

MODLIN PROPERTY RIVERINE WETLAND MITIGATION PLAN

**Martin County
USGS Catalog Unit 03010107150010
EEP project No DO5024-1
Contractor: Albemarle Restorations, LLC**

Prepared for:



**NCDENR/ ECOSYSTEM ENHANCEMENT CENTER
1619 MAIL SERVICE CENTER
RALEIGH, NC 27699-1619**

**Prepared by:
ALBEMARLE RESTORATIONS, LLC
404 Court Street
Gatesville, NC 27938
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Revised September 2007

1. EXECUTIVE SUMMARY

This report is submitted by Albemarle Restorations, LLC to document the completion of construction and planting of the 40-acre riverine wetland restoration project on the Modlin Property (also known as Cooper Swamp Farm) located on Poplar Chapel Road near Jamesville, in Martin County, North Carolina. This report will also serve as a baseline for future monitoring reports submitted pursuant to the requirements set forth in the Modlin property riverine wetland restoration report.

Prior to construction, the 40.0 acre easement area was used entirely for row crop agriculture, primarily soy beans and cotton. A drainage ditch, built in the 1970's, divided the project area and provided drainage of the seasonally high water table to allow the agricultural uses. No natural plant communities of any biological value were found within the project area, and all ditches were actively maintained to remove vegetation and debris.

The goal of the restoration plan was to restore a riverine wetland system typically found in the middle to upper reaches of first or zero order tributary systems. Construction activities, in accordance with the approved Restoration Plan, began October 13, 2006, and were completed on March 12, 2007. Grading consisted of filling ditches and restoring a broad inundated "swamp run" following the historical path evident on aerial photographs and topographic signatures on the site, with adjacent wide seasonally saturated riverine wetlands. Tree and shrub planting on the project site occurred between April 1 through 4, 2007 using bare-root seedlings and containerized stock. The emergent wetland seed mixture was planted at the end of April. All planting was done in accordance with the approved restoration plan. Although rainfall amounts this spring have been below average, the site and our planted vegetation continue to do well and the site grading has successfully restored wetland hydrology to the entire 40-acre easement area.

The proposed ecological benefits of the project are numerous. Improvements to water quality will include nutrient, toxicant and sediment retention and reduced surface water temperatures in receiving waters from shading in shrub/scrub and forested wetland areas. Wildlife habitat will be greatly improved by adding to the existing adjacent forested areas and providing a wide range of habitat areas (open water, emergent, shrub/scrub and forested) for amphibians, reptiles, birds, insects and mammals. Other functions and values provided by the project include flood flow attenuation and opportunities for passive recreation. As the wetland has started to respond to our efforts, so has the local wildlife. Two weeks after completion of the project, the landowner reporting seeing a wild turkey on site; this was the first wild turkey that had ever been seen on this farm, which has been in the Modlin family for two generations.

Four water level monitoring wells were installed on April 23, 2006 at varying elevations throughout the site to measure subsurface water elevations. Four vegetative monitoring plots will be installed and permanently monumented, one coincident with each monitoring well, such that both forested and shrub/scrub vegetative communities are

represented. Each plot is to be a 10m X 10m square, as recommended by the CVS-EEP Protocol for recording vegetation. These quadrants will be monitored for a minimum five-year period, or until success of the project can be validated.

Monitoring Reports will be submitted to EEP by December 31 of the year in which the monitoring was conducted. Wetland hydrology will be deemed successful if a range of conditions including inundated, saturated, seasonally saturated, and upland hummock areas are found. The monitoring wells will be checked four times per year, at which time a visual assessment of inundated areas will be made. Monitoring reports will include all water elevation data as well as approximate assessments of inundated areas. The target plant community is a bottomland hardwood forest interspersed with shrub/scrub wetland and shallow open water habitats. Monitoring reports will include the CVS-EEP Protocol vegetation information as well as estimates of aerial coverage of each vegetative community planned for the site. Approximate acreages for each wetland vegetative community are shown on Sheet M-1 of the As-Built Plan Sheets. The site will be deemed successful if the acreages of each regimes fall within a reasonable range related to the design during normal climatic conditions. Site hydrology during years of excessive rainfall or extreme drought will be assessed with climatic conditions in mind.

Table 1. Mitigation Summary Table

Restoration Type	Pre-Existing Acreage	Post Construction Acreage	Credit Ratio (Restoration : WMU)	Total WMU's
Riverine Wetland	0.0	40.0	1:1	40.0

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2. AS-BUILT REPORT

2.1. Project Background

The Modlin site consists of 40 acres surrounding an unnamed tributary to Cooper Swamp located on Poplar Chapel Road near the town of Jamesville in Martin County, North Carolina. **Appendix C** contains a vicinity map showing the project site location. The site was formerly used for agricultural purposes with very little native vegetation present. On June 27, 2005, Albemarle Restoration, LLC entered into a contract with NCEEP for the procurement of 40 riverine Wetland Mitigation Units (WMU's) on the Modlin site. Construction and planting of the site occurred in late 2006 and early 2007. **Table 2** below summarizes the project history.

Table 2. Project History

February 2006	Reference Wetland Studied
June 13, 2006	Restoration Plan Approved
October 13, 2006 – March 12, 2007	Construction
April 1 – 4, 2007	Planting
April 23, 2007	Monitoring Wells Installed
December 2007 (Scheduled)	First Monitoring Report (Year 1)

2.2. Pre-existing Site Conditions

The Modlin farm consists of approximately 159 +/- acres, 40 of which are designated for this project site. These 40 acres are located within the central portion of the farm. This area was bisected by a deep drainage ditch that ran southwest from the property boundary, then curved toward the northwest, extending to the western property line, and was bordered by agricultural fields of the remaining Modlin farm to the north, south, and west, and timberland to the east. Degradation to the channel and surrounding areas by past agricultural activities, including channel straightening and planting of row crops up to the channel edges, allow excessive nutrient and sediment accumulation in the channel. These past activities also served to reduce the flood flow attenuation capabilities of the historic undisturbed channel. **Appendix A** contains photographs taken during a pre-construction site visit, showing the degradation of the channel and the proximity of tilled ground.

2.3. Construction and Planting

Construction activities, in accordance with the approved Restoration Plan, began in October, 2006 with the removal of existing hedgerows within the project area. These hedgerows contained stumps from when the land was originally cleared in the 1970s, in addition to stumps from a recent harvest of pines. The hedgerows also contained several hardwood trees, which were saved and placed in the restored swamp run once the project was completed. These trees, including stumps and limbs, provide great wildlife habitat and an excellent source of organic material. The remainder of the hedgerows were plied

and burned in accordance with NC Burning Laws, and the topsoil was distributed across the site. Once the hedgerows were cleared, the project area was staked and recommended erosion control practices installed, including a low-level berm that was constructed to control on and off-site runoff.

The swamp run and lower areas of microtopography were constructed and temporary sediment traps and diversions installed for erosion control. Upon completion of the swamp run, grading the floodplain and removal of unneeded fill from the project site was completed. All topsoil that was removed during grading activities was temporary stored on site and redistributed across the site during final grading. Once the grading work was completed, a low berm was installed approximately three quarters of the way down the swamp run. This berm functions as a natural ridge within a swamp by creating a “pinch-point”, which helps create back-flooding across the restored floodplain. Finally, the outlet was constructed of riprap on filter cloth, and associated culverts were installed.

The project took longer to complete than anticipated due to holidays and wet weather from mid- November until mid- January. However, by the end of January, dry weather moved in and construction work continued until the project was completed on March 12, 2007.

Tree and shrub planting on the project site occurred during the first week of April using bare-root seedlings and containerized stock. The emergent wetland seed mixture was planted later in the month. All planting was done in accordance with the approved restoration plan, and **Table 3** and **Table 4** below summarize the species planted.

Table 3. Shrub/Scrub Planting Schedule

SHRUB/ SCRUB PLANTING SCHEDULE- 11.85 Acres						
	Quantity	Botanical Name	Common Name	Size	Condition	
	Spacing					
Shrubs:	463	<i>Cephalanthus occidentalis</i>	Button Bush	2-5'	Bare Root	12' Random Spacing
	463	<i>Alnus serrulata</i>	Tag Alder	2-5'	Bare Root	12' Random Spacing
	463	<i>Myrica cerifera</i>	Wax Myrtle	2-5'	Bare Root	12' Random Spacing
	463	<i>Salix nigra</i>	Black Willow	2-5'	Bare Root	12' Random Spacing
	463	<i>Ilex glabra</i>	Gallberry	2-5'	Bare Root	12' Random Spacing
	463	<i>Cyrilla racemiflora</i>	Swamp Cyrilla	2-5'	Bare Root	12' Random Spacing
	463	<i>Vaccinium corymbosum</i>	Highbush Blueberry	2-5'	Bare Root	12' Random Spacing
	463	<i>Magnolia virginiana</i>	Sweetbay	2-5'	Bare Root	12' Random Spacing
Total	3,704					

Table 4. Forest Planting Schedule

FORESTED WETLAND PLANTING SCHEDULE -18.50 Acres						
Quantity	Botanical Name	Common Name	Size	Condition	Spacing	
Trees:	644	<i>Taxodium distichum</i>	Bald Cypress	2-5'	Bare Root	12' Random Spacing
	644	<i>Acer rubrum</i>	Red Maple	2-5'	Bare Root	12' Random Spacing
	644	<i>Nyssa aquatica</i>	Water tupelo	2-5'	Bare Root	12' Random Spacing
	644	<i>Nyssa biflora</i>	Swamp Black Gum	2-5'	Bare Root	12' Random Spacing
	644	<i>Quercus phellos</i>	Willow Oak	2-5'	Bare Root	12' Random Spacing
	644	<i>Quercus bicolor</i>	Swamp White Oak	2-5'	Bare Root	12' Random Spacing
	644	<i>Quercus nigra</i>	Water Oak	2-5'	Bare Root	12' Random Spacing
Total:	4,508					
Shrubs:	486	<i>Vaccinium corymbosum</i>	Highbush Blueberry	2-5'	Bare Root	12' Random Spacing
	486	<i>Cyrilla racemiflora</i>	Swamp Cyrilla	2-5'	Bare Root	12' Random Spacing
	486	<i>Clethra alnifolia</i>	Sweet Pepperbush	2-5'	Bare Root	12' Random Spacing
	486	<i>Itea virginica</i>	Virginia Sweetpire	2-5'	Bare Root	12' Random Spacing
	486	<i>Cephalanthus occidentalis</i>	Button Bush	2-5'	Bare Root	12' Random Spacing
Total:	2,430					

2.4. Post Construction Site Conditions

As of June 2007, approximately 95 percent of the installed plant material on the site was viable, and the emergent wetland seed had germinated in most areas. The “swamp run” and adjacent low areas were inundated during each site visit since the project was completed. Photographs of the site taken in June 2007 are found in **Appendix A**.

3. Monitoring Plan

Monitoring of the site is to be completed per NCEEP *Content, Format and Data Requirements for EEP Monitoring Reports* for a five year period, with monitoring beginning in late fall 2007 (Year 1) and commencing in 2011. Photographs of the site will be included in each year’s monitoring report. Monitoring will consist of vegetative and hydrology monitoring as outlined below.

3.1. Hydrology Monitoring

Monitoring of hydrology on the site will be completed using four continuous recording water level loggers suspended in four-inch PVC monitoring wells installed on the site on April 23, 2007. Sheet M-1 of the Mitigation Plan (**Appendix B**) shows locations of the monitoring wells on the site. The wells have been located to assess subsurface water levels at various elevations on the site planned as seasonally saturated or temporarily flooded. Data will be collected from each monitoring well four times per year, and during each site visit hand measurements will be taken to ensure the accuracy of the water level loggers. Per the recommendation of staff from EEP, additional backup water level loggers will be installed in the Fall of 2007 in case of malfunctions which occur from time to time with the data loggers. Data from the backup loggers will be utilized if any of the four original loggers malfunction.

Groundwater elevation data collected from each monitoring well will be presented relative to the ground surface elevation at the well location in graph form. In addition, a determination of whether wetland hydrology has been attained will be made, and the determination listed in the Wetland Criteria Attainment Table in each report. Raw data will also be supplied in an appendix to the report.

In addition to measurements of sub-surface water elevations, a visual estimate of the extent of inundation will be made and documented on site mapping for inclusion into the monitoring report. Rainfall data from the Highway Patrol Community Station in Williamston, North Carolina, approximately 9 miles from the project site, will be used as a reference to determine the deviation from climatologically normal rainfall in the area. The rainfall data will be assessed to determine degree to which climatologic extremes (i.e. drought or excessive rainfall) affect subsurface water elevations. In addition, at the recommendation of EEP, a continuous recording rain gauge will be installed at the project site in early fall of 2007.

Hydrology on the site will be deemed successful if the monitoring wells on the site show that wetland hydrology is present on the site for at least 21 consecutive days during the growing season. It is expected that the “swamp run” and micro-topographic areas low in relative elevation will be inundated for extended periods during the growing season. While this is not tied directly to the overall success criteria of the site, and inundated areas will be mapped and included as part of each year’s monitoring report.

3.2. Vegetation Monitoring

Four vegetation monitoring plots have been established, one at each monitoring well location, to provide a representative sample of both shrub/scrub and forested wetland communities. Plots will be 10 meter by 10 meter square plots, with one corner of each plot coinciding with the location of the associated monitoring well. The initial plot sampling will occur in November 2007 (Year 1), with successive vegetative monitoring occurring once per year for 5 years, or until the site is deemed successful. Vegetation

plot sampling will consist of Level 1: Planted stem inventory plots for the first year, and Level 2: Total woody stem inventory lots for remaining years, as defined in the *CVS-EEP Protocol for Recording Vegetation Version 4.0*.

In addition to plot sampling, the aerial coverage of each type of wetland community (forested, shrub/scrub, emergent, and open water) will be visually estimated during the site visit. The approximate coverage of each vegetative community will be mapped and included with each year's monitoring report. If non-native invasive species are seen, the approximate coverage will also be mapped.

In accordance with the *US Army Corps of Engineers, Stream Mitigation guidelines, April 2003*, Albemarle Restorations will maintain survivability of planted woody species planted to a minimum of 320 stems/acre through year three. A ten percent mortality rate will be accepted in year four (288 stems/acre) and another ten percent in year five resulting in a required minimum survival rate of 260 trees/acre through year five. The vegetation component of the project will be considered successful if the required survival rate is met after year five, planted wetland species dominate the tree and shrub layers in the forested wetland areas, and planted shrub species dominate in the shrub/scrub area. It is expected that volunteer species will colonize the site from adjacent and nearby wetland areas. If these species become dominant, the wetland indicator status of each species will be assessed, and the site will be deemed successful if the dominant species in each layer are FAC or wetter. Non-native invasive species will not be included in this assessment.

4. Maintenance and Contingency

Maintenance of the site is expected to be minimal, as the site is proposed to function as a natural system. Periodic visual site inspections (two or three times per year) will be conducted to check for any issues of concern. If any of the following contingencies or issues arises during monitoring, Albemarle Restorations will take the necessary maintenance or corrective actions.

The main concern for the site is the introduction of non-native invasive species. No invasive species were encountered during construction, and the site will be monitored to ensure that such species do not become established. If invasive species are found, corrective action including spraying, mowing, or removing such species will be conducted.

If installed woody plant material is seen having a survival rate of less than 320 stems/acre, replanting will occur to maintain the required percent survival rate during the first three years of monitoring. In year four, replanting will occur if the planted species survival rate falls below 288 stems/acre. If necessary, replanting will occur in the fifth and final year to insure the required survival rate of 260 trees/acre.

If well data shows that wetland hydrology has not been achieved, the well data will be analyzed in relation to the reference rainfall data to determine if drought or drier than normal conditions have existed in coincidence with periods of non-attainment of wetland hydrology. If this is found to be the case, Albemarle Restorations will ask that the site be

evaluated during normal climatic conditions. If it is determined that wetland hydrology has not been achieved, corrective action will be taken to enhance wetland hydrology to the site.

Other potential issues including animal damage, disease or pest infestation, or damage from extreme weather events will be noted during monitoring, with any apparent problem areas mapped for inclusion into the monitoring report. The monitoring will also include any corrective actions taken or proposed.

5. References

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- Albemarle Restorations, LLC. . Albemarle Restorations field data collection within Martin County, North Carolina. 2005.
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- Lynch, Karen M. "Common Wetland Plants of North Carolina." NCDENR, Division of Parks and Recreation Department of Environment, Health and Natural Resources Division of Water Quality Water Quality Section. Raleigh, North Carolina: Report # 97-01, August 1997.
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- North Carolina Department of Agriculture and Consumer Services Plant Industry Division-Plant Protection Section. "North Carolina Noxious Weed List." <http://www.agr.state.nc.us/plantind/plant/weed/noxweed.htm>. September 2005.

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Appendix A

-Photographs-



Photo 1. Pre-construction condition of unnamed tributary to Cooper Swamp.



Photo 2. Upstream limits of ditch prior to construction.



Photo 3. Row crops planted in project area prior to construction.



Photo 4. Wet conditions encountered during construction.



Photo 5. Widespread inundation occurring during construction.



Photo 6. Large woody debris scattered in wetland during construction.



Photo 7. Post construction “pothole” area that is inundated.



Photo 8. Large woody debris scattered in wetland creating viable habitat.



Photo 9. Swamp run and adjacent riverine wetland with thriving wetland vegetation.



Photo 10. Open water habitat area.

Appendix B

-As-Built Plans-

Dalton Engineering

and Associates, P.A.



6/11/07

To: Ed Temple
Albermarle Restorations, LLC
PO Box 204
Gatesville, North Carolina 27938

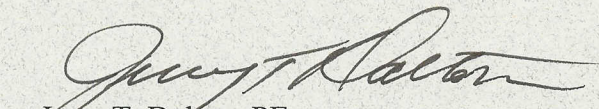
Sub: Riverine Wetland Mitigation Project
Modlin Site
Martin County

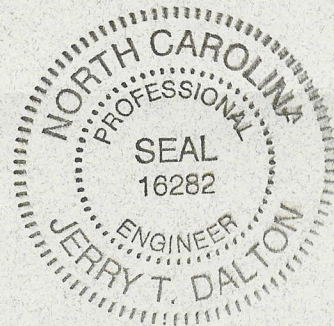
To Whom It May Concern:

I have reviewed the As-Built survey of subject project and find the final contours to be substantially as planned, in accordance with drawings provided to me by Albermarle Restorations, LLC.

The nature of the project does not lend itself to exact grade and alignment of land features. However, based on the As-Built drawings, I feel that the project should work, as planned.

Thank you.


Jerry T. Dalton, PE
16282



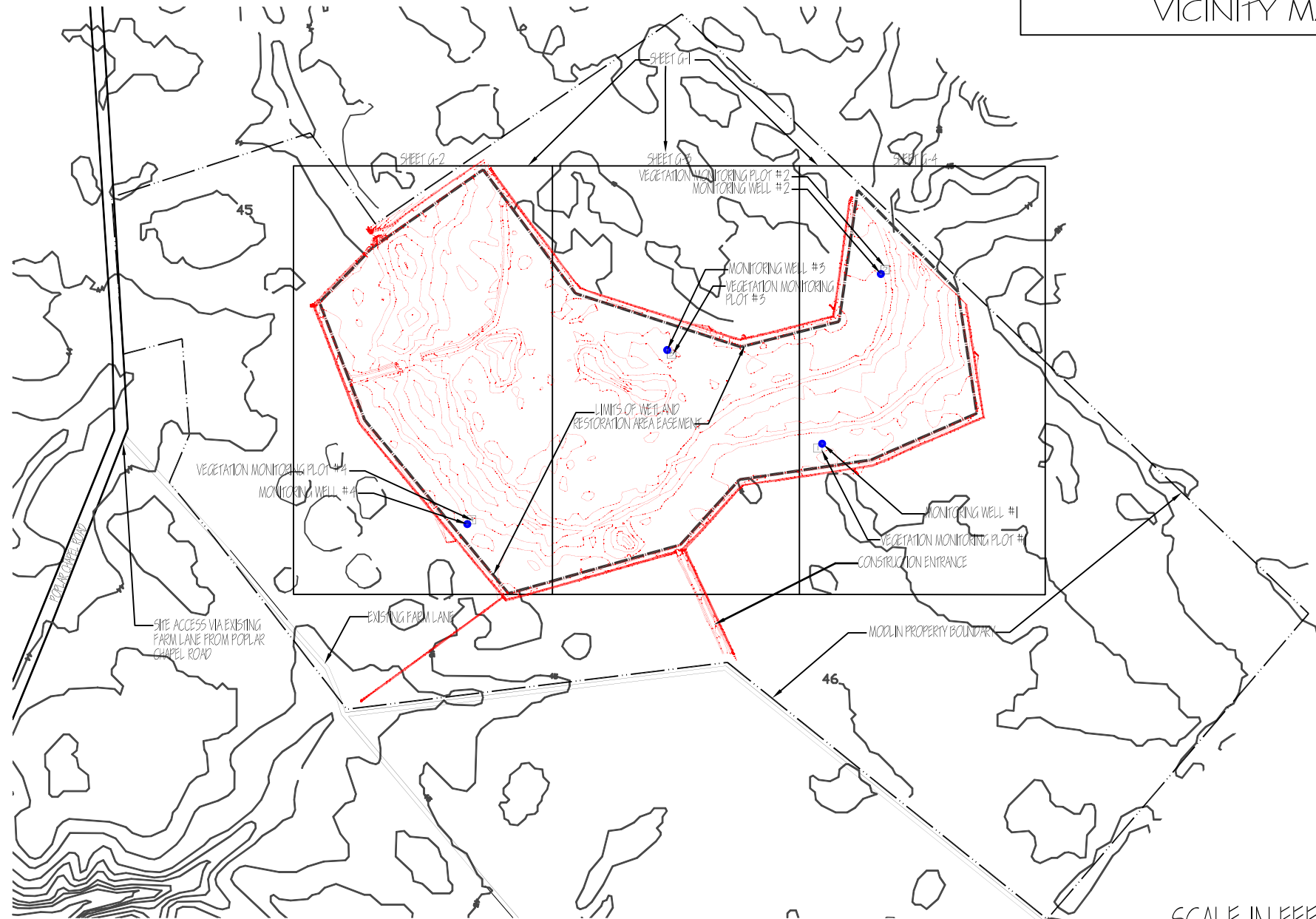
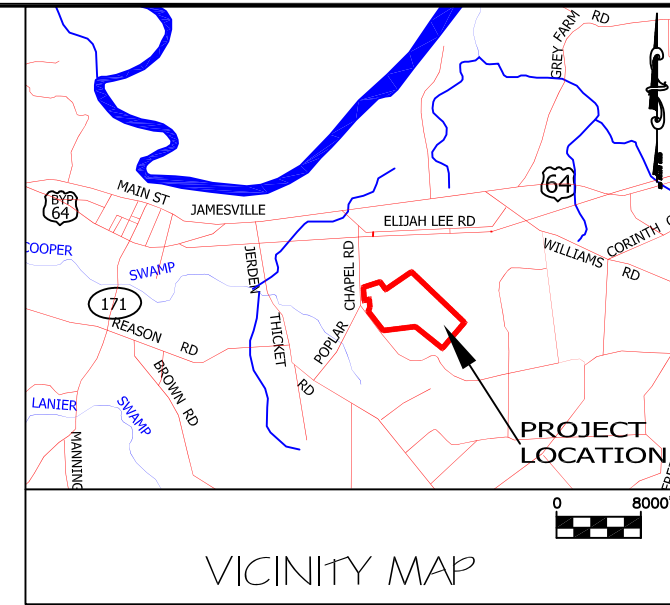
INDEX OF SHEETS

T-1.....TITLE SHEET
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 G-2.....AS-BUILT GRADING
 G-3.....AS-BUILT GRADING
 G-4.....AS-BUILT GRADING
 D-1.....AS-BUILT SECTIONS
 D-2.....AS-BUILT SECTIONS
 M-1.....MONITORING PLAN

RIVERINE WETLAND MITIGATION PROJECT
 ALBERMARLE RESTORATIONS, INC.
 MODLIN SITE

MARTIN COUNTY

LOCATION: OFF POPLAR CHAPEL ROAD, NEAR JAMESVILLE
 TYPE OF WORK: MITIGATION
 USGS CATALOG UNIT 03010107150010

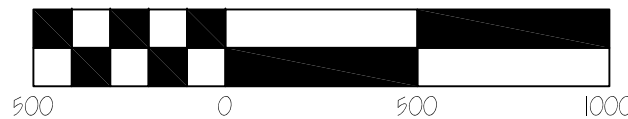


AS-BUILT NOTES

1. This as-built wetland restoration plan has been prepared for the North Carolina Ecosystem Enhancement Program for the purpose of documenting the restoration of approximately 40.0 acres of jurisdictional non-tidal riverine wetlands on the Modlin property, located within the Roanoke River Basin.
2. On site grading completed between October 13, 2006 and March 12, 2007.
3. Installation of woody plant material was completed April 3, 2007.
4. As-built topographic survey completed in June 2007.

AS-BUILT CONDITIONS

SCALE IN FEET



TITLE SHEET	JULY 22, 2007
DATE	7/22/07
DESIGNED BY	NOVEMBER 27, 2007
CHECKED BY	
DATE	
DESIGNED BY	
CHECKED BY	
DATE	

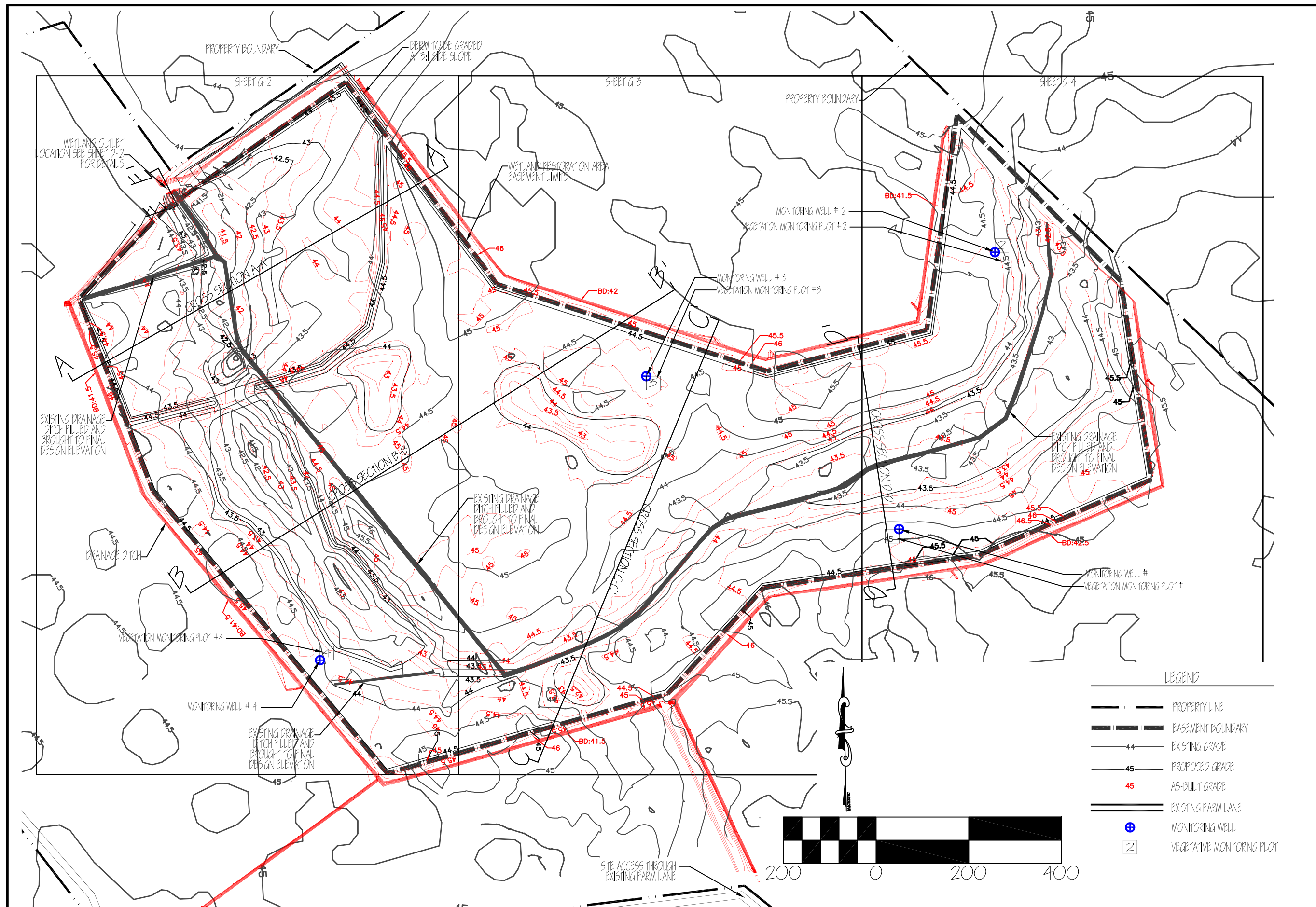
MODLIN PROPERTY
 RIVERINE WETLAND MITIGATION AS-BUILT
 40.0 ACRES
 MARTIN COUNTY, NORTH CAROLINA
 EEP CONTRACT #: 1050241



PLAN PREPARED BY:
ECOTONE, INC.
 ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN,
 FOREST & WETLAND CREATION &
 STREAM RESTORATION
 P.O. Box 51 • 1204 BALDWIN MILL ROAD • JARRETSVILLE, MARYLAND 21084
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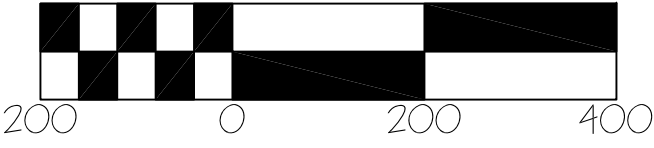
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 & WILDLIFE HABITAT CREATION
 404 COURT STREET • GATESVILLE, NC 27038
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ECOTONE INC. CONTACT: IMACRETS			
DATE:	DESIGNED BY:	DESIGNED BY:	CHECKED BY:
07/22/07	IMACRETS	BERNARDI	SCOTT MCILL



LEGEND

	PROPERTY LINE
	EASEMENT BOUNDARY
	EXISTING GRADE
	PROPOSED GRADE
	AS-BUILT GRADE
	EXISTING FARM LANE
	MONITORING WELL
	VEGETATIVE MONITORING PLOT



ECOTONE, INC. CONTACT: IN NOBBE	DATE: 07/22/07	DRAWN BY: JIM NOBBE	CHECKED BY: SCOTT MCALL
		BRUN BARELL	

AS-BUILT PLAN OVERVIEW

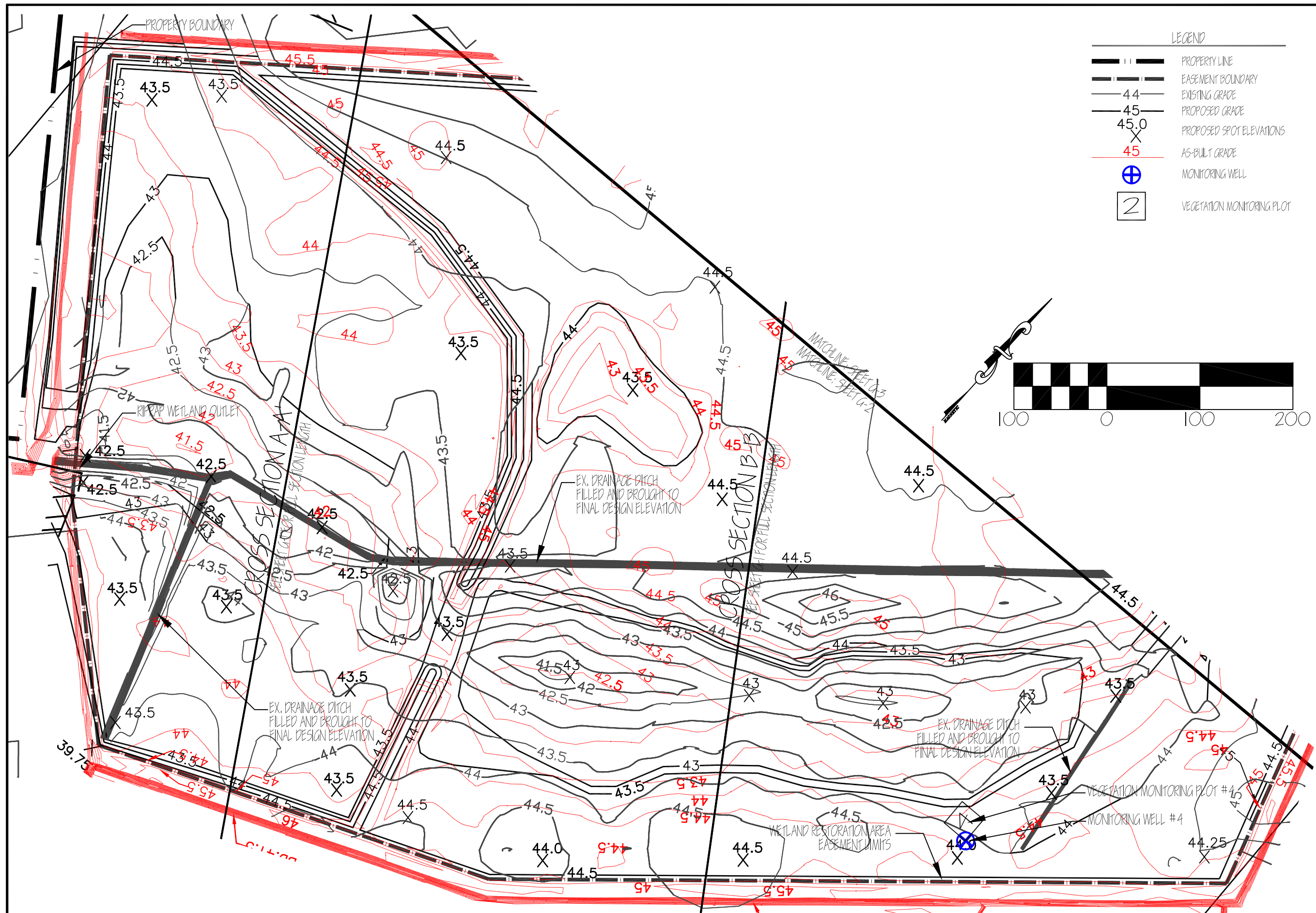
AS-BUILT GRAVING PLAN OVERVIEW
JULY 22, 2007

MODLIN PROPERTY
RIVERINE WETLAND MITIGATION AS-BUILT
40.0 ACRES
MARTIN COUNTY, NORTH CAROLINA
EFP CONTRACT #: P05024-1

ECOTONE, INC.
ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN,
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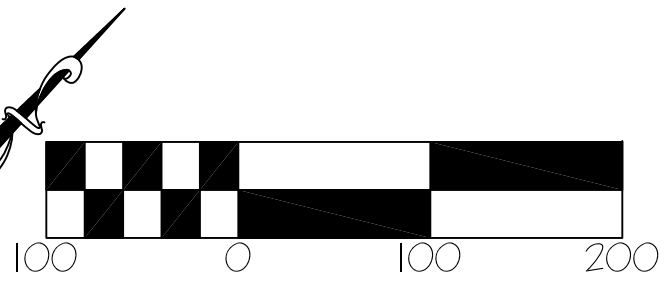
ALBERMARLE RESTORATIONS, LLC
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SHEET G-1



LEGEND

	PROPERTY LINE
	EASEMENT BOUNDARY
	EXISTING GRADE
	PROPOSED GRADE
	PROPOSED SPOT ELEVATIONS
	AS-BUILT GRADE
	MONITORING WELL
	VEGETATION MONITORING PLOT



ECOTONE, INC. CONTACT: JIM MORSE	DATE: 07/22/07	DRAWN BY: PARRI BARELL	CHECKED BY: SCOTT MCCLURE
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AS-BUILT GRADING PLAN	JULY 22, 2007
DATE: 7/17/07	BY: JIM MORSE
NOTES: RE: PERMITS/24707/07/EE/LESTER	

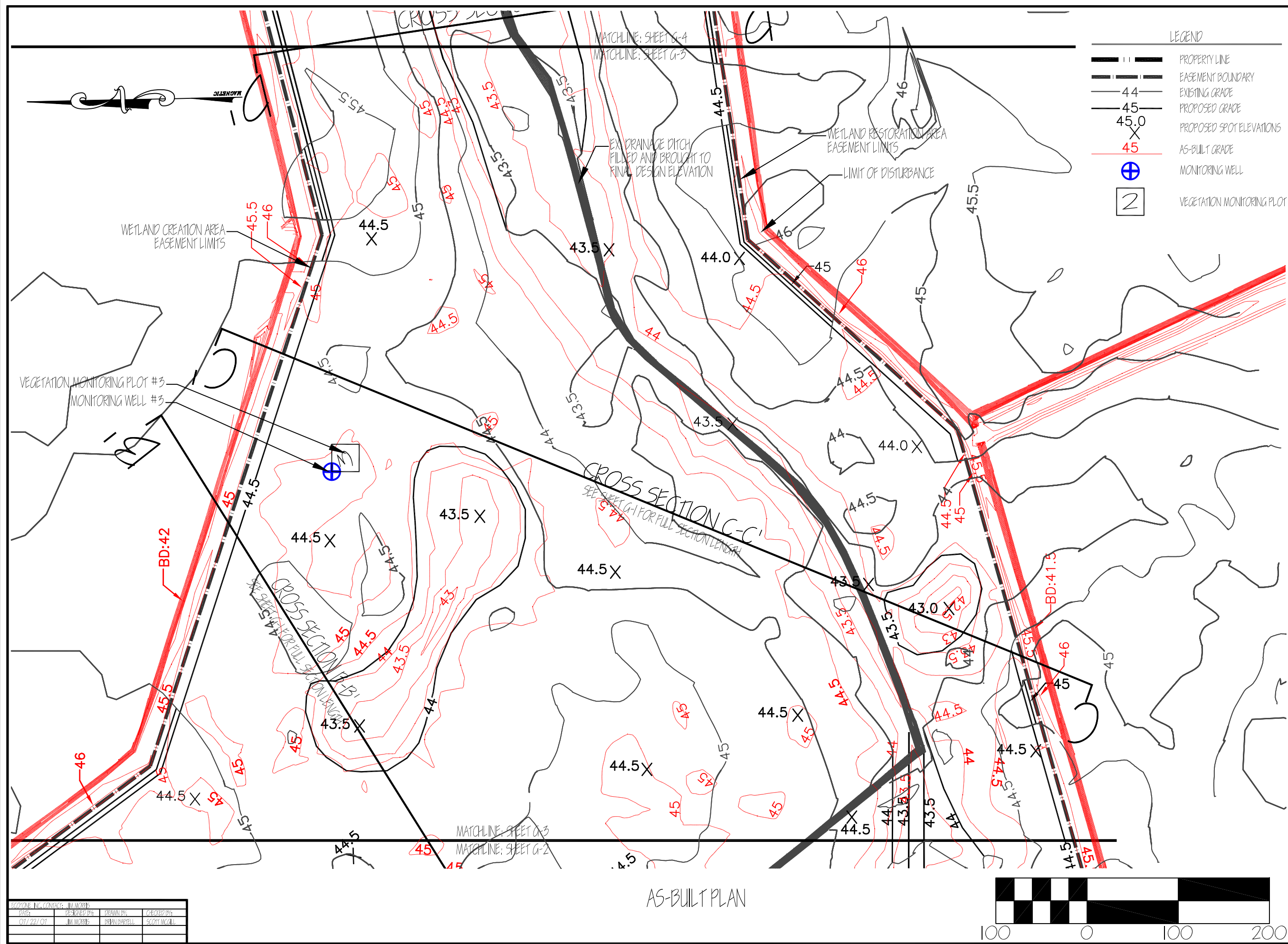
MOD/LIN PROPERTY
 RIVERINE WETLAND MITIGATION AS-BUILT
 40.0 ACRES
 MARTIN COUNTY, NORTH CAROLINA
 EPP CONTRACT #: P050241



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AS-BUILT PLAN

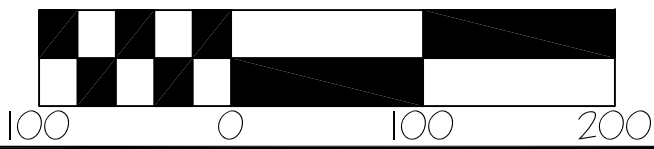


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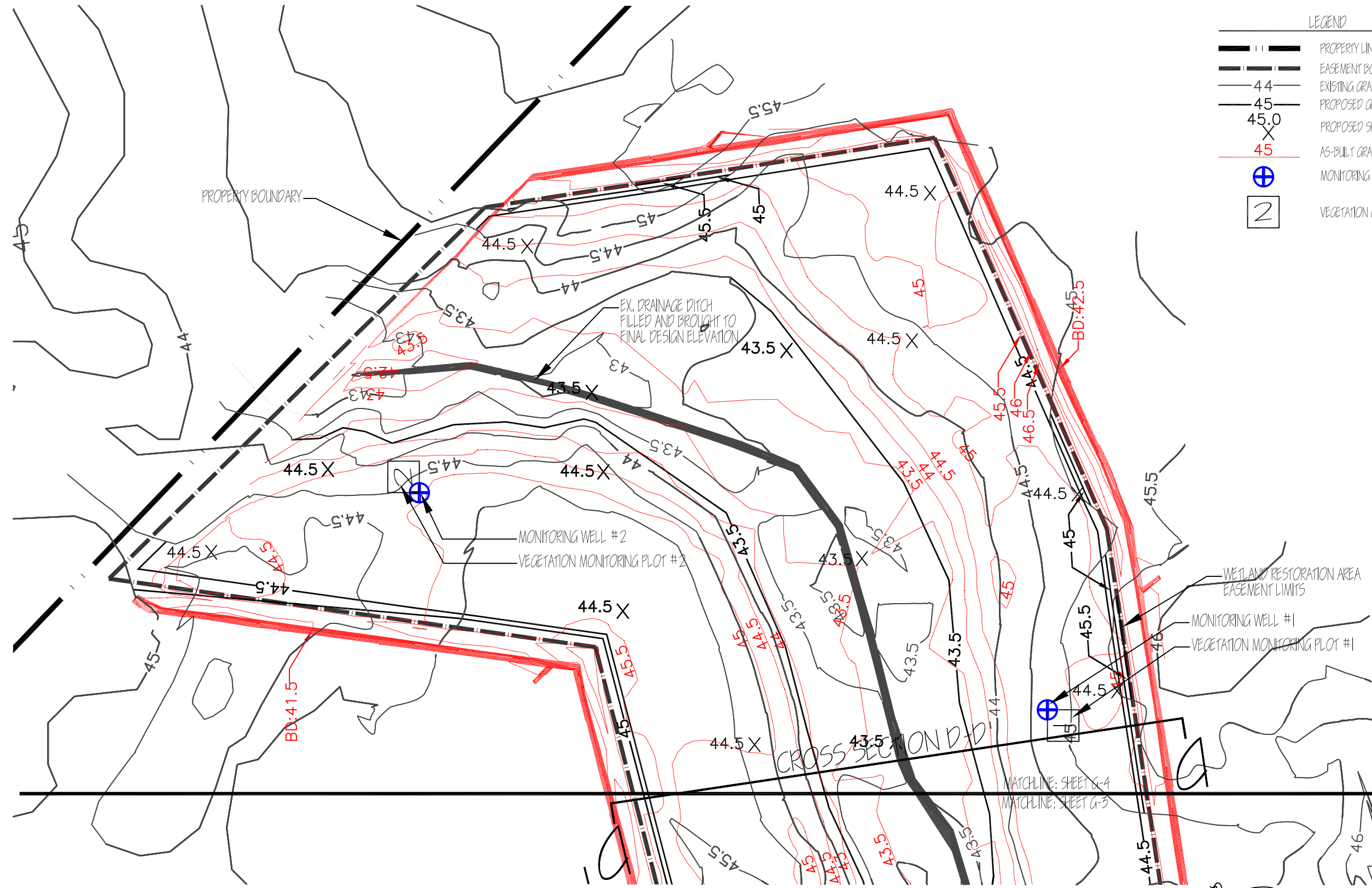
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	EASEMENT BOUNDARY
	EXISTING GRADE
	PROPOSED GRADE
	PROPOSED SPOT ELEVATIONS
	AS-BUILT GRADE
	MONITORING WELL
	VEGETATION MONITORING PLOT

ECOTONE, INC. CONTACT: IN WORK			
DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
07/22/07	IN WORK	RENNER, R	SCOTT, MICAL

AS-BUILT PLAN



<p>ALBERMARLE RESTORATIONS, LLC</p> <p>WETLAND RESTORATION, WETLAND MITIGATION, WILDLIFE HABITAT CREATION 404 COURT STREET • GATESVILLE, NC 27938 (252) 333-9248 • FAX (252) 337-4692</p>	<p>ECOTONE, INC.</p> <p>ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN, FOR STREAM RESTORATION, WETLAND RESTORATION, WILDLIFE HABITAT CREATION P.O. BOX 5, 1204 BALDWIN MILL ROAD • JARRETTVILLE, MARYLAND 21084 (410) 692-7500 • FAX (410) 692-7503 • EMAIL: INFO@ECOTONEINC.COM</p>	<p>PLAN PREPARED BY:</p>
		<p>ECOTONE, INC.</p>
<p>ALBERMARLE RESTORATIONS, LLC</p>	<p>ECOTONE, INC.</p>	<p>MODLIN PROPERTY</p> <p>RIVERINE WETLAND MITIGATION AS-BUILT</p> <p>40.0 ACRES</p> <p>MARTIN COUNTY, NORTH CAROLINA</p> <p>PEP CONTRACT #: 1050241</p>
<p>AS-BUILT GRADING PLAN</p> <p>JULY 22, 2007</p>		<p>DATE:</p> <p>DESIGNED BY:</p> <p>DRAWN BY:</p> <p>CHECKED BY:</p>



LEGEND

- PROPERTY LINE
- EASEMENT BOUNDARY
- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED SPOT ELEVATIONS
- AS-BUILT GRADE
- MONITORING WELL
- VEGETATION MONITORING PLOT

AS-BUILT GRADING PLAN	
JULY 22, 2007	
DATE:	27/07/07
BY:	NOTES: BHP/PER/GA/OT/EP/LE/ER
CHK'D BY:	UNB

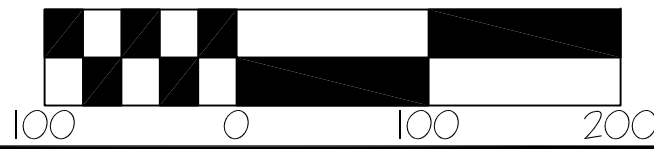
MODLIN PROPERTY
 40.0 ACRES
 RIVERINE WETLAND MITIGATION AS-BUILT
 MARTIN COUNTY, NORTH CAROLINA
 EEP CONTRACT #: P050241

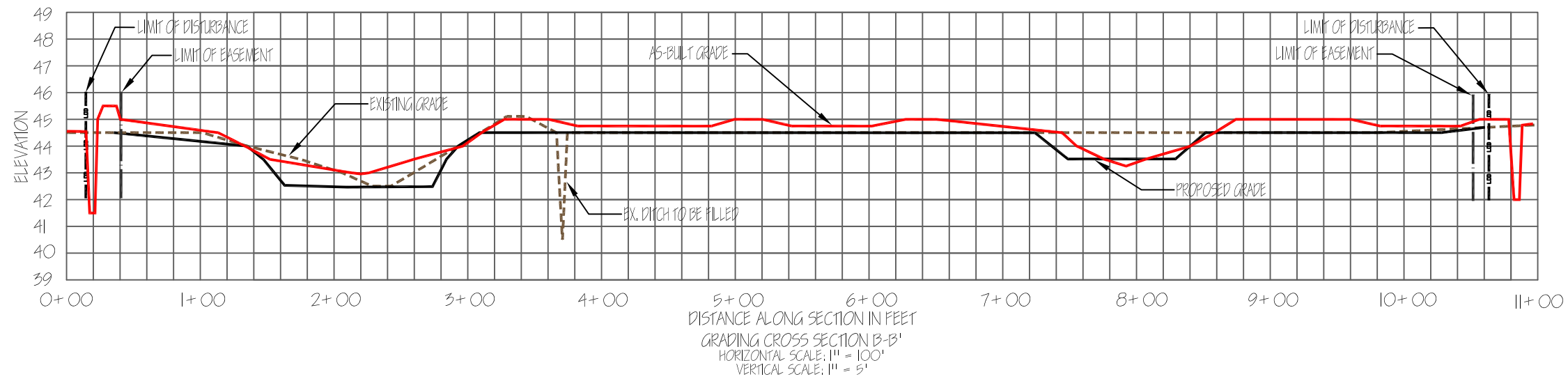
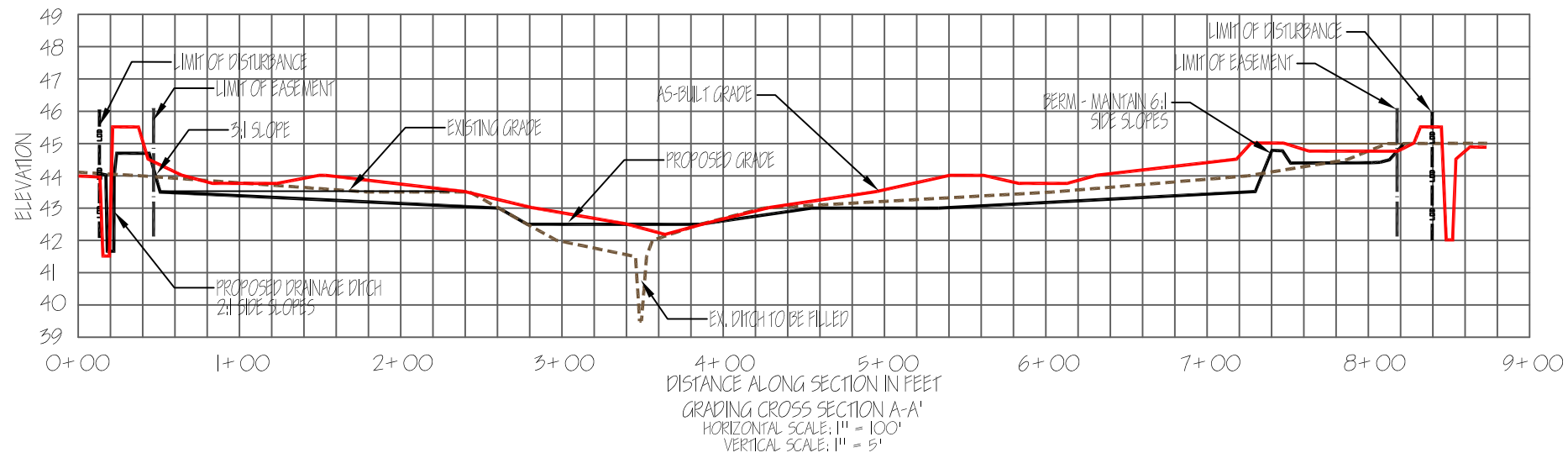


PLANNED BY:
ECOTONE, INC.
 ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN,
 FOREST & WETLAND CREATION &
 STREAM RESTORATION.
 P.O. Box 5 • 1204 BALDWIN MILL ROAD • JARRETTVILLE, MARYLAND 21084
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 STREAM RESTORATION,
 & WILDLIFE HABITAT CREATION
 404 COURT STREET • GATESVILLE, NC 27938
 (852) 333-0249 • FAX (852) 357-4892

ECOTONE, INC. CONTRACT: 111100315	DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
	07/22/07	UNB	BHP/PAPELL	SCOTT MCALL





LEGEND

- PRE-EXISTING GRADE
- PROPOSED GRADE
- AS-BUILT GRADE

ECOTONE INC. CONTACT: IN WORKS			
DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
07/22/07	M. MORSE	ORIN SHREVE	SCOTT MCALL



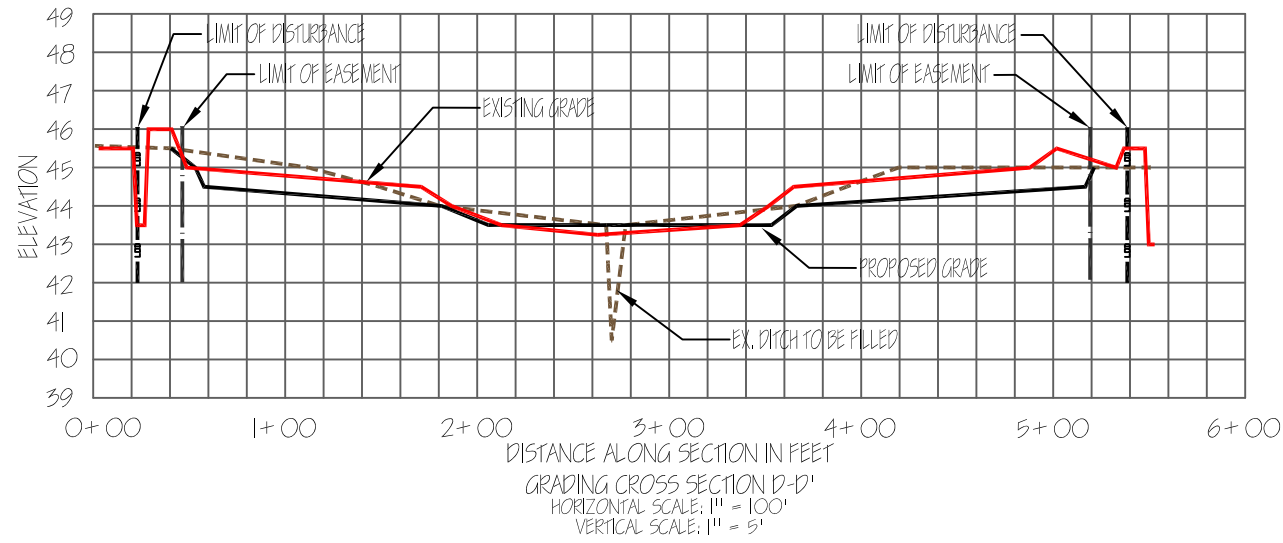
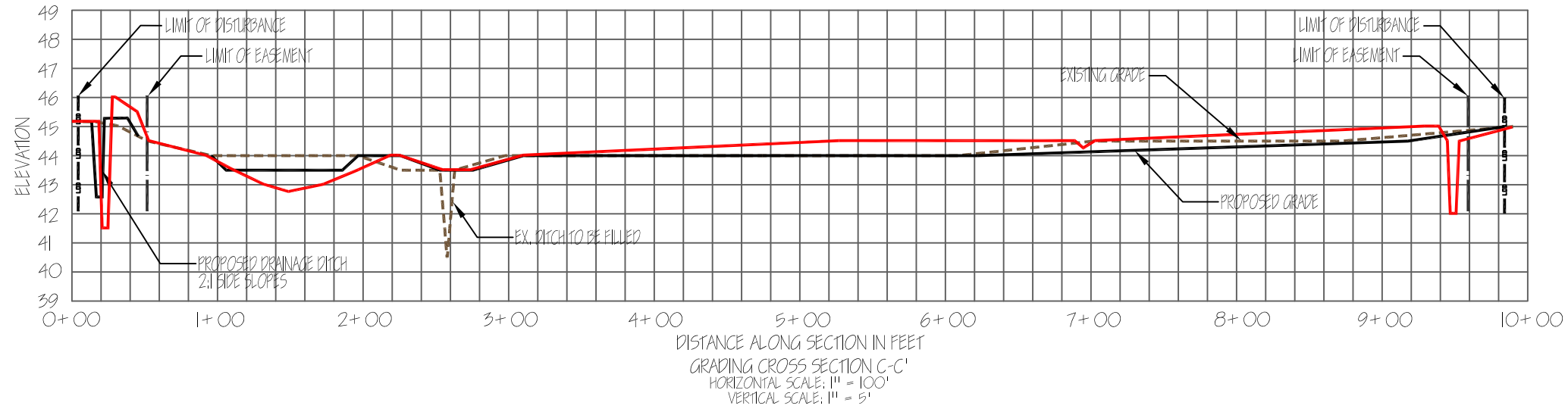
PLAN PREPARED BY:
ECOTONE, INC.
 ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN,
 FOREST & WETLAND CREATION &
 STREAM RESTORATION.
 P.O. Box 5 • 1204 BALDWIN MILL ROAD • JARRETTSVILLE, MARYLAND 21084
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ALBERMARLE RESTORATIONS, LLC
 WETLAND RESTORATION,
 STREAM RESTORATION,
 & WILDLIFE HABITAT CREATION
 404 COURT STREET • GATESVILLE, NC 27938
 (850) 333-0249 • FAX (850) 357-4892

AS-BUILT SECTIONS
 JULY 22, 2007

MODLIN PROPERTY
 RIVERINE WETLAND MITIGATION AS-BUILT
 40.0 ACRES
 MARTIN COUNTY, NORTH CAROLINA
 EEP CONTRACT #: D09024-1

DATE:	BY:
07/22/07	ORIN SHREVE
DATE:	BY:
07/22/07	M. MORSE



LEGEND

- PRE-EXISTING GRADE
- PROPOSED GRADE
- AS-BUILT GRADE

ECOTONE, INC. CONTACT: JIM MORSE			
DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
07/22/07	JIM MORSE	BRIAN BARELL	SCOTT MCGLL

AS-BUILT SECTIONS

JULY 22, 2007

REVISIONS:	BY:	DATE:
1	JM	07/22/07
2	JM	07/22/07

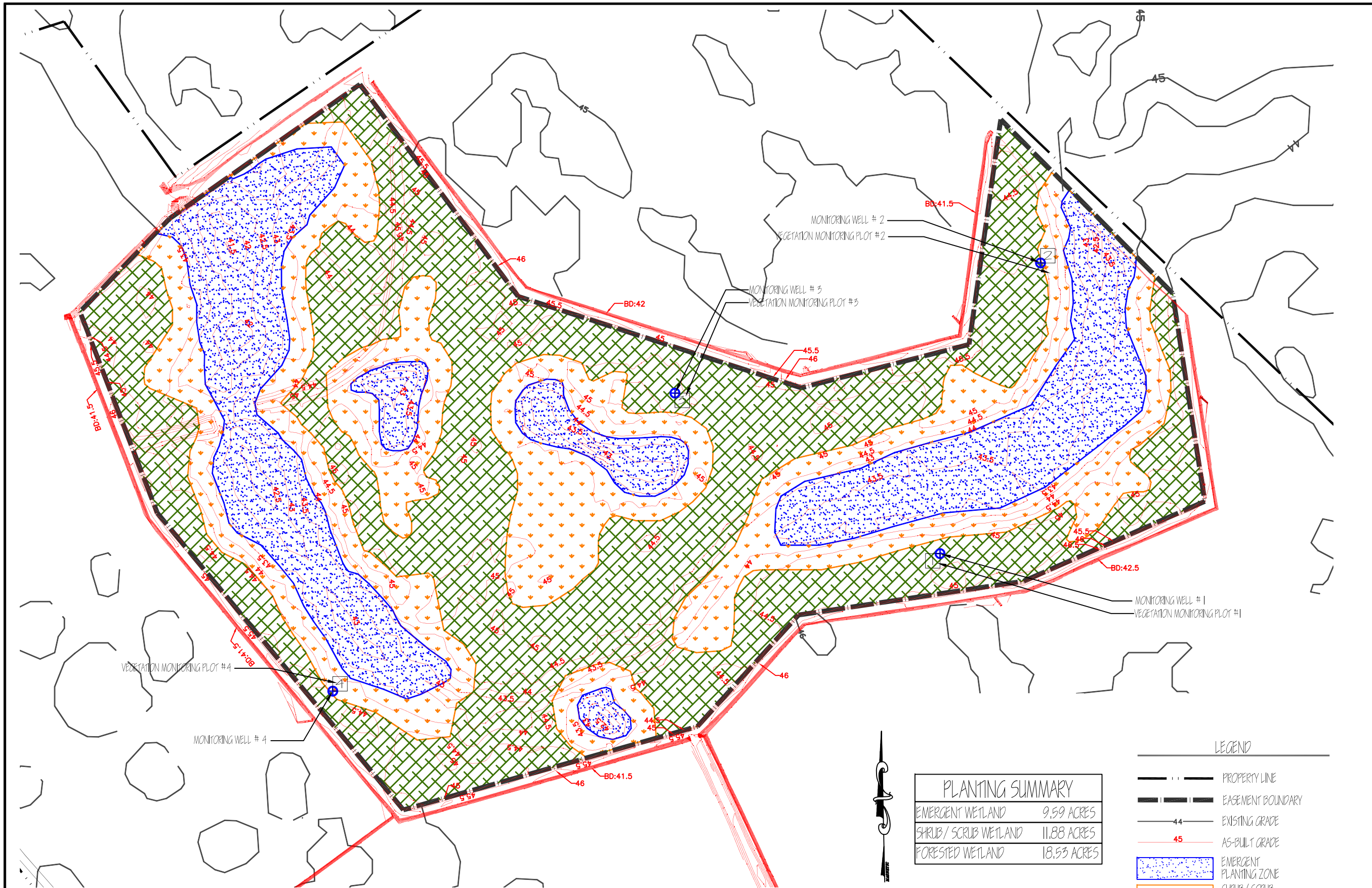
MODLIN PROPERTY
RIVERINE WETLAND MITIGATION AS-BUILT
40.0 ACRES
MARTIN COUNTY, NORTH CAROLINA
EEP CONTRACT #: P050241



PLANNED BY:
ECOTONE, INC.
ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN,
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STREAM RESTORATION.
P.O. BOX 54 1204 BALDWIN MILL ROAD • JARRETTVILLE, MARYLAND 21084
(410) 692-7500 • FAX (410) 692-7503 • E-MAIL INFO@ECOTONEINC.COM

ALBERMARLE RESTORATIONS, LLC

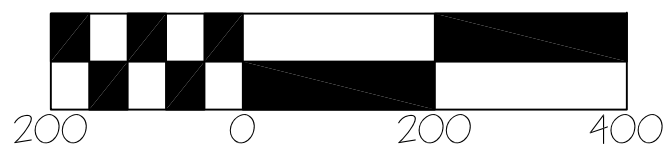
WETLAND RESTORATION,
STREAM RESTORATION,
& WILDLIFE HABITAT CREATION
404 COURT STREET • GATESVILLE, NC 27038
(252) 333-0249 • FAX (252) 337-4892



AS-BUILT PLANTING PLAN

PLANTING SUMMARY	
EMERGENT WETLAND	9.59 ACRES
SHRUB / SCRUB WETLAND	11.88 ACRES
FORESTED WETLAND	18.53 ACRES

LEGEND	
	PROPERTY LINE
	EASEMENT BOUNDARY
	EXISTING GRADE
	AS-BUILT GRADE
	EMERGENT PLANTING ZONE
	SHRUB / SCRUB PLANTING ZONE
	FOREST PLANTING ZONE
	MONITORING WELL
	VEGETATIVE MONITORING PLOT

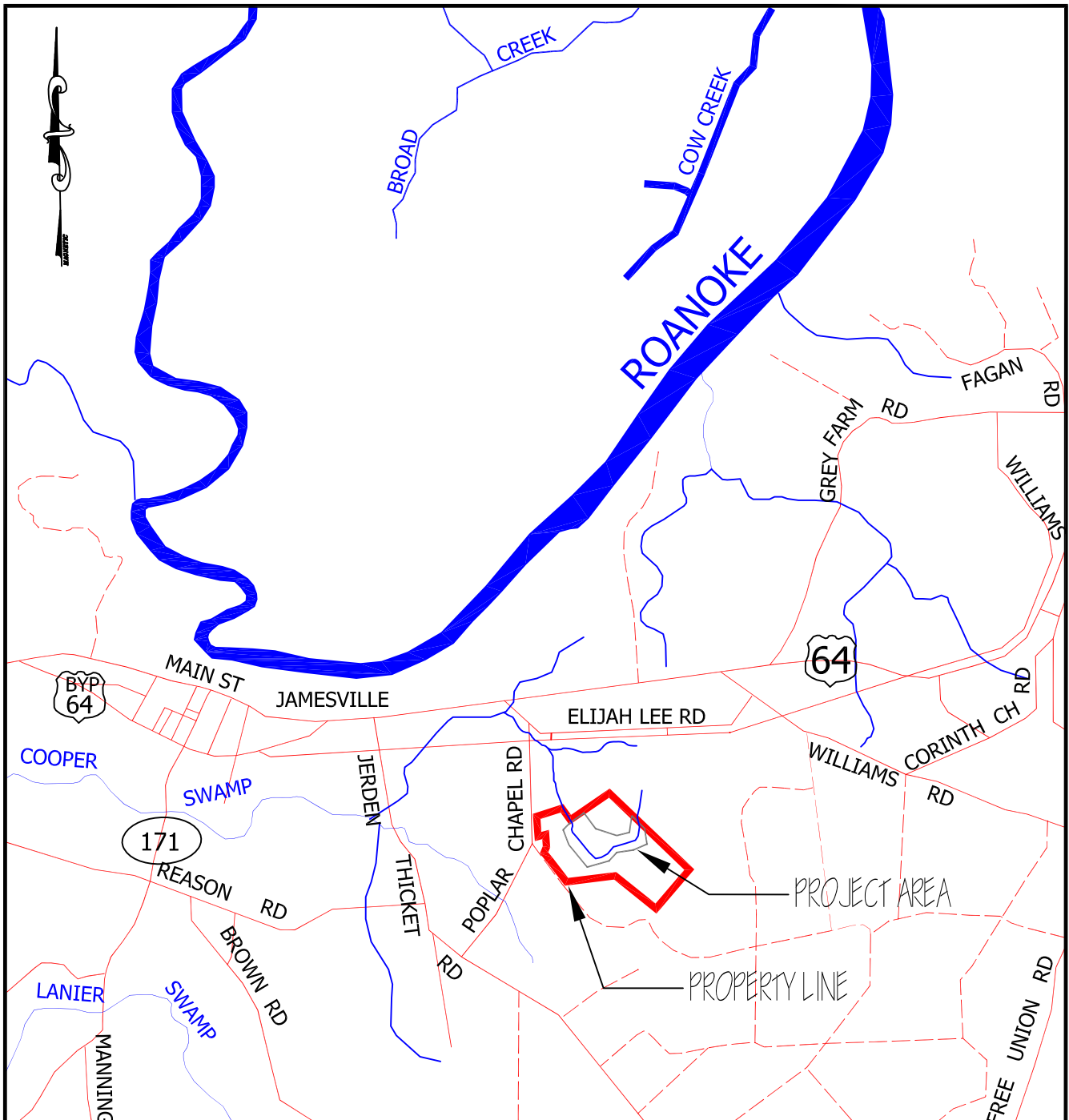


ECOTONE, INC. CONTACT INFORMATION			
DATE	DESIGNED BY	DRAWN BY	CHECKED BY
07/22/07	IM MORSE	BRIAN BARKELL	SCOTT MCULL

ALBERMARLE RESTORATIONS, LLC WETLAND RESTORATION, STREAM RESTORATION, & WILDLIFE HABITAT CREATION 404 COURT STREET • GATESVILLE, NC 27938 (252) 333-0249 • FAX (252) 357-4892	ECOTONE, INC. ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN, FOREST & WETLAND CREATION & STREAM RESTORATION. P.O. Box 5 • 1204 BALDWIN MILL ROAD • JARRRETSVILLE, MARYLAND 21084 (410) 692-7500 • FAX (410) 692-7503 • E-MAIL INFO@ECOTONEINC.COM		MODLIN PROPERTY RIVERINE WETLAND MITIGATION MONITORING 40.0 ACRES MARTIN COUNTY, NORTH CAROLINA EEP CONTRACT #: D050241	MONITORING PLAN JULY 22, 2007
			PLANT PREPARED BY:	TITLE: JLM DATE: 7/12/07 NOTES REVISIONS: 247 OF EEP LETTER

Appendix C

-Vicinity Map-



VICINITY MAP



Scale: 1" = 4000'

2/2006

Drawn By: LMS

PREPARED BY:

ECOTONE, INC.

ENVIRONMENTAL CONSULTING, PERMITTING & DESIGN,
FOREST & WETLAND CREATION &
STREAM RESTORATION.

P.O. Box 5 • 1204 BALDWIN MILL ROAD • JARRETSVILLE, MARYLAND 21084
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PREPARED FOR:

ALBERMARLE RESTORATIONS, LLC

WETLAND RESTORATION,
STREAM RESTORATION,
& WILDLIFE HABITAT CREATION

404 COURT STREET • GATESVILLE, NC 27938
(252) 333-0249 • FAX (252) 357-4892



MODLIN PROPERTY
RIVERINE WETLAND MITIGATION
40.0 ACRES
MARTIN COUNTY, NORTH CAROLINA
EEP CONTRACT #: D05024-1