

SOIL & WATER



CONSERVATION

Columbus County Soil and Water

Conservation District

45B Government Complex Road - Whiteville, NC 28472
(910) 642-2196 ext. 3

Stream Debris Removal Contractors:

Notice is hereby given that the Columbus Soil & Water Conservation District is soliciting contractors and professional firms to perform the planned treatment under the **Emergency Watershed Protection** program as described for each section in this bid packet. This bid packet is called the "**EWP 2020 – Group 1**". The planned work area(s) are as follows;

- Linbscome Branch – Debris Removal, Sediment Removal, Mobilization, Seeding and Mulching – Approximately 425 Lineal Feet.
- Hall Branch (Hwy 74-76) – Debris Removal, Mobilization – Approximately 3,500 Lineal Feet.
- White Marsh (Hwy 74) – Debris Removal, Mobilization, Chipping Old Debris and Disposal, Mobilization of Woodchipper – Approximately 1,200 Lineal Feet.
- Cypress Branch (New Britton Hwy E) – Debris Removal, Sediment Removal, Mobilization, Seeding and Mulching – Approximately 600 Lineal Feet.
- Mill Branch (New Britton Hwy E) – Debris Removal, Mobilization, Retaining Wall 6 feet High and 50 Feet Long – Approximately 750 Lineal Feet.
- Sasspan Branch (Old Lake Road) – Debris Removal, Sediment Removal, Mobilization, Seeding and Mulching – Approximately 400 Lineal Feet.
- Western Prong (US 701 Hwy) – Debris Removal, Sediment Removal, Mobilization, Seeding and Mulching – Approximately 1,200 Lineal Feet.

This planned work areas are referenced on the attached Project Maps.

Please reference the following important documents:

- Project Map
- Scope of Work
- Woody Debris Removal Guidelines titled "Incremental Effects of Large Woody Debris Removal on Physical Aquatic Habitat".
- Project Bid Sheet

The Scope of Work describes the State requirements for receiving payment for completed work. The Columbus Soil and Water Conservation District will be the Contracting Officer for this project however you should reference the contract in order to understand how the payment process works and note other items that will be required should you be awarded the contract.

Debris removal must be completed according to the Woody Debris Removal Guidelines, starting on page B-1 of the attached document titled "Incremental Effects of Large Woody Debris Removal on Physical Aquatic Habitat". Columbus Soil & Water Conservation District will require that the debris removed be placed a minimum of 20 feet from the edge of the stream and on the same side that it originated.

All bids must be on the attached Project Bid Sheet and shall clearly state the total price for completing the contract, NOT a price per foot. Lengths referenced in this notice and on the Project Maps are approximate and

will not be used to determine payment or project completion.

Time Frame – Target Start Date – September 21, 2020
Project Completion Deadline – December 18, 2020

Project Bid Sheets must be received by 5:00 pm on Friday, August 28, 2020. Send project bid sheets to, Columbus Soil and Water Conservation District, 45B Government Road, Whiteville, NC 28472. Please include copies of reference letters or other documentation of prior work experience. Bid opening will take place at the District Office at 8:00 AM on Monday, August 31, 2020. Questions should be directed to Edward Davis at 910-642-2196, ext. 3.

SCOPE OF WORK STREAM DEBRIS REMOVAL PROJECT

The CONTRACTOR awarded this project shall be required to submit a construction schedule showing the sequence of all work to be performed.

The CONTRACTOR awarded this project will complete stream debris removal activities including cutting and removing downed trees, broken tops, and woody debris that impede or potentially impede water flow in the streams and tributaries described in the application submitted by the CONTRACTOR.

The CONTRACTOR awarded this project shall be required to have a one million-dollar (\$1,000,000.00) liability insurance policy in effect throughout the term of the Contract.

The CONTRACTOR awarded this project shall furnish a performance bond payable to the Columbus County Soil and Water Conservation District and conditioned upon the CONTRACTOR faithfully performs the conditions of the Contract. Said bond shall be in the amount of the total bid for the Contract. The surety on the bond shall be a duly authorized corporate surety company authorized to do business in the State of North Carolina.

The CONTRACTOR will ensure that all required permits are secured for each site before any work proceeds for that site.

The CONTRACTOR will ensure that it follows the Woody Debris Removal Guidelines to manage all woody debris removed from streams. These guidelines can be downloaded at <http://www.ncwater.org/FinancialAssistance/Minimum%20Criteria%20-%20Incremental%20Effects%20of%20LWD%20Removal%201992.pdf>

The CONTRACTOR awarded this project will complete stream debris removal activities by cutting and removing downed trees, broken tops, and woody debris. Woody debris 18 inches in diameter and less shall be cut in lengths of at least 10 feet unless other arrangements are made with the inspecting officer.

REPORTING

The CONTRACTOR will submit written, weekly progress reports, with each report due before 9:00 am each Tuesday, continuing until the project is complete and final project report is approved. The weekly progress report is required even if no activity has occurred for the week and no reimbursement is requested for the week.

The weekly and final report shall include a narrative summary of the work completed each week and for the project to date and a summary of cash and in-kind expenditures for the week and total project. Although the CONTRACTOR is not required to provide cash nor in-kind match for the project, the report should also include the total cash and in-kind match contribution provided by the CONTRACTOR.

INVOICING and PAYMENTS

The CONTRACTOR shall submit a monthly invoice on the Stream Debris Removal Project Invoice Form

indicating total cash and in-kind expenditures for the month and for the total project and indicating the amount requested for reimbursement each month.

Ten percent (10%) of the contract amount will be withheld until all final work is complete and all reports and work has been satisfactorily completed.

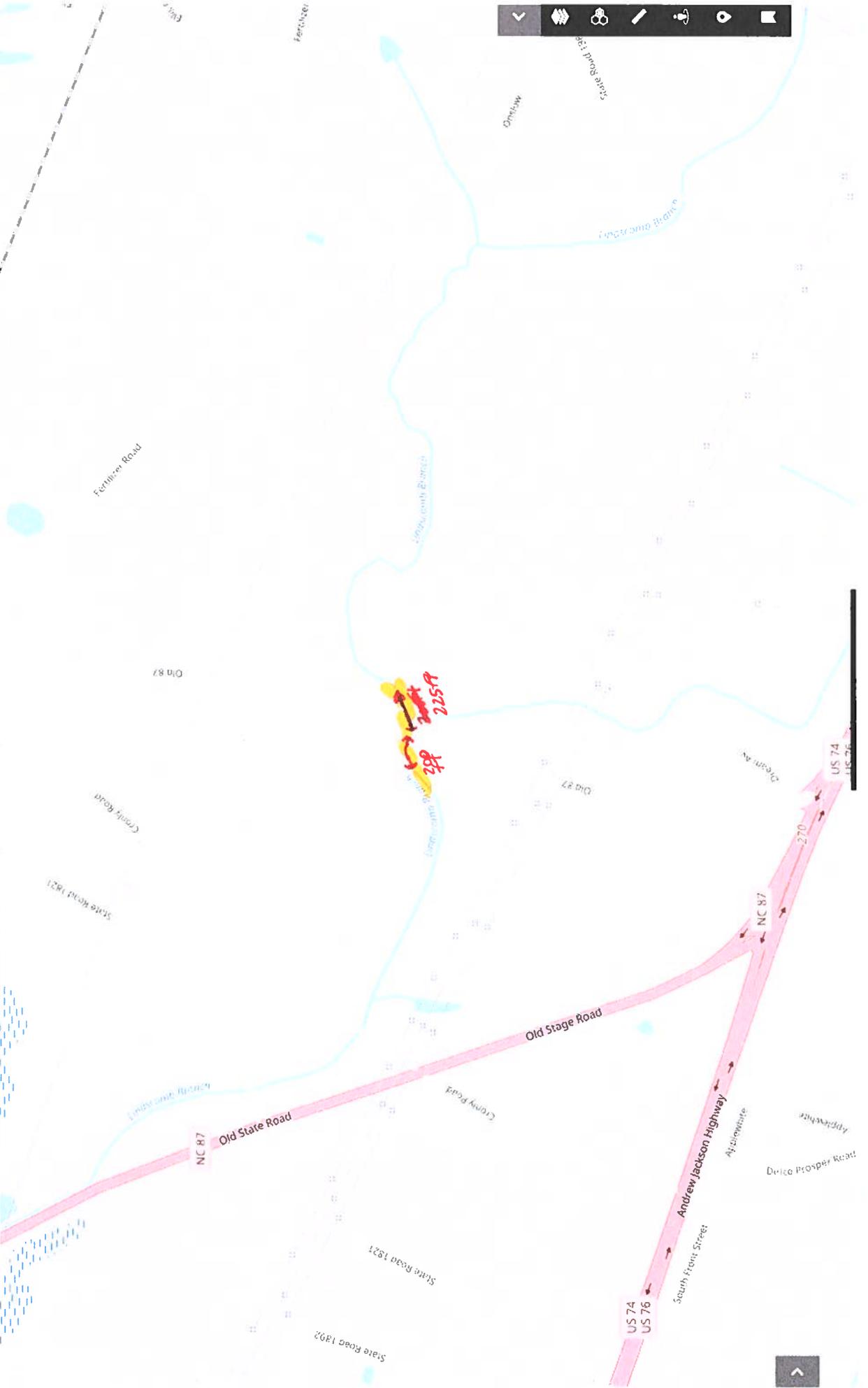
Staff from the North Carolina Division of Soil and Water Conservation or its designated agent will conduct a site visit and approve the work completed prior to releasing any payment to the CONTRACTOR. The Division must satisfactorily determine that all work has been completed in accordance with the Woody Debris Removal Guidelines.

Lindscomb Branch

Land Records - For Soil Conservation Department Use

Property Information

100 m / 500 ft | Lat: 34.317725 | Lon: -78.205125 | Data Search



Land Records - For Soil Conservation Department Use

Property Information

Hall Branch

100 m | 500 ft | Lat: 34.319267 | Lon: -78.285635 | Data Search

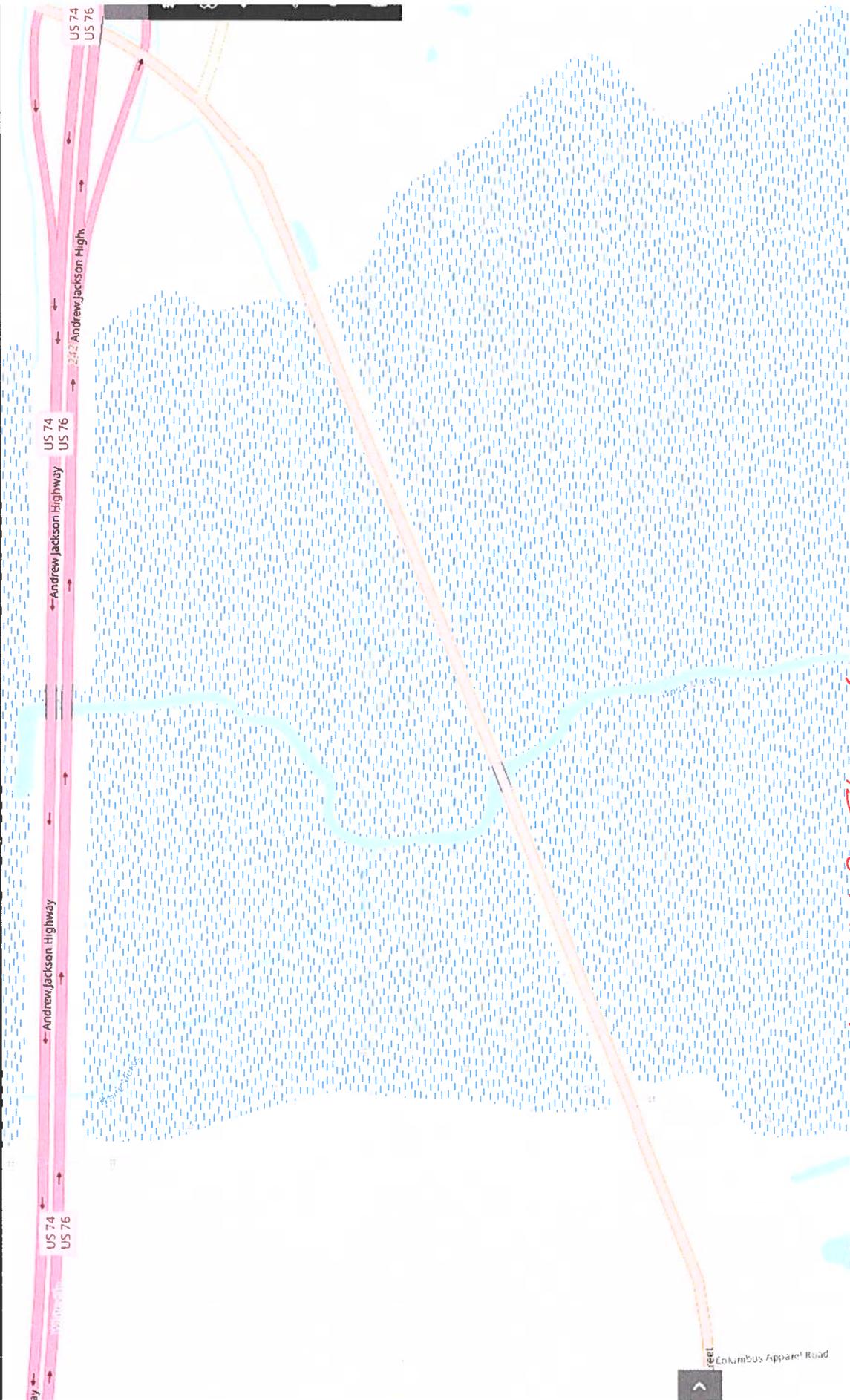


Land Records - For Soil Conservation Department Use

White Marsh

Property Information

Map navigation controls including a search bar with the text "Date Search", a scale bar showing 100 m and 500 ft, and coordinate information: Lat: 34.945473, Lon: -78.672752.

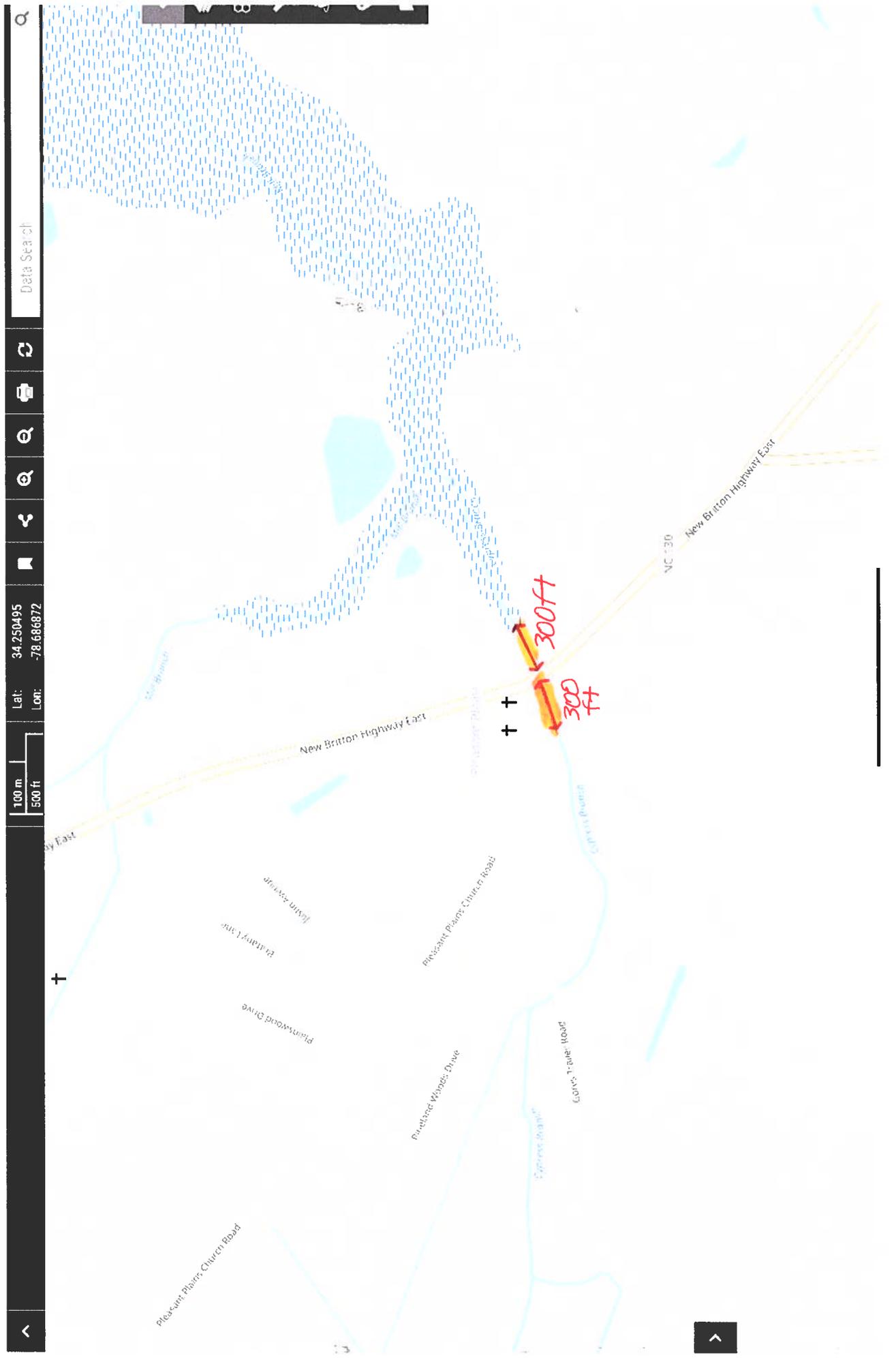


Sites will be flagged.

Cypress Branch

Land Records - For Soil Conservation Department Use

Property Information



Land Records - For Soil Conservation Department Use

New Britton Hwy E Mill Branch

Property Information

100 m 500 ft | Lat: 34.250495 | Lon: -78.682837 | Date Search



Old Lake Rd Sasspan Branch

Land Records - For Soil Conservation Department Use

Property Information

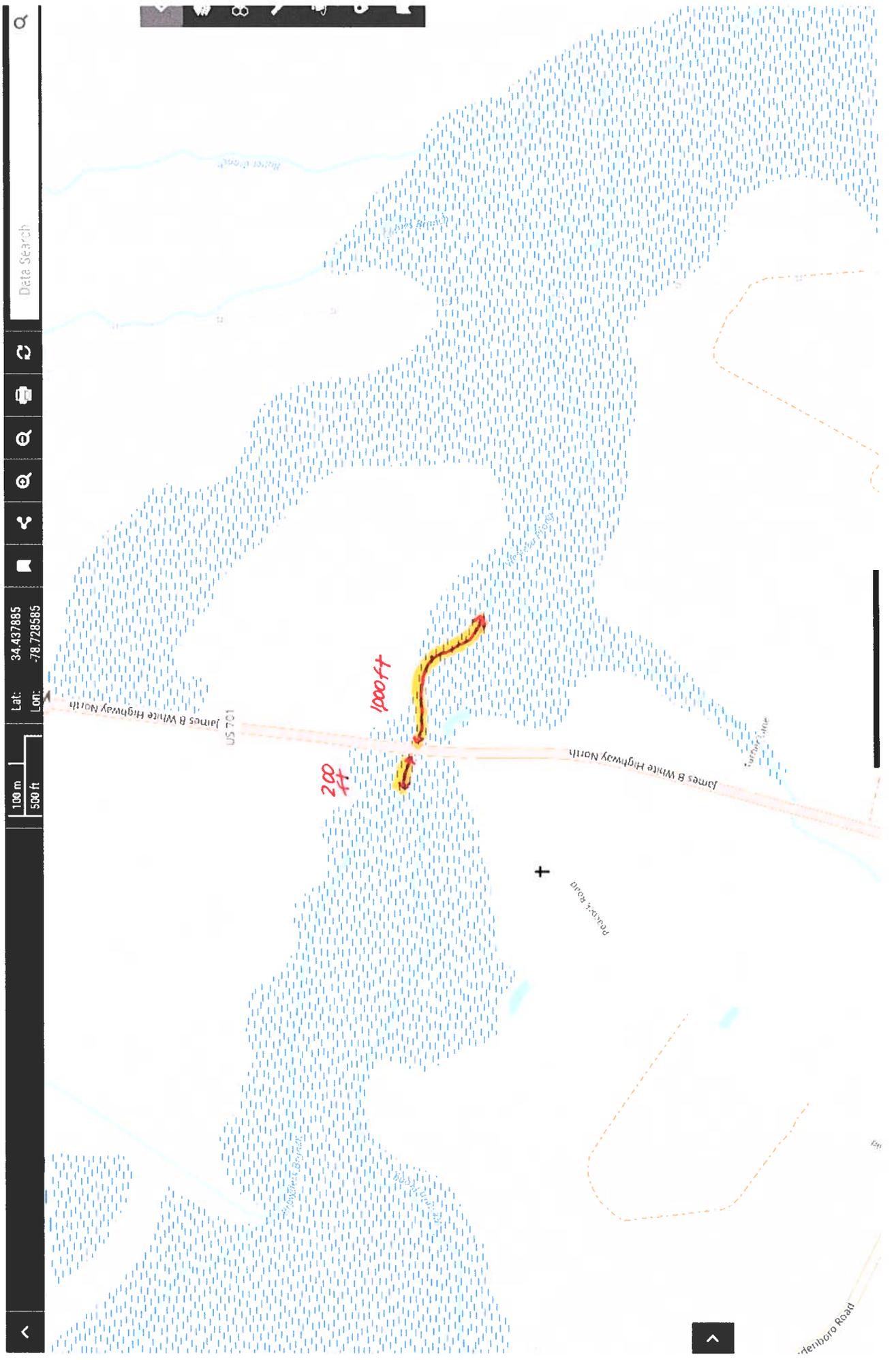
100 m / 500 ft | Lat: 34.373975 | Lon: -78.448412



Land Records - For Soil Conservation Department Use

Property Information

Hwy US701 Western Prong



All activities will be performed in strict accordance with the following:

A. Removal of debris will be limited to vegetative materials. Excavation of soil/sediment shall not be undertaken. Uprooted stumps may be pulled from the ground (no excavation), but shall include no more than minimal amounts of soil attached to roots. Debris removal will be restricted to that associated with Hurricanes Florence and Michael.

B. Debris will be disposed on high ground where practicable, or where in wetlands, sufficiently anchored (no excavation or fill) so that material will not be displaced back into the stream channel.

C. Debris placed in wetlands shall be spread in a manner that does not impede lateral water flow.

D. Equipment used will generally include hydraulic excavators equipped with mechanical thumb or grapple attachment, loaders, winches mounted on tracked or rubber-tired equipment, portable winches, and chain saws.

E. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

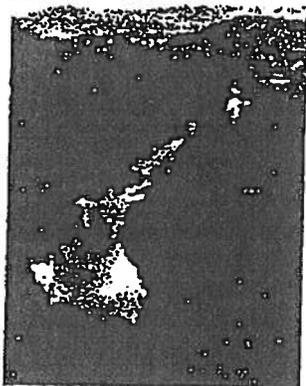
F. Equipment shall operate adjacent to the stream and not within the stream unless prior approval is granted. Where necessary, trees can be cut for access to work sites; however, mechanized land clearing will not occur within wetlands at any time. Crossing a stream to gain access to the opposite bank is permissible. Crossing sites should be selected to minimize damage to the streambank and aquatic habitat.

G. No activity may cause more than minimal adverse impact on navigation.

H. In the event of a spill of petroleum products or any other hazardous waste, the Contractor shall report it to 1) the Contracting Officer, and 2) the NC Division of Water Quality at 919-733-5083, Ext. 526 or 1-800-662-7956. Provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.



US Army Corps
of Engineers



ENVIRONMENTAL IMPACT
RESEARCH PROGRAM

TECHNICAL REPORT EL-92-35

INCREMENTAL EFFECTS OF LARGE WOODY DEBRIS
REMOVAL ON PHYSICAL AQUATIC HABITAT

by

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Environmental Laboratory

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
3909 Halls Ferry Road, Vicksburg, Mississippi 39180-6199



November 1992

Final Report

Approved For Public Release; Distribution Is Unlimited

Prepared for DEPARTMENT OF THE ARMY
US Army Corps of Engineers
Washington, DC 20314-1000

Under EIRP Work Unit 32555

PART V: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

LWD plays an important role as a component of aquatic habitat. Although LWD enters food webs as it decays, the major importance of debris lies in its structural characteristics and the way it influences channel flow patterns. Physical processes associated with debris in streams include the formation of pools and retention of fine sediment and organic matter.

Awareness of the adverse effects of complete LWD removal on channel stability and aquatic habitat has led to the development of guidelines for selective removal of LWD as a means of balancing habitat and conveyance objectives. These guidelines (Appendix A) involve the use of manual labor and small equipment to remove only the LWD that causes significant flow obstruction. Removal of bank vegetation and disturbance to stream habitats is minimized. Personnel within some Corps districts have already completed or are in the process of classifying the streams under their jurisdiction according to these guidelines. Use of these guidelines for project planning and design requires quantification of the hydraulic and environmental impacts of incremental LWD removal.

In this study, a simple method for quantifying LWD density and computing associated friction factors was developed and tested using data collected during an LWD removal project on the South Fork Obion River in western Tennessee. Physical conditions of both cleared and uncleared stream reaches were measured by collecting three types of data: LWD density, dye tracer tests (for computing reach mean hydraulic parameters), and physical habitat (depth, velocity, bed type, and cover) at selected transects. The LWD density was the important independent variable, while the dye tracer and physical habitat data were used to study macroscale and microscale effects of LWD, respectively. Macroinvertebrate samples were also collected at low flow conditions, and the results are presented in a companion report to this study (Payne and Miller in preparation).

Conclusions

Removal of LWD from the study reach decreased near-bank-full friction factor by about one third. Impacts on physical aquatic habitat at base flow

were measurable and statistically significant, even though the Stream Obstruction Removal Guidelines (IAFWA 1983) were applied throughout project planning and implementation. Benefits of proposed LWD removal projects should be carefully analyzed in light of costs and environmental impacts. Findings of this study generally agreed with work by others in different types of streams. The simple procedure developed in this study for quantifying LWD density and its effect on channel resistance may be used for environmental impact assessment and hydraulic engineering analyses. Considerable refinement and site-specific adaptation may be in order, however. The method for prediction of channel roughness coefficients does not account for local losses because of bends or flow expansion and contraction at bridges, debris dams, or riffles.

Recommendations

To refine the methodology used in this study, additional data should be collected from two more stream LWD removal projects. Streams with higher LWD density and different types of bed sediment from that encountered in this study would be preferable. Physical data should be collected over a range of flows varying from normal low-flow to bank-full conditions. Concurrent biological data should be collected at base flow. Data should be collected to document preproject and postproject conditions. Investigation of additional methods of determining LWD density, such as using video recorders or low altitude aerial photography to count and measure the LWD formations, is recommended.

APPENDIX B: BEST MANAGEMENT PRACTICES (BMPs) FOR
SELECTIVE CLEARING AND SNAGGING*

Trees and brush that shade streams and stabilize the banks should not be disturbed. In new channel construction, existing trees and brush should be left in place along the tops of banks. No stream work, including bank clearing and excavation or removal of materials, "snags," or other channel obstructions, should be allowed except at specific locations where significant blockages in streams occur. Channel excavation and snag removal should be accomplished with the minimum streambank clearing needed to provide access to the stream and should not be undertaken unless it is absolutely necessary. The following BMPs prescribe the manner in which snag removal and stream channel clearing should be undertaken:

a. Practices for snagging.

- (1) Logjam removal. Only those log accumulations that are obstructing flows to a degree that results in flooding or significant ponding or sediment deposition should be removed.
- (2) Removal of other logs.
 - Affixed logs. Isolated or single logs should not be disturbed if they are embedded, jammed, rooted, or waterlogged in the channel or the floodplain, if they are not subject to displacement by current, and if they are not presently blocking flows. Generally, embedded logs that are parallel to the channel are not considered to cause blockage problems and should not be removed. Affixed logs that are crossways to the flow of waters in the channel and are trapping debris to the extent that could result in significant flooding or sedimentation may be removed.
 - Free logs. All logs that are not rooted, embedded, jammed, or sufficiently waterlogged to resist movement by stream currents may be removed from the channel.
- (3) Protecting riparian vegetation. No rooted trees, whether alive or dead, should be cut unless:
 - They are leaning over the channel at an angle greater than 30 deg of vertical and they are dead or severely undercut, or damaged root systems are relying upon adjacent vegetation for support and it appears they will fall into the channel within 1 year and create blockage to flows; or
 - Their removal from the floodplain is required to secure access for equipment to a point where a significant blockage has been selected for removal.

* Source: State of New York (1986). The citation for this reference is included with those following the main text of this report.

Trees selected for removal should be cut well above the base, leaving the stump and roots undisturbed. Procedures for removing the felled portion should be the same as for other logs as discussed below.

- (4) Equipment for log removal. First consideration should be given to the use of hand-operated equipment to remove log accumulations. When the use of hand-operated equipment is infeasible, vehicular equipment should be used in accordance with the following guidelines:

- Water-based equipment (e.g., a crane or winch mounted on a small, shallow draft barge or other vessel) should be used for removing material from the stream. A small crawler tractor with winch or similar equipment may be used to remove debris from the channel to selected disposal points.
- When stream conditions are inadequate for the use of water-based equipment, the smallest feasible equipment with tracking systems that minimize ground disturbance should be specified for use. Larger equipment may be employed from nonwooded areas where cables could be stretched down to the channel to drag out materials to be removed.
- Access routes for equipment should be selected to minimize disturbance to existing floodplain vegetation, particularly in the riparian zone. Equipment should be selected which will require little or no tree removal in forested areas.

- (5) Log disposal practices. All logs or trees designated for removal from a stream or floodplain should be removed or secured in such a manner as to preclude their reentry into the channel by floodwaters. Generally, they should be transported well away from the channel and floodway and positioned parallel to the stream channel so as to reduce flood flow impediment. When large numbers of logs are removed at one location (e.g., logjams), their use for firewood may be most appropriate. Burying of removed material should not be permitted.

b. Practices for stream channel clearing.

- (1) Small debris accumulation. Small debris accumulations should be left undisturbed unless they are collected around a log or blockage that should be removed. (Small debris accumulations will not constitute a significant blockage to flows. Upon removal of logs and other blockages under these BMPs and the following completion of the project, the changed water velocities will remove and disperse these small debris accumulations so that no significant blockage of water flows will result.)
- (2) Removal of sediment and soils. Major sediment plugs in the channel may be removed if they are presently blocking the channel to a degree that results in ponding and dispersed overland flow through poorly defined or nonexistent channels and, in the opinion of appropriate experts, will not be removed by natural stream or river forces after logs and other obstructions have been removed.

- (3) Disposal of spoil material. Conventional excavating equipment may be required for sediment blockages. This equipment should be employed in a manner which will minimize environmental damages as follows:
- Access routes for equipment should be selected to minimize disturbance to existing floodplain vegetation, particularly in the riparian zone.
 - Material disposal and necessary tree removal should be limited to one side of the original channel at any given location.
 - To the maximum extent possible, excavating equipment should not be employed in the stream channel bed.
 - Where feasible, excavated materials should be removed from the floodplain. If floodplain disposal is the only feasible alternative, the spoil material should be placed on the highest practical elevation and no material should be placed in any tributary or distributary channels which provide for ingress and egress of waters to and from the floodplain.
 - No continuous spoil pile should be created. It is suggested that no pile exceed 50 ft in length or width and a gap of equal or greater length should be left between adjacent spoil piles.
 - Spoil piles should be constructed as high as sediment properties allow.
 - The placement of spoil material around the bases of mature trees should be avoided where possible.
 - All disturbed areas should be reseeded or replanted with plant species which will stabilize soils and benefit fish and wildlife. Revegetation should be in accordance with County Soil and Water Conservation District recommendations.
 - All disturbed areas should be reseeded or replanted with plant species which will stabilize soils and benefit fish and wildlife. Revegetation should be in accordance with County Soil and Water Conservation District recommendations.

CONSTRUCTION SPECIFICATION
400. STREAM DEBRIS REMOVAL

1. SCOPE

The work will consist of the cleanup of storm debris in the designated stream areas by the removal and disposal of trees, logs, stumps, brush, tops, blockages, rubbish, and debris deposited in and adjacent to the channel and the seeding of disturbed areas. The designated sites are as shown on the attached location map.

2. ACCESS

Access shall be as designated by the Contracting Officer Representative unless alternate routes are obtained by the Contractor and approved by the Contracting Officer Representative.

3. LIMITS OF WORK

The limits of the work area shall not exceed those shown on the drawings of this specification. The limits of the designated stream debris removal area are referenced in section 11 of this specification and on the drawings.

4. CLEARING AND DEBRIS REMOVAL

Fallen trees, limbs, dislodged stumps, dislodged brush, rubbish, and any foreign debris within and across the cross section of the channel bottom and banks and designated adjacent areas shall be removed and placed in designated disposal areas. Trees undercut by stream bank erosion and trees severely leaning over the channel whose near term fall is apparent and any other tree or stump as marked by the Contracting Officer Representative or Construction Inspector shall also be removed and placed in designated disposal areas. Water level in the channel will fluctuate up and down due to rainfall events. The extent of debris removal in the channel cross section is not changed by the fluctuation in the water level. Excavation of soil/sediment shall not be performed.

Unless otherwise approved by the Contracting Officer Representative, trees designated for removal shall be cut off as near to the ground surface as conventional tools or field conditions will permit. For leaning trees where the root system of the tree is not exposed, the trunk of the tree will be cutoff as described above and the stump shall be left to resprout. For trees that are leaning or down and the root system is partially exposed (i.e. hinged on one side) the trunk shall be cutoff as described above and the stump shall be set upright and left in place to resprout, unless otherwise authorized by the Construction Inspector. Where the stump is completely dislodged, it shall be removed and placed in the disposal area. Any stump or root mass located on the channel bank or bottom that has become unstable or that obstructs flow in the channel shall be removed and placed in the disposal area. Trees that have been "snapped", are not leaning, have a strong root structure, and pose no threat to the channel will be left as they are, provided the contractor does not need to remove the tree for access purposes. Naturally leaning trees with apparently undamaged root systems and other natural, undamaged vegetation shall remain in its natural condition and not be removed. Trees shall be

felled in such a manner as to avoid damage to trees left standing or existing structures and with due regard for the safety of persons and property.

Removal of standing trees outside of stream banks is limited to the cutting of severely damaged trees leaning across the channel and other trees as needed to gain access for equipment to points of channel blockage. The approval of the Contracting Officer Representative or Construction Inspector shall be obtained prior to cutting any "healthy" tree for equipment access. Unless otherwise approved, access for mechanized equipment shall be limited to one side of the channel. Access to the channel shall generally be perpendicular to the channel with precautions taken to protect mast producing and stream canopy trees. Dead trees that provide den habitat and are determined to pose no hazard to the channel shall be protected. Disturbance of the channel bottom and banks, and equipment access areas shall be held to the minimum necessary to allow the construction equipment to remove the debris. Heavy equipment working on wet soil conditions must operate from mats or use other measures as approved by the Contracting Officer Representative to minimize rutting or soil disturbance.

5. DISPOSAL

Where the channel and the disposal area(s) are located in wooded unimproved areas the woody and vegetative debris shall be disposed of on site at the location shown on the drawings.

Where the channel is located in improved areas (such as cropland, pasture, open land, highway right-of-ways, yards, etc.) or, areas where the existing woods are too narrow to properly dispose of the debris in a sightly manner, as determined by the Contracting Officer Representative or the Construction Inspector: the woody and vegetative debris shall be hauled off-site to a disposal area provided by the sponsoring local organization.

Also, when one side of the channel is through improved areas and the other side is woods, it is not permissible to dispose of the stream debris from the improved side on the side that is in woods (to avoid haul-off) unless prior approval is granted from the Contracting Officer Representative. Nor is it permissible to place debris on the property of others, to "pile up" debris, or to move debris upstream or downstream in improved areas to dispose of debris in wooded areas to avoid hauling off-site unless otherwise approved by the Contracting Officer Representative.

Debris shall not be placed on nature or hiking trails, nor sewer line, highway, or railroad rights-of-way, or any other improved area. Debris shall not be placed in tributaries or side ditches. The debris shall be placed in such a manner to prevent potential movement of the materials back into the floodway by subsequent high water flows. The Contractor shall leave openings in debris piles to allow lateral flow to the stream.

All non-vegetative debris and rubbish such as stoves, refrigerators, washing machines, other household goods, cars, tin, building material, etc. found within the limits of the debris cleanup area shall be hauled to a landfill or disposal area provided by the sponsoring local organization. All requirements of the landfill or disposal area shall be met. Unless other wise specifically approved by the receiving

landfill, all debris will have to be separated by woody, construction and demolition, "white goods", and tires prior to placement in the landfill.

Where petroleum or gas tanks, pesticide containers or other hazardous materials are found within the limits of debris cleanup, the contractor shall note the location of the tank, container, or material and notify the Construction Inspector. The contractor shall avoid disturbance or damage to the tank, container, or materials.

Alternative methods proposed by the Contractor for disposal of natural woody and other debris must be pre-approved by the Contracting Officer Representative prior to implementation.

6. ENVIRONMENTAL REQUIREMENTS

Where the use of heavy equipment is allowed, equipment shall operate adjacent to the stream and not within the stream unless prior approval is granted by the Contracting Officer Representative. Crossing a stream with equipment to gain access to the opposite bank is only allowed with the specific approval of the Contracting Officer Representative or Construction Inspector.

Unless otherwise directed, established beaver dams shall be "notched" from the top of the beaver dam to the channel bottom to lower the water level to facilitate the removal of debris. Established dams are generally those that have been in place long enough to have affected the native vegetation in the ponded area; i.e., non-wetland trees have died and may be identified by falling limbs, falling bark, woodpecker holes, etc. Established dams generally have been in place two or more growing seasons. New dams (those that have been in place less than two growing seasons and where trees in the ponded areas are not dead or there is not evidence as described for established dams) shall be completely removed. Should an area of the channel be encountered which is affected by beavers and it is unclear to the contractor whether the dam should be notched or removed; the Contracting Officer Representative or Construction Inspector shall be notified prior to any construction work in the impacted area. The COR or the Construction Inspector will make the determination. The debris removal limits, within the impacted area, shall be the same as other areas if the channel is well defined. In the areas where the width of the channel has been significantly altered by the effects of the beaver dam, the channel width is determined by the greater of the channel width immediately upstream or downstream of the impacted area.

Equipment shall be maintained to prevent fuel, oil, and lubricant spills. Refueling, repairs, and lubrication will be performed at safe distances from the stream. Should fuel leaks, oil leaks or hydraulic pipe rupture occur during construction, the Contractor's operators shall immediately remove the equipment to a safe area and take prompt action to minimize damage and safeguard the site. The contractor or his Superintendent shall immediately report the spill or discharge in accordance with the Special Provisions of this Contract; and the requirements of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

The Contractor shall provide tanks or barrels to be used for off-site disposal of chemical pollutants such as drained lubricating or transmission oils, greases, etc. produced as a by-product of this work. Washing, fueling or servicing of equipment shall be avoided where spillage or wash water can enter the watercourse.

7. SPECIAL REQUIREMENTS

The Contractor shall submit to the Contracting Officer for review and approval prior to construction, a construction schedule showing the sequence of all work by reaches to be performed.

The Contractor shall exercise care while working in the areas of existing lawns, roads, structures, utilities, railroads, other improvements and cropland. The Contractor shall be responsible for the prompt repair or replacement of any such improvements damaged by his/her operations.

Fences which must be removed for access shall be removed with the minimum damage practical and reinstalled as near to the original condition as possible immediately after construction access is no longer needed at the site.

In areas identified in Section 11 of this specification, or in the drawings, as "Hand Work"; boats, barges, portable winches, chainsaws, hand held tools, block and tackle, cables, log chains, etc., and manual labor will be allowed, unless the Contractor requests, in writing, approval for the use of heavy equipment at specific locations and the request is approved by the Contracting Officer Representative. Barges with equipment working from the deck of the barge may be used when the Contractor makes a written request and permission is given by the COR or the Construction Inspector. Disturbance of the stream banks and the stream bottom will be held to the minimum necessary to remove the debris.

Where the haul off of debris is required in improved areas at "Hand Work" sites, wheeled and/or tracked vehicles for removing, loading and hauling the debris off-site will be allowed at specified selected locations as designated by the Contracting Officer Representative or Construction Inspector.

The Contractor shall be responsible for complying with all applicable requirements of the NC Department of Transportation's Manual on Uniform Traffic Control Devices (M.U.T.C.D.) when work is performed on public right-of-ways. When equipment or personnel are operating on public right-of-way, flagmen shall be stationed to warn oncoming traffic of congestion. Proper construction road signs shall be in place. A means of removing sediment and/or debris from roadways shall be established. Sweep machines may remove residue deposited on roadways, manual sweeping methods or pressurized water. The Contractor shall be responsible for implementation of these measures.

8. REVEGETATION

All ground surface areas disturbed due to debris removal or equipment access shall be revegetated as directed by the Contracting Officer Representative or the Construction Inspector. Prior to revegetating, any ruts or other surface irregularities resulting from this operation shall be smoothed and the ground surface shall be returned to its original degree of uniformity as approved by the Contracting Officer Representative or the Construction Inspector. Some fill material may be required where the existing surface has been compacted to return the ground surface to its original degree of uniformity. Seeding and mulching will be done on a daily basis as the work is completed. If an area is disturbed by the contractor or the contractor's crew after it has been seeded and mulched the contractor shall reseed and remulch

the disturbed area at his own expense. Seedbed preparation shall not be required when seeding is performed immediately after final shaping. Seed, fertilizer and mulch shall be uniformly applied at the following rates per 1,000 square feet:

All areas except those revegetated as residential yards, parks, etc.:

Seeding date: September 1 - March 31

1.7 lbs. Kentucky 31 Tall Fescue
1.1 lbs. Pensacola Bahia Grass
12.0 lbs. 10-20-20 Fertilizer
70.0 lbs. Hay or Small Grain Straw Mulch

Seeding date: April 1- August 31

1.1 lbs. Kentucky 31 Tall Fescue
1.7 lbs. Pensacola Bahia Grass
12.0 lbs. 10-20-20 Fertilizer
70.0 lbs Hay or Small Grain Straw Mulch

Residential Yards, Parks, etc.

Seeding date: January 1 - December 31

1.1 lbs. Kentucky 31 Tall Fescue
2.0 ounces Centipede
12.0 lbs. 10-20-20 Fertilizer
70 lbs. Hay or Small Grain Straw Mulch

Should locality, climatic and/or ground conditions warrant, the Contracting Officer Representative or Construction Inspector may alter the planting dates to an earlier or later period, seed combinations or mulch requirements shown for more favorable vegetative results, subject to the approval of the Contracting Officer.

9. EQUIPMENT

Hydraulic excavators, if used, shall be low ground pressure (LGP) machines and be equipped with a stationary or mechanical thumb attachment or have a grapple. The use of rubber tired skidders will not be allowed without prior written approval of the Contracting Officer Representative. When the use of skidders is allowed, they shall be equipped with low ground pressure, high flotation tires.

Each work site shall have two-way communication capabilities. This requirement shall be met with cellular phones or two-way battery operated radios. Radios shall have a broadcast capability of a minimum of 5 watts and shall operate on a frequency of 151.625 MHz on the FM band. Alternate frequencies may be used subject to the approval of the Contracting Officer Representative.

10. MEASUREMENT AND PAYMENT

Method 1 Measurement and payment for Stream Debris Removal is lump sum for the item(s) described. Such payment shall be considered full compensation for all

labor, equipment, tools, materials, seeding, mulching, mobilization, demobilization and other items necessary and incidental to complete the work.

Method 2 Measurement for Stream Debris Removal will begin at the edge of the DOT right-of-way on each side of the roadway or other feature as shown on the drawings and go either upstream or downstream as determined by the direction of the work. The actual end point will be as determined by the Construction Inspector or the Contracting Officer Representative. Distances as scaled from the drawings are estimates only and will not be used for the purpose of determining payment. Distances will be continuous from each beginning point to each end point. Measurement will be to the nearest linear foot for each segment of Stream Debris Removal. Payment for Stream Debris Removal will be made to the nearest linear foot. Such payment shall be considered full compensation for all labor, equipment, tools, materials, seeding, mulching, mobilization, demobilization and other items necessary and incidental to complete the work.

11. **ITEMS OF WORK AND CONSTRUCTION DETAILS**

Items of work to be performed in conformance with this specification and the construction details therefor are:

Debris hauled off-site from improved areas shall be taken to the appropriate disposal site as follows:

Woody and construction and demolition type debris shall be taken to sites as specified by the Columbus Soil and Water Conservation District staff and the County of Columbus.

Appliances, other “white goods”, and tires shall be taken to the nearest Columbus County recycle center.

Where more than one channel or run exists along a reach of stream, the larger of the runs shall be cleared unless more than one channel is designated on the Site Location Map or specified herein. Debris removed from the principal run shall not be placed in or adjacent to other runs.

Work on these sites is not limited to “Hand Work” methods of debris removal; but, the contractor is required to use removal methods which will minimize disturbance of and environmental damage to the work site. Particular emphasis shall be given to protecting the channel bottom and banks and the adjoining debris removal and disposal areas as well as the associated wetlands. The Contracting Officer shall order the removal of any mechanized equipment or equipment operator from the job site whose performance is found to be unsatisfactory.

Project Bid Sheet

Bid Area
EWP 2020 – Group 1

Est. Footage
L Ft Varies

Bid

- Each work area can be individually priced however; bids must be for the total package.
- Estimated footage is approximate and varies from site to site. Linear footage is given for reference only.
- Please include references or any other pertinent documentation.
- Also, please include prior work experience, number of crews available to complete the work and the type of equipment readily available for use to complete this debris removal work. Use additional sheets as necessary.

Contractor's Name: _____

Contact Person: _____

Address: _____

Phone: _____

Prior Work: _____

Number of Crews: _____

Equipment Available: _____

Notes/Comments: _____

Signature: _____