ANNUAL WETLAND MONITORING REPORT
YEAR 1 (2011)

SUMMIT SEEP NON-RIPARIAN WETLAND MITIGATION SITE

RFP # 16-002835 Contract # 003244

Davidson County, North Carolina

Data Collected March 21st 2011 – October 21st 2011

PREPARED FOR:

NC Department of Environment & Natural Resources
Ecosystem Enhancement Program
Raleigh, North Carolina

PREPARED BY:

Restoration Systems, LLC
1101 Haynes Street, Suite 211
Raleigh, NC 27604

November 2011

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Part 1: EXECUTIVE SUMMARY / PROJECT ABSTRACT

1.1 Project Goals & Objectives

The 2009 *Yadkin Pee-Dee River Basin RBRP* identified stormwater runoff and other development impacts as likely contributors to turbidity and chlorophyll violations within the Sites TLW - 14-Digit Cataloging Unit 03040103020010. The Summit Seep Wetland Mitigation Project (hereby referred to as "Site") was identified as a non-riparian wetland restoration opportunity to improve water quality, enhance flood attenuation, and to restore wildlife habitat within the TLW.

The project goals address stressors identified in the TLW and include the following:

- Remove nonpoint sources of pollution associated with vegetation maintenance including:
  a. the cessation of broadcasting fertilizer, pesticides, and other agricultural chemicals into and adjacent to Site drainage ditches; and
  b. providing a vegetated wetland to aid in the treatment of runoff.
- Restore wetland hydro-periods that satisfy wetland jurisdictional requirements and approximate the Site's natural range and variation.
- Promote floodwater attenuation by filling ditches and enhancing groundwater storage capacity.
- Restore and reestablish natural community structure, habitat diversity, and functional continuity.
- Enhance and protect the Site's full potential of wetland functions and values in perpetuity.

The project goals will be addressed through the following project objectives:

- Providing 4.0 Non-riparian Wetland Mitigation Units (WMUS), as calculated in accordance with the requirements stipulated in RFP #16-002835, by restoring 3.91 acres and enhancing 0.18 acres of non-riparian wetland. This will be accomplished by filling ditches, removing spoil castings, excluding livestock, redirecting hydrology from a spring across the Site, and planting with native forest vegetation.
- Protecting the Site in perpetuity with a conservation easement.

1.2 Background Summary

Located in western Davidson County and within the 14-Digit Cataloging Unit 03040103020010 the Site is approximately five miles southwest of Lexington, NC (Figure 1, Appendix A). Within the Southern Outer Piedmont physiographic province of NC, the regional physiography is characterized by dissected irregular plains, some low rounded hills and ridges, and low to moderate gradient streams with mostly cobble, gravel, and sandy substrates (Griffith et al. 2002). The Site is upslope from the western edge of the floodplain of an unnamed tributary to North Potts Creek draining 35.6 acres. The 6.4 acre Site sits on both sides of the unnamed tributary, of which 4.1 acres have been restored. The North Carolina Ecosystem Enhancement Program currently holds the conservation easement for the Site, the property is owned by Hillcrest Acres, LLC.

1.3 Vegetation Assessment

After planting was completed, six sample vegetation plots (10-meter by 10-meter) were installed and measured within the Site as per guidelines established in CVS-EEP Protocol for Recording vegetation, Version 4.0 (Lee et al. 2006). Vegetation plots are permanently monumented with 5-foot metal garden posts at each corner. In each sample plot, vegetation parameters to be monitored include species composition and species density. Visual observations of the percent cover of shrub and herbaceous species will also be documented by photograph. Vegetation plot information can be found in Appendix C. Year 1 (2011) stem count measurements indicate an average of 640 planted stems per acre across the Site. In addition, each individual plot met success criteria.

1.3.1 Vegetation Success Criteria

Characteristic Tree Species include woody tree and shrub species planted at the Site, observed within a reference forest, or outlined for the appropriate plant community in Schafale and Weakley (1990). An average density of 320 stems per acre of Characteristic Tree Species must be surviving in the first three monitoring years. Subsequently, 260 Characteristic Tree Species per acre must be surviving by the end of year 5 and 210 Characteristic Tree Species per acre by the end of year 7. The IRT may allow counting of acceptable volunteer species toward the 210-tree per acre density upon review and evaluation of the annual monitoring data.

No single volunteer species (most notably red maple, loblolly pine, and sweet gum) will comprise more than 20 percent of the total composition at years 3, 5, or 7. If this occurs, remedial procedures/protocols outlined in the contingency plan will be implemented. During years 3, 5, and 7, no single volunteer species, comprising over 20 percent of the total composition, may be more than twice the height of the planted trees. If this occurs, remedial procedures outlined in the contingency plan will be implemented.

If, within the first 3 years, any species exhibits greater than 50 percent mortality, the species will either be replanted or an acceptable replacement species will be planted in its place as specified in the contingency plan.

1.3.2 Vegetative Problem Areas

Dense pockets of *Arthraxon hispidus*, (common name: small carpet grass or joint-head grass) was found during visual assessments made throughout the growing season. Although not listed on the USDA's list of North Carolina State noxious weeds or by the Center for Invasive Species and Ecosystem Health the species is known to be an exotic, introduced from Asia. Although, not considered to be a long term issue the species did affect the planted bare root saplings in vegetation monitoring plot number six, and in other areas of the Site.

Additional field observations yielded small pockets of juvenile *Ligustrum sinense* (Chinese privet) scattered along the perimeter of the Site. Affected areas are mapped in Figure 2: Current Condition Plan View (CCPV) of Appendix B.

1.3.3 Vegetative Contingency Plan

The presence of *Arthraxon hispidus* has not affected the vegetation success of the Site. At this time it is recommended that no chemical or physical means be used to remove *Arthraxon hispidus* from the Site. As the removal and or treatment process could have an adverse impact on planted desirable species. The impact of *Arthraxon hispidus* will be monitored by through visual assessment throughout the growing season in years to come.

Before the start of the growing season, a basal bark or cut stump and spray method will be used to treat any *Ligustrum sinense* within the boundaries of the Site. Following the US Army Corps protocol the treatment will be made by a NCDA&CS certified pesticide applicator that is licensed in wetland and aquatic applications. Only systemic aquatic certified chemicals will be used.

If vegetation success criteria are not achieved based on average density calculations from combined plots over the entire restoration area, supplemental planting may be performed with tree species approved by regulatory agencies. Supplemental planting will be performed as needed until achievement of vegetation success criteria.

1.4 Wetland Assessment

Initially four groundwater monitoring gauges were installed at the Site on March 21st 2011. After the completion of the Baseline Monitoring Report, the NC EEP requested that one additional monitoring well be installed on site, Figure 2, Appendix B. The additional gauge was installed June 8th, 2011.

Hydrological sampling was conducted throughout the growing season at intervals no greater than thirty days, and was done so to satisfy the determination of jurisdictional hydrology success within the Site (USEPA 1990). In addition, rainfall data will be used for comparison of groundwater conditions with extended drought conditions. Graphs of groundwater hydrology and precipitation from an on Site rain gauge are included in Appendix D.

1.4.1 Wetland Success Criteria

Target hydrological characteristics include saturation or inundation for 7.5 percent of the growing season, which during average climatic conditions is from March 28th – November 3rd, 220 days (2002 NRCS WETS Data). Restored / enhanced wetland areas are expected to support hydrophytic vegetation; if wetland parameters are marginal as indicated by vegetation and/or hydrology monitoring, a jurisdictional determination will be performed.

1.4.2 Wetland Contingency Plan

Hydrologic contingency may include floodplain surface modifications such as construction of ephemeral pools, deep ripping of the soil profile, and installation of berms to retard surface water flows. Recommendations for contingency to establish wetland hydrology may be implemented and monitored until hydrology success criteria are achieved.

1.4.3 Wetland Problem Areas

No wetland problem areas were identified within the Site during Year 1 (2011) monitoring.

1.5 Supporting Data

Summary information/data related to the occurrence of items such as beaver or encroachment and statistics related to performance of various project and monitoring elements can be found in the tables and figures in the report appendices. Narrative background and supporting information formerly found in these reports can be found in the Baseline Monitoring Report (formerly Mitigation Plan) and in the Mitigation Plan (formerly the Restoration Plan) documents available on EEP's website. All raw data supporting the tables and figures in the appendices is available from EEP upon request

Part 2: METHODS

2.1 Hydrology

Measurement of wetland hydrology was performed in accordance with traditional methods as per the April 2003 USACE Wilmington District Stream Mitigation Guidelines. Five (5) continuously recording, surficial monitoring gauges were installed in accordance with specifications in *Installing Monitoring Wells/Piezometers in Wetlands* (NCWRP 1993). The fifth monitoring gauge was installed on June, 8th 2011 per EEP recommendations received on May 31st 2011. Monitoring gauges were set to a depth of approximately 24 inches below the soil surface. Screened portions of each gauge were surrounded by filter fabric, buried in screened well sand, and sealed with a bentonite cap to prevent siltation and surface flow infiltration during floods. Data will be downloaded at least every 30 days during the growing season. Additionally, an electronic rain water recording gauge was installed at the site.

2.2 Vegetation

The monitoring of planted vegetation precisely followed the Carolina Vegetation Survey (CVS) EEP Protocol for Recording Vegetation (Lee et al. 2006). Six, 10 by 10-meter vegetation plots have been placed within the 4.1 acres of restored / enhanced wetlands (Figure 2, Appendix B). Vegetation received a visual evaluation at least once every thirty days and CVS data collection took place on September 27, 2011.

Part 3: CONCLUSIONS

3.1 Hydrology

Four of the monitored gauges within restoration areas were inundated / saturated within 12 Inches of the surface for greater than 7.5 percent of the growing season, which extends from March 28th to November 3rd (220 days). An additional gauge (Gauge 5) was installed in June 2011; therefore, data from the beginning of the growing season is not available. Based on data from other gauges, it is reasonable to assume that success criteria would have been met by gauge 5 if the gauge had been online the entire growing season.

Summary of Groundwater Gauge Results

Gauge	Success Criteria Achieved / Max Consecutive Days During Growing Season (Percentage)				
	Year 1 (2011)*	Year 2 (2012)	Year 3 (2013)	Year 4 (2014)	Year 5 (2015)
1	Yes / 37 days (16.81 percent)				
2	Yes / 73 days (33.18 percent)				
3	Yes / 23 days (10.45 percent)				
4	Yes / 67 days (30.45 percent)				
5	NA** / 4 days (1.8 percent)				

* Data has been collected through October 21, 2011 fro the year 1 (2011) monitoring season; data will continue to be collected and will be available upon request

** This gauge was installed in early June 2011; therefore, data from the beginning of the growing season is not available. Based on the data form other gauges, it is likely that this gauge would have met criteria.

3.2 Vegetation

Vegetation sampling across the Site was above the required average density with 640 planted stems per acre surviving. In addition, each individual plot was above success criteria.

Summary of Planted Vegetation Plot Results

Plot	Planted Stems / Acre Counting Towards Success Criteria				
	Year 1 (2011)	Year 2 (2012)	Year 3 (2013)	Year 5 (2015)	Year 7 (2017)
1	404				
2	485				
3	687				
4	526				
5	1133				
6	607				
Average of All Plots (1-6)	**640.33**				

Part 4: REFERENCES

Center for Invasive Species and Ecosystem Health. 2011. North Carolina Noxious Weeds (online). http://www.invasive.org/species/list.cfm?id=21 [November 22, 2011]. North Carolina Department of Agriculture. 2003.

Griffith, G.E., J.M. Omernik, J.A. Comstock, M.P. Schafale, W.H. McNab, D.R. Lenat, T.F. MacPherson, J.B. Glover, and V.B. Shelbourne. 2002. Ecoregions of North Carolina and South Carolina. U.S. Geological Survey, Reston, Virginia.

Lee, M.T., R.K. Peet, S.D. Roberts, and T.R. Wentworth. 2006. CVS-EEP Protocol for Recording Vegetation. Version 4.0.North Carolina Department of Environment and Natural Resources, Ecosystem Enhancement Program. Raleigh, North Carolina.

North Carolina Wetlands Restoration Program (NCWRP). 1993. Installing Monitoring Wells/Piezometers in Wetlands (WRP Technical Note HY-IA-3.1). North Carolina Department of Environment, Health, and Natural Resources, Raleigh, North Carolina

North Carolina Ecosystem Enhancement Program (NCEEP). 2009. Yadkin-Pee Dee River Basin Restoration Priorities (online). Available: http://www.nceep.net/services/restplans/Yadkin_Pee_Dee_RBRP_2009_Final.pdf [February 19, 2010].North Carolina Department of Environment and Natural Resources, Raleigh, North Carolina.

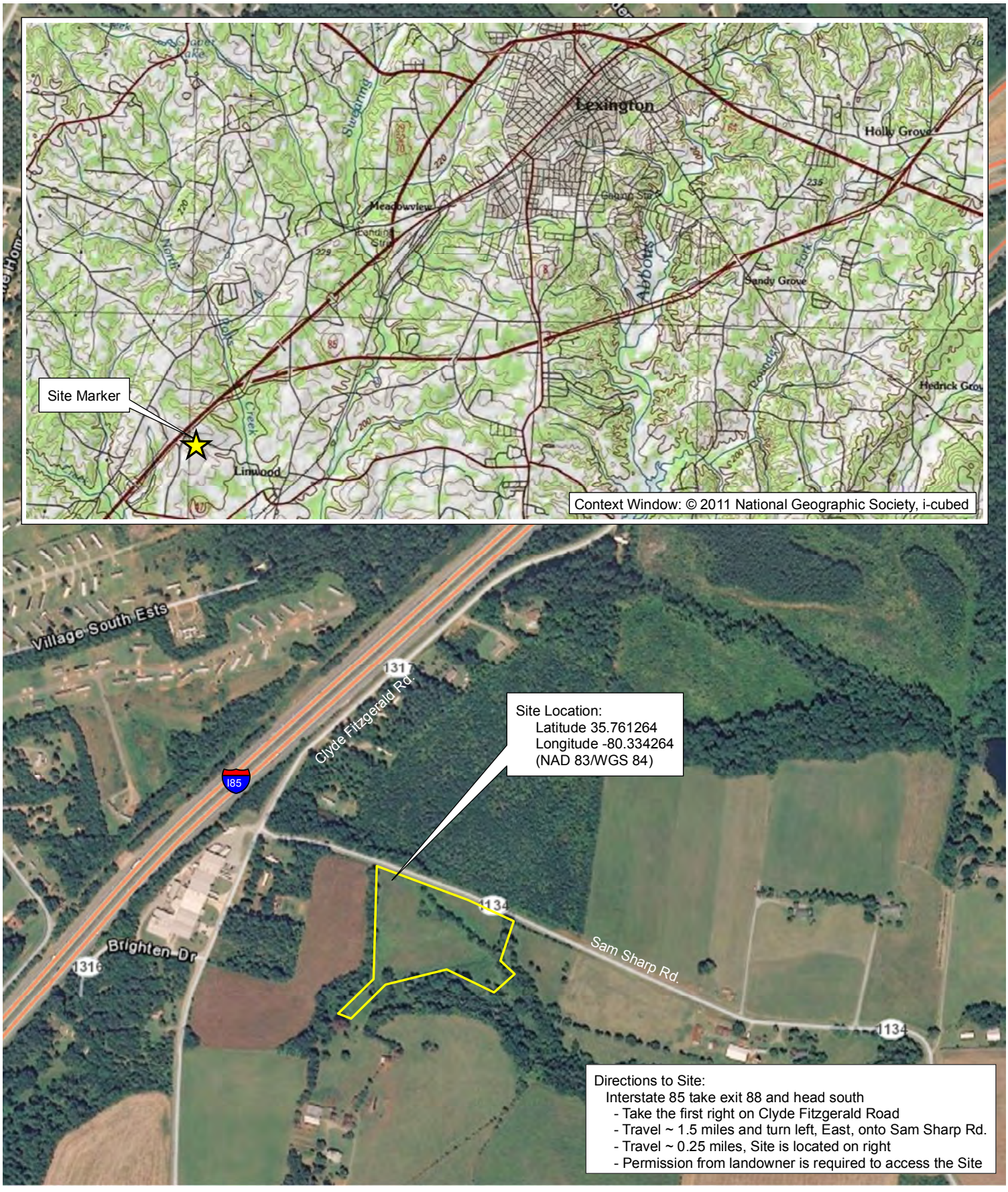
North Carolina Ecosystem Enhancement Program (NCEEP). 2011. Procedural Guidance and Content Requirements for EEP Monitoring Reports (online). Available: http://portal.ncdenr.org/c/document_library/get_file?p_l_id=1169848&folderId=2288101&name=DLFE-39268.pdf [November 07, 2011].North Carolina Department of Environment and Natural Resources, Raleigh, North Carolina.

Natural Resources Conservation Service (NRCS). 2002. WETS Data Davidson County, Lexington NC – 4970 (online) Available: http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/nc/37057.txt [November 07, 2011]

Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health, and Natural Resources. Raleigh, North Carolina.

United States Department of Agriculture. 2011. North Carolina State-listed Noxious Weeds (online). Available http://plants.usda.gov/java/noxious?rptType=State&statefips=37 [November 22, 2011].

Appendix A: General Figures and Tables



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SCALE: 1 inch = 625 feet

DATE: NOVEMBER - 2011

PROJECT: S. SEEP

FIGURE 1:
VICINITY MAP & DIRECTIONS

SITE REFERENCE MAP

AERIAL SOURCE: ESRI, i-cubed, USDA FSA, USGS, AEX, GeoEye, Getmapping, Aerogrid, & IGP
COORDINATE SYSTEM: NAD 1983 SPNC FT

Table 1. Project Components and Mitigation Credits

Summit Seep Non-Riparian Wetland Mitigation Site Contract # 003244

Mitigation Credits									
	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
Totals					3.91	0.18			

Project Components						
Project Component -or- Reach ID	Stationing / Location	Existing Footage/Acreage	Approach (PI,PII etc.)	Restoration – or- Restoration Equivalent	Restoration Footage or Acreage	Mitigation Ratio
Non-riparian restoration	NA	3.91	NA	Restoration	3.91	1.0
Non-riparian enhancement	NA	0.18	NA	Enhancement	0.18	0.5

Component Summation						
Restoration Level	Stream (linear feet)	Riparian Wetland (acres)		Non-riparian Wetland (acres)	Buffer (square feet)	Upland (acres)
		Riverine	Non-Riverine			
Restoration	0	0	0	3.91	0	0
Enhancement		0	0	0.18	0	0
Enhancement 1	0					
Enhancement II	0					
Creation		0	0	0		
Preservation	0	0	0	0		0
High Quality Preservation	0	0	0	0		0

Table 2: Project Activity and Reporting History

Elapsed Time Since Grading Complete: 7 Months
Elapsed Time Since Planting Complete: 7 Months
Number of Reporting Years: 1yr

Summit Seep Non-Riparian Wetland Mitigation Site Contract # 003244		
Activity or Report	Data Collection Complete	Completion or Delivery
CE Document	NA	Oct-2010
Conservation Easement	Apr-2011	Apr-2011
Mitigation Plan	NA	Nov-2010
Construction	NA	Apr-2011
Bare Root Planting	NA	Apr-2011
Baseline Monitoring Document	Apr-2011	June-2011
Year 1 (2011) Monitoring	Sep-2011	Nov-2011

Table 3: Project Contacts

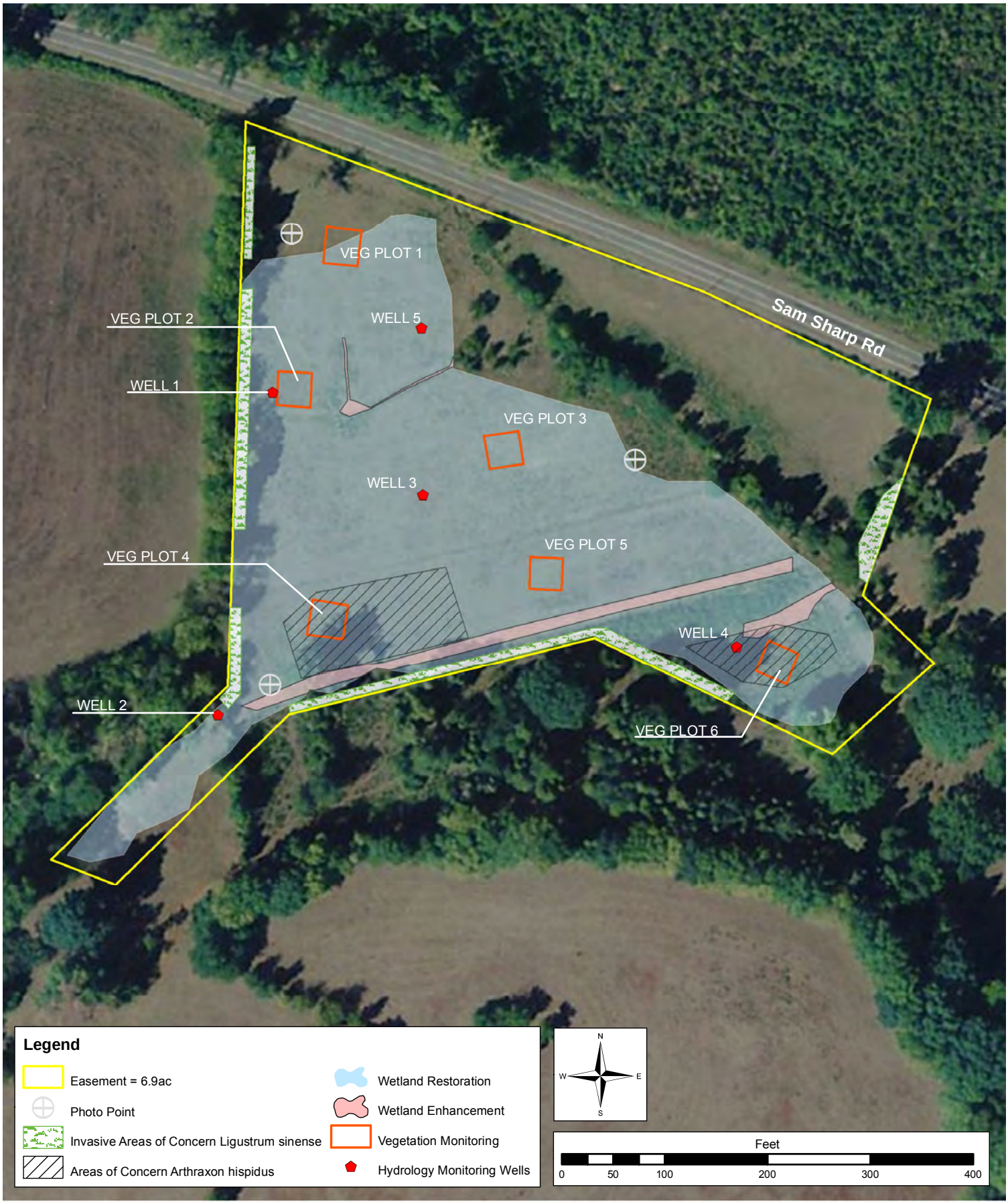
Summit Seep Non-Riparian Wetland Mitigation Site Contract # 003244		
	Firm	**POC & Address**
Designer:	Axiom Environmental, Inc.	Grant Lewis; 919.215.1693 218 Snow Ave. Raleigh, NC 27603
Construction Contractor:	Land Mechanics, Inc.	Lloyd Glover; 919.422.3392 780 Landmark Road Willow Spring, NC 27592-7756
Planting Contractor:	Restoration Systems, LLC	Worth Creech; 919.334.9114 1101 Haynes St. Suite 211 Raleigh, NC 2604
Seeding Contractor:	Land Mechanics, Inc.	Lloyd Glover; 919.422.3392 780 Landmark Road Willow Spring, NC 27592-7756
Nursery Stock Suppliers:	ArborGen	1.888.888.7158
Baseline Data Collection	Axiom Environmental, Inc.	Grant Lewis; 919.215.1693 218 Snow Ave. Raleigh, NC 27603
Vegetation Monitoring:	Restoration Systems, LLC	Ray Holz; 919.604.9314
Wetland Monitoring:	Restoration Systems, LLC	Ray Holz; 919.604.9314

Table 4: Project Baseline Information & Attributes

Summit Seep Non-Riparian Wetland Mitigation Site Contract # 003244			
Project Information			
Project Name	Summit Seep		
County	Davidson		
Project Area (acres)	6.4		
Project Coordinates (latitude and longitude)	35.76130, 80.33430		
Project Watershed Summary Information			
Physiographic Province		Southern Outer Piedmont	
River Basin		Yadkin	
USGS Hydrologic Unit 8-digit	3040103	USGS Hydrologic Unit 14-digit	3040103020010
DWQ Sub-basin		3/7/2004	
Project Drainage Area, Total Outfall (acres)		51.5	
Groundwater Treated by Site (acres)		35.6	
Project Drainage Area Percentage of Impervious Area		< 3%	
CGIA Land Use Classification		Cropland and Pasture	
Wetland Summary Information			
Parameters		**Wetland 1**	
Size of Wetland (acres)		4.1	
Wetland Type (non-riparian, riparian riverine or riparian non riverine)		Non-riparian	
Mapped Soil Series		Armenia silt loam	
Drainage class		Class A	
Soil Hydric Status		Hydric	
Source of Hydrology		Natural Seep	
Hydrologic Impairment		Ditches	
Native vegetation community		Low Elevation Seep	
Percent composition of exotic invasive vegetation		0%	
Regulatory Considerations			
Regulation	**Applicable?**	**Resolved?**	**Supporting Documentation**
Waters of the United States – Section 404	Yes	Yes	Yes, Appendix A
Waters of the United States – Section 401	Yes	Yes	Yes, Appendix A
Endangered Species Act	No		
Historic Preservation Act	No		
Coastal Zone Management Act [CZMA/Coastal Area Management Act (CAMA)]	No		
FEMA Floodplain Compliance	No		
Essential Fisheries Habitat	No		

Appendix B: Visual Assessment Data

Figure 2. Current Condition Plan View (CCPV)
Table 5. Vegetation Condition Assessment



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SCALE: 1 inch = 125 feet

DATE: NOVEMBER - 2011

PROJECT: S. SEEP

FIGURE 2:
CURRENT CONDITION ASSESSMENT

OVERALL SITE FIGURE SHOWING CURRENT CONDITIONS AND YEAR ONE (2011) MONITORING VISUAL ASSESSMENT.

AERIAL SOURCE: ESRI, i-cubed, USDA FSA, USGS, AEX, GeoEye, Getmapping, Aerogrid, & IGP
COORDINATE SYSTEM: NAD 1983 SPNC FT

Table 5: Vegetation Condition Assessment

Planted Acreage - 6.9 acres (Entire Easement)					
Vegetation Category		Mapped Acreage	CCPV Symbol	Number of Polygons	% of planted Acreage
Areas of Concern	Planted areas that are visually affected by wetland vegetation succession, specifically by the non-native species *Arthraxon hispidus**, or joint-head grass	.41 acre	Gray Hatch	2	6%
Exotic Invasive Species	Areas of *Ligustrum sinense*	.23 Acre	Pattern / Color	5	3.33%

**Arthraxon hispidus* not listed on the USDA's list of North Carolina State noxious weeds or by the Center for Invasive Species and Ecosystem Health the species is known to be an exotic, introduced from Asia.

Appendix C: Vegetation Plot Data

Table 6: Vegetation Plot Criteria Attainment

Plot	Planted Stems / Acre Counting Towards Success Criteria				
	Year 1 (2011)	Year 2 (2012)	Year 3 (2013)	Year 5 (2015)	Year 7 (2017)
1	404				
2	485				
3	687				
4	526				
5	1133				
6	607				
Average of All Plots (1-6)	**640.33**				

Table 7. CVS Vegetation Plot Metadata

Report Prepared By:	Raymond Holz
Date Prepared	10/6/2011 15:12
database name	cvs-eep-entrytool-v2.2.7.mdb
database location	S:\Projects\Projects (Existing)\Summit Seep\Task 7-Monitoring
computer name	SPARE
file size	37326848
DESCRIPTION OF WORKSHEETS IN THIS DOCUMENT----------	
Metadata	Description of database file, the report worksheets, and a summary of project(s) and project data.
Proj, planted	Each project is listed with its PLANTED stems per acre, for each year. This excludes live stakes.
Proj, total stems	Each project is listed with its TOTAL stems per acre, for each year. This includes live stakes, all planted stems, and all natural/volunteer stems.
Plots	List of plots surveyed with location and summary data (live stems, dead stems, missing, etc.).
Vigor	Frequency distribution of vigor classes for stems for all plots.
Vigor by Spp	Frequency distribution of vigor classes listed by species.
Damage	List of most frequent damage classes with number of occurrences and percent of total stems impacted by each.
Damage by Spp	Damage values tallied by type for each species.
Damage by Plot	Damage values tallied by type for each plot.
Planted Stems by Plot and Spp	A matrix of the count of PLANTED living stems of each species for each plot; dead and missing stems are excluded.
ALL Stems by Plot and spp	A matrix of the count of total living stems of each species (planted and natural volunteers combined) for each plot; dead and missing stems are excluded.

Table 7. CVS Vegetation Plot Metadata Continued

PROJECT SUMMARY----------	
Project Code	Summit
project Name	Summit Seep
Description	Non-Riparian Wetland Mitigation Site
River Basin	Yadkin-Pee Dee
area (sq m)	16,592
Required Plots (calculated)	6
Sampled Plots	6

Table 8. Planted & Total Strem/Acre Counts

Species	Common Name	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
Asimina triloba	pawpaw		1	2	2	2	2
Betula nigra	river birch	3	1	2	2	1	1
Carpinus caroliniana	American hornbeam		4	2	1	10	2
Diospyros virginiana	common persimmon	1		3		5	
Platanus occidentalis	American sycamore		1	2	2	1	5
Quercus michauxii	swamp chestnut oak	3	4	2	3	1	2
Quercus pagoda	cherrybark oak			2	2	1	2
Quercus phellos	willow oak	2	1			3	1
Ulmus americana	American elm	1		2	1	4	
	Total Planted Stems	**10**	**12**	**17**	**13**	**28**	**15**
	Total Planted Stems/Acre	**405**	**486**	**688**	**526**	**1133**	**607**

Figure 3. Vegetation Plot Photos

Vegetation Photo: Plot 1

Vegetation Photo: Plot 2

Vegetation Photo: Plot 3

Vegetation Photo: Plot 4

Vegetation Photo: Plot 5

Vegetation Photo: Plot 6

Appendix D: Hydrology Data

Table 9: Wetland Gauge Attainment Data
Figure 4: Summit Seep 30-70 Percentile Graph for Rainfall - 2011
2011 Groundwater Gauge Graphs

Table 9: Ground Gauge Attainment Data

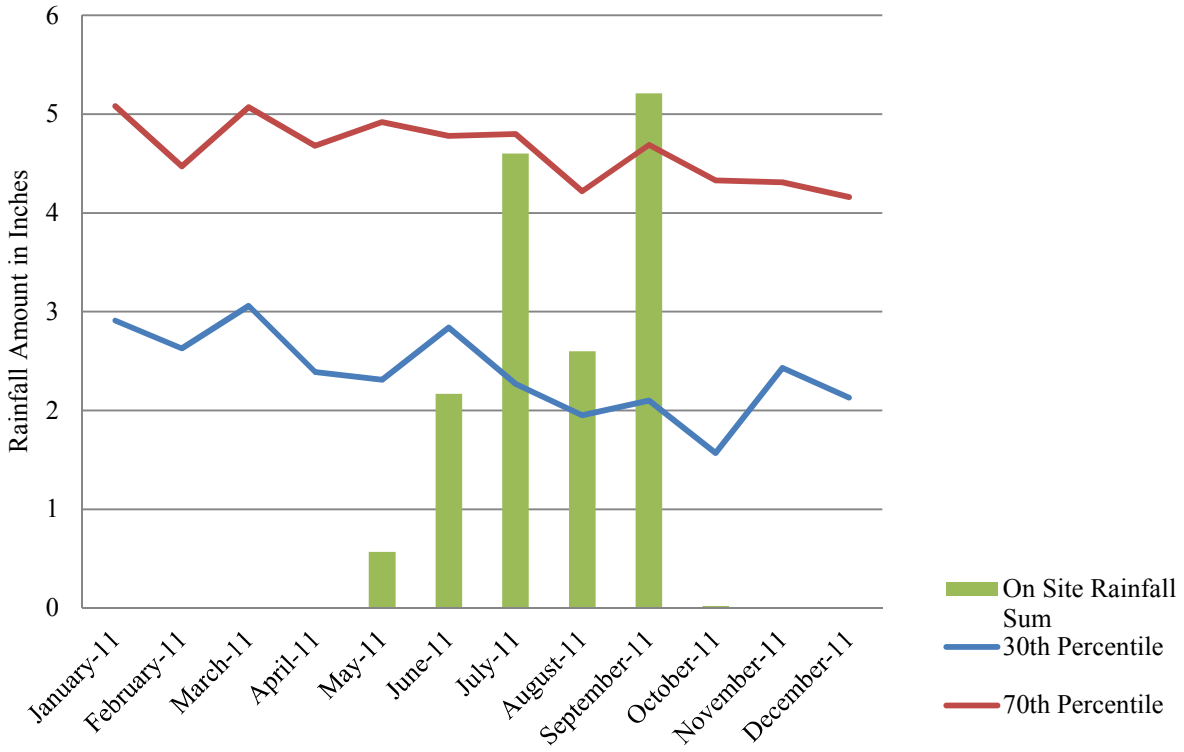
Gauge	Success Criteria Achieved / Max Consecutive Days During Growing Season (Percentage)				
	Year 1 (2011)*	Year 2 (2012)	Year 3 (2013)	Year 4 (2014)	Year 5 (2015)
1	Yes / 37 days (16.81 percent)				
2	Yes / 73 days (33.18 percent)				
3	Yes / 23 days (10.45 percent)				
4	Yes / 67 days (30.45 percent)				
5	NA** / 4 days (1.8 percent)				

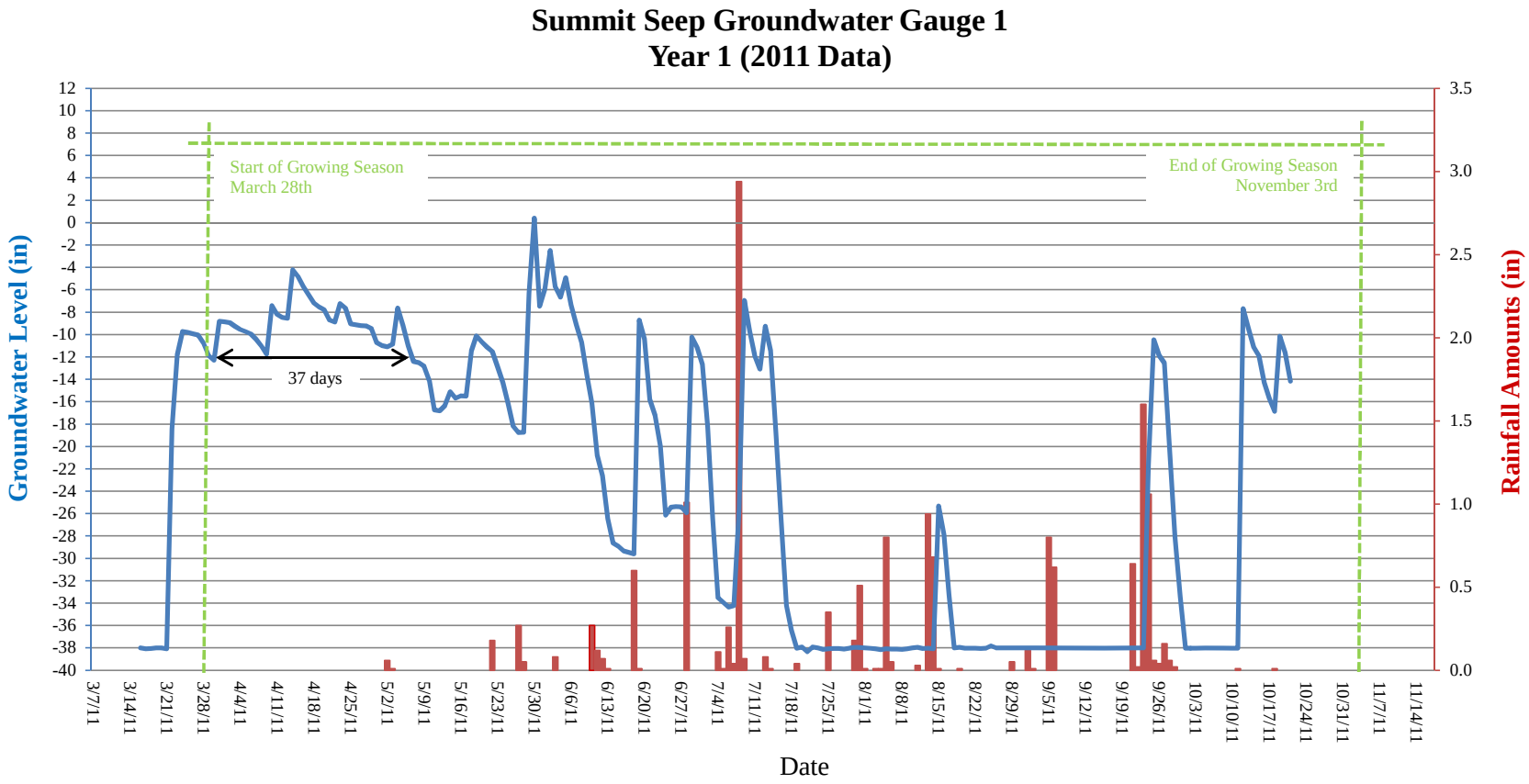
* Data has been collected through October 21, 2011 fro the year 1 (2011) monitoring season; data will continue to be collected and will be available upon request

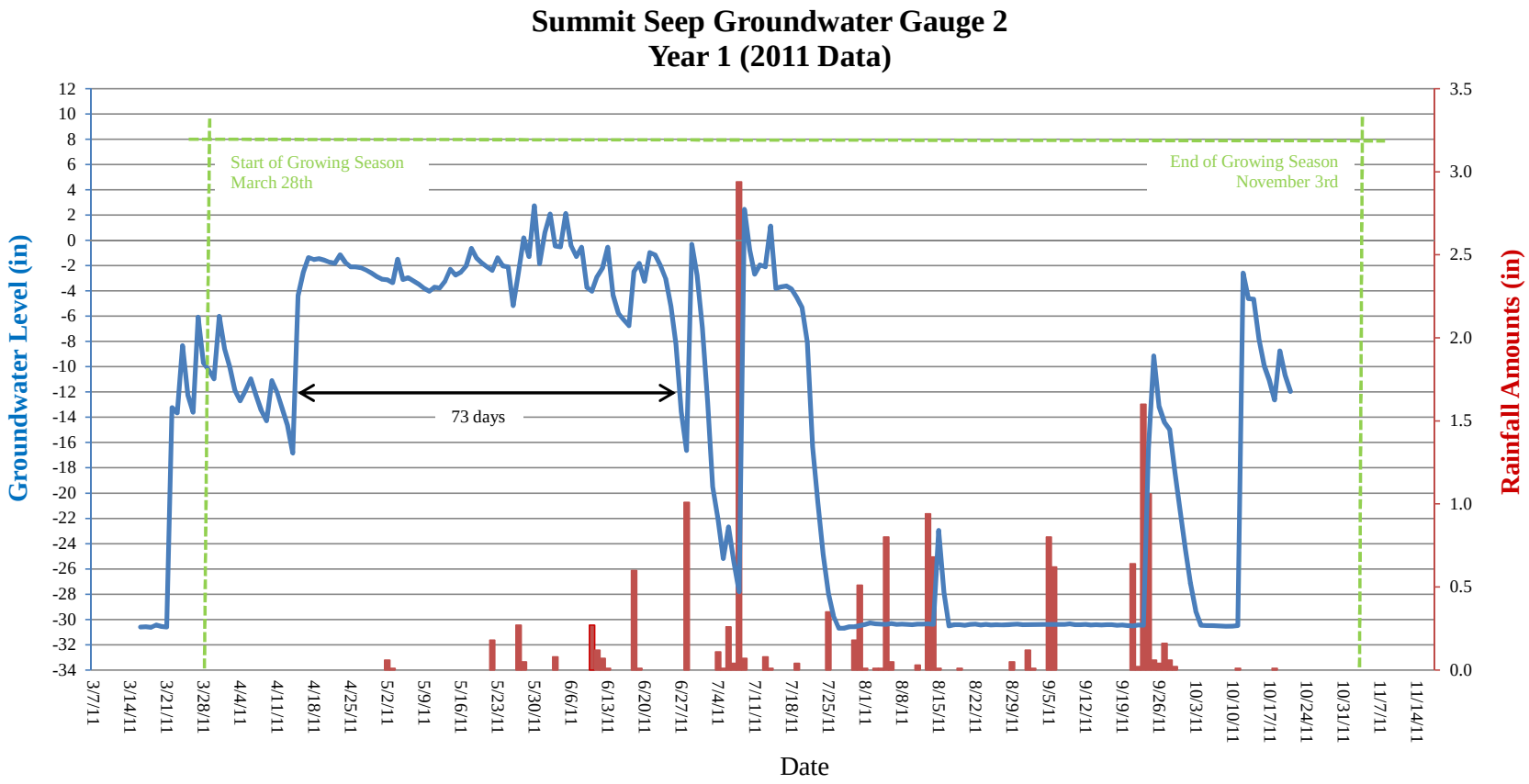
** This gauge was installed in early June 2011; therefore, data from the beginning of the growing season is not available. Based on data for the remainder of the growing season & other monitoring gauges, it is likely that this gauge would have met criteria.

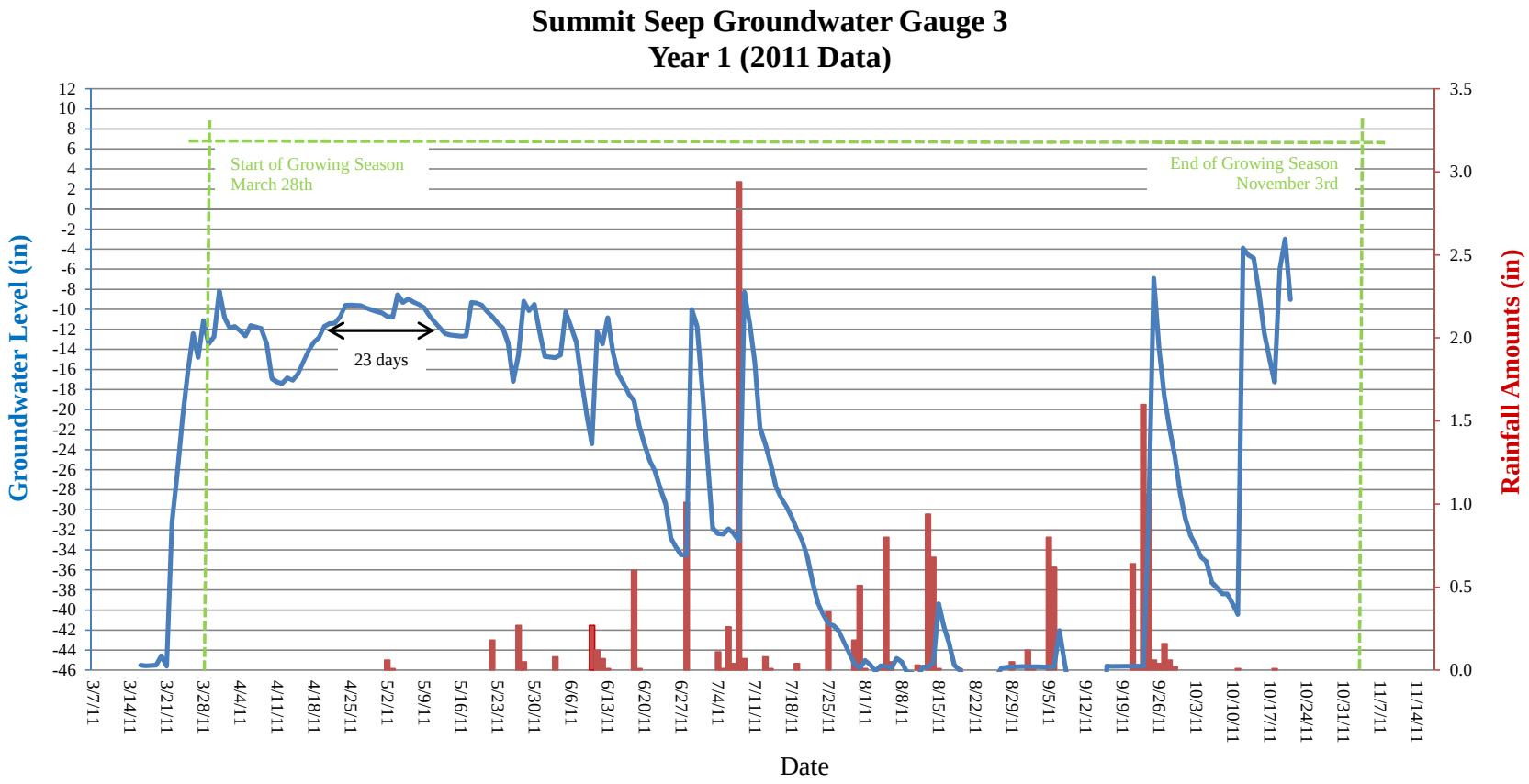
Figure 4: Summit Seep 30-70 Percentile Graph for Rainfall in 2011

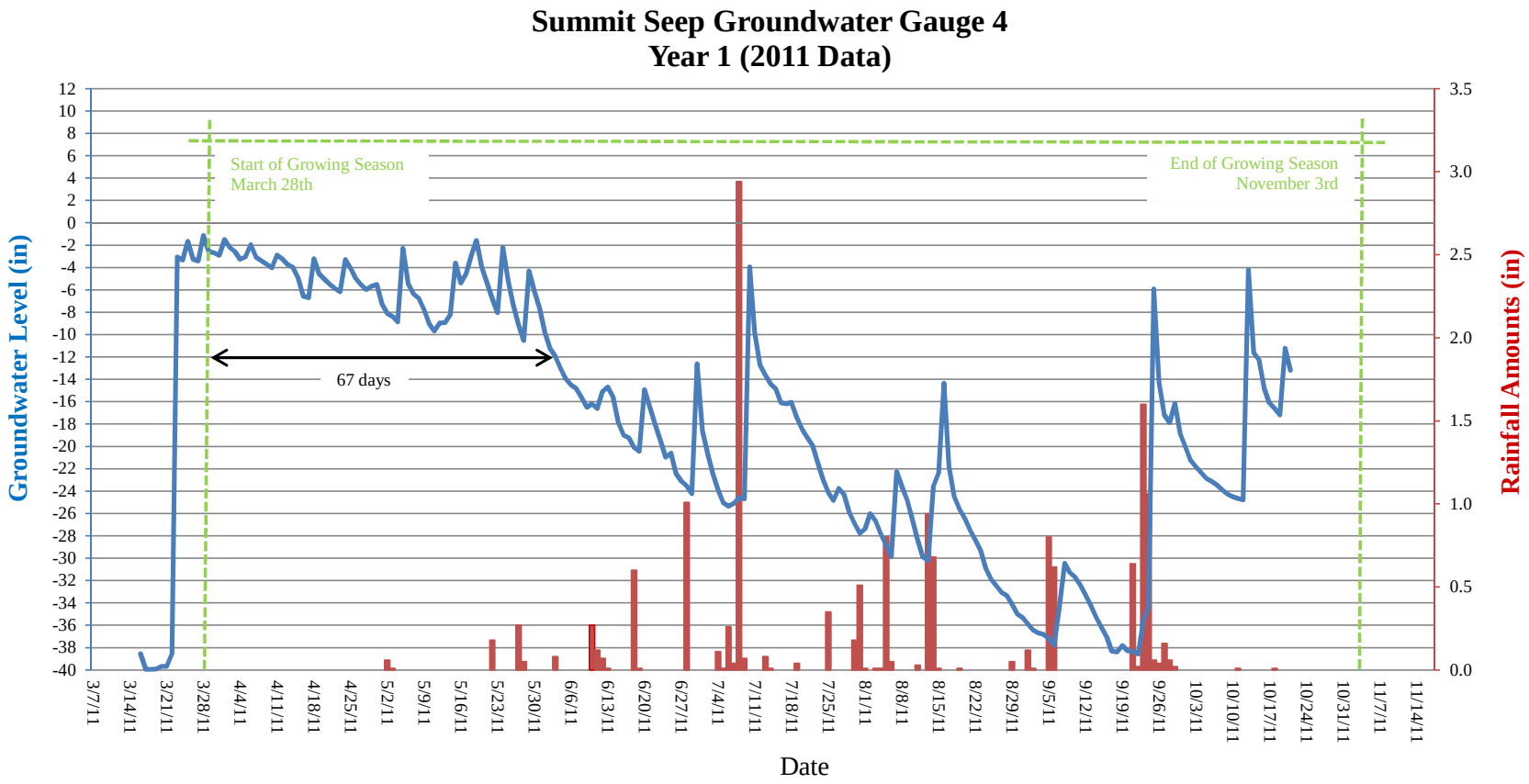
Data from WETS Station : LEXINGTON, NC4970

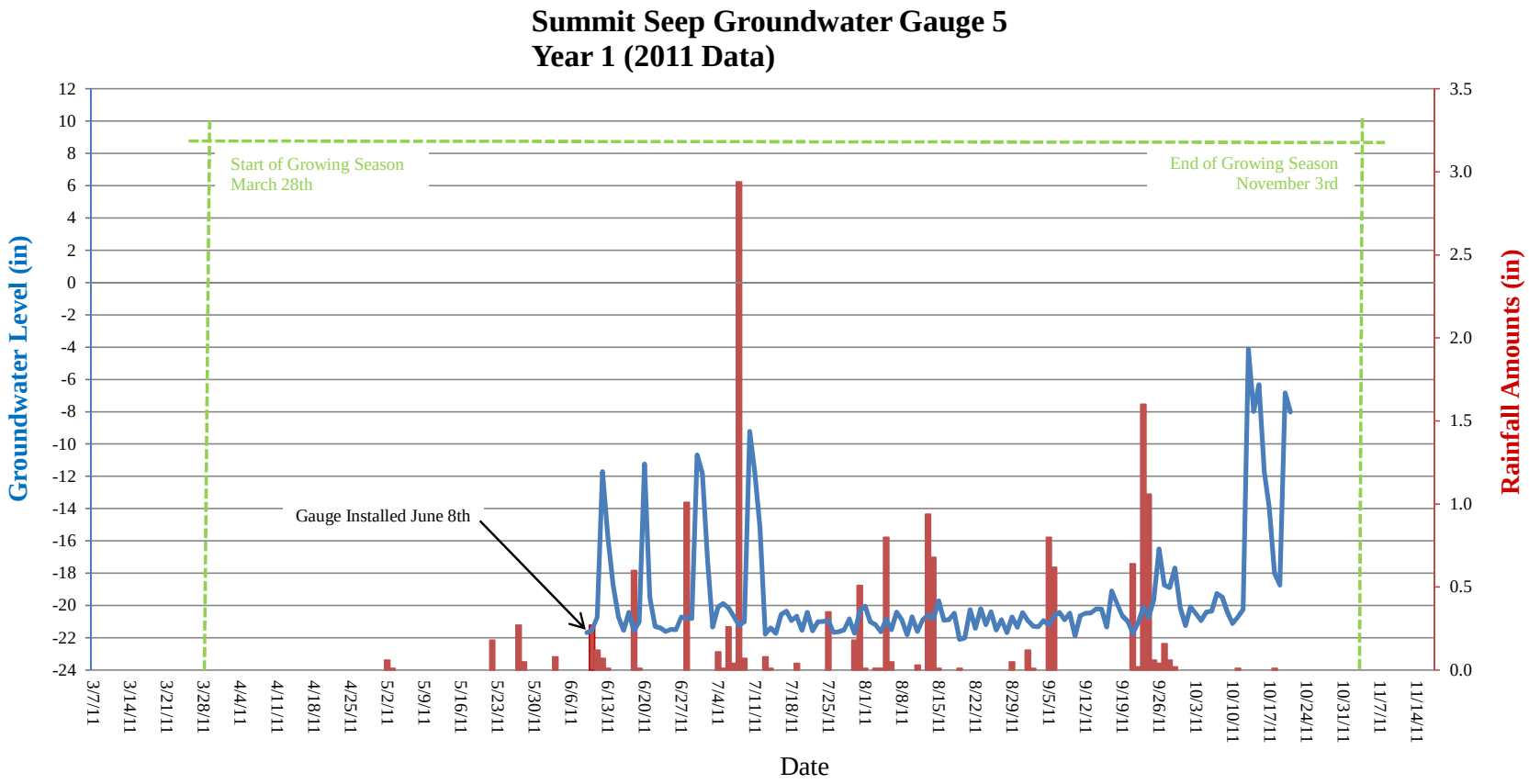



Summit Seep Groundwater Gauge 1
Year 1 (2011 Data)
Groundwater Level (in)
Rainfall Amounts (in)
Start of Growing Season
March 28th
End of Growing Season
November 3rd
37 days
Date


Summit Seep Groundwater Gauge 2
Year 1 (2011 Data)
Groundwater Level (in)
Rainfall Amounts (in)
Start of Growing Season
March 28th
End of Growing Season
November 3rd
73 days
Date


Summit Seep Groundwater Gauge 3
Year 1 (2011 Data)
Groundwater Level (in)
Rainfall Amounts (in)
Start of Growing Season
March 28th
End of Growing Season
November 3rd
23 days
Date


Summit Seep Groundwater Gauge 4
Year 1 (2011 Data)
Groundwater Level (in)
Rainfall Amounts (in)
Start of Growing Season
March 28th
End of Growing Season
November 3rd
67 days
Date



* This gauge was installed in early June 2011; therefore, data from the beginning of the growing season is not available. Based on the data form other gauges, it is likely that this gauge would have met criteria.