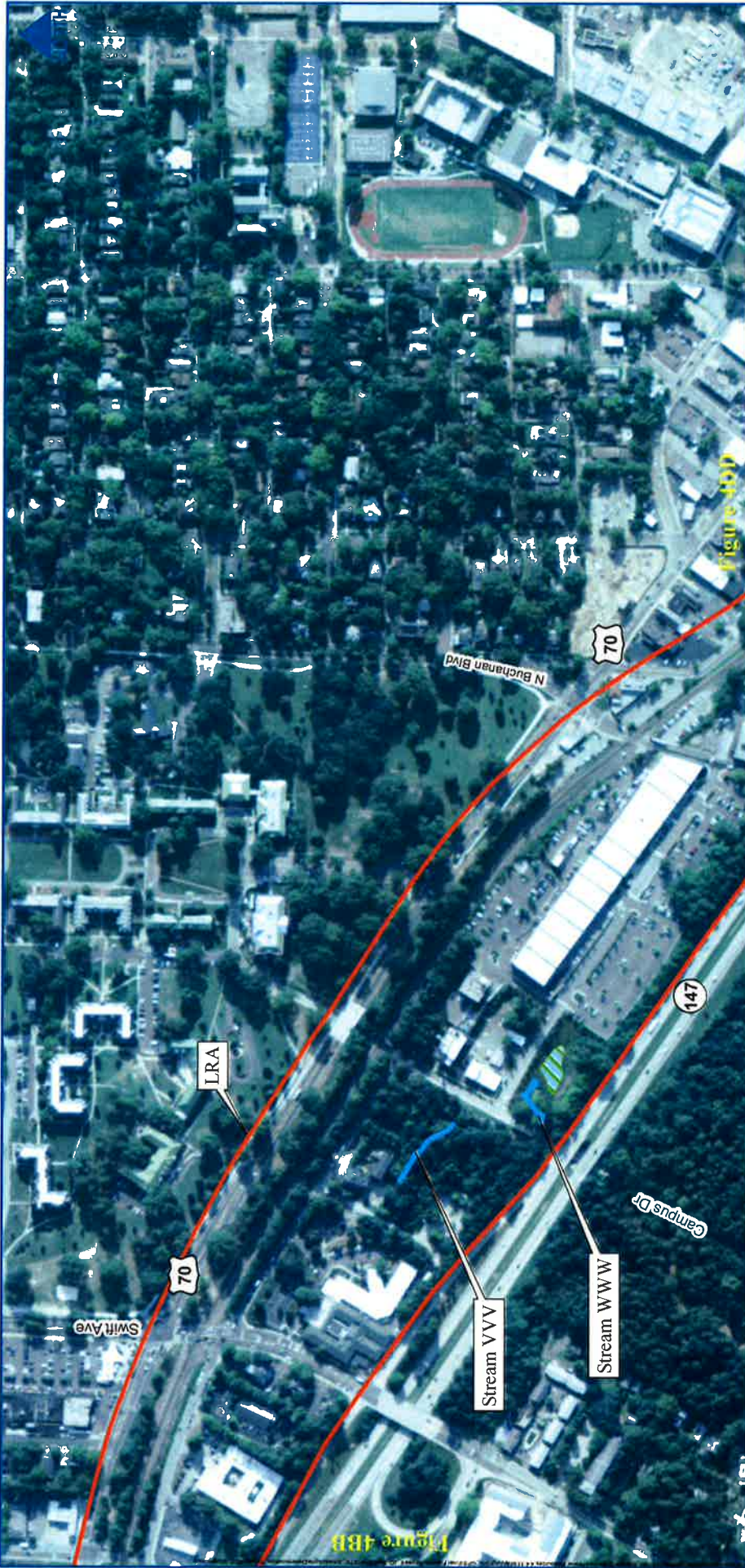
Water Resources - Figure 4BB **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit **F U T U R E** **Draft**
 0 300 600 Feet **September 2016**

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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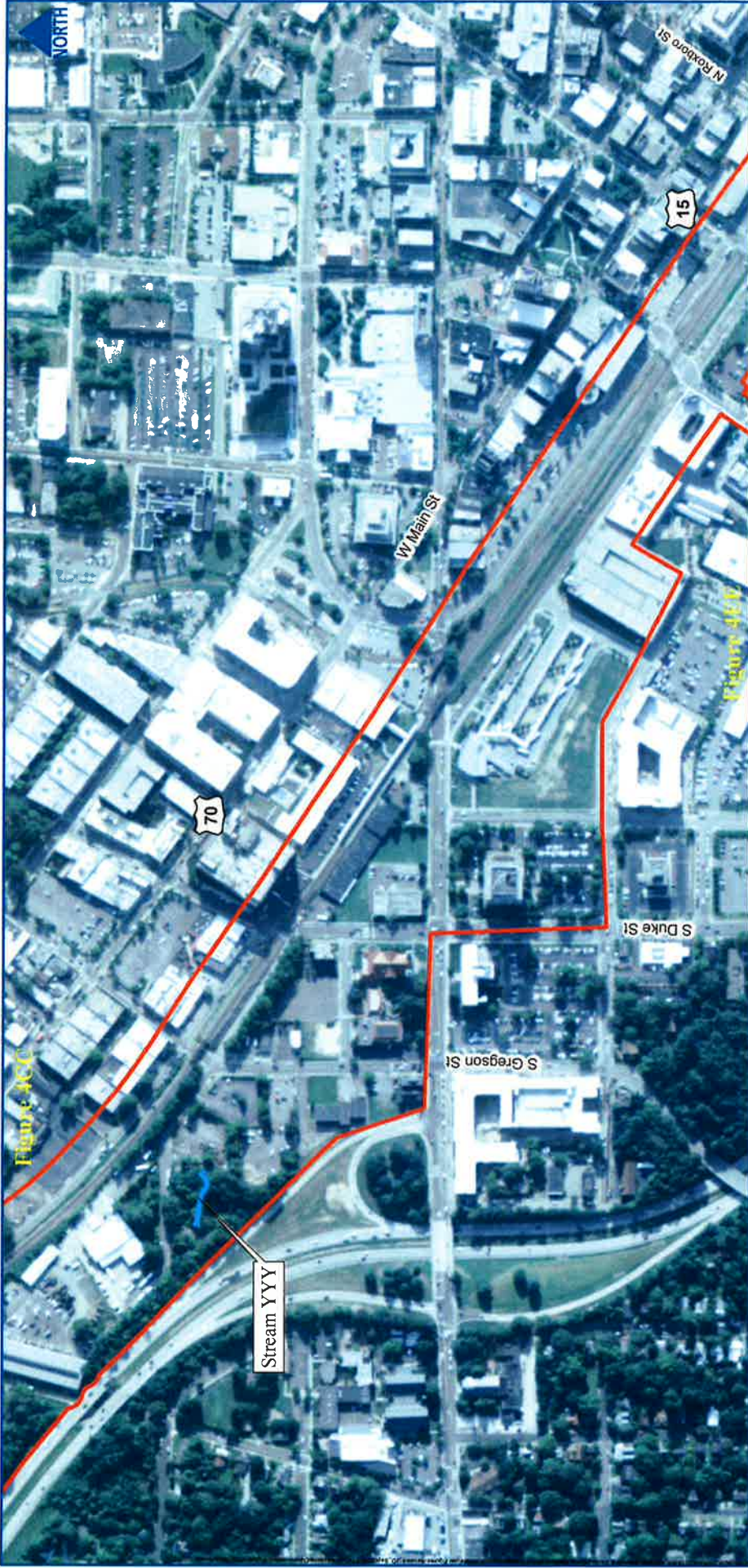


Water Resources - Figure 4CC
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

 0 300 600 Feet *Draft*
 September 2016
 Source: ESRI, USDA, NCDOT, CGIA, URS, STV

-  Previously USACE Verified Area
-  Expanded Study Area
-  Potentially Jurisdictional Stream
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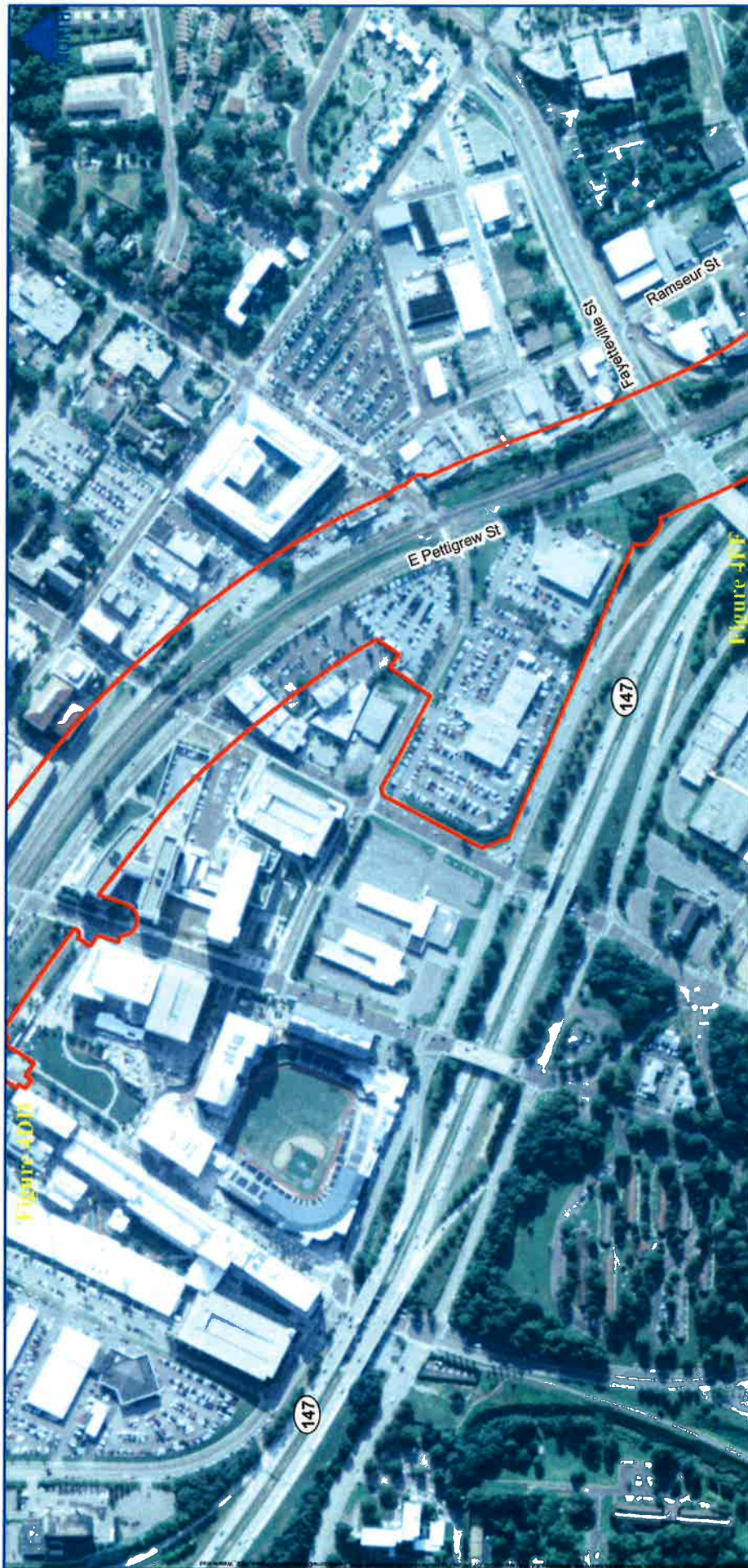
Water Resources - Figure 4DD **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE. 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

- Previously USACE Verified Area
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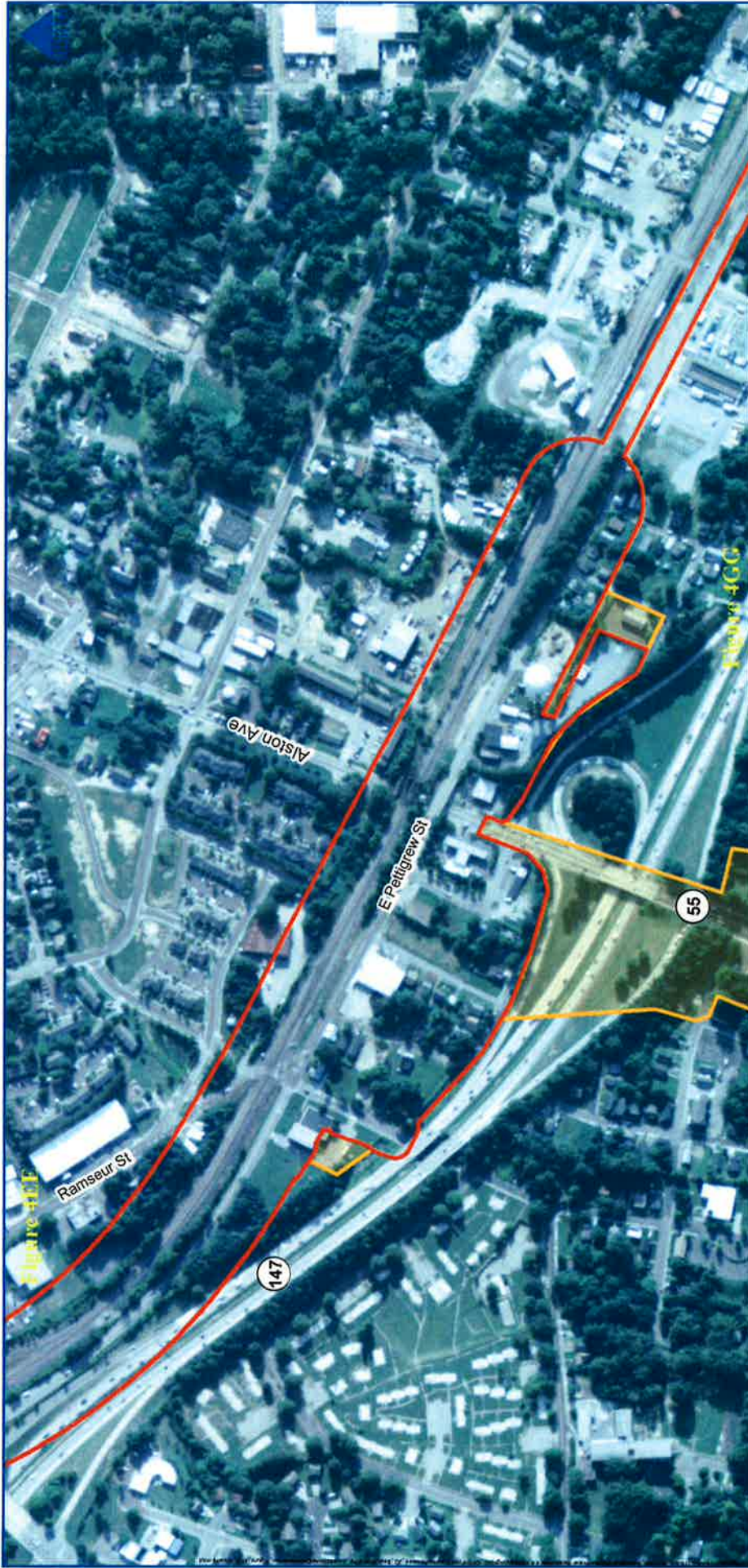
Water Resources - Figure 4EE **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE. 0 300 600 Feet *Draft September 2016*

Source: ESRI, USDA, NCDOT, CGIA, URS, STV



- Previously USACE Verified Area
- Expanded Study Area
- Potentially Jurisdictional Stream
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Water Resources - Figure 4FF
DURHAM-ORANGE
LIGHT RAIL TRANSIT PROJECT

 0 300 600 Feet *Draft*
 September 2016

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

-  Previously USACE Verified Area
-  Expanded Study Area
-  Potentially Jurisdictional Stream
-  Potentially Jurisdictional Wetland
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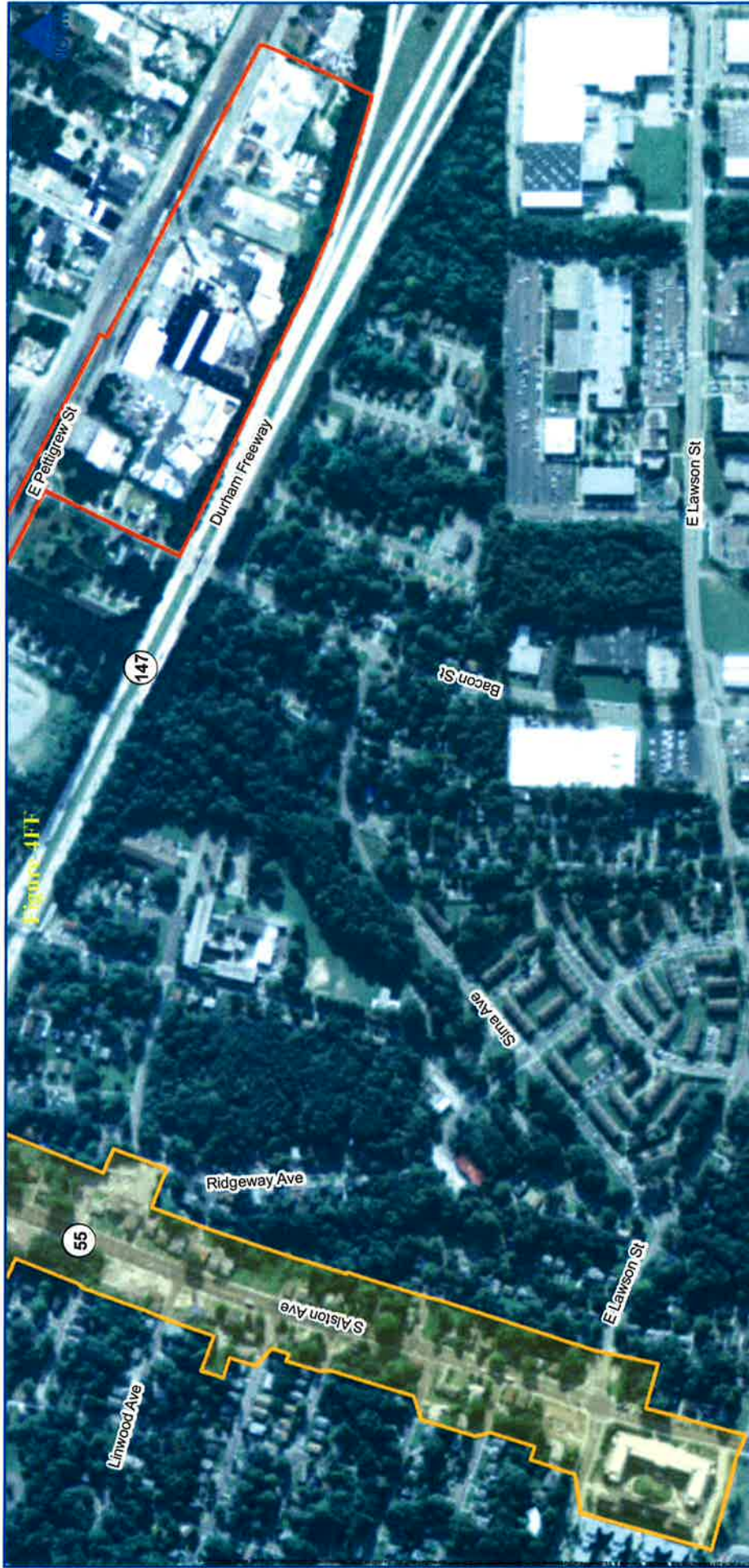


Figure 4FF

Water Resources - Figure 4GG **DURHAM-ORANGE** **LIGHT RAIL TRANSIT PROJECT**

OurTransit FUTURE 0 300 600 Feet **Draft September 2016**

Source: ESRI, USDA, NCDOT, CGIA, URS, STV

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WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Go Triangle D-O Light Rail Transit City/County: Durham Sampling Date: 09-12-16
Applicant/Owner: Go Triangle State: NC Sampling Point Upland DP#NCCU
Investigator(s): Brandon Phillip, CHMM Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Convex Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: 35.978582 Long: -78.891757 Datum: NAD 83
Soil Map Unit Name: White Store-Urban land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: DP#NCCU is representative of an upland within the urban expanded study area; see Figures 4FF and 4GG for the location of the expanded study area.	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		_____ Surface Soil Cracks (B6)
_____ Surface Water (A1)	_____ True Aquatic Plants (B14)	_____ Sparsely Vegetated Concave Surface (B8)
_____ High Water Table (A2)	_____ Hydrogen Sulfide Odor (C1)	_____ Drainage Patterns (B10)
_____ Saturation (A3)	_____ Oxidized Rhizospheres on Living Roots (C3)	_____ Moss Trim Lines (B16)
_____ Water Marks (B1)	_____ Presence of Reduced Iron (C4)	_____ Dry-Season Water Table (C2)
_____ Sediment Deposits (B2)	_____ Recent Iron Reduction in Tilled Soils (C6)	_____ Crayfish Burrows (C8)
_____ Drift Deposits (B3)	_____ Thin Muck Surface (C7)	_____ Saturation Visible on Aerial Imagery (C9)
_____ Algal Mat or Crust (B4)	_____ Other (Explain in Remarks)	_____ Stunted or Stressed Plants (D1)
_____ Iron Deposits (B5)		_____ Geomorphic Position (D2)
_____ Inundation Visible on Aerial Imagery (B7)		_____ Shallow Aquitard (D3)
_____ Water-Stained Leaves (B9)		_____ Microtopographic Relief (D4)
_____ Aquatic Fauna (B13)		_____ FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____		
Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No indicators of wetland hydrology were observed within Upland DP#NCCU.		

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Upland DP#NCCU

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: <u>10'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: <u>1.5 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Poa pratensis</u>	<u>100</u>	<u>Yes</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____

_____ = Total Cover
 50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: <u>1 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pueraria montana</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

_____ = Total Cover
 50% of total cover: 10 20% of total cover: 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is $\leq 3.0^1$
- ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation was not identified within Upland DP#NCCU which is a maintained, grassed, lawn adjacent to a kudzu dominated monoculture.

SOIL

Sampling Point: Upland DP#NCCU

[illegible]