

AI: 84693

Rec'd via email:
02/26/2024

**MAJOR MODIFICATION FORM
FOR LARGE CONSTRUCTION GENERAL PERMIT**
Coverage No. MSR10 9 0 7 3 County Marshall



MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

INSTRUCTIONS

Coverage recipients shall notify the Mississippi Department of Environmental Quality at least 30 days in advance of the following activities (check all that apply). This form should be submitted with a modified Storm Water Pollution Prevention Plan (SWPPP), updated USGS topographic map, Corps of Engineers Section 404 documentation and wastewater collection and treatment information, as appropriate.

- SWPPP details have been developed and are ready for MDEQ review for subsequent phases of an existing, covered project.
- "Footprint" identified in the original LCNOI is proposed to be enlarged.

This form must be signed by the current coverage recipient under Mississippi's Large Construction General Permit. A different developer of new phases of existing subdivisions must apply for separate permit coverage through the submittal of a new complete LCNOI package. Coverage recipients are authorized to discharge storm water associated with proposed expansions of existing subdivisions or subsequent phases, under the conditions of the General Permit, only upon receipt of written notification of approval by MDEQ. All other modifications, such as changes of erosion and sediment controls used, must be in accordance with ACT6, S-1 (6) and S-2 (7) of the General Permit.

ALL INFORMATION MUST BE COMPLETED (indicate "N/A" where not applicable)

COVERAGE RECIPIENT INFORMATION

COVERAGE RECIPIENT CONTACT NAME: Mr. John Porter TEL # (901) 277-8743
 COMPANY NAME: Chickasaw Marshall Investments, LLC
 STREET OR P.O. BOX: 9695 Poplar Ave.
 CITY: Gertmantown STATE: TN ZIP: 38139 E-MAIL: johnporter253@gmail.com

PROJECT INFORMATION

PROJECT NAME: Chickasaw Subdivision - Phase I
 CITY: Highway 302 & Barringer Road, Marshall County
 ADDITIONAL ACREAGE TO BE DISTURBED: 5.33 TOTAL PROJECT ACREAGE: 28.90

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

JP
Signature (must be signed by coverage recipient)

1-23-24
Date

John Porter
Printed Name

Member
Title

Please submit this form to:

Chief, Environmental Permits Division
MS Department of Environmental Quality, Office of Pollution Control
P.O. Box 2261
Jackson, Mississippi 39225

O.C

STORM WATER POLLUTION
PREVENTION PLAN
(SWPPP)

CONSTRUCTION STORM WATER
GENERAL NPDES PERMIT

FOR

Chickasaw Business Center
Chickasaw Marshall Investments, LLC
Marshall County, Mississippi

February 2024

PREPARED BY:

Headwaters, Inc.
P. O. Box 2836
Ridgeland, Mississippi 39158
(601) 634-0097



HEADWATERS

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I. INTRODUCTION

The purpose of the Storm Water Pollution Prevention Plan (SWPPP) is to provide a site-specific description of the best management practices to prevent contamination of the site storm water flows from potential pollutants associated with construction activities. The SWPPP has been prepared for Chickasaw Marshall Investments, LLC, as a Major Modification to the permit coverage MSR109073 for Chickasaw Business Center issued on November 13, 2023. The modification is needed for the following reasons:

- The construction activity will be modified from clearing and grubbing only to site grading. 28.90 acres of previous permitted area will be graded for the construction of Phase I of the Chickasaw Subdivision. Grading will only take place within the 28.90-acre subdivision project area. The remaining portions of the site will not be graded, and vegetative buffers will remain in place.
- The original footprint/disturbed acres will be expanded. The additional footprint includes the non-jurisdictional ephemeral feature along with its associated vegetative buffers and the non-jurisdictional impoundment as shown on the MVK-2019-844 Approved Jurisdictional Determination (AJD) dated February 7, 2024, from the U.S. Army Corps of Engineers (USACE) Vicksburg District.

Headwaters, Inc. has developed this SWPPP to incorporate the grading plans and routine construction activities associated with the proposed project development plans of Phase I of Chickasaw Subdivision and associated grading (28.90 acres) within the Chickasaw Business Center (171.71 acres). The plan also outlines implementation, inspection, and maintenance requirements. The erosion and sediment control practices should be monitored, and the plan should be revised if storm water compliance is not achieved.

II. SITE ASSESSMENT

- A. **Location:** The site is a proposed subdivision in Marshall County, Mississippi. More particularly, the proposed site is south of MS Highway 302, North of Dogwood Road, east of Barringer Road, and west of Interstate 269. The following GPS coordinates can be used to locate the project area: 34.9550919427, -89.6474594675.
- B. **Description of Work:** The project will involve the construction of Phase I of a residential subdivision. Clearing and grubbing of all vegetative

material within 171.71 acres of the site is covered under the previous permit coverage. The modification to this coverage will include the grading of 28.90 acres for the construction of Phase I of the Chickasaw Subdivision. Of the 28.90 acres, 5.33 acres are included in the vegetative buffers established in the previous coverage and the features contained in the buffers. These buffers and features will now be disturbed and inside the grading limits. The boundary of the subdivision can be seen in Appendix II. The project will involve the mass grading of the subdivision boundary for the residential home lots, roads, parking, and other associated project needs. Individual lot controls, perimeter controls (silt fence), and a sediment basin.

- C. **Potential Pollution Sources:** The most significant potential pollutants are soil particles subject to removal by storm water. Other potential pollutants subject to removal by storm water are spilled fuel and lubricants. Material may also be inadvertently tracked off-site or blown off-site when distributed by hauling equipment. The storm water, which leaves the site, shall meet the non-numeric limitations of being free from oil, scum, debris, other floating materials, and eroded soils.
- D. **Non-Storm Water Solid Materials:** The on-site generation of solid materials will be minimal, and its proper disposal will be closely monitored. All solid waste will be taken off-site for proper disposal.
- E. **Drainage Patterns:** The 28.90-acre project area and associated 43-acre offsite drainage area will drain to an approximately 590,000 cu. ft. temporary sediment basin allowing for a capacity of 8,194 cubic feet per acre. There will be separate principal and auxiliary outlets. The principal spillway will be a 60-inch pipe at 350.6 feet above MSL. A Faircloth skimmer will be connected to this pipe during construction to filter sediment. Post construction, the pipe alone will allow for the surface draw of stormwater. The temporary sediment basin will be converted to a permanent detention pond post construction. The outflow of the basin/pond will be at an elevation of 348 feet above MSL and directed through a riprap lined ditch into the remaining portion of the ephemeral feature east of the project site. The auxiliary (emergency) spillway will have an inlet elevation at 356.2 feet above MSL, a width of 25 feet, and side slopes at 5:1. The permanent detention pond will service phase I of the subdivision and future phases if capacity allows.
- F. **Receiving Waters:** In accordance with the MDEQ 2022 303 (d) list of impaired streams, the unnamed tributaries nor Nonconnah Creek of the

Yazoo Basin (HUC# 08030204) are on the current list. Based on the BMPs that will be utilized for this development, adverse impacts to the unnamed tributaries and Nonconnah Creek are not anticipated. **Nonconnah Creek (HUC# 08010211) within the Hatchie-Obion Basin, located northwest of the site, is on list of impaired streams. This tributary shares the same name as the receiving stream of the subject project. Not to be mistaken, the two streams are in separate drainage basins, and the receiving stream for the subject project is not on the MDEQ 2022 303 (d) list of impaired streams and does not have a completed TMDL.**

- G. Wetlands:** The entire property has been delineated and is predominantly upland (non-wetland) in nature. The AJD from the USACE dated February 7, 2024, states all features within Phase I of the Chickasaw Subdivision to be non-jurisdictional. No USACE permit will be required to impact these areas. The AJD can be seen in **Appendix IV**. An antidegradation report will be submitted to MDEQ for the fill/impact of the ephemeral streams and pond within the subdivision boundary. All features outside Phase I of the Chickasaw Subdivision will be avoided and vegetative buffers will remain from the previous coverage. Future disturbance in those areas will be covered by the appropriate USACE permit and subsequent major modification form once the Corps of Engineers Section 404 documentation is received.

III. BEST MANAGEMENT PRACTICES (BMPs)

- A. Erosion and Sediment Control:** Construction activities shall not cause more than minimal and temporal water quality degradation of any adjacent wetlands, stream, or water body. Appropriately chosen and installed erosion and sediment control BMPs will be used to prevent sediment from leaving the site or entering adjacent wetlands or other waters. All BMPs implemented for the site will be in accordance with the standards set forth in the most current edition of the MDEQ "Planning and Design Manual for the Control of Erosion, Sediment and Storm Water." The contractor will be responsible for installing, inspecting, and maintaining the erosion and sediment controls for the duration of the project until final stabilization of the site is achieved, and a Notice of Termination has been issued by MDEQ. The site plan found in Appendix II will detail where each BMP will be used. Additional control measures could include but are not limited to the use of secured hay wattles, sediment/silt fencing, wooden or vinyl barriers and/or seeding or sodding of exposed or disturbed areas.

1. Structural Practices

- Construction Entrance/Exit (Rock) (Temporary Practice) - A temporary construction entrance will be utilized as shown on the site plan. Aggregate will be at least six (6) inches thick and 50 feet long using DOT#1 coarse aggregate. The entrance will be inspected weekly and periodic top dressing with new gravel may be necessary when it becomes clogged with dirt and/or debris to prevent the tracking of mud and dirt onto the roadway. In addition, dirt and debris that accumulates on the roadway will be removed **immediately**. The GP interprets **immediately to mean no later than the next workday**.
- Silt Fence (Temporary Practice) - Silt fence will be installed as shown on the site plan. Sediment will be removed when it reaches one third to one half the height of the barrier. **All removed sediment deposits shall be properly disposed within the project site and in accordance with this plan.**
- Rock Checks (Temporary Practice) - Rock Checks are not planned to be installed at this time but could be used on an as needed basis. **If used, all removed sediment deposits shall be properly disposed within the project site and in accordance with this plan.**
- Sediment Basin (Temporary Practice) The 28.90-acre project area and associated 43-acre offsite drainage area will drain to an approximately 590,000 cu. ft. temporary sediment basin allowing for a capacity of 8,194 cubic feet per acre. There will be separate principal and auxiliary outlets. The principal spillway will be a 60-inch pipe at 350.6 feet above MSL. A Faircloth skimmer will be connected to this pipe during construction to filter sediment. Post construction, the pipe alone will allow for the surface draw of stormwater. The temporary sediment basin will be converted to a permanent detention pond post construction. The outflow of the basin/pond will be at an elevation of 348 feet above MSL and directed through a riprap lined ditch into the remaining portion of the ephemeral feature east of the project site. The auxiliary (emergency) spillway will have an inlet elevation at 356.2 feet above MSL, a width of 25 feet, and side slopes at 5:1. The permanent detention pond will service phase I of the subdivision and future phases if capacity allows.

- Fueling and Vehicle Maintenance Locations - Fueling and vehicle maintenance areas shall use BMPs for industrial activities to ensure that pollutants do not impact the storm water runoff. Impervious dikes and berms shall be used to contain potential spills. Drums and containers for holding and transporting contaminated materials should be on site.

2. Vegetative Practices

- **Vegetated Buffers - Vegetative buffers will remain along all features outside the subdivision project area.**
 - Temporary Seeding (Temporary Practice) - Soil stabilization-vegetative stabilization measures must be initiated whenever any clearing, grading, grubbing, excavation, or other land disturbing activities have temporarily or permanently ceased on any portion of the site and will not resume for a period of fourteen (14) calendar days or more. The appropriate temporary or permanent vegetative practices shall be initiated **immediately**. **MDEQ defines immediately to mean no later than the next workday.**
 - Mulching (Temporary) - Mulch will not be used inside the subdivision footprint.
 - Permanent Seeding - Permanent stabilization measures shall be initiated in a project area as soon as construction activities have permanently ceased. When weather and/or logistical factors prevent immediate stabilization, measures should be initiated no later than 14 days after the construction activity in that portion of the site has permanently ceased. **In accordance with the GP, in areas where heavy equipment is utilized, the top 4 inches of the soil bed should be tilled before re-vegetation. Topsoil will be stockpiled and used in areas that will be re-vegetated.**
- B. **Spill Prevention and Response Procedures:** If single wall tanks are used, then secondary containment measures shall be implemented. Double-wall tanks do not require secondary containment measures. If on-site above ground oil storage (gasoline, diesel, hydraulic, transformer, etc.) exceeds either 660 gallons in a single container or exceeds 1,320 gallons in aggregate storage, a SPCC plan would be required.
- C. **Operation and Maintenance:** The best management practices and outfalls/discharge points must be properly installed and maintained as designed and inspected after rain events that produce a discharge and at least weekly for a minimum of four (4) inspections per month. Any poorly functioning erosion or sediment controls, non-compliant discharges, or any other deficiencies observed during the inspections shall be corrected as soon as possible, but not to exceed 24 hours of the

inspection unless prevented by unsafe weather conditions as documented on the inspection form.

- D. **Record Keeping:** Records shall be retained for three years of all maintenance activities, spills, and inspections, including a description of the quality and quantity of storm water.
- E. **Employee Training:** **The Permittee understands the requirements of the GP as it pertains to installation, routine maintenance, corrective action, and weekly inspections and will make sure that their contractors understand the need for Permit compliance in accordance with General Permit Act5 T-20 and T-21.** Pre-construction training with all on-site workers is required to discuss the requirements and responsibilities of all environmental permitting required by the project. A training roster must be signed and maintained on site. All employees joining the project after the initial meeting must receive the environmental training and sign the roster.
- F. **Housekeeping Practices:** Pollutants that may enter storm water from construction sites because of poor housekeeping include oils, grease, paints, gasoline, solvents, litter, debris, and sanitary waste. During construction activities, the contractor is required to:
1. designate areas for equipment maintenance and repair
 2. provide waste receptacles at convenient locations and provide regular collection of waste
 3. provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials
 4. provide adequately maintained sanitary facilities
 5. designate an area for concrete truck wash off
 6. streets will be swept as needed to remove sediment or other debris that has been tracked from construction site. **No later than the next workday.**
 7. sediment or other pollutants will be periodically removed from control measures, **when deposits reach one-third to one-half the height of the control, conveyance channels, or storm drain inlets.**
 8. **All removed sediment deposits shall be properly disposed of in accordance with this plan. Nonfunctioning controls shall be repaired, replaced or supplemented with functioning controls within twenty - four (24) hrs of discovery or as soon as field conditions allow.**
 9. **Designate areas for stockpiling of topsoil and install silt fence around stockpile. Topsoil should be stockpiled and used in areas that will be**

re-vegetated. When final grade is reached the stockpiled topsoil shall be redistributed to a minimum depth of 2 inches on 3:1 slopes and 4 inches on flatter slopes.

IV. CONSTRUCTION SEQUENCE

Below is the construction sequence for this project. This sequence could change depending on the sequence of letting bids, contracting, etc. An updated construction sequence will be submitted to MDEQ if changes occur.

1. Obtain plan approval and all other permits as needed.
2. Have a pre-construction conference to review all needed BMPs.
3. Install the construction entrances as shown on the plans.
4. Install all erosion and sediment controls as indicated on the site plan **prior to site grading.**
5. Begin site work.
6. Perform weekly reviews of site conditions along with erosion and sediment practices to ensure compliance with the SWPPP. Inspection reports will be kept on site with an updated SWPPP.
7. As site is cleared, maintain BMPs as needed to ensure minimal erosion and sedimentation problems.
8. Perform any temporary seeding as needed and instructed throughout the construction process.
9. Final grading, seeding, sodding, mulching, and fertilizing.
10. Ensure final stabilization is achieved within the project site.
11. Removal of any temporary measures.

V. IMPLEMENTATION SCHEDULE

A. **Structural Measures:** The non-existing structural measures shall be installed as the weather permits, and the existing measures shall be re-conditioned as well. General implementation principles are:

1. install down-slope and perimeter controls before other site work
2. divert upslope water around area before major site grading
3. do not disturb an area until it is necessary
4. time construction activities to limit impact from seasonal weather
5. cover or stabilize disturbed area as soon as possible
6. do not remove temporary controls until after site stabilization
7. The permittee shall limit clearing, excavation, and the placement of fill materials to areas essential to the project. The remainder of the property shall be left in its natural state.

- B. **Proof of Coverage:** A copy of the Large Construction Storm Water General Permit certificate and a copy of the Storm Water Pollution Prevention Plan should be kept onsite or locally available. Copies of these documents are provided in the Appendix.

VI. INSPECTIONS AND REPORTING

- A. **Inspections:** Inspections of the best management practices and other storm water pollution prevention plan requirements shall be performed as follows:
1. At least weekly for a minimum of four inspections per month.
 2. After a rainfall event that produces a discharge and as often as necessary to ensure that appropriate erosion and sediment controls have been properly implemented and maintained.

The minimum inspection requirement in no way relieves the permittee of performing whatever inspections are needed to ensure safe and pollution free facility operation.

- B. **Reporting:** The owner and/or contractor must inspect, as described in the section above, and maintain controls and prepare weekly reports noting damages or deficiencies and corrective measures. These inspection reports are kept on-site until the Request for Termination (RFT) form is submitted.

As previously stated, all records, reports, and information resulting from activities required by this plan and the issued permit shall be retained for at least three years from the date of the CNOI, inspection, or report.

A rain gauge shall be placed in a central location on the site and used to obtain rainfall amounts. This information will be needed for proper completion of the inspection report.

VII. REVISIONS

The storm water pollution prevention plan will be kept current by the company representative and will be revised as changes in site conditions warrant. The company representative may notify the SWPPP developer for assistance when necessary. Factors that would compel the SWPPP to be modified include:

- Inadequacies revealed by routine inspections.
- Changes in identified sources, non-storm water discharges, or non-storm water solid wastes.
- MDEQ Office of Pollution Control notification that the plan does not meet one or more of the minimum requirements.
- Changes in design, construction, operation, or maintenance, which has affected the discharge of pollutants to waters of the State and which were not otherwise addressed in the SWPPP.
- Identification of any new contractor and/or subcontractor that will implement a measure of the SWPPP.
- Install additional erosion and sediment controls when existing controls prove to be ineffective.
- Any additions, removals, or modifications to construction entrances as shown on the site plans.
- All revisions to the SWPPP must be approved by the company representative.

A plan revision will be completed within 30 days of the date if determined that a revision is warranted. If the modification is in response to a request by the Office of Pollution Control (OPC), the permittee must submit to the OPC certification that the requested changes have been made.

VIII. TERMINATION OF COVERAGE

Within thirty (30) days of final stabilization, the Office of Pollution Control must be notified by a completed Request for Termination (RFT) of Coverage form (copy provided). MDEQ staff will inspect the site and if no sediment or erosion problems are identified and adequate permanent controls are established, the owner or operator will receive a termination letter. Coverage is not terminated until notified in writing by MDEQ. Failure to submit an RFT form is a violation of permit conditions.

IX. APPENDIX I - LOCATION MAPS

Mid-South Ag Equipment

Frontage Rd

Shell

Farley Rd

Anger Rd








Dogwood Rd

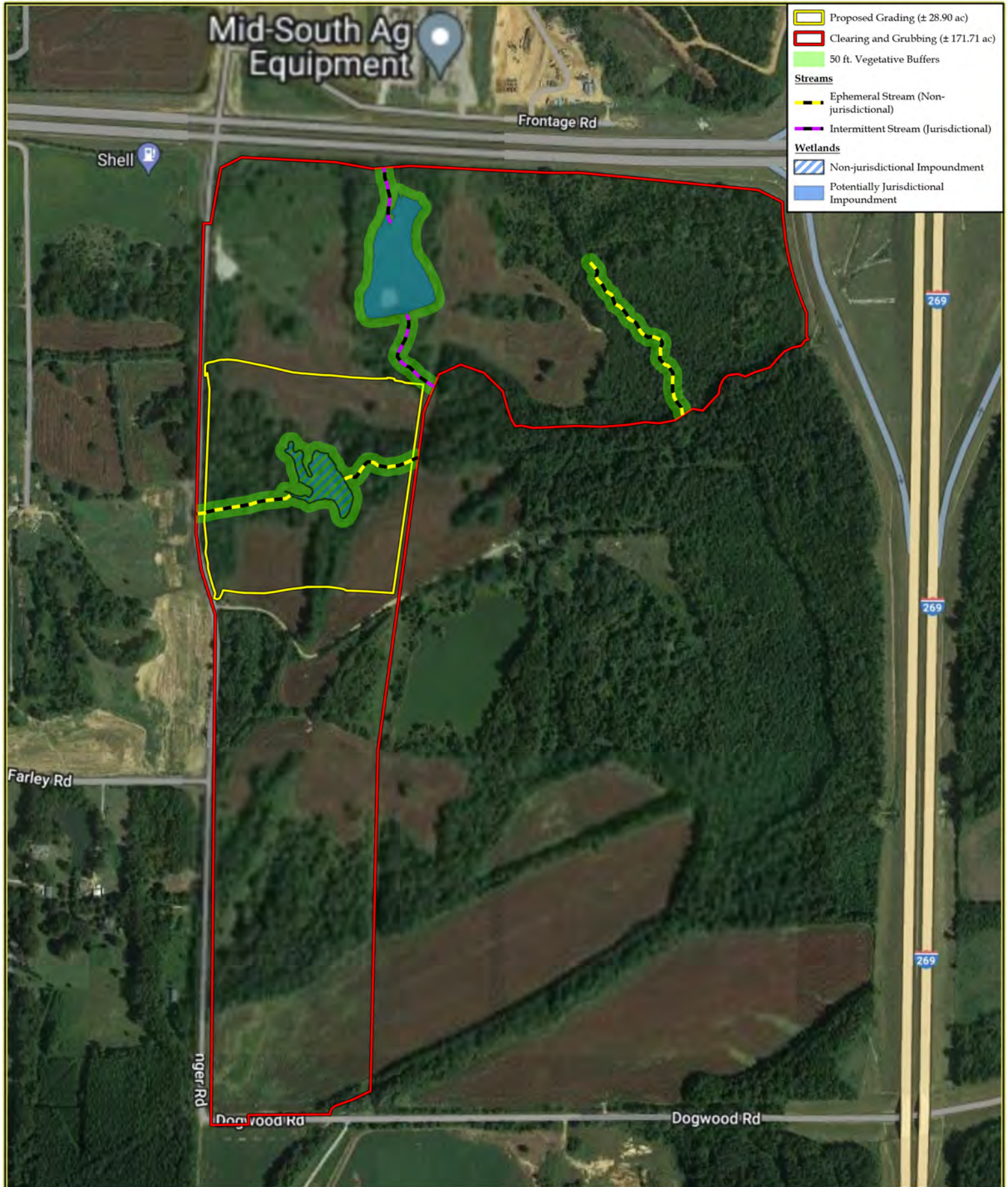
Dogwood Rd

269

269

269

-  Proposed Grading (± 28.90 ac)
-  Clearing and Grubbing (± 171.71 ac)
-  50 ft. Vegetative Buffers
- Streams**
-  Ephemeral Stream (Non-jurisdictional)
-  Intermittent Stream (Jurisdictional)
- Wetlands**
-  Non-jurisdictional Impoundment
-  Potentially Jurisdictional Impoundment

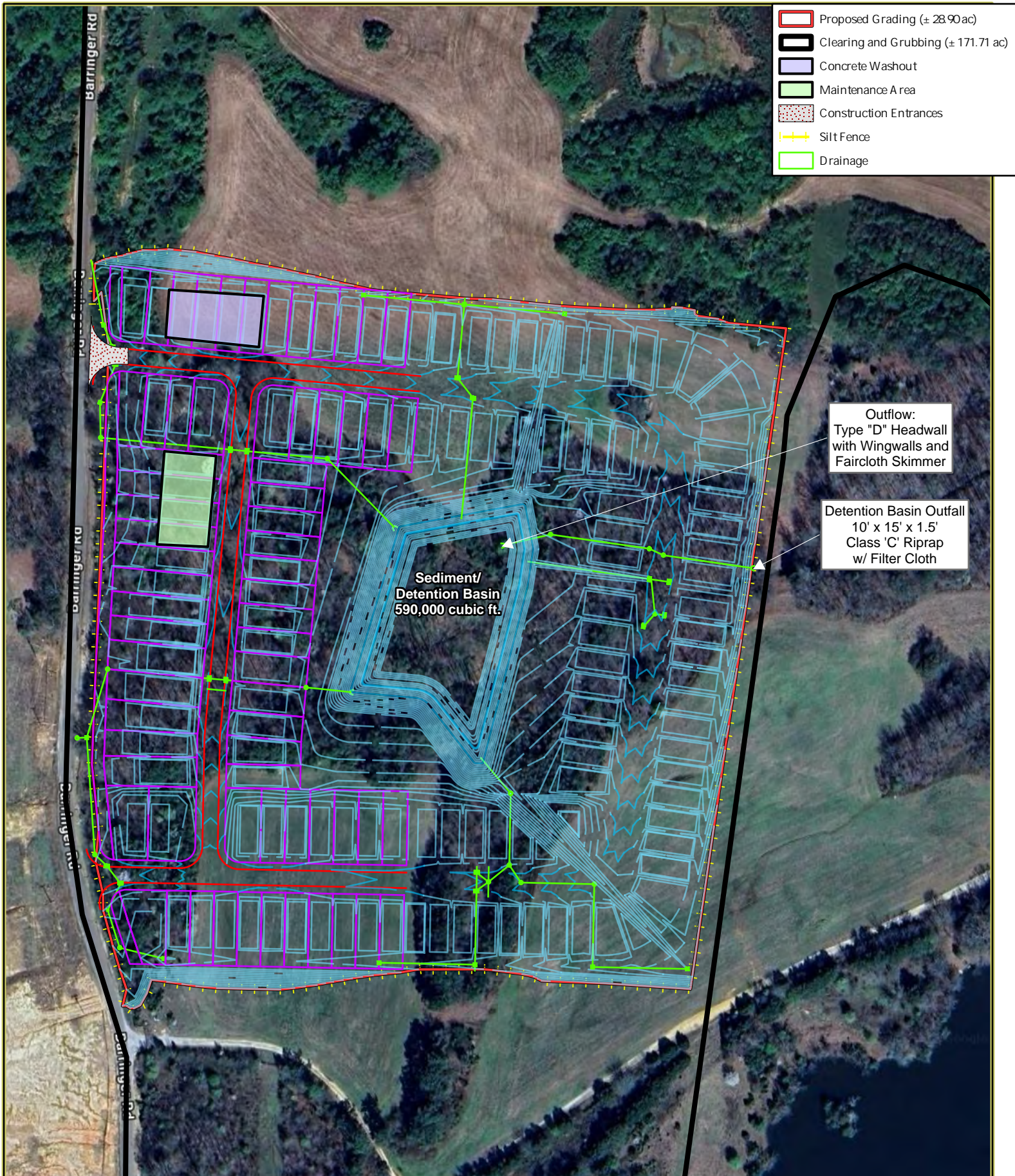


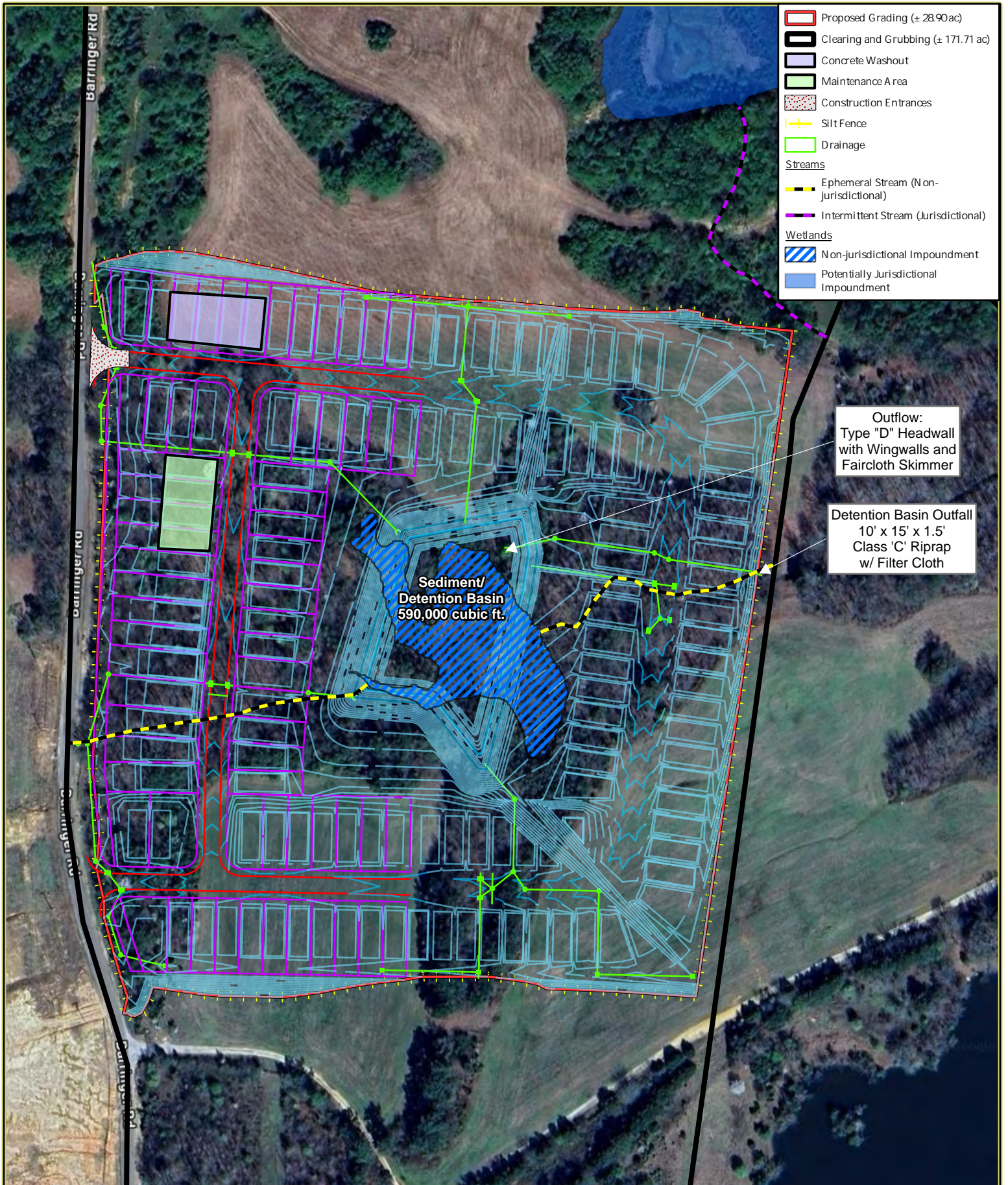
Chickasaw Marshall Investments, LLC
 Chickasaw Subdivision Phase I
 Section 5, Township 2 South, Range 4 West
 Marshall County, Mississippi
Project Area Modification Map

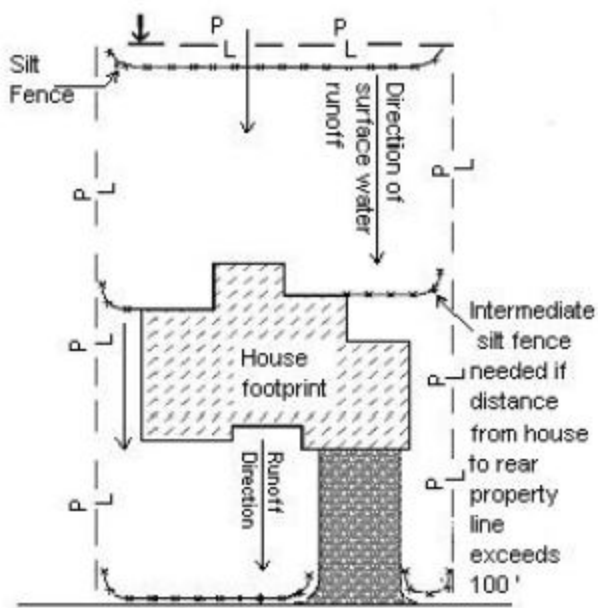
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 Google Imagery Hybrid

Date Created: 2/12/2024 Created by: MKN

X. APPENDIX II - STORM WATER MANAGEMENT PLANS







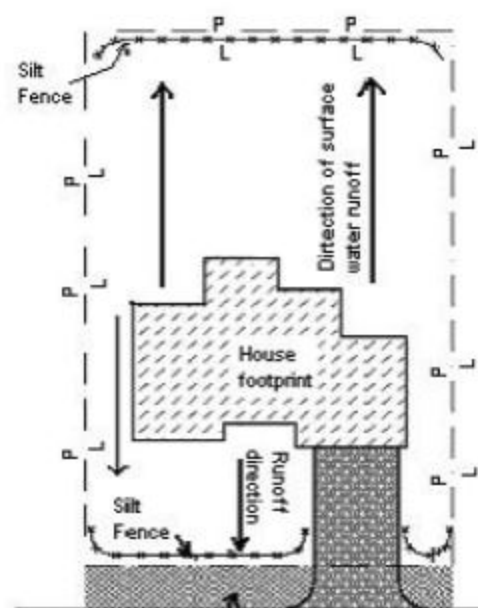
Street

----- Silt Fence

Gravel construction entrance

← Runoff direction

P
L Property Line



An erosion control mat will be placed at this critical area (steep slope) in order to establish grass

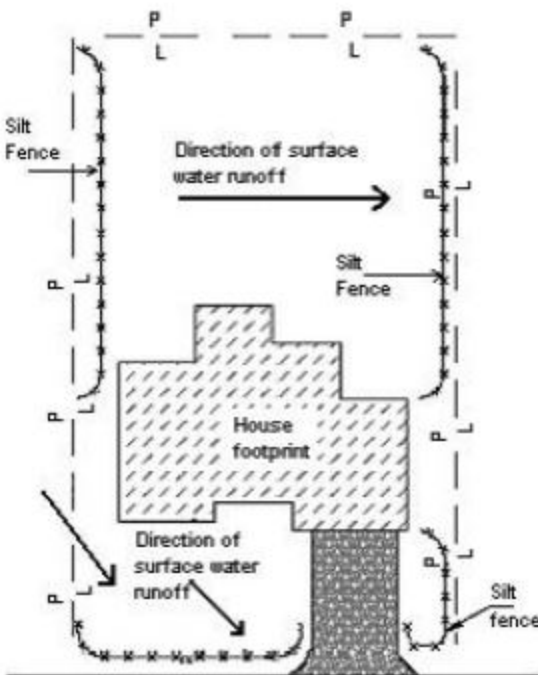
----- Silt fence

Gravel construction entrance

← Direction of surface water runoff

Erosion control mat

P
L Property Line



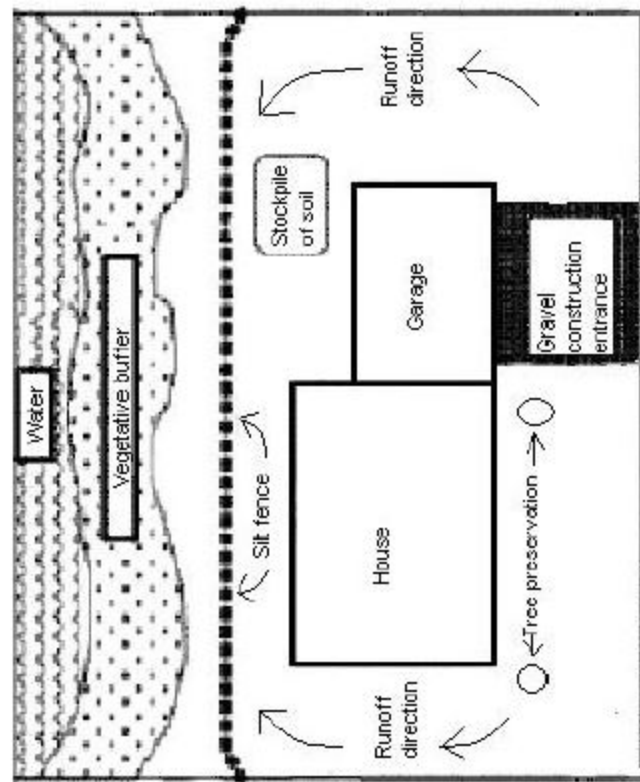
Street

----- Silt fence

Gravel construction entrance

← Direction of surface water runoff

P
L Property Line



All disturbed areas will be temporarily seeded with ryegrass. After final grade has been reached, all disturbed areas will be sodded with bermuda grass.

XI. APPENDIX III - SOIL REPORT



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Marshall County, Mississippi**

Chickasaw Subdivision Phase I



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

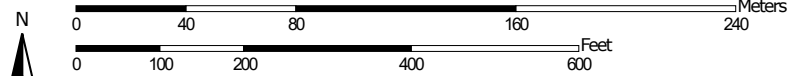
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:2,750 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Marshall County, Mississippi
 Survey Area Data: Version 21, Sep 9, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 1, 2020—May 9, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|------------------------------------|---|--------------|----------------|
| LoB2 | Loring silt loam, 2 to 5 percent slopes, moderately eroded, central | 2.6 | 8.9% |
| LoD3 | Loring silt loam, 8 to 12 percent slopes, severely eroded | 26.3 | 91.0% |
| Va | Vicksburg silt loam | 0.0 | 0.2% |
| Totals for Area of Interest | | 28.9 | 100.0% |

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

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landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Marshall County, Mississippi

LoB2—Loring silt loam, 2 to 5 percent slopes, moderately eroded, central

Map Unit Setting

National map unit symbol: 2x0tr
Elevation: 170 to 660 feet
Mean annual precipitation: 52 to 58 inches
Mean annual air temperature: 60 to 66 degrees F
Frost-free period: 180 to 290 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Loring and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loring

Setting

Landform: Loess hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Noncalcareous loess

Typical profile

Ap - 0 to 5 inches: silt loam
Bt - 5 to 27 inches: silty clay loam
Btx - 27 to 56 inches: silt loam
C - 56 to 80 inches: silt loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: 27 to 33 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F134XY012AL - Northern Loess Fragipan Upland - PROVISIONAL, F134XY013AL - Northern Loess Fragipan Terrace - PROVISIONAL
Hydric soil rating: No

Minor Components

Providence

Percent of map unit: 5 percent
Landform: Loess hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F134XY012AL - Northern Loess Fragipan Upland - PROVISIONAL, F134XY013AL - Northern Loess Fragipan Terrace - PROVISIONAL
Hydric soil rating: No

Memphis

Percent of map unit: 3 percent
Landform: Interfluves, terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, riser
Down-slope shape: Linear
Across-slope shape: Convex, linear
Ecological site: F134XY003AL - Northern Loess Interfluve - PROVISIONAL, F134XY007AL - Northern Loess Terrace - PROVISIONAL
Hydric soil rating: No

Byram

Percent of map unit: 1 percent
Landform: Loess hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F134XY012AL - Northern Loess Fragipan Upland - PROVISIONAL
Hydric soil rating: No

Grenada

Percent of map unit: 1 percent
Landform: Stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F134XY012AL - Northern Loess Fragipan Upland - PROVISIONAL, F134XY013AL - Northern Loess Fragipan Terrace - PROVISIONAL
Hydric soil rating: No

LoD3—Loring silt loam, 8 to 12 percent slopes, severely eroded

Map Unit Setting

National map unit symbol: m2br
Elevation: 80 to 620 feet
Mean annual precipitation: 60 to 75 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 270 to 335 days
Farmland classification: Not prime farmland

Map Unit Composition

Loring, severely eroded, and similar soils: 90 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loring, Severely Eroded

Setting

Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess deposits

Typical profile

H1 - 0 to 3 inches: silt loam
H2 - 3 to 19 inches: silty clay loam
H3 - 19 to 64 inches: silt loam
H4 - 64 to 72 inches: silt loam

Properties and qualities

Slope: 8 to 12 percent
Depth to restrictive feature: 14 to 35 inches to fragipan
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 32 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F134XY012AL - Northern Loess Fragipan Upland - PROVISIONAL, F134XY105MS - Southern Rolling Plains Loess Fragipan Upland - PROVISIONAL
Hydric soil rating: No

Minor Components

Unnamed hydric soils (134dr)

Percent of map unit: 2 percent
Landform: Drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Va—Vicksburg silt loam

Map Unit Setting

National map unit symbol: m2c8
Elevation: 280 to 590 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 230 to 290 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Vicksburg and similar soils: 85 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vicksburg

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 55 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.1 inches)

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Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: C

Ecological site: F134XY018AL - Northern Alluvial Flat - PROVISIONAL

Hydric soil rating: No

Minor Components

Rosebloom

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (three-dimensional): Tread, dip

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F134XY020AL - Northern Wet Alluvial Flat - PROVISIONAL

Hydric soil rating: Yes

Collins

Percent of map unit: 3 percent

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F134XY018AL - Northern Alluvial Flat - PROVISIONAL

Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit (Chickasaw Subdivision Phase I)

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

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In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

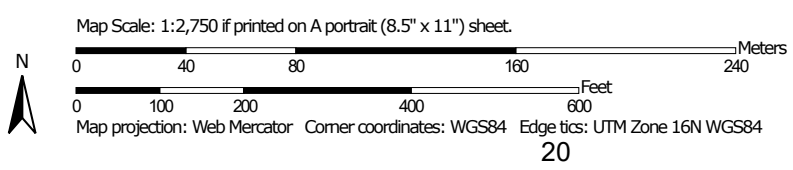
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Map—Hydric Rating by Map Unit (Chickasaw Subdivision Phase I)




Soil Map may not be valid at this scale.









MAP LEGEND

Area of Interest (AOI)







 Area of Interest (AOI)

Soils







Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available






Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Marshall County, Mississippi
 Survey Area Data: Version 21, Sep 9, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 1, 2020—May 9, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydric Rating by Map Unit (Chickasaw Subdivision Phase I)

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|------------------------------------|---|--------|--------------|----------------|
| LoB2 | Loring silt loam, 2 to 5 percent slopes, moderately eroded, central | 0 | 2.6 | 8.9% |
| LoD3 | Loring silt loam, 8 to 12 percent slopes, severely eroded | 2 | 26.3 | 91.0% |
| Va | Vicksburg silt loam | 5 | 0.0 | 0.2% |
| Totals for Area of Interest | | | 28.9 | 100.0% |

Rating Options—Hydric Rating by Map Unit (Chickasaw Subdivision Phase I)

Aggregation Method: Percent Present

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Percent Present" returns the cumulative percent composition of all components of a map unit for which a certain condition is true. For example, attribute "Hydric Rating by Map Unit" returns the cumulative percent composition of all components of a map unit where the corresponding hydric rating is "Yes". Conditions may be simple or complex. At runtime, the user may be able to specify all, some or none of the conditions in question.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

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The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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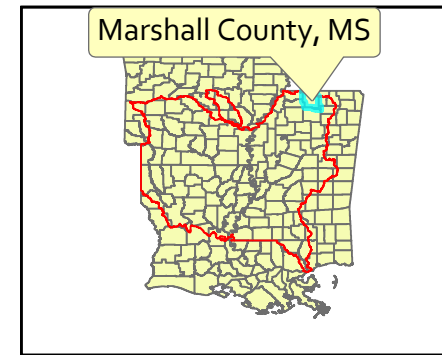
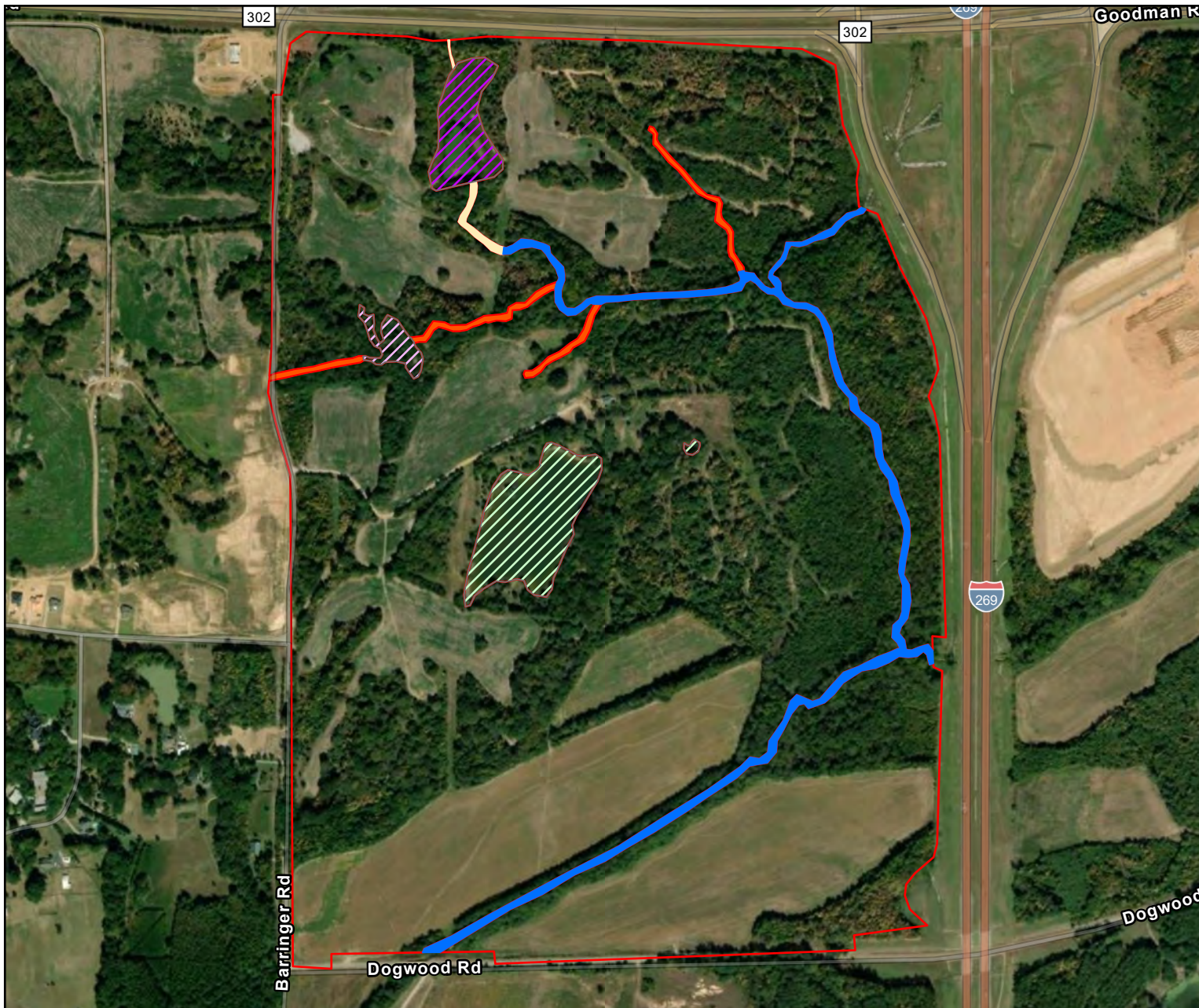
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XII. APPENDIX IV - MVK-2019-844 AJD

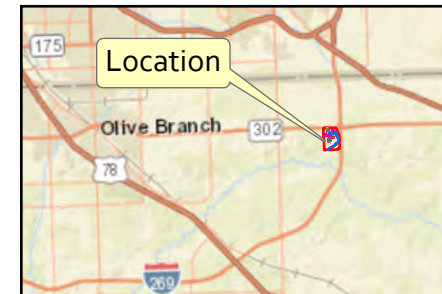




07 FEBRUARY 2024
 MVK-2019-844

Headwaters Inc.
 Warana Capital, LLC
 Marshall County, MS

Approved Jurisdictional
 Determination/Delineation
 Concurrence

Jeremy Stokes












**US Army Corps
 of Engineers®**

REGULATORY DIVISION
 MISSISSIPPI BRANCH

0 500 1,000
 Feet

Project Files

-  Non-Jurisdictional Preamble Ponds (8.61 acres)(Approved JD)
-  Non-Jurisdictional Impoundment (1.3 acres)(Approved JD)
-  Non-Jurisdictional Ephemeral Feature/Non-RPW (3,217')(Approved JD)
-  Potentially Jurisdictional Impoundment (4.33 acres)(Delineation Concurrence)
-  Potentially Jurisdictional Perennial Tributary/RPW (8,704')(Delineation Concurrence)
-  Potentially Jurisdictional Intermittent Tributary /RPW (815')(Delineation Concurrence)
-  Property Boundary

Scale: 1:10,000

XIII. APPENDIX V - SEEDING CHART FOR STATE OF MS

SEEDING CHART FOR THE STATE OF MISSISSIPPI

*For a more comprehensive vegetation schedule, see “Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas (Three Volumes)”

| SPECIES | SEEDING RATE/ACRE | PLANTING TIME | DESIRED pH RANGE | FERTILIZATION RATE/ACRE | METHOD OF ESTABLISHMENT | ZONE OF ADAPTABILITY | NATIVE/INTRODUCED |
|----------------------------|----------------------------------|---------------------------|------------------|-------------------------|-------------------------|----------------------|---|
| Common Bermuda | 15 lbs. alone 10 lbs. mixture | 3/1 - 7/15 9/1 - 11/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed or sod | All | Introduced *Potential for Invasiveness |
| Bahia | 40 lbs. alone 30 lbs. mixture | 3/1 - 7/15 9/1 - 11/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | Central & South | Introduced |
| Fescue | 40 lbs. alone 30 lbs. mixture | 9/1 - 11/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | North & Central | Native |
| Saint Augustine | -- | 3/1 - 7/15 | 6.0 - 7.0 | 600 lbs. 13-13-13 | sod only | Central & South | Native |
| Centipede | 4 lbs. alone 2.5 lbs. mix | 3/1 - 7/15 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed or sod | All | Introduced |
| Carpet Grass | 15 lbs. alone 10 lbs. mixture | 3/1 - 7/15 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed or sod | All | Native |
| Zoysia Grass | -- | 3/1 - 7/15 | 6.0 - 7.0 | 600 lbs. 13-13-13 | sod only | All | Introduced |
| Creeping Red Fescue | 30 lbs. alone 22.5 lbs. mix | 9/1 - 11/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | All | Native |
| Weeping Lovegrass | 10 lbs. alone 5 lbs. mix | 3/1 - 7/15 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | All | Introduced |
| Sericea Lespedeza | 40 lbs. | 3/1 - 7/15 9/1 - 11/30 | 6.0 - 7.0 | 400 lbs. 6-24-24 | seed | All | Introduced |
| *Wheat | 90 lbs. alone | 9/1 - 11/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | All | Native |
| *Ryegrass | 30 lbs. | 9/1 - 11/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | All | Native |
| *White Clover | 5 lbs. | 9/1 - 11/30 | 6.0 - 7.0 | 400 lbs. 6-24-24 | seed | All | Introduced |
| *Crimson Clover | 15 lbs. | 9/1 - 11/30 | 6.0 - 7.0 | 400 lbs. 6-24-24 | seed | All | Introduced |
| *Hairy Vetch | 30 lbs. | 9/1 - 11/30 | 6.0 - 7.0 | 400 lbs. 6-24-24 | seed | All | Introduced |
| *Browntop Millet | 40 lbs. alone 15 lbs. mix | 4/1 - 8/30 | 6.0 - 7.0 | 600 lbs. 13-13-13 | seed | All | Introduced |

*Note on Annuals. For permanent seeding, annuals can only be used in a mixture with perennials.

North-north of Hwy. 82

Central- south of Hwy. 82 & north of Hwy. 84

South- south of Hwy. 84