

**Alexander Wetland Mitigation Project
Greene County, North Carolina**

Year 4 Monitoring Report



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1.0 SUMMARY

The design for the Alexander Wetland Mitigation Site involved the restoration of a non-riverine, wet hardwood forest system as described by Schafale and Weakley (1990). Construction was completed in March 2003. It is estimated that wetland hydrology was restored to 18.5 acres, with an additional 0.9 acres of wetland created and 2.15 acres of wetland area preserved. Monitoring of this restoration project has taken place during the four growing seasons subsequent to construction completion and will continue through year five. This Annual Report summarizes the groundwater and vegetation monitoring activities performed on the Alexander Wetland Mitigation Site during the fourth year after construction. All data included in this report correspond to results obtained from monitoring during the year 2006 growing season.

This Annual Report presents data from three wetland monitoring stations as specified in the approved Mitigation Plan for the site. Two of these stations are equipped with manual groundwater gauges (A-M1 and A-M2) and the remaining station is equipped with an automated groundwater gauge (A-A1) and a manual calibration gauge. Each groundwater gauge location also serves as a base point from which photographs are taken and referenced. Hydrologically, the fourth post-construction growing season at the Alexander Wetland Mitigation Site was a successful one. The on-site groundwater monitoring gauge data showed the site experienced consecutive-day soil saturation within 12 inches of ground surface for over 7 percent of the growing season (17 successive days). This meets the hydrologic success criteria specified in the mitigation plan.

Part of the monitoring effort for this project includes observation of the relationship between local climatic conditions and site groundwater levels. Weather data from the Snow Hill Weather Station are used in conjunction with data collected from an on-site manual rain gauge to document precipitation.

Per the approved site Mitigation Plan, four vegetation plots, each 0.1 acre in size, are being used to document the survival success of the trees planted throughout the mitigation site. Survival of trees in each vegetation plot is used to estimate the average survival of all trees planted across the site. Photos from the vegetation plots are provided in Appendix C.

The vegetation monitoring indicated survival rates between 320 and 490 stems per acre. All plots are currently on target to meet the final vegetation survival criteria of 260 live stems per acre at the end next year's fifth growing season. Plots 1 and 2 are located in an area that burned during the 2005 growing season. The burned section of the site appears to have recovered fully, and both plots had sufficient regeneration to satisfy the success criteria. Herbaceous vegetation recovered tremendously and most likely benefited from the extra nutrient cycling resulting from last year's fire. An average survival of 383 stems per acre exists on the site.

2.0 INTRODUCTION

2.1 Project Description

The project site is located in Greene County, North Carolina, approximately five miles east of the town of Snow Hill, off Suggs Road (SR 1490; Figure 1 and Figure 2). It is within Middle Neuse watershed (hydrologic unit 03020203) in the Neuse River Basin. Appendix A contains the As-Built survey for the Alexander Site.

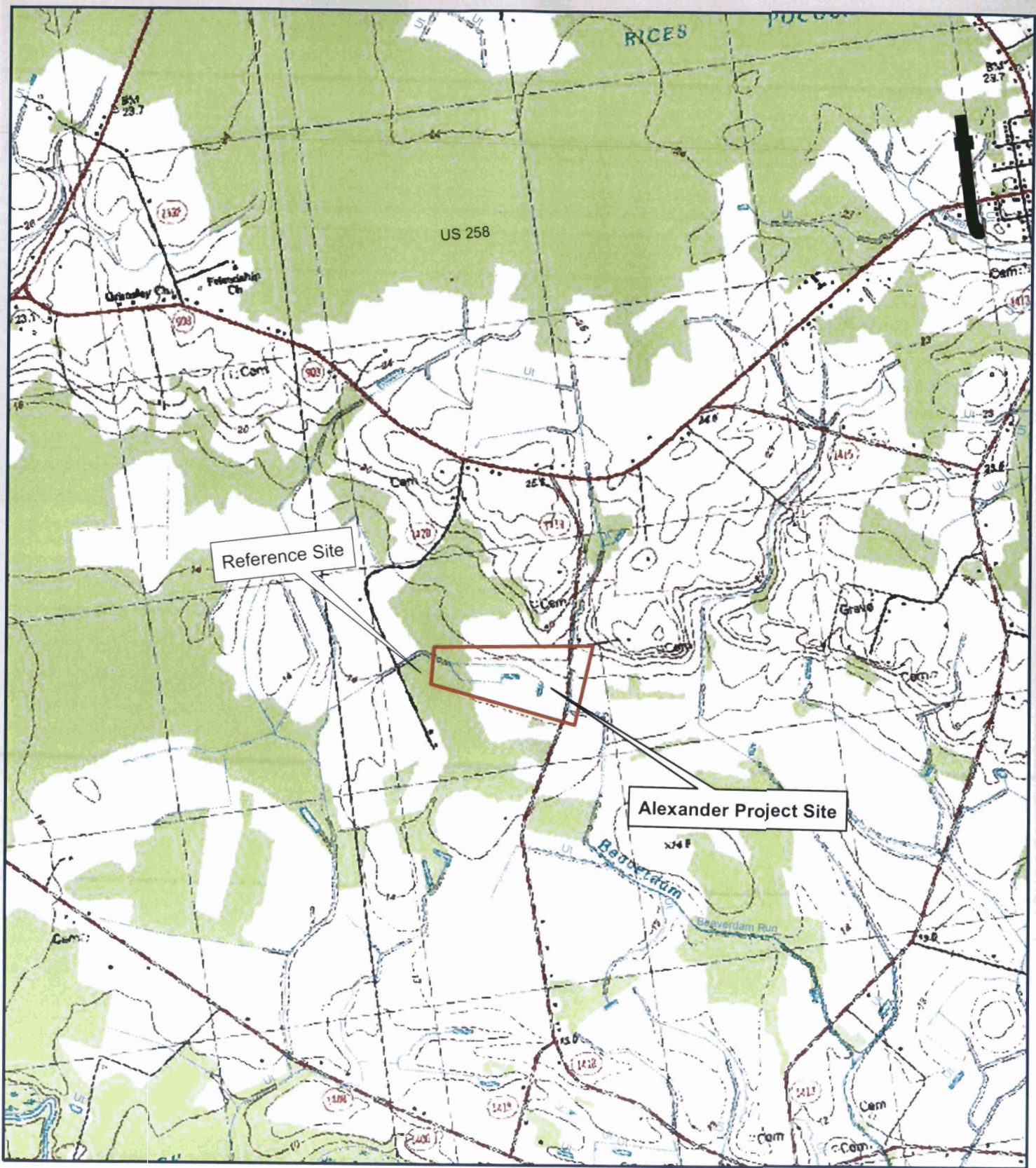
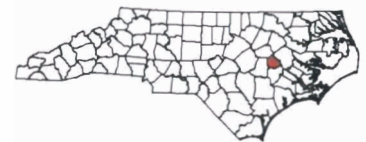


Figure 2.
 Alexander Wetland Mitigation Site
 USGS Topographic Map
 Greene County, NC

1 inch equals 2,000 feet



2.2 Project Purpose

This project provides full-delivery compensatory mitigation for wetland impacts associated with North Carolina Department of Transportation (NCDOT) projects within the resident hydrologic unit. The Alexander Site was designed to restore a non-riverine, wet hardwood forest system as described by Schafale and Weakley (1990). Construction, planting, and installation of groundwater and rain gauge monitoring equipment were all completed in March 2003 (Table 1).

2.3 Project History and Schedule

The Mitigation Plan predicted that approximately 18.5 acres of wetland restoration and 2.4 acres of wetland creation were available on the site. Post-construction survey verified restoration practices were implemented on an area covering 18.5 acres, and revealed the amount of created wetlands reached only 0.9 acres. Wet conditions during construction made it difficult to move fill material from one area of the site to another. For this reason, a non-hydric soil area at the lower southwestern corner of the site that required placement of hydric soils for wetland creation was left unconverted. This reduced the total created wetland area to only 0.9 acre instead of the targeted 2.4 acres. To compensate for this, an additional 2.15 acres of wetlands existing on the western side of the mitigation site were preserved through the establishment of a conservation easement surrounding the entire mitigation site.

Table1. Project Activity and Reporting History

May 2000	Pre-Restoration Monitoring Gauges Installed
March 2003	Approved Mitigation Plan Construction
March 2003	Began
March 2003	Construction Completed
March 2003	Post-Construction Monitoring Plots Established
March 2003	Planting Completed
April 2003	As-Built Report Submitted
November 2003	1 st Annual Monitoring Report
November 2004	2 nd Annual Monitoring Report
November 2005	3 rd Annual Monitoring Report
November 2006	4 th Annual Monitoring Report
November 2007(scheduled)	5 th Annual Monitoring Report

3.0 HYDROLOGY

3.1 Success Criteria

The hydrologic success criterion for this site requires the groundwater table remain within 12 inches of the soil surface for at least 7 percent of the growing season. The National Weather Service Wetlands Determination Tables (WETS) defines the growing season for Greene County as that 242-day period extending from March 16 to November 13 of each year. Using this data as a base, the time period for which the hydrologic success criterion must be met translates to 17 consecutive days.

The Mitigation Plan specifies that groundwater data are to be collected from manual and automated groundwater gauges. This plan further specifies that successful hydrologic data must demonstrate wetland conditions are present in normal or dryer than normal conditions. Monitoring data collected from the reference wetland system identified in the Mitigation Plan are included here to demonstrate the positive correlation between the site's restored hydrology and the natural hydrology of the target system.

3.2 Description of Hydrologic Monitoring

Monitoring stations were established across the site to document the restoration of wetland hydrology. Two manual groundwater gauges (A-M1 and A-M2), one automated Infinities groundwater gauge (A-A1), and one rain gauge were installed on-site to monitor hydrology (Figure 3). All manual and automated groundwater gauges were installed to a depth of at least 32 inches below the ground surface. The monitoring protocol for the site specifies that automated monitoring stations must be downloaded and checked for malfunctions on a monthly basis. During monthly site visits, manual groundwater gauges are read and rainfall totals are collected from the on-site rain gauge. Data from monitoring gauges are presented in Appendix B. Monitoring data collected to date indicate that a range of wetland hydrology conditions have been successfully restored to the Alexander Site.

Automatic groundwater gauges record water table elevations twice daily at 08:00 and 20:00. Infinities gauges employ pressure sensors that record water elevation above the bottom of the sensor (with atmospheric pressure compensation). Immediately adjacent to each automatic gauge is a manual calibration gauge. The calibration water table depth is recorded at monthly downloads. To determine wetland hydroperiods the automatically recorded data are compared to the calibration data to determine a standard correction factor between the calibration gauge and the automatic gauge for each location. The standard correction factor is applied to correct daily readings. The corrected daily readings are used to determine wetland hydroperiods.

Water table depths are recorded monthly in manual groundwater gauges. Each manual gauge is correlated to an automatic gauge based on proximity, landscape position, and the relationship of their groundwater depth readings (i.e. if their readings are separated by a consistent value). To calculate wetland hydroperiods interpolations are made between monthly readings by correlating twice daily readings from an automatic gauge. A correction factor is calculated for each monthly manual gauge reading. A daily rate of change between monthly correction factors is calculated to determine the daily correction factor. The daily correction factor is then applied to the automatic gauge readings to

WETLAND HYDROPERIOD

- > 7 %
- ◐ 5-7 %
- < 5 %

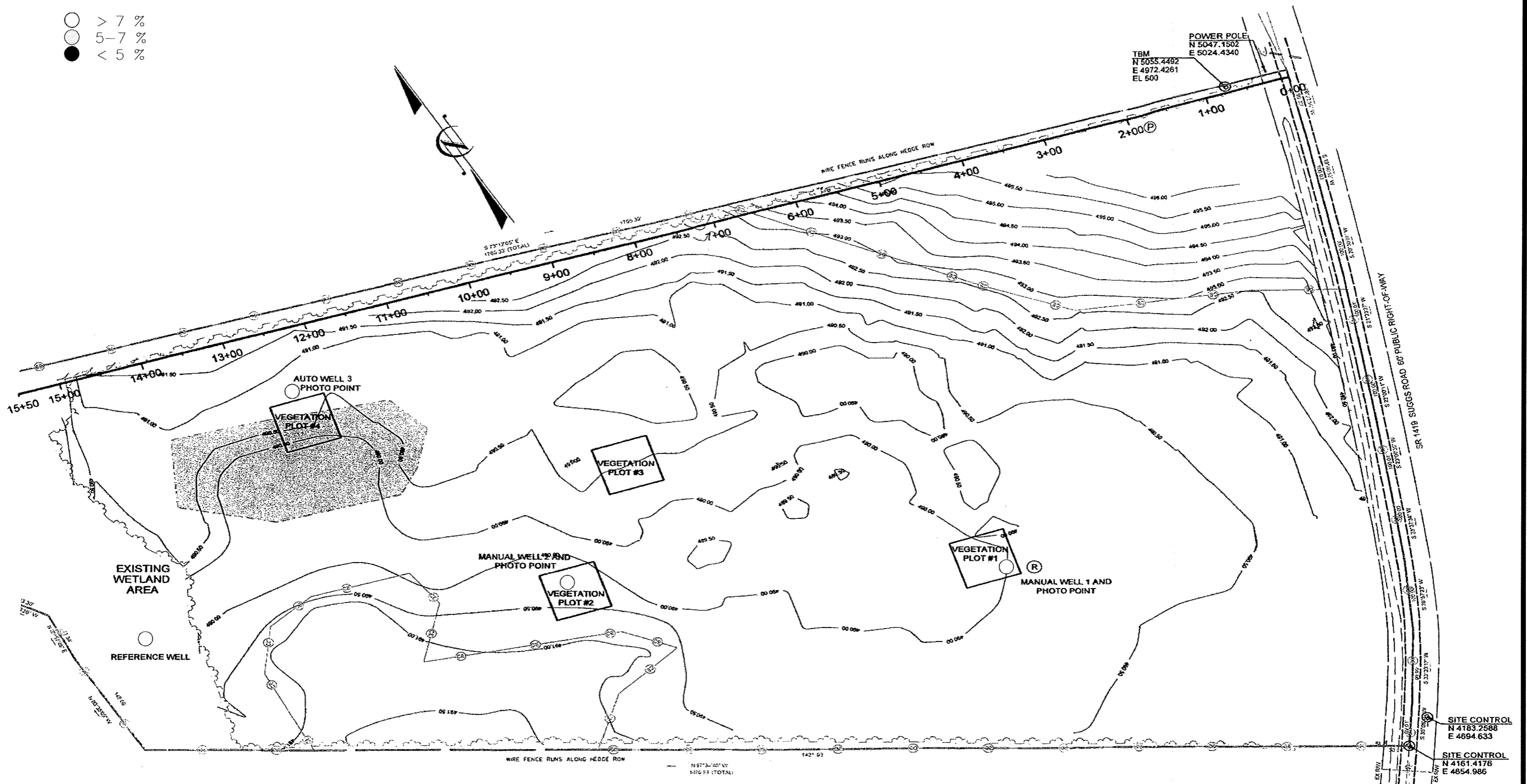


Figure 3
Alexander

SCALE (FT)

calculate an estimated daily water table depth for the manual gauge. These interpolated daily water levels are used to determine wetland hydroperiods.

Wetland hydroperiods are calculated from twice daily water table depth recordings. A hydroperiod is calculated if the water table is equal to or less than 12 inches below ground surface for at least 24 hours. If a gauge falls below 12 inches for two consecutive readings (24 hours) then the hydroperiod ends at the last reading within 12 inches. If a gauge falls below -12 inches for only one reading then maintains a reading above -12 inches for a minimum of 24 hours then the hydroperiod is calculated continuously. This methodology accounts for minor technical malfunctions occasionally experienced by the automatic gauges.

3.3 Results of Hydrology Monitoring

Site Data

The following hydroperiod statistics were calculated for each monitoring station during the growing season: 1) most consecutive days that the water table was within twelve inches of the soil surface; 2) cumulative number of days that the water table was within twelve inches of the soil surface; and 3) number of times that the water table rose to within twelve inches of the soil surface. The results of these calculations are presented in Table 2. Figure 4 provides a chart of the water depth for each of the on-site groundwater monitoring gauges.

Table 2. Hydrologic Monitoring Results for 2006 (Year 4)

2006 Max Hydroperiod (Growing Season 16-Mar through 13-Nov, 242 days)					
Monitoring Gauge	Consecutive		Cumulative		Occurrences
	Days	Percent of Growing Season	Days	Percent of Growing Season	
AW1	27	11	148	61	12
MW1	25	10	---	---	5
MW2	21	9	---	---	5
Ref AW1	32	13	160	66	11

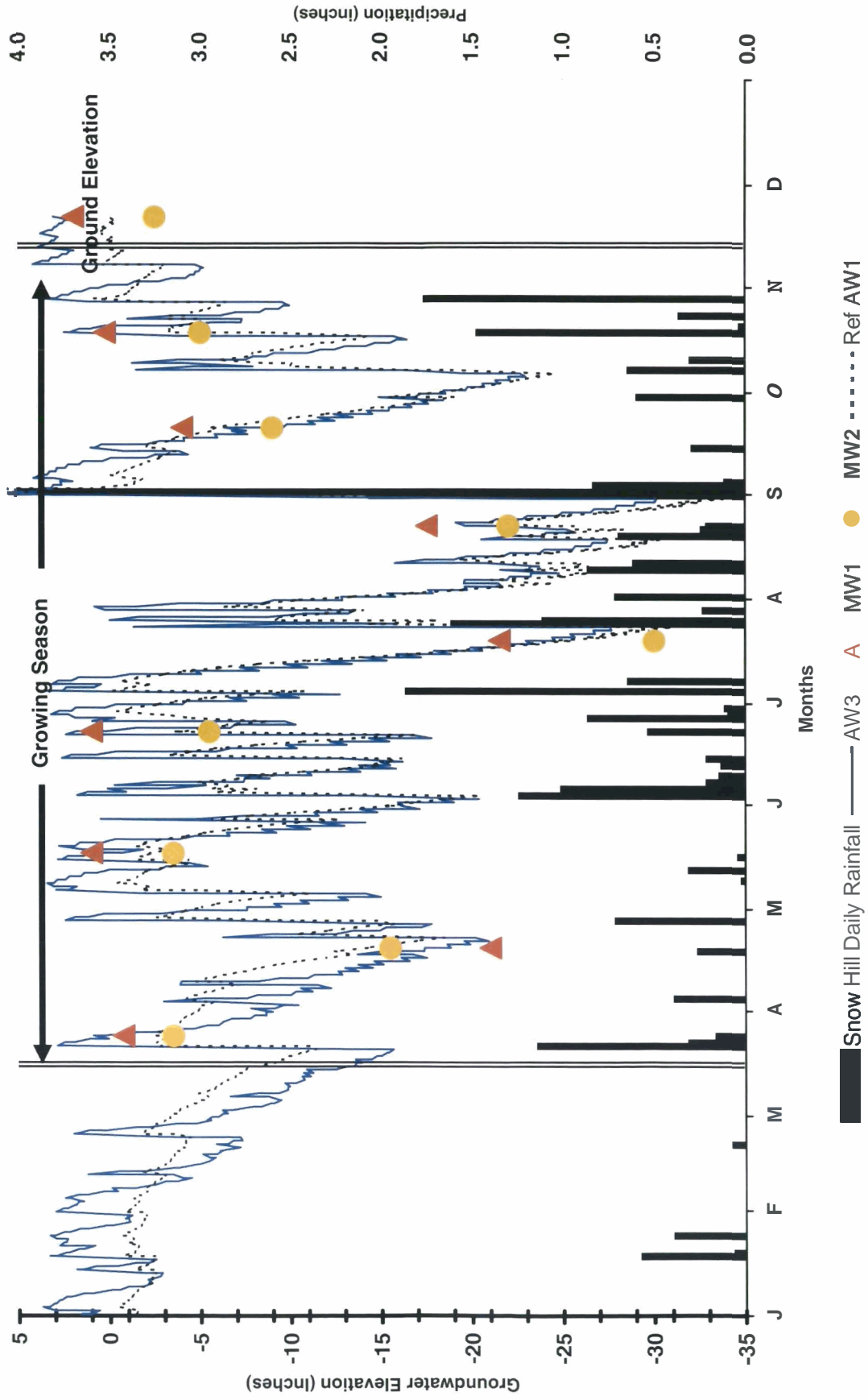
The site was designed to function with rainfall as its primary hydrologic influence. Groundwater levels are closely related to local climatic conditions and monitoring shows the influence of rainfall on-site hydrology. More detailed information on precipitation data is included in Section 3.3.2 of this report. Appendix B contains daily groundwater gauge data.

Reference Data

The approved Mitigation Plan states that if the rainfall data for any given year during the monitoring period is not normal the reference wetland data can be accessed to determine if there is a positive correlation between the performance of the restoration site and the natural hydrology of the reference site.

Although appropriate hydrology was observed at the mitigation site during the 2006 monitoring season, data from the reference site are compared to restoration site data in Figure 4. Data from the reference wetland groundwater gauge show a positive correlation with the automated and manual groundwater gauges located across the restoration site.

Figure 4. 2006 Alexander Groundwater Gauges



Automated gauge data show the similarity of the natural hydrology of the reference site to the restored hydrology of the Alexander Mitigation Site. Since the reference site is adjacent to the restoration site, the sites are subject to the same climatic conditions.

Climate Data

Table 3 and Figure 5 are a comparison of the local 2006 monthly rainfall to historical precipitation data collected between 1961 and 1990 for the Greene County area. This local data is provided by the National Weather Service (NWS) Cooperative Observer Program (COOP), a national weather and climate observing network. Observed data presented were collected approximately 5 miles west of the project site from an automated weather station in Snow Hill, Greene County (Station: 318060 - Snow Hill 2 SW). Monthly rainfall for November and December 2006 were not available at the time of this report preparation.

2006 rain data collected from the automated gauge at Snow Hill show below normal rainfall for January through May. Rainfall was within normal limits in June through August and October. September rainfall exceeded normal limits due to a tropical storm.

Appendix B contains on-site rain gauge data and Snow Hill daily rain gauge data.

Table 3. Comparison of Normal Rainfall to Observed Rainfall

Month	Average	Normal Limits		Snow Hill Precipitation
		30 Percent	70 Percent	
January	4.22	3.16	4.93	0.99
February	3.75	2.78	4.4	0.06
March	3.86	2.86	4.52	1.58
April	3.33	1.97	4.04	1.33
May	4.33	2.86	5.19	0.34
June	4.85	3.06	5.85	4.85
July	5.27	3.57	6.29	5.40
August	6.26	3.96	7.55	5.31
September	4.25	2.38	5.17	10.28
October	3.01	1.63	3.68	4.5
November	2.9	1.94	3.47	---
December	3.3	2.13	3.97	---

3.4 Hydrology Conclusions

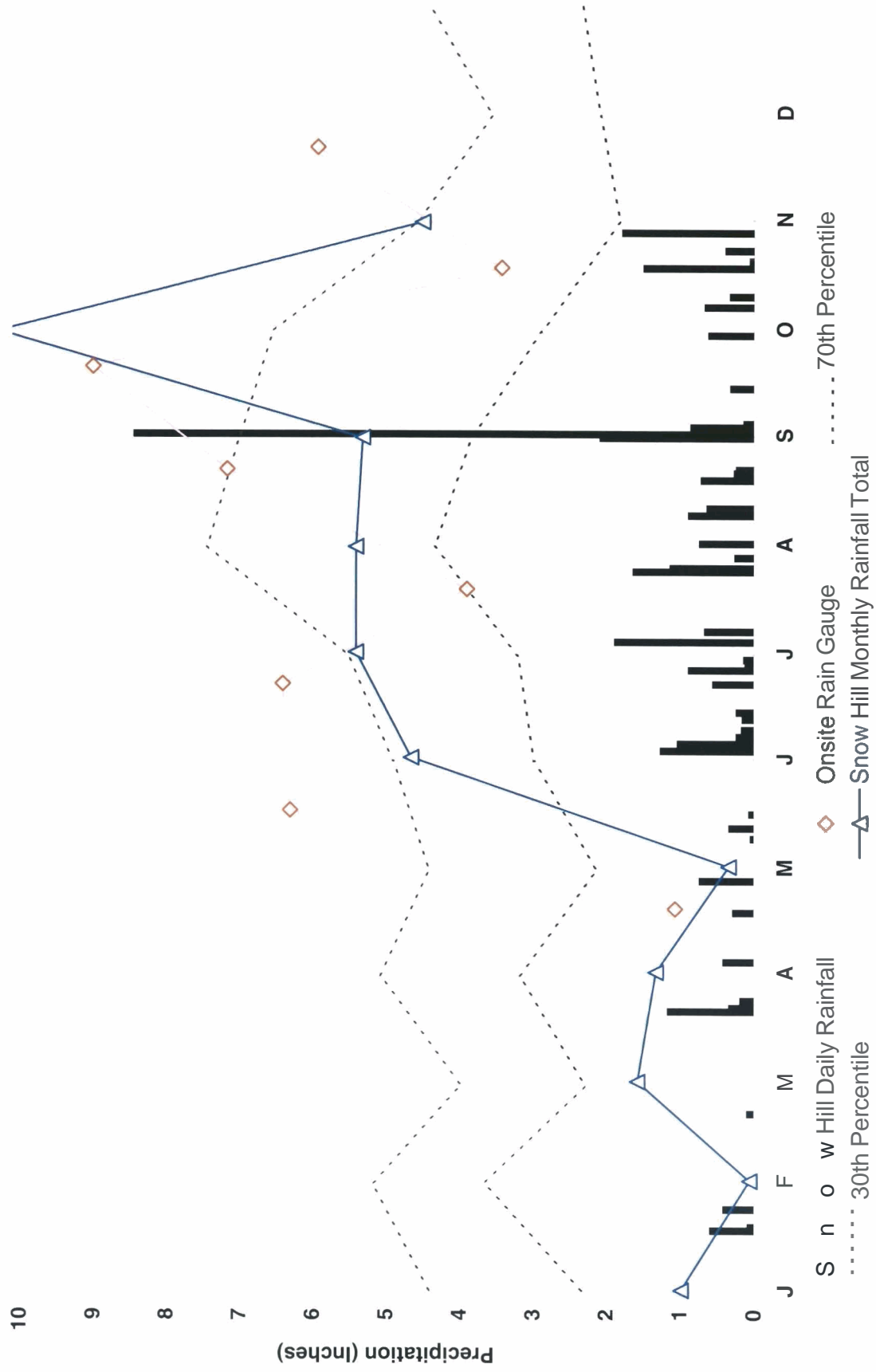
Data collected from all the groundwater monitoring gauges on the Alexander Mitigation Site indicate that hydrologic success criteria were met during the 2006 growing season. All gauges indicated constant saturated conditions for greater than 7 percent of the growing season. In general, constant saturated conditions were documented ranging from an estimated 9 percent to 11 percent of the growing season, with cumulative saturated conditions for over 60 percent of the growing season in the automatic monitoring gauge. These data, together with the corresponding climatic data for the area, demonstrate that the site was able to meet the hydrologic success criteria for the 2006 growing season.

4.0 VEGETATION

4.1 Vegetation Success Criteria

The interim measure of vegetative success for the Alexander Mitigation Plan was the survival of at least 320 3-year old planted trees per acre at the end of year 3 of the

Figure 5.2006 Precipitation for Alexander Site



monitoring period. This was achieved as documented in the 2005 Monitoring Report. The final vegetative success criterion is the survival of 260 five-year old planted trees per acre at the end of year five of the monitoring period.

Up to 20 percent of the site species composition may be comprised of invaders (i.e. loblolly pine, red maple, sweet gum, etc.). Remedial action may be required should these present a problem and exceed 20 percent of the overall plant community.

4.2 Description of Species and Vegetation Monitoring Protocol

Table 4 details the tree species planted in the Wetland Restoration Area:

Table 4. Planted Tree Species

ID	Scientific Name	Common Name	Wetland Status
1	<i>Fraxinus pennsylvanica</i>	Green Ash	FACW
2	<i>Nyssa biflora</i>	Swamp Tupelo	OBL
3	<i>Nyssa sylvatica</i>	Blackgum	FAC
4	<i>Quercus laurifolia</i>	Laurel Oak	FACW
5	<i>Quercus michauxii</i>	Swamp Chestnut Oak	FACW-
6	<i>Quercus phellos</i>	Coastal Willow Oak	FACW-
7	<i>Quercus shumardii</i>	Shumard Oak	FACW-
8	<i>Taxodium distichum</i>	Bald Cypress	OBL

All of the planted stems inside the monitoring plots were flagged to mark them as the planted stems (vs. any colonizers) and to help in locating them in the future. Each stem was then tagged with a numbered aluminum tag. During the 2004 growing season 3 foot sections of half-inch PVC were installed adjacent to the planted trees. The PVC pipe was reinstalled in plot 1 and plot 2 in the fall of 2005 due to the damage incurred during the fire earlier that year.

4.3 Results of Vegetation Monitoring

The following tables present stem counts for each of the monitoring plots. In Table 5, each planted tree species is identified across the top row, and each plot is identified down the left column. The numbers on the top row correlate to the ID column of the previous table (Table 4). Trees are re-flagged regularly before the flags degrade. Flags are utilized because they will not interfere with the growth of the tree. Volunteers are also flagged during this process.

Table 5. 2006 Vegetation Monitoring Plot Species Composition

Plot	1	2	3	4	5	6	7	8	Total	2006 Stem/ac	Planted Stem/ac
A1	13	2	3	1	0	0	0	13	32	320	530
A2	12	2	7	3	4	2	2	4	36	360	600
A3	6	1	4	1	10	4	7	3	36	360	530
A4	1	0	4	2	10	0	32	0	49	490	590

Average Stems/Acre: 383

Range of Stems/Acre: 320-490

Volunteer species are also monitored throughout the five-year monitoring period. The current volunteer count on the Alexander site is minimal throughout most of the site, but along the northern border of the site there are many sizable sweet gum and pine near the forest edges. A few volunteers were seen in the vegetation monitoring plots, and they will be counted toward the final stem count if they persist. Table 6 details tree species identified as volunteers within the wetland restoration area.

Table 6. Volunteer Tree Species

ID	Species	Common Name	FAC Status
A	<i>Liquidambar styraciflua</i>	Sweetgum	FAC+
B	<i>Platanus occidentalis</i>	Sycamore	FACW-
C	<i>Acer rubrum</i>	Red Maple	FAC
D	<i>Carya spp.</i> (1)	Hickory	(2)
E	<i>Fraxinus spp.</i> (1)	Ash	(2)

(1) Sapling; positive ID not possible

(2) Unknown until completely identified

4.4 General Vegetation Observations

After construction of the mitigation site a permanent groundcover seed mixture of Virginia wild rye (*Elymus virginicus*), switch grass (*Panicum virgatum*), and fox sedge (*Carex vulpinoidea*) was broadcast on the site at a rate of 10 pounds per acre. These planted groundcover species, along with volunteering panic grass (*Dicanthelium spp.*), rice cut grass (*Leersia spp.*) and a bent grass (*Agrostis spp.*), pose no threat to the survival or health of the planted or naturally occurring hydrophytic vegetation. Hydrophytic herbaceous vegetation, including rush (*Juncus effusus*), sedge (*Carex sp.* & *Cyperus sp.*), tear-thumb (*Polygonum sagittatum*), cat-tail (*Typha latifolia*), giant cane (*Arundinaria gigantea*), and spike-rush (*Eleocharis obtusa*), has widely volunteered across the site, and has grown particularly dense in inundated areas. The presence of these herbaceous wetland plants helps to confirm the sustained wetland hydrology on the site.

There are a few mesic weedy species occurring on the perimeter of the site, though none seem to be posing any problems for the hydrophytic vegetation. The majority of the weedy species are annuals found on isolated hummocks and poses very little threat to survival on site. Weedy vegetation includes ragweed (*Ambrosia artemisiifolia*) and sedge (*Cyperus spp.*). The hummock features are consistent with the targeted wetland system.

Appendix C contains 2006 site photos.

4.5 Vegetation Conclusions

Approximately 18.5 acres of this site was planted in non-riverine wet hardwood species in March 2003. There were four 0.1 acre vegetation-monitoring plots established throughout the planted areas. Vegetation monitoring documented tree survival rates ranging between 320 and 490 stems per acre. Numerous trees re-generated in the spring of 2006, recovering from the field fire of 2005, and all vegetation monitoring plots are on target for meeting next year's final success criteria. Appendix C contains representative digital images from across the mitigation site.

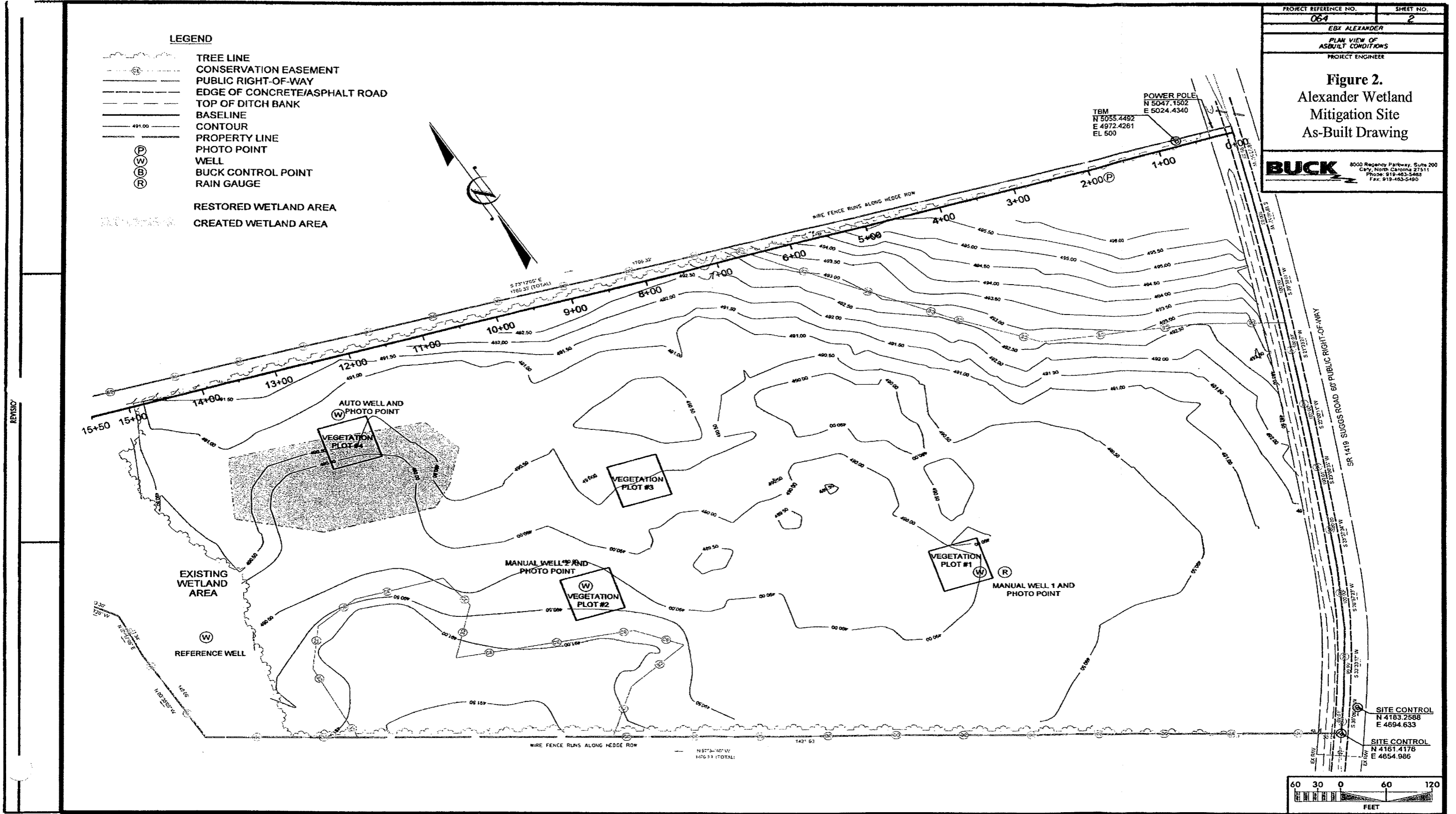
5.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

- Fourth year hydrologic monitoring data document that wetland hydrology success criteria have been achieved.
- Vegetation monitoring documents that all plots are on target to achieve the fifth year vegetative success criteria of 260 stems per acre.
- Survival within each plot is at or above the acceptable level.
- The field fire of 2005 caused plots 1 and 2 to have higher mortality, but most of the trees regenerated from undamaged root stock.
- Monitoring of vegetation and groundwater and surface water levels will continue through the 2007 growing season (Year Five).

APPENDIX A

As-Built Survey

Figure 2. Alexander Wetland Mitigation Site As-Built Drawing.



APPENDIX B

2006 Gauge Data

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
1-Jan-06	08:00:00	1.58					
1-Jan-06	20:00:00	1.05			-1.41		
2-Jan-06	08:00:00	0.60			-1.52		
2-Jan-06	20:00:00	3.08			-1.55		
3-Jan-06	08:00:00	3.72			-0.54		
3-Jan-06	20:00:00	3.34			-0.50		
4-Jan-06	08:00:00	3.09			-0.68		
4-Jan-06	20:00:00	2.98			-0.82		
5-Jan-06	08:00:00	2.81			-0.88		
5-Jan-06	20:00:00	2.69			-0.95		
6-Jan-06	08:00:00	2.43			-1.02		
6-Jan-06	20:00:00	2.12			-1.15		
7-Jan-06	08:00:00	1.45			-1.30		
7-Jan-06	20:00:00	0.99			-1.42		
8-Jan-06	08:00:00	-0.07			-1.51		
8-Jan-06	20:00:00	-0.49			-1.64		
9-Jan-06	08:00:00	-0.97			-1.73		
9-Jan-06	20:00:00	-1.79			-1.81		
10-Jan-06	08:00:00	-2.29			-2.08		
10-Jan-06	20:00:00	-2.28			-2.23		
11-Jan-06	08:00:00	-2.07			-2.28		
11-Jan-06	20:00:00	-2.05			-2.28		
12-Jan-06	08:00:00	-2.72			-2.30		
12-Jan-06	20:00:00	-2.73			-2.39		
13-Jan-06	08:00:00	-2.86			-2.46		
13-Jan-06	20:00:00	-1.83			-2.54		
14-Jan-06	08:00:00	1.86			-2.38		
14-Jan-06	20:00:00	1.52			-1.33		
15-Jan-06	08:00:00	0.77			-1.66		
15-Jan-06	20:00:00	-0.37			-1.94		
16-Jan-06	08:00:00	-1.41			-2.18		
16-Jan-06	20:00:00	-2.12			-2.29		
17-Jan-06	08:00:00	-2.52			-2.38		
17-Jan-06	20:00:00	-2.22			-2.47		
18-Jan-06	08:00:00	3.33			-2.43		0.56
18-Jan-06	20:00:00	2.93			-0.71		
19-Jan-06	08:00:00	2.41			-1.15		0.05
19-Jan-06	20:00:00	2.25			-1.32		
20-Jan-06	08:00:00	1.74			-1.39		
20-Jan-06	20:00:00	1.48			-1.50		
21-Jan-06	08:00:00	0.85			-1.56		
21-Jan-06	20:00:00	2.79			-1.64		
22-Jan-06	08:00:00	2.55			-0.91		
22-Jan-06	20:00:00	2.43			-1.25		
23-Jan-06	08:00:00	2.35			-1.30		
23-Jan-06	20:00:00	2.96			-1.27		
24-Jan-06	08:00:00	3.32			-0.99		0.38
24-Jan-06	20:00:00	3.02			-0.70		
25-Jan-06	08:00:00	2.55			-0.89		
25-Jan-06	20:00:00	2.24			-1.03		
26-Jan-06	08:00:00	1.66			-1.24		
26-Jan-06	20:00:00	1.22			-1.38		
27-Jan-06	08:00:00	0.22			-1.53		
27-Jan-06	20:00:00	-0.13			-1.69		
28-Jan-06	08:00:00	-1.09			-1.75		
28-Jan-06	20:00:00	-1.04			-1.84		
29-Jan-06	08:00:00	-1.01			-1.88		
29-Jan-06	20:00:00	-0.80			-1.88		
30-Jan-06	08:00:00	-1.20			-1.89		
30-Jan-06	20:00:00	-1.14			-1.99		
31-Jan-06	08:00:00	2.88			-2.01		
31-Jan-06	20:00:00	3.00			-0.77		
1-Feb-06	08:00:00	2.57			-1.14		
1-Feb-06	20:00:00	2.35			-1.26		
2-Feb-06	08:00:00	1.95			-1.38		
2-Feb-06	20:00:00	1.87			-1.45		
3-Feb-06	08:00:00	1.74			-1.50		
3-Feb-06	20:00:00	1.45			-1.54		
4-Feb-06	08:00:00	2.24			-1.64		
4-Feb-06	20:00:00	2.48			-1.30		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
5-Feb-06	08:00:00	1.78			-1.40		
5-Feb-06	20:00:00	1.27			-1.65		
6-Feb-06	08:00:00	0.36			-1.83		
6-Feb-06	20:00:00	-0.41			-2.01		
7-Feb-06	08:00:00	-0.09			-2.10		
7-Feb-06	20:00:00	-1.39			-2.01		
8-Feb-06	08:00:00	-2.41			-2.20		
8-Feb-06	20:00:00	-2.48			-2.39		
9-Feb-06	08:00:00	-3.05			-2.46		
9-Feb-06	20:00:00	-3.65			-2.62		
10-Feb-06	08:00:00	-4.49			-2.80		
10-Feb-06	20:00:00	-4.00			-3.03		
11-Feb-06	08:00:00	-3.44			-3.00		
11-Feb-06	20:00:00	1.24			-3.01		
12-Feb-06	08:00:00	-0.55			-1.79		
12-Feb-06	20:00:00	-1.91			-2.04		
13-Feb-06	08:00:00	-3.56			-2.32		
13-Feb-06	20:00:00	-3.79			-2.61		
14-Feb-06	08:00:00	-4.77			-2.77		
14-Feb-06	20:00:00	-4.87			-2.99		
15-Feb-06	08:00:00	-5.46			-3.13		
15-Feb-06	20:00:00	-5.45			-3.27		
16-Feb-06	08:00:00	-5.80			-3.37		
16-Feb-06	20:00:00	-5.47			-3.50		
17-Feb-06	08:00:00	-5.09			-3.52		
17-Feb-06	20:00:00	-5.88			-3.52		
18-Feb-06	08:00:00	-6.16			-3.64		
18-Feb-06	20:00:00	-6.05			-3.78		
19-Feb-06	08:00:00	-7.18			-3.83		
19-Feb-06	20:00:00	-7.16			-4.06		
20-Feb-06	08:00:00	-5.85			-4.18		
20-Feb-06	20:00:00	-6.50			-4.16		0.06
21-Feb-06	08:00:00	-6.77			-4.14		
21-Feb-06	20:00:00	-7.29			-4.22		
22-Feb-06	08:00:00	-7.18			-4.35		
22-Feb-06	20:00:00	-3.60			-4.44		
23-Feb-06	08:00:00	2.00			-3.55		
23-Feb-06	20:00:00	1.93			-1.73		
24-Feb-06	08:00:00	1.18			-1.93		
24-Feb-06	20:00:00	0.22			-2.10		
25-Feb-06	08:00:00	-1.40			-2.35		
25-Feb-06	20:00:00	-2.12			-2.49		
26-Feb-06	08:00:00	-3.62			-2.53		
26-Feb-06	20:00:00	-4.73			-2.69		
27-Feb-06	08:00:00	-5.55			-3.00		
27-Feb-06	20:00:00	-5.32			-3.28		
28-Feb-06	08:00:00	-5.59			-3.29		
28-Feb-06	20:00:00	-5.96			-3.39		
1-Mar-06	08:00:00	-6.23			-3.52		
1-Mar-06	20:00:00	-6.48			-3.65		
2-Mar-06	08:00:00	-6.18			-3.79		
2-Mar-06	20:00:00	-6.73			-3.80		
3-Mar-06	08:00:00	-7.87			-3.91		
3-Mar-06	20:00:00	-8.32			-4.24		
4-Mar-06	08:00:00	-8.85			-4.46		
4-Mar-06	20:00:00	-9.03			-4.73		
5-Mar-06	08:00:00	-9.46			-4.92		
5-Mar-06	20:00:00	-9.39			-5.17		
6-Mar-06	08:00:00	-8.73			-5.32		
6-Mar-06	20:00:00	-6.62			-5.39		
7-Mar-06	08:00:00	-8.14			-4.87		
7-Mar-06	20:00:00	-9.32			-5.15		
8-Mar-06	08:00:00	-9.82			-5.46		
8-Mar-06	20:00:00	-9.79			-5.72		
9-Mar-06	08:00:00	-9.84			-5.85		
9-Mar-06	20:00:00	-9.92			-6.01		
10-Mar-06	08:00:00	-9.65			-6.17		
10-Mar-06	20:00:00	-10.25			-6.25		
11-Mar-06	08:00:00	-10.73			-6.47		
11-Mar-06	20:00:00	-10.75			-6.71		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
12-Mar-06	08:00:00	-10.60			-6.91		
12-Mar-06	20:00:00	-11.09			-7.02		
13-Mar-06	08:00:00	-10.68			-7.16		
13-Mar-06	20:00:00	-11.23			-7.26		
14-Mar-06	08:00:00	-10.85			-7.42		
14-Mar-06	20:00:00	-12.49			-7.51		
15-Mar-06	08:00:00	-13.13			-7.90		
15-Mar-06	20:00:00	-13.52			-8.38		
16-Mar-06	08:00:00	-13.61			-8.78		
16-Mar-06	20:00:00	-13.90			-9.11		
17-Mar-06	08:00:00	-13.56			-9.39		
17-Mar-06	20:00:00	-14.46			-9.57		
18-Mar-06	08:00:00	-14.74			-9.90		
18-Mar-06	20:00:00	-14.98			-10.21		
19-Mar-06	08:00:00	-15.31			-10.52		
19-Mar-06	20:00:00	-15.40			-10.84		
20-Mar-06	08:00:00	-15.66			-11.07		
20-Mar-06	20:00:00	-14.10			-11.36		
21-Mar-06	08:00:00	2.70			-11.28		1.13
21-Mar-06	20:00:00	2.89			-2.81		
22-Mar-06	08:00:00	2.48			-2.52		0.3
22-Mar-06	20:00:00	1.94			-2.57		
23-Mar-06	08:00:00	1.10			-2.71		
23-Mar-06	20:00:00	0.07			-2.89		
24-Mar-06	08:00:00	0.91	-0.75	-3.50	-3.01		0.15
24-Mar-06	20:00:00	0.22			-2.55		
25-Mar-06	08:00:00	-1.36			-2.55		
25-Mar-06	20:00:00	-2.53			-2.77		
26-Mar-06	08:00:00	-3.62			-2.98		
26-Mar-06	20:00:00	-4.60			-3.16		
27-Mar-06	08:00:00	-5.37			-3.34		
27-Mar-06	20:00:00	-5.98			-3.54		
28-Mar-06	08:00:00	-6.24			-3.69		
28-Mar-06	20:00:00	-6.21			-3.84		
29-Mar-06	08:00:00	-6.71			-3.92		
29-Mar-06	20:00:00	-7.73			-4.05		
30-Mar-06	08:00:00	-7.99			-4.25		
30-Mar-06	20:00:00	-8.63			-4.45		
31-Mar-06	08:00:00	-8.60			-4.64		
31-Mar-06	20:00:00	-8.99			-4.81		
1-Apr-06	08:00:00	-7.77			-4.94		
1-Apr-06	20:00:00	-9.10			-4.98		
2-Apr-06	08:00:00	-9.58			-5.08		
2-Apr-06	20:00:00	-10.41			-5.38		
3-Apr-06	08:00:00	-5.63			-5.69		
3-Apr-06	20:00:00	-2.95			-5.27		
4-Apr-06	08:00:00	-5.14			-4.18		0.38
4-Apr-06	20:00:00	-7.55			-4.23		
5-Apr-06	08:00:00	-8.15			-4.59		
5-Apr-06	20:00:00	-9.99			-4.83		
6-Apr-06	08:00:00	-10.26			-5.28		
6-Apr-06	20:00:00	-11.20			-5.65		
7-Apr-06	08:00:00	-10.54			-6.07		
7-Apr-06	20:00:00	-12.23			-6.24		
8-Apr-06	08:00:00	-11.46			-6.76		
8-Apr-06	20:00:00	-3.85			-6.96		
9-Apr-06	08:00:00	-3.93			-6.13		
9-Apr-06	20:00:00	-8.18			-4.77		
10-Apr-06	08:00:00	-9.37			-5.30		
10-Apr-06	20:00:00	-10.93			-5.62		
11-Apr-06	08:00:00	-11.29			-6.18		
11-Apr-06	20:00:00	-12.84			-6.50		
12-Apr-06	08:00:00	-12.62			-7.25		
12-Apr-06	20:00:00	-13.75			-7.50		
13-Apr-06	08:00:00	-13.00			-8.17		
13-Apr-06	20:00:00	-14.52			-8.30		
14-Apr-06	08:00:00	-13.72			-9.16		
14-Apr-06	20:00:00	-15.11			-9.29		
15-Apr-06	08:00:00	-14.59			-10.31		
15-Apr-06	20:00:00	-16.55			-10.45		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
16-Apr-06	08:00:00	-16.08			-11.97		
16-Apr-06	20:00:00	-17.51			-12.15		
17-Apr-06	08:00:00	-16.71			-13.38		
17-Apr-06	20:00:00	-13.68			-13.33		
18-Apr-06	08:00:00	-15.21			-12.44		0.25
18-Apr-06	20:00:00	-17.35			-12.55		
19-Apr-06	08:00:00	-17.38		-15.50	-14.31		
19-Apr-06	20:00:00	-18.82	-21.00		-14.23		
20-Apr-06	08:00:00	-18.62			-15.52	1.07	
20-Apr-06	20:00:00	-19.89			-15.48		
21-Apr-06	08:00:00	-19.56			-16.95		
21-Apr-06	20:00:00	-20.92			-16.89		
22-Apr-06	08:00:00	-20.18			-18.46		
22-Apr-06	20:00:00	-6.24			-18.06		
23-Apr-06	08:00:00	-8.94			-11.19		
23-Apr-06	20:00:00	-12.45			-10.28		
24-Apr-06	08:00:00	-13.42			-12.02		
24-Apr-06	20:00:00	-14.89			-11.93		
25-Apr-06	08:00:00	-15.25			-13.68		
25-Apr-06	20:00:00	-17.19			-13.46		
26-Apr-06	08:00:00	-17.77			-15.68		
26-Apr-06	20:00:00	-15.72			-15.62		
27-Apr-06	08:00:00	-6.34			-14.76		0.7
27-Apr-06	20:00:00	2.44			-10.28		
28-Apr-06	08:00:00	1.88			-2.60		
28-Apr-06	20:00:00	1.16			-2.82		
29-Apr-06	08:00:00	0.31			-3.52		
29-Apr-06	20:00:00	-2.81			-3.44		
30-Apr-06	08:00:00	-4.45			-4.35		
30-Apr-06	20:00:00	-7.56			-4.17		
1-May-06	08:00:00	-7.57			-5.18		
1-May-06	20:00:00	-9.48			-5.08		
2-May-06	08:00:00	-9.06			-5.99		
2-May-06	20:00:00	-11.01			-5.91		
3-May-06	08:00:00	-10.52			-7.19		
3-May-06	20:00:00	-13.18			-7.16		
4-May-06	08:00:00	-12.63			-8.88		
4-May-06	20:00:00	-14.98			-8.99		
5-May-06	08:00:00	-14.11			-10.98		
5-May-06	20:00:00	-1.75			-11.04		
6-May-06	08:00:00	2.95			-4.95		
6-May-06	20:00:00	2.25			-1.71		
7-May-06	08:00:00	1.82			-2.25		
7-May-06	20:00:00	3.07			-2.16		
8-May-06	08:00:00	3.44			-1.35		
8-May-06	20:00:00	3.08			-0.39		
9-May-06	08:00:00	2.89			-0.96		0.01
9-May-06	20:00:00	2.44			-1.19		
10-May-06	08:00:00	2.22			-1.52		
10-May-06	20:00:00	1.59			-1.49		
11-May-06	08:00:00	1.41			-1.85		
11-May-06	20:00:00	0.73			-1.68		
12-May-06	08:00:00	0.01			-2.33		0.3
12-May-06	20:00:00	-2.75			-2.18		
13-May-06	08:00:00	-3.09			-3.39		
13-May-06	20:00:00	-5.40			-3.18		
14-May-06	08:00:00	-4.39			-4.42		
14-May-06	20:00:00	-4.46			-3.95		
15-May-06	08:00:00	2.85			-4.34		
15-May-06	20:00:00	2.63			-1.57		
16-May-06	08:00:00	2.31			-1.81		0.03
16-May-06	20:00:00	1.45			-1.68		
17-May-06	08:00:00	1.02			-2.46		
17-May-06	20:00:00	-0.69	1.00	-3.50	-2.22		
18-May-06	08:00:00	-1.85			-3.37	6.30	
18-May-06	20:00:00	1.55			-3.24		
19-May-06	08:00:00	2.79			-1.84		
19-May-06	20:00:00	1.91			-1.47		
20-May-06	08:00:00	1.64			-2.12		
20-May-06	20:00:00	0.37			-1.92		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
21-May-06	08:00:00	-0.27			-2.97		
21-May-06	20:00:00	-3.80			-2.77		
22-May-06	08:00:00	-4.69			-4.29		
22-May-06	20:00:00	-6.62			-4.19		
23-May-06	08:00:00	-6.45			-5.39		
23-May-06	20:00:00	-9.21			-5.15		
24-May-06	08:00:00	-8.40			-6.73		
24-May-06	20:00:00	-11.09			-6.51		
25-May-06	08:00:00	-9.78			-8.39		
25-May-06	20:00:00	-12.98			-8.14		
26-May-06	08:00:00	-11.62			-10.36		
26-May-06	20:00:00	-14.13			-10.19		
27-May-06	08:00:00	0.51			-12.71		
27-May-06	20:00:00	-4.72			-5.64		
28-May-06	08:00:00	-7.43			-7.76		
28-May-06	20:00:00	-11.55			-7.65		
29-May-06	08:00:00	-11.30			-10.34		
29-May-06	20:00:00	-14.79			-10.23		
30-May-06	08:00:00	-13.83			-13.17		
30-May-06	20:00:00	-17.13			-12.83		
31-May-06	08:00:00	-16.06			-15.78		
31-May-06	20:00:00	-16.22			-15.20		
1-Jun-06	08:00:00	-15.91			-16.97		
1-Jun-06	20:00:00	-19.00			-16.27		
2-Jun-06	08:00:00	-18.20			-18.98		
2-Jun-06	20:00:00	-20.39			-18.26		
3-Jun-06	08:00:00	-13.67			-20.44		1.23
3-Jun-06	20:00:00	1.78			-18.46		
4-Jun-06	08:00:00	1.21			-6.05		
4-Jun-06	20:00:00	-0.90			-5.84		
5-Jun-06	08:00:00	0.11			-8.10		1
5-Jun-06	20:00:00	-3.17			-5.63		
6-Jun-06	08:00:00	-5.32			-6.73		0.11
6-Jun-06	20:00:00	-0.27			-6.50		
7-Jun-06	08:00:00	-2.67			-4.86		0.2
7-Jun-06	20:00:00	-7.40			-4.91		
8-Jun-06	08:00:00	-7.45			-7.31		
8-Jun-06	20:00:00	-8.83			-7.06		
9-Jun-06	08:00:00	-7.01			-9.12		0.13
9-Jun-06	20:00:00	-11.16			-7.61		
10-Jun-06	08:00:00	-10.88			-10.51		
10-Jun-06	20:00:00	-13.87			-10.40		
11-Jun-06	08:00:00	-13.02			-13.16		
11-Jun-06	20:00:00	-15.81			-12.84		
12-Jun-06	08:00:00	-13.77			-14.99		0.12
12-Jun-06	20:00:00	-15.50			-14.14		
13-Jun-06	08:00:00	-14.94			-15.51		0.11
13-Jun-06	20:00:00	-16.19			-15.02		
14-Jun-06	08:00:00	-12.74			-16.12		0.2
14-Jun-06	20:00:00	2.62			-14.70		
15-Jun-06	08:00:00	2.10			-3.48		
15-Jun-06	20:00:00	0.75			-3.24		
16-Jun-06	08:00:00	-0.35			-4.64		
16-Jun-06	20:00:00	-5.87			-4.05		
17-Jun-06	08:00:00	-6.68			-6.19		
17-Jun-06	20:00:00	-10.35			-5.74		
18-Jun-06	08:00:00	-9.73			-8.27		
18-Jun-06	20:00:00	-13.12			-8.01		
19-Jun-06	08:00:00	-12.19			-10.76		
19-Jun-06	20:00:00	-15.44			-10.66		
20-Jun-06	08:00:00	-14.34			-13.77		
20-Jun-06	20:00:00	-17.78			-13.47		
21-Jun-06	08:00:00	-16.75			-17.04		
21-Jun-06	20:00:00	2.41			-16.33		
22-Jun-06	08:00:00	1.82			-3.53		0.52
22-Jun-06	20:00:00	0.18	1.00	-5.50	-4.17		
23-Jun-06	08:00:00	-1.46			-5.43	6.40	
23-Jun-06	20:00:00	-6.66			-4.87		
24-Jun-06	08:00:00	-6.91			-7.00		
24-Jun-06	20:00:00	-10.29			-6.50		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
25-Jun-06	08:00:00	-9.69			-8.82		
25-Jun-06	20:00:00	0.95			-8.65		
26-Jun-06	08:00:00	-0.30			-4.57		0.85
26-Jun-06	20:00:00	1.88			-4.38		
27-Jun-06	08:00:00	2.26			-3.18		
27-Jun-06	20:00:00	3.22			-2.60		
28-Jun-06	08:00:00	2.77			-0.45		0.08
28-Jun-06	20:00:00	2.08			-0.64		
29-Jun-06	08:00:00	1.86			-1.35		0.1
29-Jun-06	20:00:00	0.25			-1.20		
30-Jun-06	08:00:00	-0.38			-2.85		
30-Jun-06	20:00:00	-4.01			-2.41		
1-Jul-06	08:00:00	-4.24			-4.11		
1-Jul-06	20:00:00	-7.56			-3.65		
2-Jul-06	08:00:00	-6.60			-5.77		
2-Jul-06	20:00:00	-10.48			-5.27		
3-Jul-06	08:00:00	-9.00			-8.16		
3-Jul-06	20:00:00	-12.74			-7.64		
4-Jul-06	08:00:00	3.62			-10.76		1.85
4-Jul-06	20:00:00	2.56			-0.22		
5-Jul-06	08:00:00	2.38			-1.04		
5-Jul-06	20:00:00	0.85			-1.06		
6-Jul-06	08:00:00	0.46			-2.38		
6-Jul-06	20:00:00	3.16			-2.03		
7-Jul-06	08:00:00	2.81			-0.63		0.63
7-Jul-06	20:00:00	2.07			-0.78		
8-Jul-06	08:00:00	1.69			-1.75		
8-Jul-06	20:00:00	-0.12			-1.53		
9-Jul-06	08:00:00	-1.20			-3.22		
9-Jul-06	20:00:00	-5.06			-2.83		
10-Jul-06	08:00:00	-4.69			-4.62		
10-Jul-06	20:00:00	-8.27			-4.09		
11-Jul-06	08:00:00	-7.20			-6.32		
11-Jul-06	20:00:00	-10.95			-5.76		
12-Jul-06	08:00:00	-9.64			-8.39		
12-Jul-06	20:00:00	-13.40			-7.97		
13-Jul-06	08:00:00	-11.74			-11.09		
13-Jul-06	20:00:00	-15.31			-10.73		
14-Jul-06	08:00:00	-14.08			-14.08		
14-Jul-06	20:00:00	-17.19			-13.72		
15-Jul-06	08:00:00	-15.85			-17.15		
15-Jul-06	20:00:00	-18.85			-16.47		
16-Jul-06	08:00:00	-17.92			-19.62		
16-Jul-06	20:00:00	-20.57			-18.72		
17-Jul-06	08:00:00	-19.92			-21.81		
17-Jul-06	20:00:00	-22.06			-20.78		
18-Jul-06	08:00:00	-21.54			-23.81		
18-Jul-06	20:00:00	-23.28			-22.73		
19-Jul-06	08:00:00	-22.96			-25.53		
19-Jul-06	20:00:00	-24.57	-21.50	-30.00	-24.41		
20-Jul-06	08:00:00	-24.40			-27.39	3.90	
20-Jul-06	20:00:00	-25.64			-26.25		
21-Jul-06	08:00:00	-25.40			-28.49		
21-Jul-06	20:00:00	-26.75			-27.21		
22-Jul-06	08:00:00	-26.66			-29.74		
22-Jul-06	20:00:00	-27.66			-28.65		
23-Jul-06	08:00:00	-27.57			-31.00		
23-Jul-06	20:00:00	-1.33			-29.71		
24-Jul-06	08:00:00	-10.07			-14.26		1.6
24-Jul-06	20:00:00	-15.91			-15.12		
25-Jul-06	08:00:00	-1.18			-18.15		1.1
25-Jul-06	20:00:00	-0.01			-9.17		
26-Jul-06	08:00:00	-1.65			-9.54		
26-Jul-06	20:00:00	-8.79			-9.42		
27-Jul-06	08:00:00	-10.84			-12.04		
27-Jul-06	20:00:00	-13.21			-11.74		
28-Jul-06	08:00:00	-13.60			-14.04		0.22
28-Jul-06	20:00:00	0.23			-13.75		
29-Jul-06	08:00:00	0.82			-7.87		
29-Jul-06	20:00:00	-1.46			-6.37		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
dd-mmm-yyyy	hh:mm:ss	AW3	MW1	MW2	Ref AW1		
30-Jul-06	08:00:00	-3.86			-8.81		
30-Jul-06	20:00:00	-8.39			-8.40		
31-Jul-06	08:00:00	-9.10			-10.48		
31-Jul-06	20:00:00	-12.89			-10.13		
1-Aug-06	08:00:00	-12.83			-13.63		0.7
1-Aug-06	20:00:00	-15.79			-13.21		
2-Aug-06	08:00:00	-15.35			-17.10		
2-Aug-06	20:00:00	-17.86			-16.40		
3-Aug-06	08:00:00	-17.59			-19.72		
3-Aug-06	20:00:00	-19.76			-18.89		
4-Aug-06	08:00:00	-19.60			-22.26		
4-Aug-06	20:00:00	-21.66			-21.26		
5-Aug-06	08:00:00	-21.47			-24.49		
5-Aug-06	20:00:00	-19.57			-23.42		
6-Aug-06	08:00:00	-19.60			-21.68		
6-Aug-06	20:00:00	-21.95			-21.09		
7-Aug-06	08:00:00	-22.09			-25.27		
7-Aug-06	20:00:00	-23.24			-24.24		
8-Aug-06	08:00:00	-23.26			-26.47		
8-Aug-06	20:00:00	-24.77			-25.72		
9-Aug-06	08:00:00	-21.57			-28.22		
9-Aug-06	20:00:00	-23.12			-22.87		0.85
10-Aug-06	08:00:00	-23.22			-26.40		
10-Aug-06	20:00:00	-23.71			-25.58		
11-Aug-06	08:00:00	-20.73			-26.08		
11-Aug-06	20:00:00	-15.77			-22.36		0.6
12-Aug-06	08:00:00	-17.38			-19.43		
12-Aug-06	20:00:00	-19.00			-19.34		
13-Aug-06	08:00:00	-19.72			-21.67		
13-Aug-06	20:00:00	-21.72			-21.20		
14-Aug-06	08:00:00	-22.11			-24.62		
14-Aug-06	20:00:00	-23.73			-23.88		
15-Aug-06	08:00:00	-23.98			-27.07		
15-Aug-06	20:00:00	-25.54			-26.28		
16-Aug-06	08:00:00	-25.67			-29.11		
16-Aug-06	20:00:00	-26.52			-28.11		
17-Aug-06	08:00:00	-26.62			-29.70		
17-Aug-06	20:00:00	-27.37			-28.81		
18-Aug-06	08:00:00	-27.45			-30.38		
18-Aug-06	20:00:00	-20.52			-29.38		
19-Aug-06	08:00:00	-22.17			-22.75		
19-Aug-06	20:00:00	-23.86			-22.36		0.68
20-Aug-06	08:00:00	-24.09			-25.56		
20-Aug-06	20:00:00	-25.69			-25.11		
21-Aug-06	08:00:00	-25.16			-28.34		
21-Aug-06	20:00:00	-24.70			-25.56		0.23
22-Aug-06	08:00:00	-21.41			-25.62		
22-Aug-06	20:00:00	-19.64	-17.50	-22.00	-23.20		0.2
23-Aug-06	08:00:00	-19.11			-22.03	7.16	
23-Aug-06	20:00:00	-20.96			-20.81		
24-Aug-06	08:00:00	-21.37			-23.73		
24-Aug-06	20:00:00	-22.77			-22.90		
25-Aug-06	08:00:00	-23.07			-25.48		
25-Aug-06	20:00:00	-24.72			-24.61		
26-Aug-06	08:00:00	-24.97			-27.89		
26-Aug-06	20:00:00	-26.52			-26.92		
27-Aug-06	08:00:00	-26.72			-30.11		
27-Aug-06	20:00:00	-27.86			-29.07		
28-Aug-06	08:00:00	-27.93			-31.60		
28-Aug-06	20:00:00	-28.91			-30.26		
29-Aug-06	08:00:00	-28.98			-32.51		
29-Aug-06	20:00:00	-30.03			-31.37		
30-Aug-06	08:00:00	-30.14			-33.78		
30-Aug-06	20:00:00	-23.44			-32.72		
31-Aug-06	08:00:00	0.17			-25.56		
31-Aug-06	20:00:00	3.06			-12.43		2.05
1-Sep-06	08:00:00	6.68			-2.97		
1-Sep-06	20:00:00	4.00			15.17		8.4
2-Sep-06	08:00:00	3.60			6.81		
2-Sep-06	20:00:00	3.17			0.95		0.1

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
dd-mmm-yyyy	hh:mm:ss						
3-Sep-06	08:00:00	3.09			-0.78		
3-Sep-06	20:00:00	2.62			-1.38		0.82
4-Sep-06	08:00:00	2.70			-1.44		
4-Sep-06	20:00:00	2.01			-1.62		0.1
5-Sep-06	08:00:00	3.02			-1.88		
5-Sep-06	20:00:00	4.18			-1.09		
6-Sep-06	08:00:00	3.73			-0.13		
6-Sep-06	20:00:00	3.42			-0.33		
7-Sep-06	08:00:00	3.28			-0.55		
7-Sep-06	20:00:00	2.94			-0.87		
8-Sep-06	08:00:00	2.89			-1.13		
8-Sep-06	20:00:00	2.42			-1.23		
9-Sep-06	08:00:00	2.27			-1.72		
9-Sep-06	20:00:00	1.64			-1.75		
10-Sep-06	08:00:00	1.44			-2.25		
10-Sep-06	20:00:00	0.41			-2.20		
11-Sep-06	08:00:00	-0.10			-2.79		
11-Sep-06	20:00:00	-2.08			-2.60		
12-Sep-06	08:00:00	-2.55			-3.15		
12-Sep-06	20:00:00	-4.36			-3.17		
13-Sep-06	08:00:00	-3.85			-3.71		
13-Sep-06	20:00:00	-0.79			-3.56		
14-Sep-06	08:00:00	1.03			-2.87		
14-Sep-06	20:00:00	0.79			-2.04		0.28
15-Sep-06	08:00:00	0.40			-2.15		
15-Sep-06	20:00:00	-2.06			-2.15		
16-Sep-06	08:00:00	-2.79			-3.29		
16-Sep-06	20:00:00	-4.15			-3.25		
17-Sep-06	08:00:00	-4.09			-3.69		
17-Sep-06	20:00:00	-5.98			-3.57		
18-Sep-06	08:00:00	-5.82			-4.51		
18-Sep-06	20:00:00	-7.64			-4.65		
19-Sep-06	08:00:00	-6.78			-5.64		
19-Sep-06	20:00:00	-7.57			-5.58		
20-Sep-06	08:00:00	-6.33			-5.88		
20-Sep-06	20:00:00	-9.60	-4.00	-9.00	-5.60		
21-Sep-06	08:00:00	-9.81			-7.08	9.00	
21-Sep-06	20:00:00	-11.38			-7.52		
22-Sep-06	08:00:00	-10.97			-8.62		
22-Sep-06	20:00:00	-12.49			-9.27		
23-Sep-06	08:00:00	-11.53			-10.19		
23-Sep-06	20:00:00	-13.48			-10.31		
24-Sep-06	08:00:00	-12.41			-12.01		
24-Sep-06	20:00:00	-14.55			-11.93		
25-Sep-06	08:00:00	-14.25			-13.75		
25-Sep-06	20:00:00	-15.44			-13.77		
26-Sep-06	08:00:00	-15.45			-14.63		
26-Sep-06	20:00:00	-16.71			-15.15		
27-Sep-06	08:00:00	-16.36			-16.39		
27-Sep-06	20:00:00	-17.62			-16.57		
28-Sep-06	08:00:00	-17.21			-17.70		
28-Sep-06	20:00:00	-18.44			-17.67		
29-Sep-06	08:00:00	-14.88			-19.05		
29-Sep-06	20:00:00	-16.87			-15.44		0.58
30-Sep-06	08:00:00	-17.18			-17.12		
30-Sep-06	20:00:00	-18.57			-17.58		
1-Oct-06	08:00:00	-18.45			-19.18		
1-Oct-06	20:00:00	-19.66			-19.15		
2-Oct-06	08:00:00	-19.77			-20.32		
2-Oct-06	20:00:00	-20.71			-20.51		
3-Oct-06	08:00:00	-20.60			-21.62		
3-Oct-06	20:00:00	-21.48			-21.56		
4-Oct-06	08:00:00	-21.30			-22.67		
4-Oct-06	20:00:00	-22.12			-22.53		
5-Oct-06	08:00:00	-22.01			-23.73		
5-Oct-06	20:00:00	-22.98			-23.46		
6-Oct-06	08:00:00	-22.64			-24.57		
6-Oct-06	20:00:00	-19.55			-23.94		
7-Oct-06	08:00:00	-16.36			-18.89		
7-Oct-06	20:00:00	-1.49			-16.83		0.63

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
8-Oct-06	08:00:00	-4.67			-10.50		
8-Oct-06	20:00:00	-7.93			-9.99		
9-Oct-06	08:00:00	-4.09			-10.13		
9-Oct-06	20:00:00	-1.26			-8.53		
10-Oct-06	08:00:00	-3.81			-6.07		
10-Oct-06	20:00:00	-7.51			-6.19		0.29
11-Oct-06	08:00:00	-7.96			-7.64		
11-Oct-06	20:00:00	-8.64			-7.65		
12-Oct-06	08:00:00	-9.11			-7.94		
12-Oct-06	20:00:00	-10.98			-7.88		
13-Oct-06	08:00:00	-11.67			-9.27		
13-Oct-06	20:00:00	-12.44			-9.68		
14-Oct-06	08:00:00	-13.04			-10.24		
14-Oct-06	20:00:00	-14.16			-10.72		
15-Oct-06	08:00:00	-14.68			-11.69		
15-Oct-06	20:00:00	-15.50			-12.33		
16-Oct-06	08:00:00	-15.87			-13.09		
16-Oct-06	20:00:00	-16.43			-13.63		
17-Oct-06	08:00:00	-15.69			-14.23		
17-Oct-06	20:00:00	-3.74			-14.20		
18-Oct-06	08:00:00	2.49			-9.00		
18-Oct-06	20:00:00	2.16	0.25	-5.00	-3.33	3.43	1.46
19-Oct-06	08:00:00	1.67			-3.36		
19-Oct-06	20:00:00	1.08			-3.60		
20-Oct-06	08:00:00	0.23			-3.45		
20-Oct-06	20:00:00	-3.46			-4.22		0.02
21-Oct-06	08:00:00	-5.69			-4.70		
21-Oct-06	20:00:00	-7.27			-4.97		
22-Oct-06	08:00:00	-7.33			-5.12		
22-Oct-06	20:00:00	-1.01			-3.22		
23-Oct-06	08:00:00	-3.70			-3.38		
23-Oct-06	20:00:00	-6.13			-4.14		0.35
24-Oct-06	08:00:00	-7.02			-4.55		
24-Oct-06	20:00:00	-8.30			-4.80		
25-Oct-06	08:00:00	-8.63			-5.33		
25-Oct-06	20:00:00	-9.36			-5.50		
26-Oct-06	08:00:00	-9.65			-5.94		
26-Oct-06	20:00:00	-9.96			-6.34		
27-Oct-06	08:00:00	-9.55			-6.41		
27-Oct-06	20:00:00	1.18			-2.32		
28-Oct-06	08:00:00	3.88			0.79		
28-Oct-06	20:00:00	2.93			0.14		1.75
29-Oct-06	08:00:00	2.62			-0.81		
29-Oct-06	20:00:00	2.25			-0.81		
30-Oct-06	08:00:00	1.94			-1.26		
30-Oct-06	20:00:00	1.53			-1.12		
31-Oct-06	08:00:00	1.05			-1.39		
31-Oct-06	20:00:00	0.60			-1.30		
1-Nov-06	08:00:00	0.05			-1.65		
1-Nov-06	20:00:00	-1.03			-1.58		
2-Nov-06	08:00:00	-1.43			-1.69		
2-Nov-06	20:00:00	-2.73			-1.53		
3-Nov-06	08:00:00	-3.47			-1.97		
3-Nov-06	20:00:00	-4.21			-1.96		
4-Nov-06	08:00:00	-4.45			-2.38		
4-Nov-06	20:00:00	-4.68			-2.22		
5-Nov-06	08:00:00	-4.76			-2.55		
5-Nov-06	20:00:00	-4.94			-2.41		
6-Nov-06	08:00:00	-5.05			-2.86		
6-Nov-06	20:00:00	-5.20			-2.70		
7-Nov-06	08:00:00	-4.71			-2.98		
7-Nov-06	20:00:00	4.22			0.30		
8-Nov-06	08:00:00	3.69			0.18		
8-Nov-06	20:00:00	3.33			0.06		
9-Nov-06	08:00:00	3.19			-0.23		
9-Nov-06	20:00:00	2.83			-0.20		
10-Nov-06	08:00:00	2.57			-0.57		
10-Nov-06	20:00:00	2.32			-0.46		
11-Nov-06	08:00:00	2.17			-0.92		
11-Nov-06	20:00:00	1.95			-0.55		

ALEXANDER - Groundwater and Rain Gauge Data

Date	Time	Water Level (inches)				Onsite Rain Gauge	Snow Hill Rain Gauge
		AW3	MW1	MW2	Ref AW1		
12-Nov-06	08:00:00	3.77			0.59		
12-Nov-06	20:00:00	3.94			1.31		
13-Nov-06	08:00:00	3.48			0.78		
13-Nov-06	20:00:00	3.34			0.58		
14-Nov-06	08:00:00	3.18			-0.17		
14-Nov-06	20:00:00	3.04			0.11		
15-Nov-06	08:00:00	2.87			-0.33		
15-Nov-06	20:00:00	2.82			-0.13		
16-Nov-06	08:00:00	3.79			0.35		
16-Nov-06	20:00:00	3.81			0.94		
17-Nov-06	08:00:00	3.35			0.35		
17-Nov-06	20:00:00	3.16			0.51		
18-Nov-06	08:00:00	3.00			0.04		
18-Nov-06	20:00:00	2.91			0.31		
19-Nov-06	08:00:00	2.74			-0.24		
19-Nov-06	20:00:00	2.59			0.08		
20-Nov-06	08:00:00	2.45			-0.37		
20-Nov-06	20:00:00	2.18			-0.26		
21-Nov-06	08:00:00	3.11	2.00	-2.50	-0.03	5.93	
21-Nov-06	20:00:00						
22-Nov-06	08:00:00						
22-Nov-06	20:00:00						
23-Nov-06	08:00:00						
23-Nov-06	20:00:00						
24-Nov-06	08:00:00						
24-Nov-06	20:00:00						
25-Nov-06	08:00:00						
25-Nov-06	20:00:00						
26-Nov-06	08:00:00						
26-Nov-06	20:00:00						
27-Nov-06	08:00:00						
27-Nov-06	20:00:00						
28-Nov-06	08:00:00						
28-Nov-06	20:00:00						
29-Nov-06	08:00:00						
29-Nov-06	20:00:00						
30-Nov-06	08:00:00						
30-Nov-06	20:00:00						

APPENDIX C

2006 Site Photos



Planted blackgum in fruit



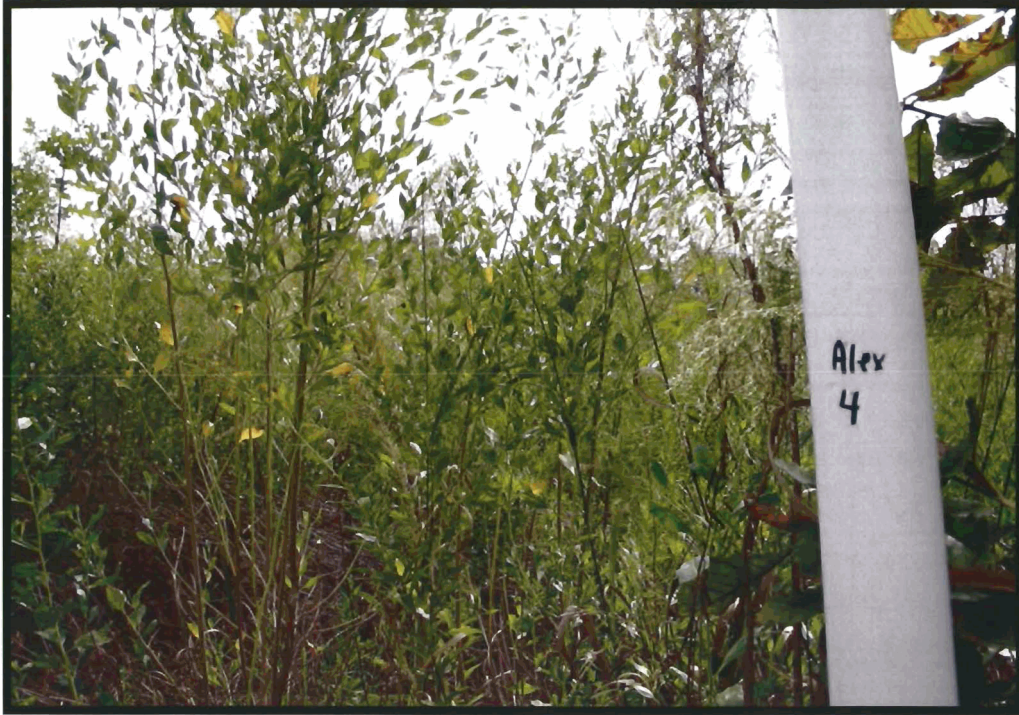
Alexander Veg Plot #2



Alexander Veg Plot #1



Alexander Veg Plot #3



Alexander Veg Plot #4