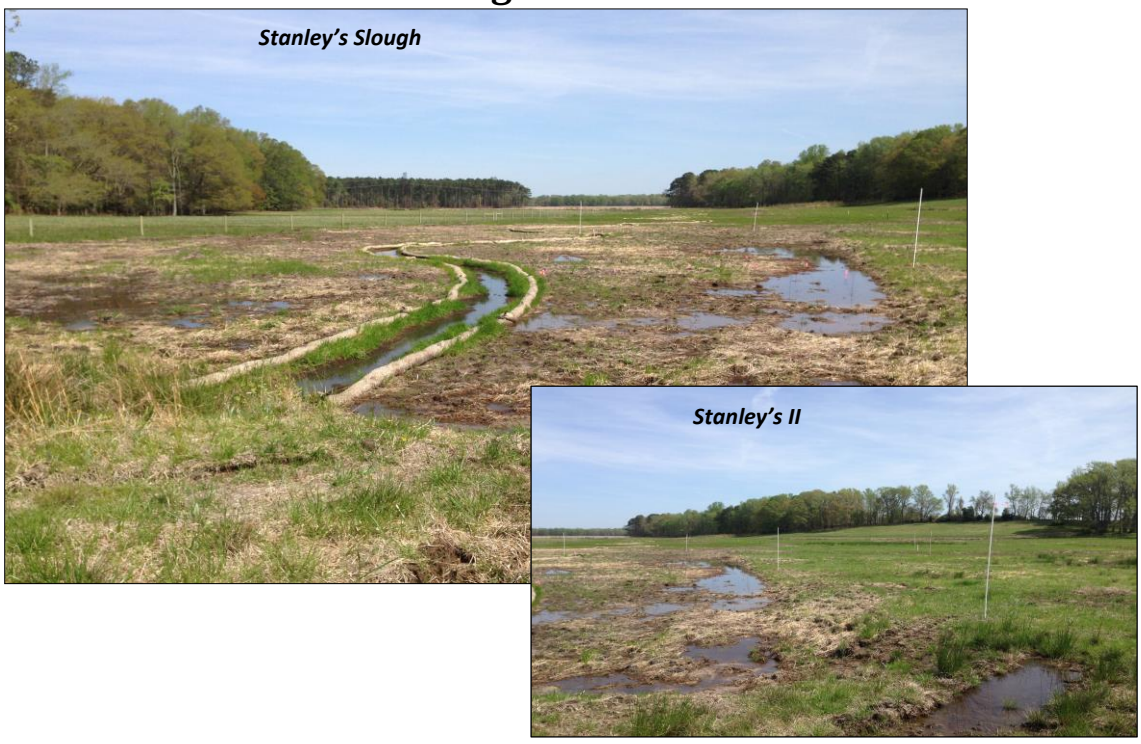
Monitoring Report

Stanley's Slough Stream and Wetland Restoration Site
EEP Contract 004635
EEP Project Number 95356

Stanley's II Wetland Restoration Site
EEP Contract 5151
EEP Project Number 95838

Monitoring Year 01



Prepared for:

NCEEP, 1652 Mail Service Center, Raleigh, NC 27699-1652

Construction Completed: April 2014
Data Collection: 2014
Submitted: December 2014

Design and Monitoring Firm

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KCI Project No: 20122005

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1.0 EXECUTIVE SUMMARY / PROJECT ABSTRACT

The Stanley's Slough Stream and Wetland Restoration Site (SSS) was completed in April 2014 and restored a total of 4,274 linear feet of headwater stream along with restoring 3.6 acres of riparian wetlands. The SSS is a headwater stream and riparian wetland system in the Chowan River Basin (03010204 8-digit HUC) in northern Northampton County, North Carolina, that had been substantially modified to maximize agricultural production. The completed project restored impacted agricultural lands to riparian wetland and headwater stream habitat. The Stanley's II Wetland Restoration Site (SII) is located directly adjacent to SSS and was also completed in April 2014, restoring a total of 7.6 acres of riparian wetland restoration. The completed SII project restored, enhanced, and protected wetlands within a productive headwater stream/wetland system.

The SSS is protected by a 17.6-acre permanent conservation easement, while SII is protected by a 9.4-acre permanent conservation easement, both held by the State of North Carolina. Both sites are located on two parcels located off of Margarettsville Road, approximately 0.3 mile north of Margarettsville, North Carolina. The project sites are bounded by NC 186 to the south and by agricultural land on all other sides. The sites have a long history of hydrologic modification in order to allow for farming to take place on the property.

The Chowan River Basin Restoration Priorities state the goals for the SSS and SII's 14-digit HUC are to protect and improve water quality throughout the basin by reducing sediment and nutrient inputs into streams and rivers and to support efforts to restore local watersheds (NCDENR EEP, 2009). The project goals for SSS and SII are in line with the basin priorities and include the following:

- Restore streams and riparian buffers to provide shade and temperature control and increase instream woody debris for habitat.
- Restore and protect sensitive aquatic resources to improve habitat and species diversity through the restoration of wetlands, streams, and riparian buffers.
- Implement wetland and stream restoration projects that reduce sources of nutrient pollution and surface runoff by restoring hydrology and vegetation, stabilizing banks, and restoring natural geomorphology where appropriate.

Additional goals for the project include:

- Increase the local hydroperiod by encouraging both surface and subsurface storage and retention.
- Restore and establish a functional and diverse headwater stream/wetland community.

The project goals will be addressed through the following objectives:

- Restore a headwater stream/wetland vegetation community through maintenance and germination of volunteer wetland vegetation from adjacent seed sources, planting of native trees and shrubs, and incorporation of a custom native seed mix.
- Elevate the local groundwater table through the elimination of lateral drainage ditches and modification of existing channelized streams.
- Reconnect site hydrology to historic flow paths.

The mitigation at SSS included approximately 4,274 linear feet of stream restoration, 3.6 acres of riparian wetland restoration, and 0.5 acre of wetland preservation for a total of 4,274 Stream Mitigation Units and 3.1 Wetland Mitigation Units. The mitigation at SII included approximately 7.6 acres of riparian wetland restoration for a total of 6.9 Wetland Mitigation Units.

2.0 MONITORING RESULTS

2.1 Vegetation Monitoring Results

The vegetation monitoring success criterion for the planted mitigation area is a density of 320 stems/acre after the third year of monitoring and an allowance for 10% mortality in the following years for a stem density of 288 stems/acre after four years, 260 stems/acre after five years, and 210 stems/acre after seven years to be considered successful. To determine the success of the planted mitigation area, twenty permanent vegetation monitoring plots (10 by 10 meters) have been established in the mitigation area at a density that statistically represents the total mitigation acreage. Eleven of these plots are in SSS and nine of these are in SII. The first-year vegetation monitoring was based on the Level 2 CVS-EEP vegetation monitoring protocol. The site's average density for this monitoring period was 854 planted stems/acre. All twenty plots had greater than 320 planted stems/acre. Including volunteers, the site averaged 998 total stems/acre.

The CVS-EEP protocol, Level 2 (Lee, et al., 2008) was used to collect vegetation data from the site. The vegetation monitoring was completed on October 23, 2014.

2.2 Hydrology Monitoring Results

Twelve groundwater monitoring gauges were installed in the wetland mitigation areas to measure soil saturation within the upper 12 inches and any surface ponding within the wetland area of the site. Four of these gauges are in SSS and eight of these are in SII. The soil survey for Northampton County estimates that the growing season begins March 11 and ends November 20 (254 days). The water table of the restored wetlands must be within 12" of the soils surface continuously for at least 9% (22 days) of the 254-day growing season during normal weather conditions. A "normal" year is based on NRCS climatological data for Northampton County, and using the 30th to 70th percentile thresholds as the range of normal, as documented in the USACE Technical Report "Accessing and Using Meteorological Data to Evaluate Wetland Hydrology" (Sprecher and Warne, 2000).

The daily rainfall data was obtained from a local weather station in Emporia, VA; provided by the NC State Climate Office. For the 2014-year, the month of April experienced an above average rainfall, while August, September, October, and November experienced average rainfall. The months of March, May, June, and July recorded below average rainfall for the site. Overall, the area experienced below average rainfall during the 2014 growing season.

During the site's first growing season, ten of the twelve wells met the success criterion of having saturated soil conditions occurring within 12 inches of the ground surface for a minimum continuous period of 9% (20 days) of the 239 day growing season (March 28 to November 7) during average climatic conditions. The two gauges that did not meet are Gauges 6 and 7, which had continuous saturation percentages of 4.2% and 5.1% respectively. These gauges are located in SII.

2.3 Headwater Stream Performance

SSS will also be monitored to document the development of the headwater stream system. The headwater stream will have continuous surface water flow within the valley, for at least 30 consecutive days annually. Additionally, the stream must show signs of supporting the restored channel form as documented with photos. These indicators may include evidence of scour, sediment deposition and sorting, multiple flow events, wrack lines and flow over vegetation, leaf litter, or water staining.

In the headwater stream, six automatic recording gauges were installed to document the presence of surface water within the restored channel. Weirs were constructed just downstream of three (Gauges 2, 3 and Gauge 18) of these gauges to provide a known elevation at which the stream could be considered flowing. Using these elevations as the basis for flow, all three gauges achieved at least 30 consecutive days of flow. Gauges 2 and 3 (on T1) averaged 60 consecutive days of flow between them and Gauge 18 (on T2) achieved 67 consecutive days of flow. See Appendix D, Photo 2 for an example of these weirs.

Summary information/data related to the occurrence of items such as 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 and in the Mitigation Plan documents available on the EEPs website. All raw data supporting the tables and figures in the appendices are available from EEP upon request.

3.0 REFERENCES

Lee, M.T., R.K. Peet, S.D. Roberts, and T.R. Wentworth. 2008. CVS-EEP Protocol for Recording Vegetation, Version 4.2 (http://cvs.bio.unc.edu/methods.htm)

NCDENR, Ecosystem Enhancement Program. 2009. Chowan River Basin Restoration Priorities 2009. Raleigh, NC. http://www.nceep.net/services/restplans/FINAL_RBRP_Chowan_2009.pdf

Sprecher, S. W., and Warne, A. G. (2000). "Accessing and Using Meteorological Data to Evaluate Wetland Hydrology," ERDC/EL TR-WRAP-00-1, U.S. Army Engineer Research and Development Center, Vicksburg, MS.USACE. 2003. Stream Mitigation Guidelines. USACE, NCDENR-DWQ, USEPA, NCWRC.

USACE. 2003. Stream Mitigation Guidelines. USACE, NCDENR-DWQ, USEPA, NCWRC.

United States Department of Agriculture. 1994. Soil Survey of Northampton County, North Carolina. USDA, NCDENR, SCS. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/NC131/0/northampton.pdf

Appendix A

Project Vicinity Map and Background Tables

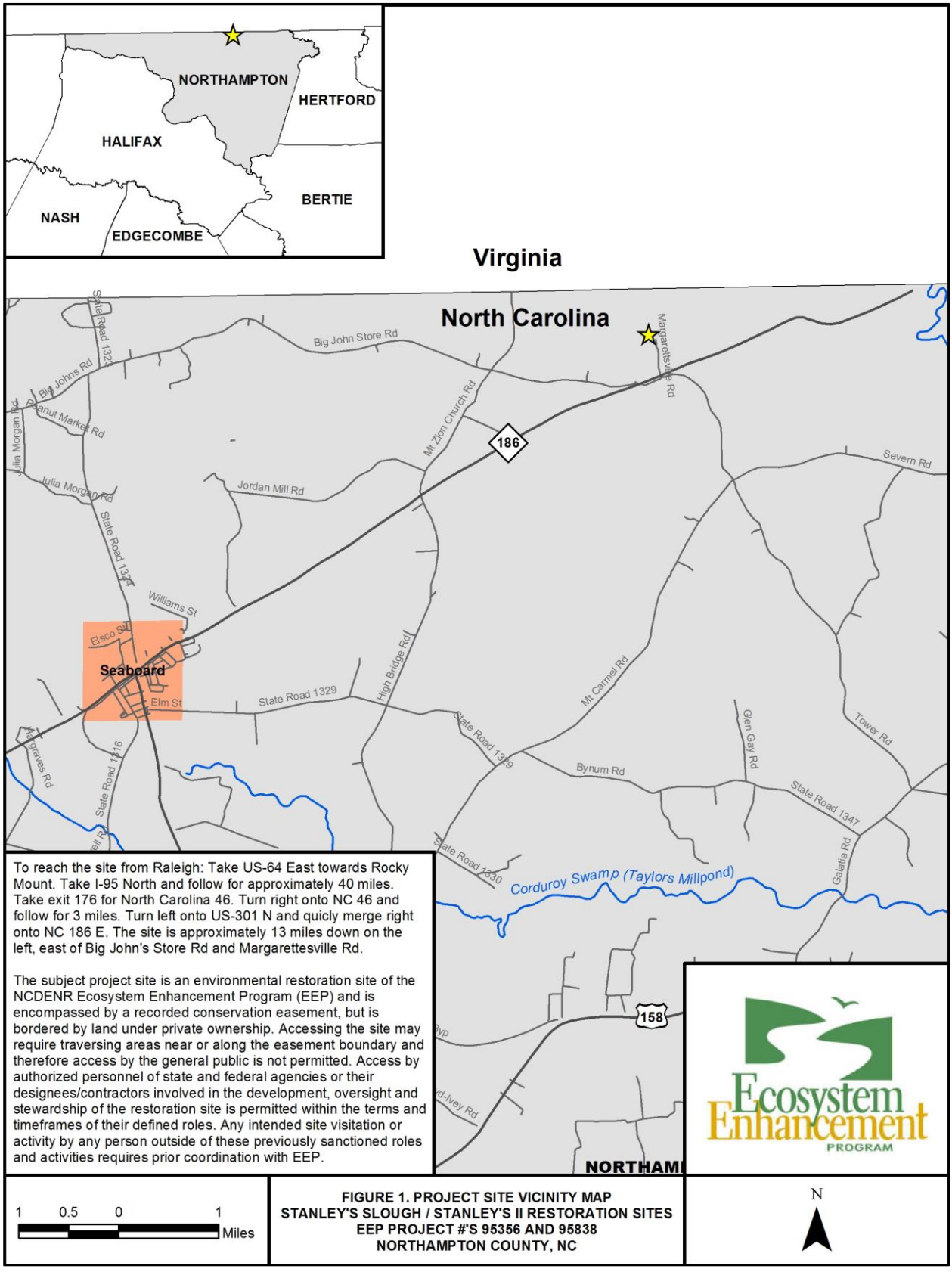


FIGURE 1. PROJECT SITE VICINITY MAP
STANLEY'S SLOUGH / STANLEY'S II RESTORATION SITES
EEP PROJECT #'S 95356 AND 95838
NORTHAMPTON COUNTY, NC

Table 1a. Project Components and Mitigation Credits
Stanley's Slough Restoration Site, EEP Project #95356

Mitigation Credits

	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
Length	4,274		3.6						
Credits	4,274		3.1						
TOTAL CREDITS	4,274		3.1						

Project Components

Project Component -or- Reach ID	Stationing/ Location	Existing Footage/ Acreage	Approach (PI, PII etc.)	Restoration -or- Restoration Equivalent	Restoration Footage/Acreage	Mitigation Ratio
T1	10+00 – 41+55	2,600	Headwater Stream Valley	Restoration	3,054	1:1
T2	50+00 – 62+85	1,220	N/A	Restoration	1,220	1:1
Wetland Reestablishment				Restoration	2.8	1:1
Wetland Rehabilitation				Restoration	0.8	2.5:1
Wetland Preservation				N/A	0.5	NA

Component Summation

Restoration Level	Stream (linear feet)	Riparian Wetlands (Acres)	Non-Riparian Wetlands (Acres)	Buffer (square feet)	Upland (Acres)
Restoration	4,274	3.1			
Enhancement I					
Enhancement II					
TOTAL SMU	**4,274**				
TOTAL WMU		**3.1**			

Table 1b. Project Components and Mitigation Credits
Stanley's Slough II Restoration Site, EEP Project #95838

Mitigation Credits

	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
Length			7.6						
Credits			6.9						
TOTAL CREDITS									

Project Components

Project Component -or- Reach ID	Stationing/ Location	Existing Footage/ Acreage	Approach (PI, PII etc.)	Restoration -or- Restoration Equivalent	Restoration Footage/Acreage	Mitigation Ratio
Wetland Reestablishment				Restoration	6.5	1:1
Wetland Rehabilitation				Restoration	1.1	2.5:1

Component Summation

Restoration Level	Stream (linear feet)	Riparian Wetlands (Acres)		Non-Riparian Wetlands (Acres)	Buffer (square feet)	Upland (Acres)	
		Riverine	Non-Riverine				
Restoration		-	6.9				
Enhancement I							
Enhancement II							
TOTAL WMU			**6.9**				

Table 2. Project Activity & Reporting History Stanley's Slough & Stanley's II Restoration Sites		
Activity or Report	**Data Collection Complete**	**Actual Completion or Delivery**
Mitigation Plan		Aug 13
Final Design - Construction Plans		Oct 13
Construction		April 14
Planting		April 14
Baseline Monitoring/Report	April/May 14	May 14
Year 1 Monitoring	Oct 14	Dec 14

Table 3. Project Contacts Stanley's Slough & Stanley's Slough II Restoration Sites	
Design Firm	KCI Associates of North Carolina, PC Landmark Center II, Suite 220 4601 Six Forks Rd. Raleigh, NC 27609 Contact: Mr. Tim Morris Phone: (919) 278-2512 Fax: (919) 783-9266
Construction Contractor	Wright Contracting, LLC 160 Walker Road Lawndale, NC 28090 Contact: Mr. Stephen James Phone: (704) 692-4633
Planting Contractor	Forestree Management Co. 1280 Maudis Road Bailey, NC 27807 Contact: Mr. Tony Cortez Phone: (252) 243-2513
Monitoring Performers	
MY00 – MY01	KCI Associates of North Carolina, PC Landmark Center II, Suite 220 4601 Six Forks Rd. Raleigh, NC 27609 Contact: Mr. Adam Spiller Phone: (919) 278-2514 Fax: (919) 783-9266

Table 4a. Project Information			
Stanley's Slough Restoration Site, EEP Project #95356			
Project Name	Stanley's Slough Restoration Site		
County	Northampton County		
Project Area (acres)	17.6 acres		
Project Coordinates (lat. and long.)	36.539006 N, -77.348222 W		
Project Watershed Summary Information			
Physiographic Province	Coastal Plain		
River Basin	Chowan		
USGS Hydrologic Unit 8-digit	03010204	**USGS Hydrologic Unit 14-digit**	03010204180040
DWQ Sub-basin	03-01-02		
Project Drainage Area (acres)	113 acres		
Project Drainage Area Percentage of Impervious Area	<1%		
CGIA Land Use Classification	43.7% forested land, 33.8% rangeland, 22.5% agriculture		

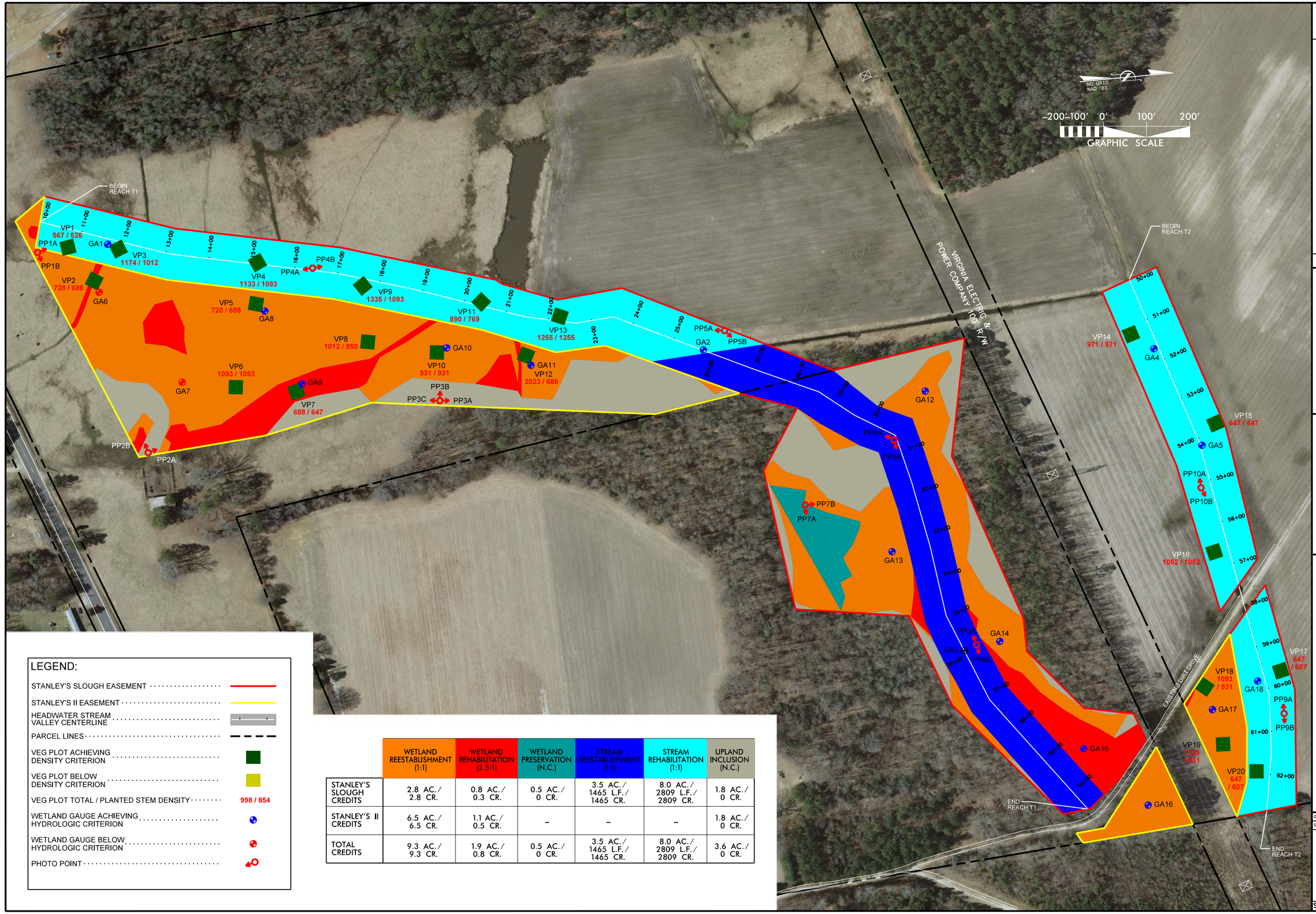
Reach Summery Information (Post Restoration)		
Parameters	**T1**	**T2**
Length of reach (linear feet)	3,054	1,220
Valley classification	Valley Type X	Valley Type X
Drainage area (acres)	84 acres	29 acres
NCDWQ Water Quality Classification	Project Reach Not Classified; Receiving water = Meherrin River (C; NSW)	Project Reach Not Classified; Receiving water = Meherrin River (C; NSW)
Morphological Description (stream type)	Headwater Stream Valley	Headwater Stream Valley
Evolutionary trend	Channelized	Channelized
Mapped Soil Series	Tomotley, Roanoke, Altavista, Wehadkee	Altavista, Roanoke
Drainage class	Poorly drained, poorly drained, moderately well drained, poorly drained	Moderately well drained, poorly drained
Soil Hydric status	Hydric	Hydric
Slope	0.2%	0.06%
FEMA classification	Zone X, parts in Zone AE(backwater of Meherrin River)	Zone X, parts in Zone AE (backwater of Meherrin River)
Native vegetation community	Headwater Forest Community	Headwater Forest Community
Percent composition of exotic invasive vegetation	0%	0%

Wetland Summary Information (Post Restoration)	
Parameters	
Size of Wetland (acres)	3.6 acres
Wetland Type	Riparian
Mapped Soil Series	Roanoke and Tomotley
Drainage class	Poorly drained
Soil Hydric Status	Hydric
Source of Hydrology	Hillside seepage and precipitation
Hydrologic Impairment	Ditching and Cattle damage
Native vegetation community	Headwater Forest Community
Percent composition of exotic invasive vegetation	0%

Table 4b. Project Information			
Stanley's II Restoration Site, EEP Project #95838			
Project Name	Stanley's II Restoration Site		
County	Northampton County		
Project Area (acres)	9.4 acres		
Project Coordinates (lat. and long.)	34.922569 N , -77.319871 W		
Project Watershed Summary Information			
Physiographic Province	Coastal Plain		
River Basin	Chowan		
USGS Hydrologic Unit 8-digit	03010204	**USGS Hydrologic Unit 14-digit**	03010204180040
DWQ Sub-basin	03-01-02		
Project Drainage Area (acres)	80 acres		
Project Drainage Area Percentage of Impervious Area	<1%		
CGIA Land Use Classification	53.0% forested land, 34.9% rangeland, 12.1% agriculture		
Wetland Summary Information (Post Restoration)			
Parameters			
Size of Wetland (acres)	7.6 acres		
Wetland Type	Riparian		
Mapped Soil Series	Tomotley, Roanoke		
Drainage class	Poorly Drained		
Soil Hydric Status	Hydric		
Source of Hydrology	Hillside seepage and precipitation		
Hydrologic Impairment	Ditching and Crops		
Native vegetation community	Headwater Forest Community		
Percent composition of exotic invasive vegetation	0%		

Appendix B

Visual Assessment Data



LEGEND:

- STANLEY'S SLOUGH EASEMENT
- STANLEY'S II EASEMENT
- HEADWATER STREAM VALLEY CENTERLINE
- PARCEL LINES
- VEG PLOT ACHIEVING DENSITY CRITERION
- VEG PLOT BELOW DENSITY CRITERION
- VEG PLOT TOTAL / PLANTED STEM DENSITY — 998 / 854
- WETLAND GAUGE ACHIEVING HYDROLOGIC CRITERION
- WETLAND GAUGE BELOW HYDROLOGIC CRITERION
- PHOTO POINT

	WETLAND REESTABLISHMENT (1:1)	WETLAND REHABILITATION (2.5:1)	WETLAND PRESERVATION (N.C.)	STREAM REESTABLISHMENT (1:1)	STREAM REHABILITATION (1:1)	UPLAND INCLUSION (N.C.)
STANLEY'S SLOUGH CREDITS	2.8 AC./ 2.8 CR.	0.8 AC./ 0.3 CR.	0.5 AC./ 0 CR.	3.5 AC./ 1465 L.F./ 1465 CR.	8.0 AC./ 2809 L.F./ 2809 CR.	1.8 AC./ 0 CR.
STANLEY'S II CREDITS	6.5 AC./ 6.5 CR.	1.1 AC./ 0.5 CR.	–	–	–	1.8 AC./ 0 CR.
TOTAL CREDITS	9.3 AC./ 9.3 CR.	1.9 AC./ 0.8 CR.	0.5 AC./ 0 CR.	3.5 AC./ 1465 L.F./ 1465 CR.	8.0 AC./ 2809 L.F./ 2809 CR.	3.6 AC./ 0 CR.

REVISIONS

SYM.	DESCRIPTION	DATE

Ecosystem Enhancement Program

KCI ASSOCIATES OF NC
ENGINEERS • PLANNERS • SCIENTISTS
4601 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

STANLEY'S SLOUGH / STANLEY'S II RESTORATION SITES

EEP PROJECT #95356 & 95838
NORTHAMPTON COUNTY, NORTH CAROLINA

MONITORING YEAR 01

DATE: DEC 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW

SHEET 1 OF 1

Table 5a. Vegetation Condition Assessment
Stanley's Slough Restoration Site, EEP Project #95356

Planted Acreage 8.74 **Easement Acreage 17.6**

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	Very limited cover of both woody and herbaceous material.	0.1 acre	Pattern and Color	0	0.00	0.0%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	0.1 acre	Pattern and Color	0	0.00	0.0%
			Total	0	0.00	0.0%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	0.25 acre	Pattern and Color	0	0.00	0.0%
			Cumulative Total	0	0.00	0.0%
4. Invasive Areas of Concern	Areas or points (if too small to render as polygons at map scale).	1,000 SF	Pattern and Color	0	0.00	0.0%
5. Easement Encroachment Areas	Areas or points (if too small to render as polygons at map scale).	none	Pattern and Color	0	0.00	0.0%

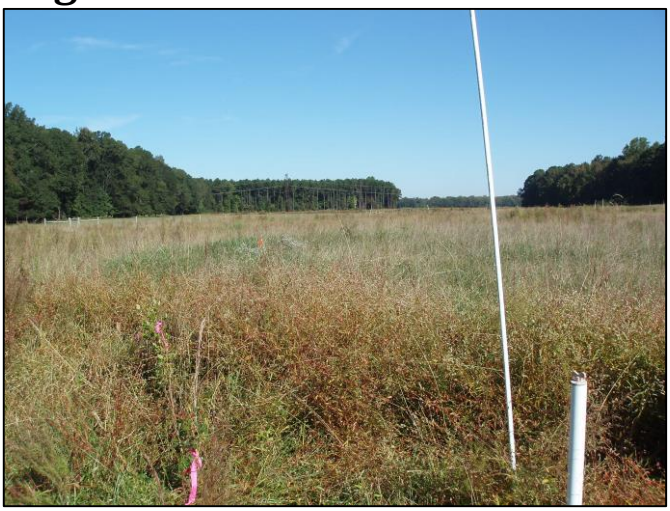
Table 5b. Vegetation Condition Assessment
Stanley's II Restoration Site, EEP Project #95838

Planted Acreage 8.57 **Easement Acreage 9.4**

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	Very limited cover of both woody and herbaceous material.	0.1 acre	Pattern and Color	0	0.00	0.0%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	0.1 acre	Pattern and Color	0	0.00	0.0%
			Total	0	0.00	0.0%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	0.25 acre	Pattern and Color	0	0.00	0.0%
			Cumulative Total	0	0.00	0.0%
4. Invasive Areas of Concern	Areas or points (if too small to render as polygons at map scale).	1,000 SF	Pattern and Color	0	0.00	0.0%
5. Easement Encroachment Areas	Areas or points (if too small to render as polygons at map scale).	none	Pattern and Color	0	0.00	0.0%

Vegetation Monitoring Plot Photos

Plot 1 – MY-01 – 10/23/14



Plot 2 – MY-01 – 10/23/14

Plot 3 – MY-01 – 10/23/14

Plot 4 – MY-01 – 10/23/14

Plot 5 – MY-01 – 10/23/14

Plot 6 – MY-01 – 10/23/14

Plot 7 – MY-01 – 10/23/14

Plot 8 – MY-01 – 10/23/14

Plot 9 – MY-01 – 10/23/14

Plot 10 – MY-01 – 10/23/14

Plot 11 – MY-01 – 10/23/14

Plot 12 – MY-01 – 10/23/14

Plot 13 – MY-01 – 10/23/14

Plot 14 – MY-01 – 10/23/14

Plot 15 – MY-01 – 10/23/14

Plot 16 – MY-01 – 10/23/14

Plot 17 – MY-01 – 10/23/14

Plot 18 – MY-01 – 10/23/14

Plot 19 – MY-01 – 10/23/14

Plot 20 – MY-01 – 10/23/14

Photo Reference Points

PP1a – MY-00 – 4/17/14

PP1a – MY-01 – 11/20/14

PP1b – MY-00 – 4/17/14

PP1b – MY-01 – 11/20/14

PP2a – MY-00 – 4/17/14

PP2a – MY-01 – 11/20/14

PP2b – MY-00 – 4/17/14

PP2b – MY-01 – 11/20/14

PP3a – MY-00 – 4/17/14

PP3a – MY-01 – 11/20/14

PP3b – MY-00 – 4/17/14

PP3b – MY-01 – 11/20/14

PP3c – MY-00 – 4/17/14

PP3c – MY-01 – 11/20/14

PP4a – MY-00 – 4/17/14

PP4a – MY-01 – 11/20/14

PP4b – MY-00 – 4/17/14

PP4b – MY-01 – 11/20/14

PP5a – MY-00 – 4/17/14

PP5a – MY-01 – 11/20/14

PP5b – MY-00 – 4/17/14

PP5b – MY-01 – 11/20/14

PP6a – MY-00 – 4/17/14

PP6a – MY-01 – 11/20/14

PP6b – MY-00 – 4/17/14

PP6b – MY-01 – 11/20/14

PP7a – MY-00 – 4/17/14

PP7a – MY-01 – 11/20/14

PP7b – MY-00 – 4/17/14

PP7b – MY-01 – 11/20/14

PP8a – MY-00 – 4/17/14

PP8a – MY-01 – 11/20/14

PP8b – MY-00 – 4/17/14

PP8b – MY-01 – 11/20/14

PP9a – MY-00 – 4/17/14

PP9a – MY-01 – 11/20/14

PP9b – MY-00 – 4/17/14

PP9b – MY-01 – 11/20/14

PP10a – MY-00 – 4/17/14

PP10a – MY-01 – 11/20/14

PP10b – MY-00 – 4/17/14

PP10b – MY-01 – 11/20/14

Appendix C

Vegetation Plot Data

Table 6. Vegetation Plot Criteria Attainment Stanley's Slough & Stanley's Slough II Restoration Sites			
Vegetation Plot ID	**Vegetation Survival Threshold Met?**	**Monitoring Year 01 Planted Stem Density (stems/acre)**	**Monitoring Year 01 Total Stem Density (stems/acre)**
1	Yes	526	567
2	Yes	688	728
3	Yes	1,012	1,174
4	Yes	1,093	1,133
5	Yes	688	728
6	Yes	1,093	1,093
7	Yes	648	688
8	Yes	850	1,012
9	Yes	1,093	1,335
10	Yes	931	931
11	Yes	767	890
12	Yes	688	2,023
13	Yes	1,255	1,255
14	Yes	971	971
15	Yes	648	648
16	Yes	1,052	1,052
17	Yes	607	648
18	Yes	931	931
19	Yes	931	1,335
20	Yes	607	648

Table 7. CVS Vegetation Plot Metadata	
Stanley's Slough & Stanley's Slough II Restoration Sites	
Report Prepared By	Tommy Seelinger
Date Prepared	11/7/2014 13:09
database name	KCI-2014-S.mdb
database location	M:\2012\20122005 Stanley FDP\Monitoring\Vegetation CVS Database
computer name	12-3ZV4FP1
file size	49192960
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.
PROJECT SUMMARY----------	
Project Code	95356
project Name	Stanley's Slough
Description	Stream and Wetland Restoration Site
River Basin	Chowan
length(ft)	
stream-to-edge width (ft)	
area (sq m)	
Required Plots (calculated)	
Sampled Plots	20

Table 8. CVS Stem Count Total and Planted by Plot and Species
Stanley's Slough and Stanley's Slough II Restoration Sites, EEP Project Number 95356/95838

Scientific Name	Common Name	Species Type	Current Plot Year (MY01 2014)																												
			95356-01-0001			95356-01-0002			95356-01-0003			95356-01-0004			95356-01-0005			95356-01-0006			95356-01-0007			95356-01-0008			95356-01-0009			95356-01-0010		
			PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	red maple	Tree																6	6	6											
Betula nigra	river birch	Tree				5	5	5	4	4	4	2	2	2				5	5	5	2	2	2	8	8	8	9	9	9	3	3	3
Celtis laevigata	sugarberry	Tree																													
Fraxinus pennsylvanica	green ash	Tree				2	2	2				21	21	21	11	11	11	15	15	15	3	3	3	6	6	6				7	7	7
Liquidambar styraciflua	sweetgum	Tree						1			3												1								
Magnolia virginiana	sweetbay	Tree																			1	1	1								
Nyssa sylvatica	blackgum	Tree				7	7	7																			2	2	2			
Pinus taeda	loblolly pine	Tree																													
Platanus occidentalis	American sycamore	Tree			1						1			1			1											2	1	1	1
Quercus falcata	southern red oak	Tree	5	5	5	2	2	2	1	1	1										1	1	1				7	7	7			
Quercus michauxii	swamp chestnut oak	Tree	3	3	3				8	8	8										4	4	4	4	4	4	4	4	4	2	2	2
Quercus nigra	water oak	Tree																													
Quercus phellos	willow oak	Tree	1	1	1	1	1	1							6	6	6	1	1	1	5	5	5	3	3	3	1	1	1	10	10	10
Salix nigra	black willow	Tree																								4			4		
Taxodium distichum	bald cypress	Tree	4	4	4				11	11	11	4	4	4													3	3	3			
Unknown		Shrub or Tree							1	1	1																1	1	1			
Stem count			13	13	14	17	17	18	25	25	29	27	27	28	17	17	18	27	27	27	16	16	17	21	21	25	27	27	33	23	23	23
size (ares)			1			1			1			1			1			1			1			1			1			1		
size (ACRES)			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
Species count			4	4	5	5	5	6	5	5	7	3	3	4	2	2	3	4	4	4	6	6	7	4	4	5	7	7	9	5	5	5
Stems per ACRE			526	526	567	688	688	728	1012	1012	1174	1093	1093	1133	688	688	728	1093	1093	1093	647	647	688	850	850	1012	1093	1093	1335	931	931	931

Table 8. CVS Stem Count Total and Planted by Plot and Species
Stanley's Slough and Stanley's Slough II Restoration Sites, EEP Project Number 95356/95838

			Current Plot Year (MY01 2014)																										
Scientific Name	**Common Name**	**Species Type**	**95356-01-0011**			**95356-01-0012**			**95356-01-0013**			**95356-01-0014**			**95356-01-0015**			**95356-01-0016**			**95356-01-0017**			**95356-01-0018**			**95356-01-0019**			**95356-01-0020**		
			PnoLS	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**	**PnoLS**	**P-all**	**T**
Acer rubrum	red maple	Tree	3	3	3			1																							
Betula nigra	river birch	Tree	4	4	4							9	9	9	3	3	3				7	7	7				5	5	5	1	1	1
Celtis laevigata	sugarberry	Tree																								1					
Fraxinus pennsylvanica	green ash	Tree	4	4	4	9	9	9	1	1	1				5	5	5	9	9	9	2	2	2	7	7	7	9	9	9	2	2	2
Liquidambar styraciflua	sweetgum	Tree						20																		2			5			
Magnolia virginiana	sweetbay	Tree				1	1	1							1	1	1	3	3	3				2	2	2	1	1	1			
Nyssa sylvatica	blackgum	Tree	2	2	2				15	15	15							6	6	6				3	3	3				7	7	7
Pinus taeda	loblolly pine	Tree						2																							
Platanus occidentalis	American sycamore	Tree				2	2	2				4	4	4	2	2	2	2	2	2	1	1	1			1	2	2	6	1	1	2
Quercus falcata	southern red oak	Tree	2	2	2				3	3	3	1	1	1				1	1	1	2	2	2							2	2	2
Quercus michauxii	swamp chestnut oak	Tree	3	3	3				6	6	6	7	7	7	3	3	3	2	2	2	2	2	2	6	6	6	2	2	2	1	1	1
Quercus nigra	water oak	Tree																													
Quercus phellos	willow oak	Tree				5	5	5	1	1	1	2	2	2	1	1	1	3	3	3				5	5	5	4	4	4			
Salix nigra	black willow	Tree			3			10															1						1			
Taxodium distichum	bald cypress	Tree	1	1	1				5	5	5	1	1	1	1	1	1				1	1	1							1	1	1
Unknown		Shrub or Tree																													
	Stem count		19	19	22	17	17	50	31	31	31	24	24	24	16	16	16	26	26	26	15	15	16	23	23	27	23	23	33	15	15	16
	size (ares)		1			1			1			1			1			1			1			1			1			1		
	size (ACRES)		0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
	Species count		7	7	8	4	4	8	6	6	6	6	6	6	7	7	7	7	7	7	6	6	7	5	5	8	6	6	8	7	7	7
	Stems per ACRE		769	769	890	688	688	2023	1255	1255	1255	971	971	971	647	647	647	1052	1052	1052	607	607	647	931	931	1093	931	931	1335	607	607	647

Table 8. CVS Stem Count Total and Planted by Plot and Species
Stanley's Slough and Stanley's Slough II Restoration Sites, EEP Project Number 95356/95838

Scientific Name	Common Name	Species Type	Annual Means					
			MY1 (2014)			MY0 (2014)		
			PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	red maple	Tree	9	9	10	11	11	11
Betula nigra	river birch	Tree	67	67	67	73	73	73
Celtis laevigata	sugarberry	Tree			1			
Fraxinus pennsylvanica	green ash	Tree	113	113	113	117	117	117
Liquidambar styraciflua	sweetgum	Tree			32			
Magnolia virginiana	sweetbay	Tree	9	9	9	19	19	19
Nyssa sylvatica	blackgum	Tree	42	42	42	46	46	46
Pinus taeda	loblolly pine	Tree			2			
Platanus occidentalis	American sycamore	Tree	15	15	27	19	19	19
Quercus falcata	southern red oak	Tree	27	27	27	30	30	30
Quercus michauxii	swamp chestnut oak	Tree	57	57	57	50	50	50
Quercus nigra	water oak	Tree				1	1	1
Quercus phellos	willow oak	Tree	49	49	49	65	65	65
Salix nigra	black willow	Tree			23			
Taxodium distichum	bald cypress	Tree	32	32	32	33	33	33
Unknown		Shrub or Tree	2	2	2	52	52	52
		Stem count	422	422	493	516	516	516
		size (ares)	20			20		
		size (ACRES)	0.49			0.49		
		Species count	11	11	15	12	12	12
		Stems per ACRE	854	854	998	1044	1044	1044

Appendix D

Hydrologic Data

Table 9. Verification of Support for the Restored Channel Stanley's Slough and Stanley's Slough II Restoration Sites, EEP Project Number 95356/95838		
Date of Data Collection	**Verification**	**Photo #**
11/20/14	Vegetation break, evidence of flow	1

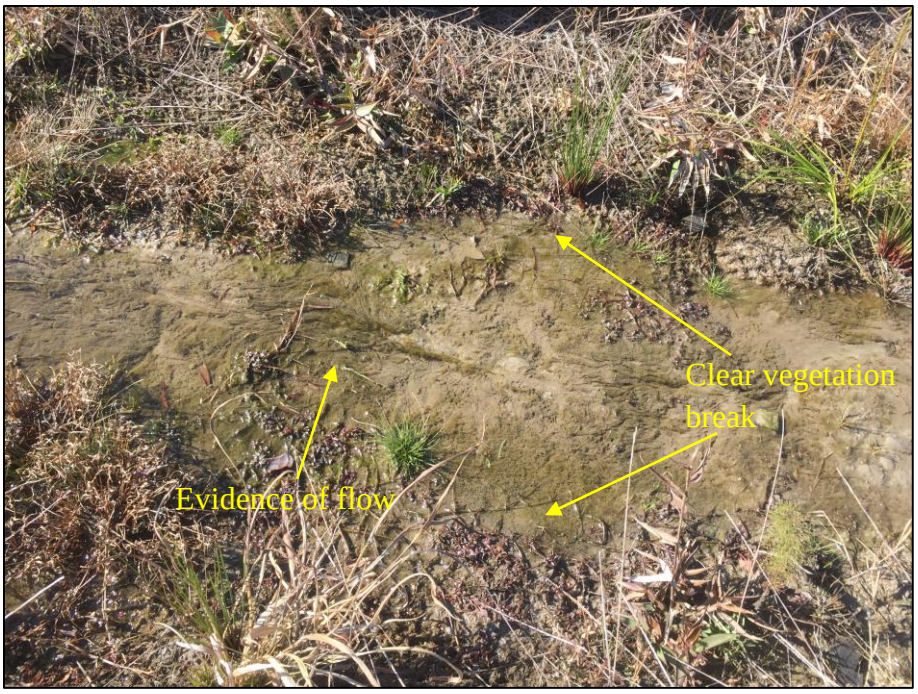
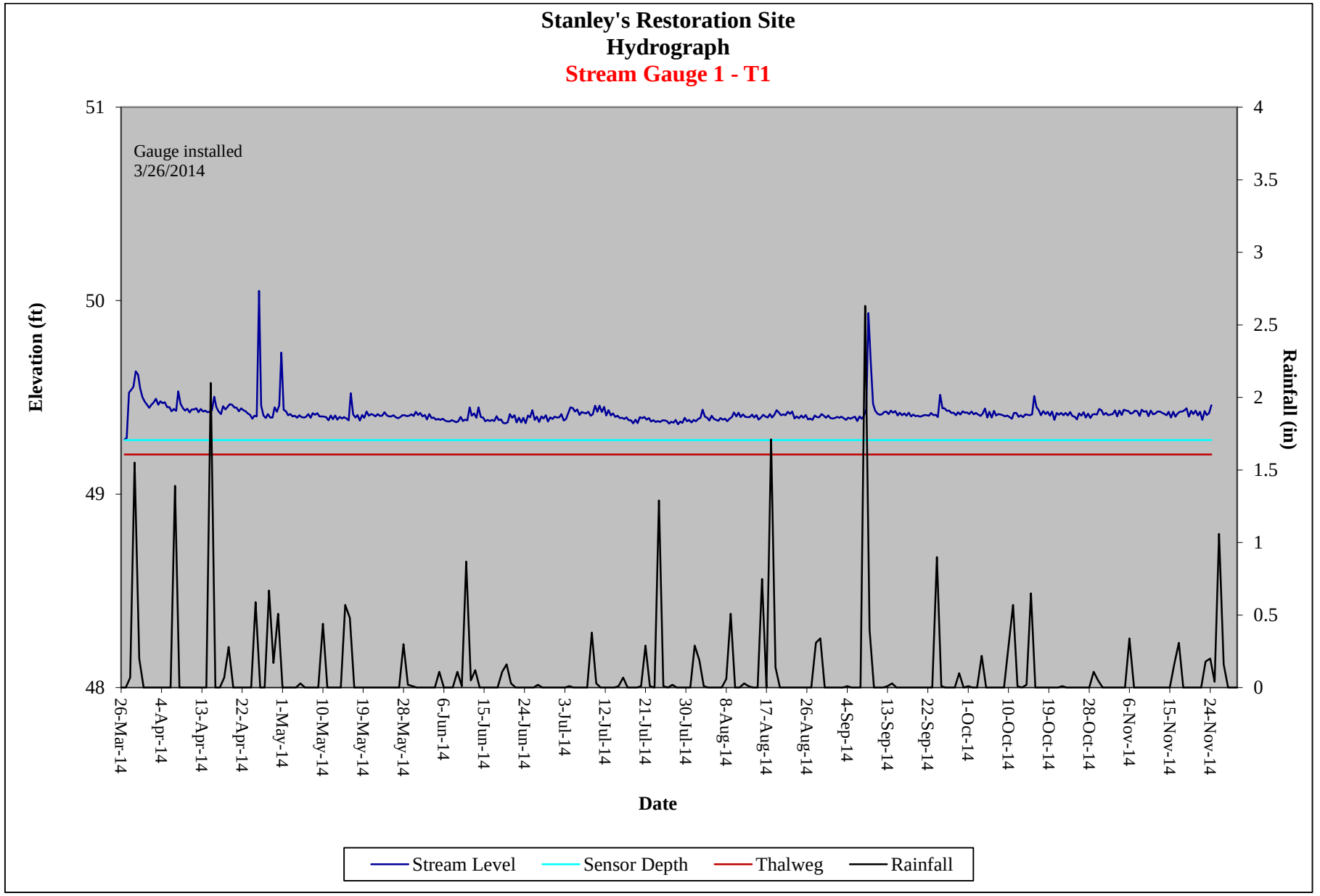
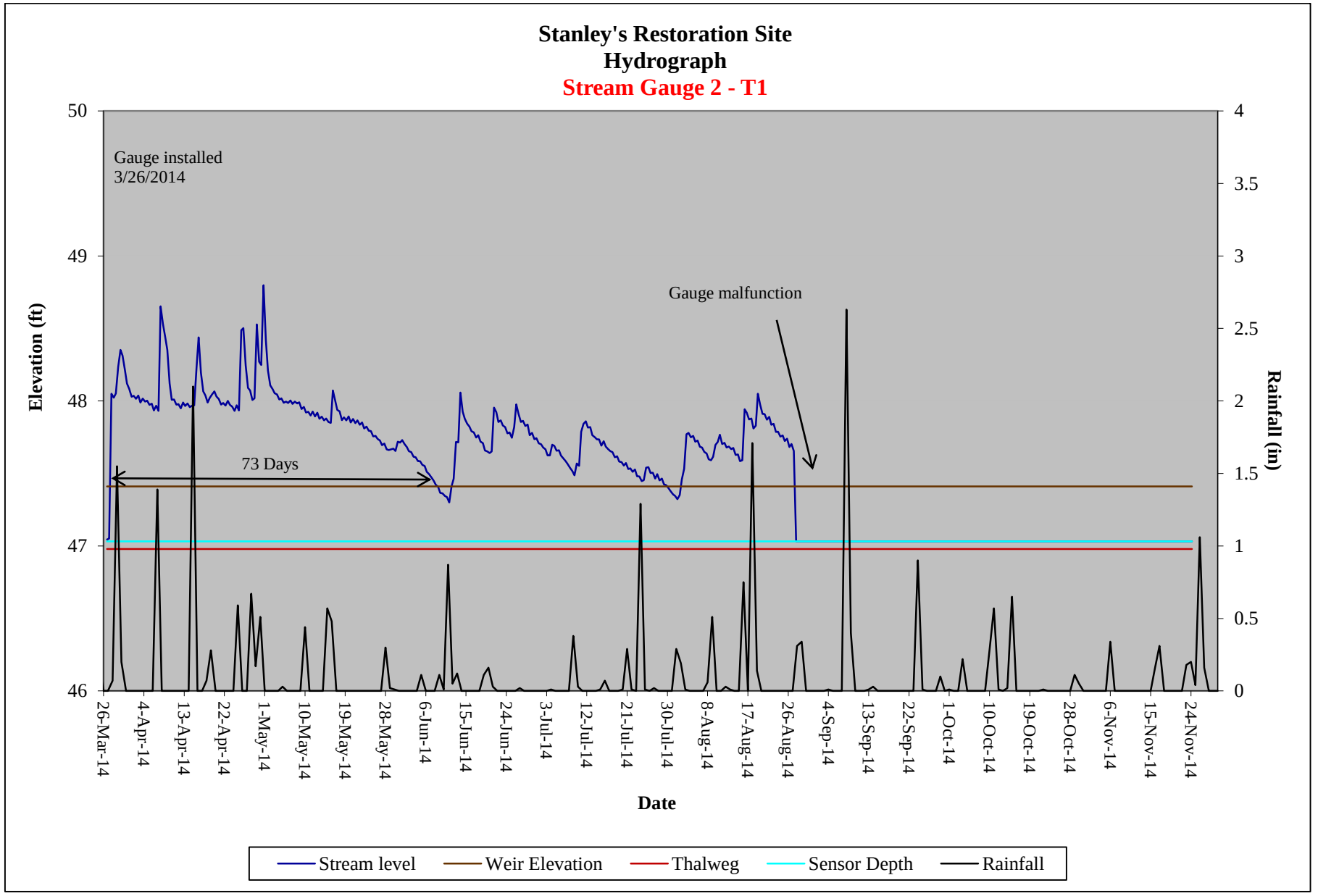
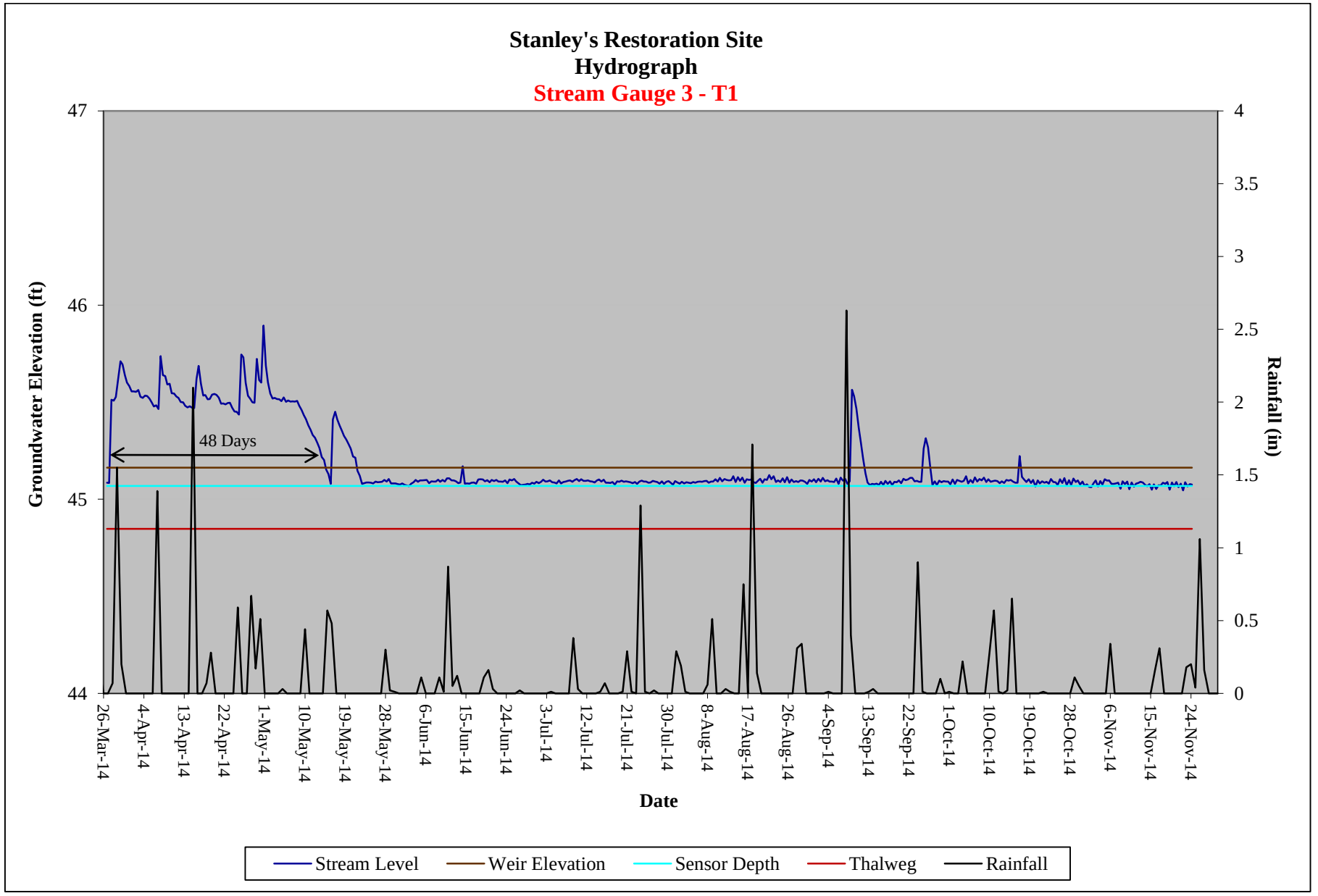


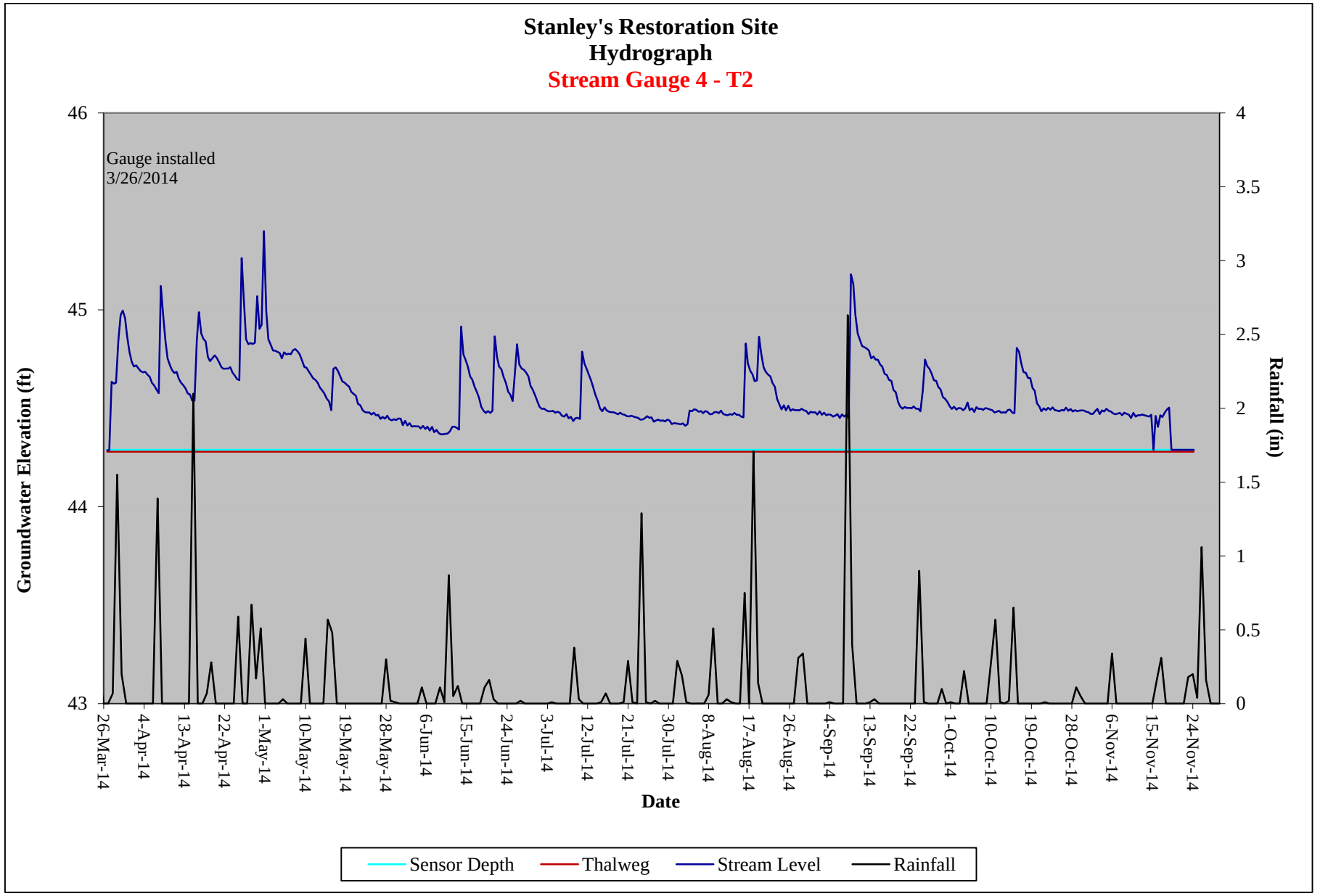
Photo 1. Evidence for support of the restored stream channel

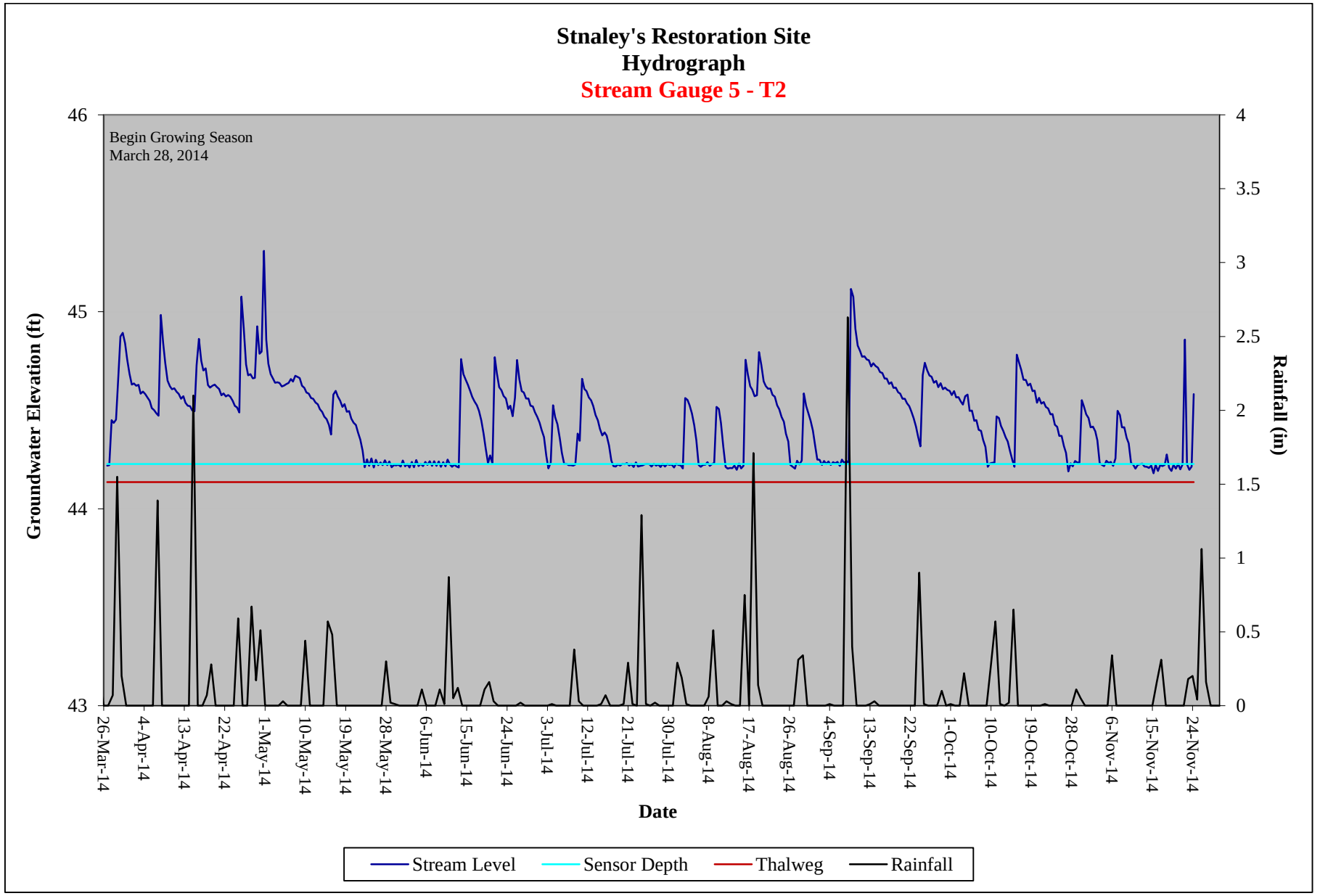

Photo 2. Weir at Gauge 3


Stanley's Restoration Site
Hydrograph
Stream Gauge 1 - T1
Gauge installed
3/26/2014
Elevation (ft)
Rainfall (in)
Date
51
50
49
48
4
3.5
3
2.5
2
1.5
1
0.5
0
26-Mar-14
4-Apr-14
13-Apr-14
22-Apr-14
1-May-14
10-May-14
19-May-14
28-May-14
6-Jun-14
15-Jun-14
24-Jun-14
3-Jul-14
12-Jul-14
21-Jul-14
30-Jul-14
8-Aug-14
17-Aug-14
26-Aug-14
4-Sep-14
13-Sep-14
22-Sep-14
1-Oct-14
10-Oct-14
19-Oct-14
28-Oct-14
6-Nov-14
15-Nov-14
24-Nov-14
Stream Level
Sensor Depth
Thalweg
Rainfall


Stanley's Restoration Site
Hydrograph
Stream Gauge 2 - T1
Gauge installed
3/26/2014
Gauge malfunction
73 Days
Elevation (ft)
Rainfall (in)
Date
50
49
48
47
46
4
3.5
3
2.5
2
1.5
1
0.5
0
26-Mar-14
4-Apr-14
13-Apr-14
22-Apr-14
1-May-14
10-May-14
19-May-14
28-May-14
6-Jun-14
15-Jun-14
24-Jun-14
3-Jul-14
12-Jul-14
21-Jul-14
30-Jul-14
8-Aug-14
17-Aug-14
26-Aug-14
4-Sep-14
13-Sep-14
22-Sep-14
1-Oct-14
10-Oct-14
19-Oct-14
28-Oct-14
6-Nov-14
15-Nov-14
24-Nov-14
Stream level
Weir Elevation
Thalweg
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Stream Gauge 3 - T1
Groundwater Elevation (ft)
Rainfall (in)
48 Days
47
46
45
44
4
3.5
3
2.5
2
1.5
1
0.5
0
26-Mar-14
4-Apr-14
13-Apr-14
22-Apr-14
1-May-14
10-May-14
19-May-14
28-May-14
6-Jun-14
15-Jun-14
24-Jun-14
3-Jul-14
12-Jul-14
21-Jul-14
30-Jul-14
8-Aug-14
17-Aug-14
26-Aug-14
4-Sep-14
13-Sep-14
22-Sep-14
1-Oct-14
10-Oct-14
19-Oct-14
28-Oct-14
6-Nov-14
15-Nov-14
24-Nov-14
Date
Stream Level
Weir Elevation
Sensor Depth
Thalweg
Rainfall


Stanley's Restoration Site
Hydrograph
Stream Gauge 4 - T2
Gauge installed
3/26/2014
Groundwater Elevation (ft)
Rainfall (in)
Date
46
45
44
43
4
3.5
3
2.5
2
1.5
1
0.5
0
26-Mar-14
4-Apr-14
13-Apr-14
22-Apr-14
1-May-14
10-May-14
19-May-14
28-May-14
6-Jun-14
15-Jun-14
24-Jun-14
3-Jul-14
12-Jul-14
21-Jul-14
30-Jul-14
8-Aug-14
17-Aug-14
26-Aug-14
4-Sep-14
13-Sep-14
22-Sep-14
1-Oct-14
10-Oct-14
19-Oct-14
28-Oct-14
6-Nov-14
15-Nov-14
24-Nov-14
Sensor Depth
Thalweg
Stream Level
Rainfall


Stnaley's Restoration Site
Hydrograph
Stream Gauge 5 - T2
Begin Growing Season
March 28, 2014
Groundwater Elevation (ft)
Rainfall (in)
Date
46
45
44
43
4
3.5
3
2.5
2
1.5
1
0.5
0
26-Mar-14
4-Apr-14
13-Apr-14
22-Apr-14
1-May-14
10-May-14
19-May-14
28-May-14
6-Jun-14
15-Jun-14
24-Jun-14
3-Jul-14
12-Jul-14
21-Jul-14
30-Jul-14
8-Aug-14
17-Aug-14
26-Aug-14
4-Sep-14
13-Sep-14
22-Sep-14
1-Oct-14
10-Oct-14
19-Oct-14
28-Oct-14
6-Nov-14
15-Nov-14
24-Nov-14
Stream Level
Sensor Depth
Thalweg
Rainfall

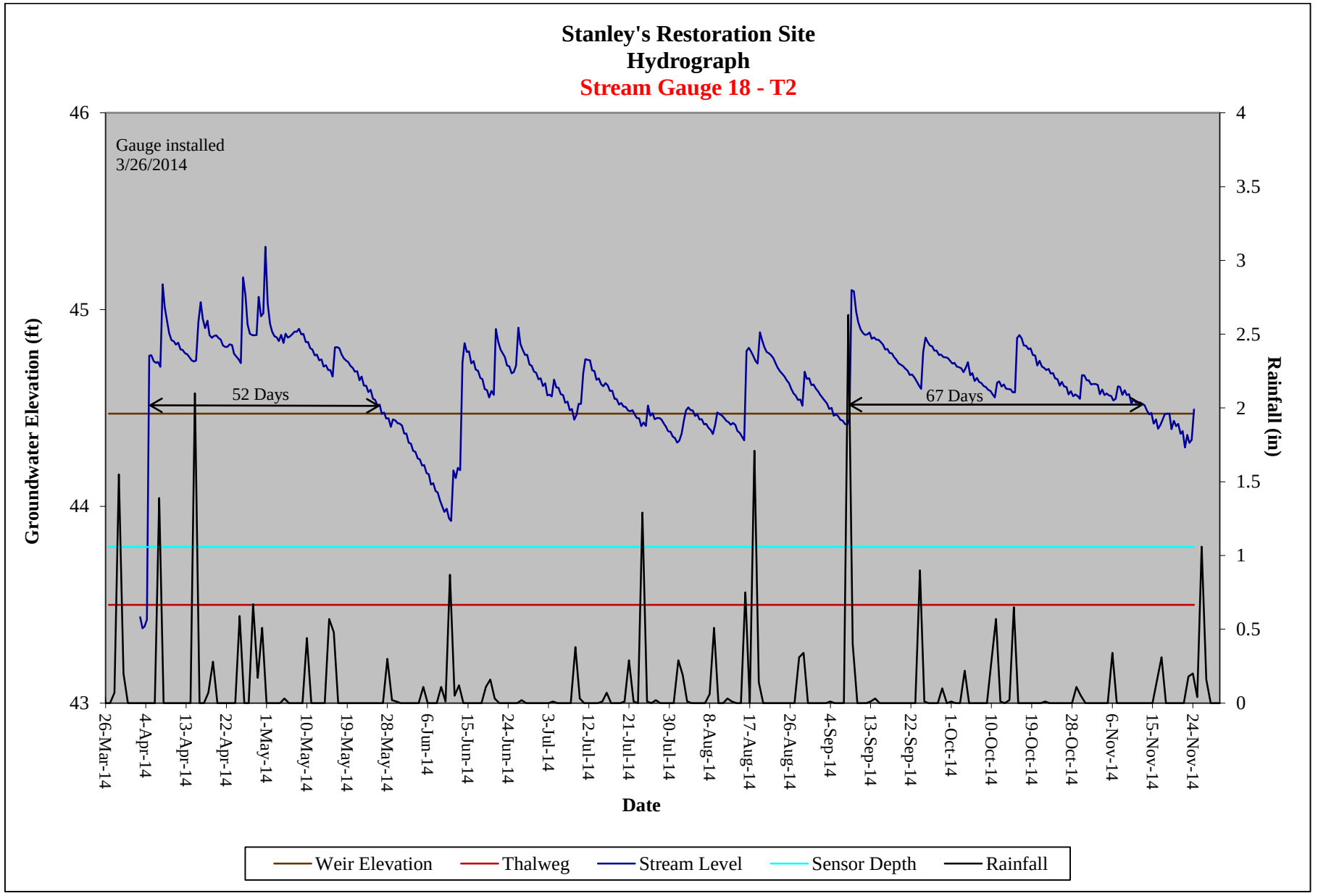
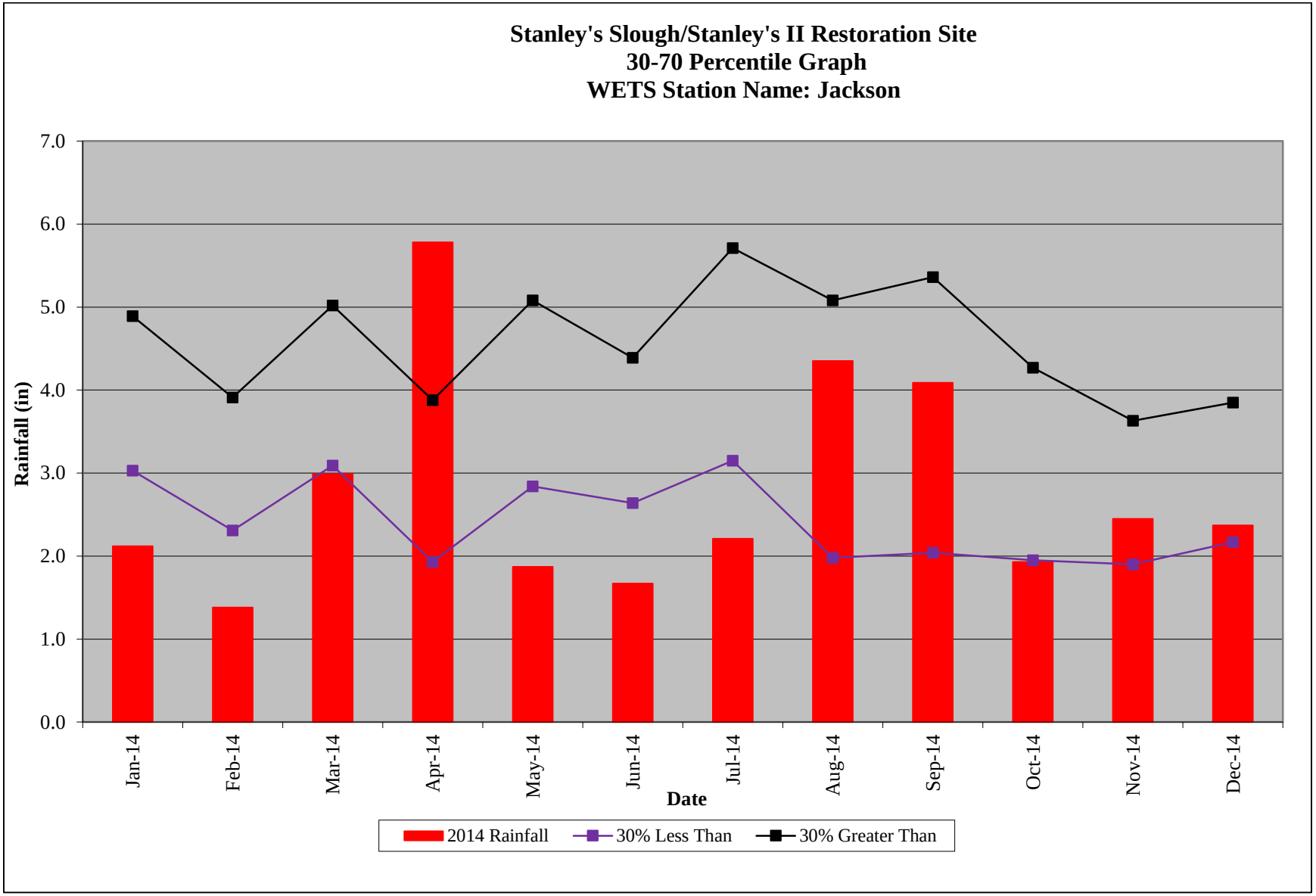
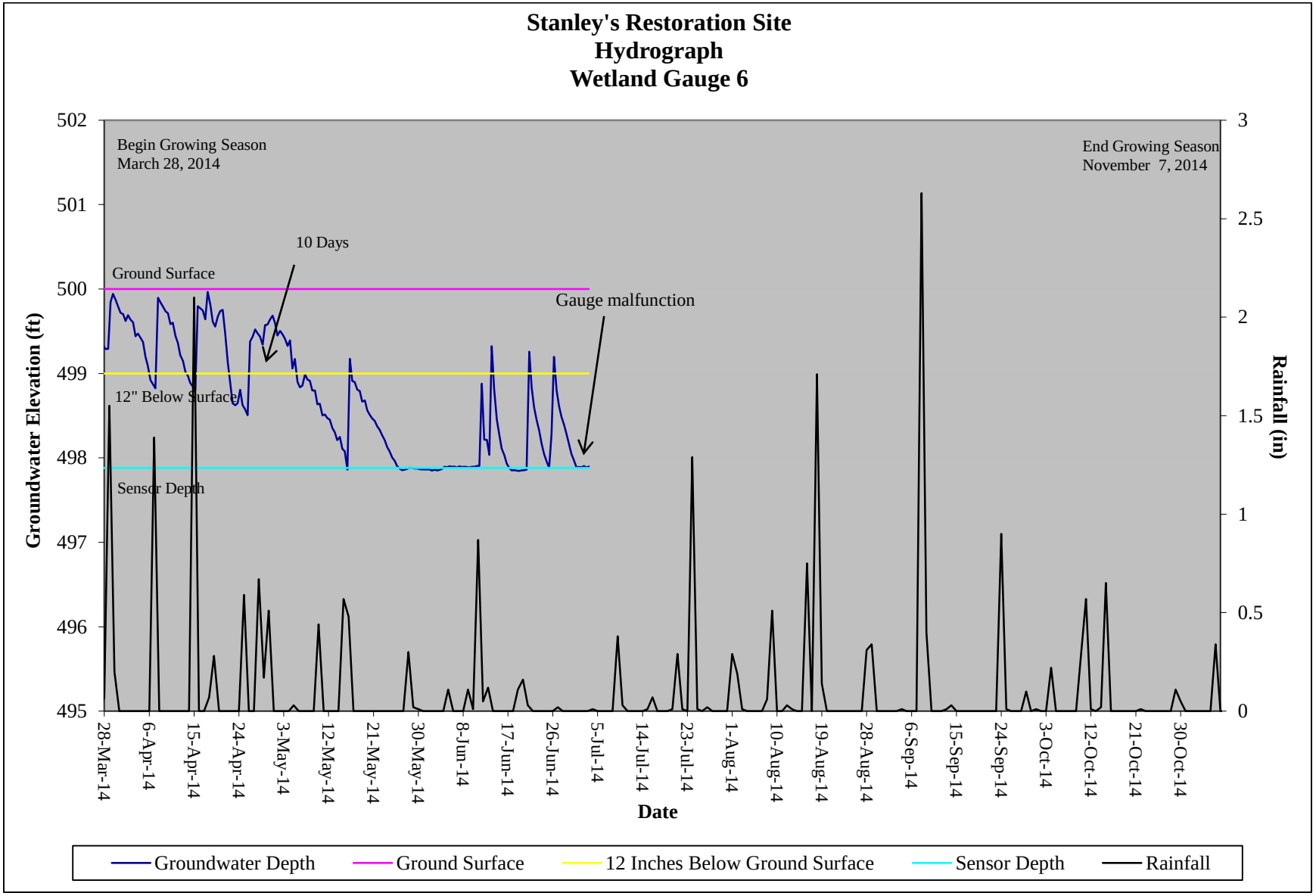
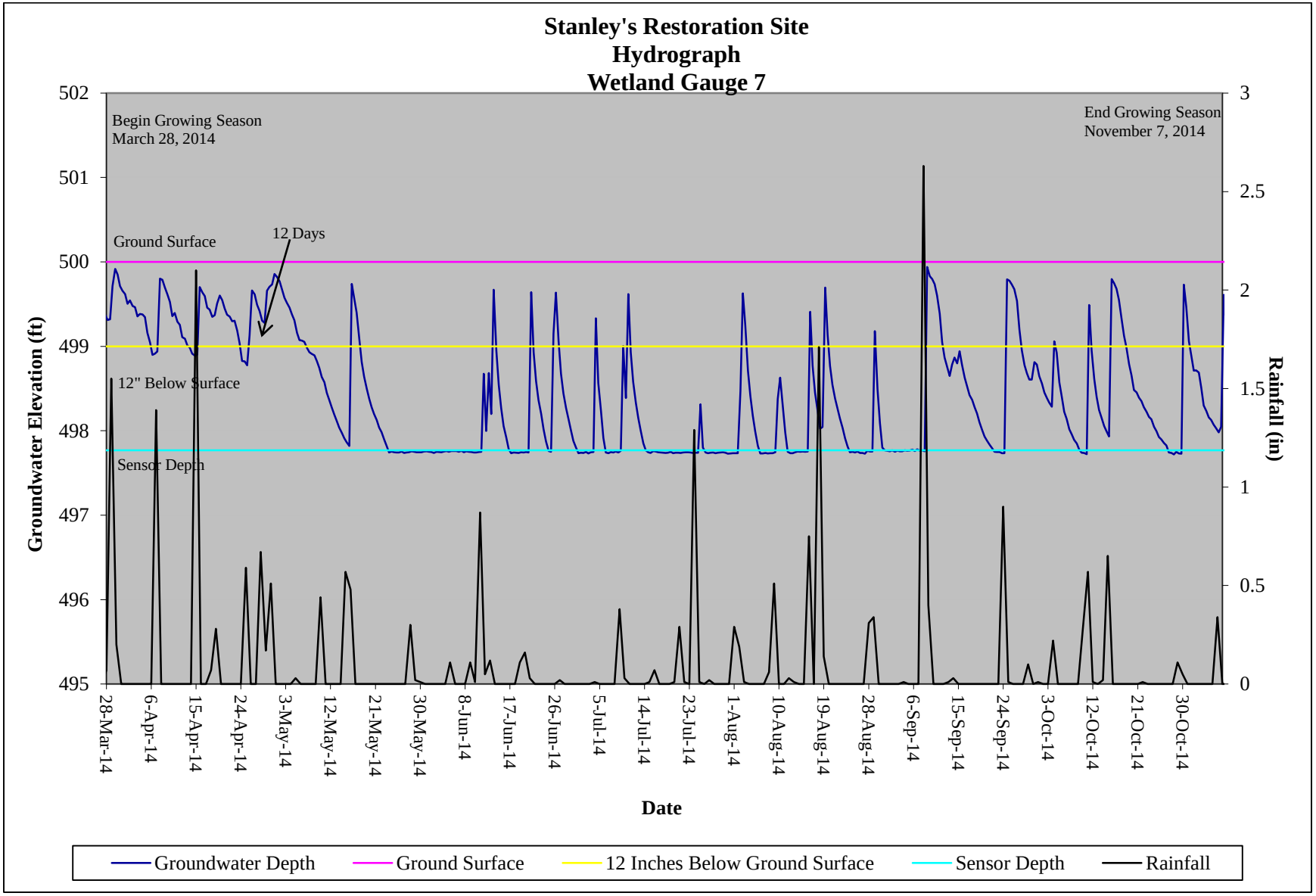

Stanley's Restoration Site
Hydrograph
Stream Gauge 18 - T2
Gauge installed
3/26/2014
52 Days
67 Days
Groundwater Elevation (ft)
Rainfall (in)
Date
46
45
44
43
4
3.5
3
2.5
2
1.5
1
0.5
0
26-Mar-14
4-Apr-14
13-Apr-14
22-Apr-14
1-May-14
10-May-14
19-May-14
28-May-14
6-Jun-14
15-Jun-14
24-Jun-14
3-Jul-14
12-Jul-14
21-Jul-14
30-Jul-14
8-Aug-14
17-Aug-14
26-Aug-14
4-Sep-14
13-Sep-14
22-Sep-14
1-Oct-14
10-Oct-14
19-Oct-14
28-Oct-14
6-Nov-14
15-Nov-14
24-Nov-14
Weir Elevation
Thalweg
Stream Level
Sensor Depth
Rainfall

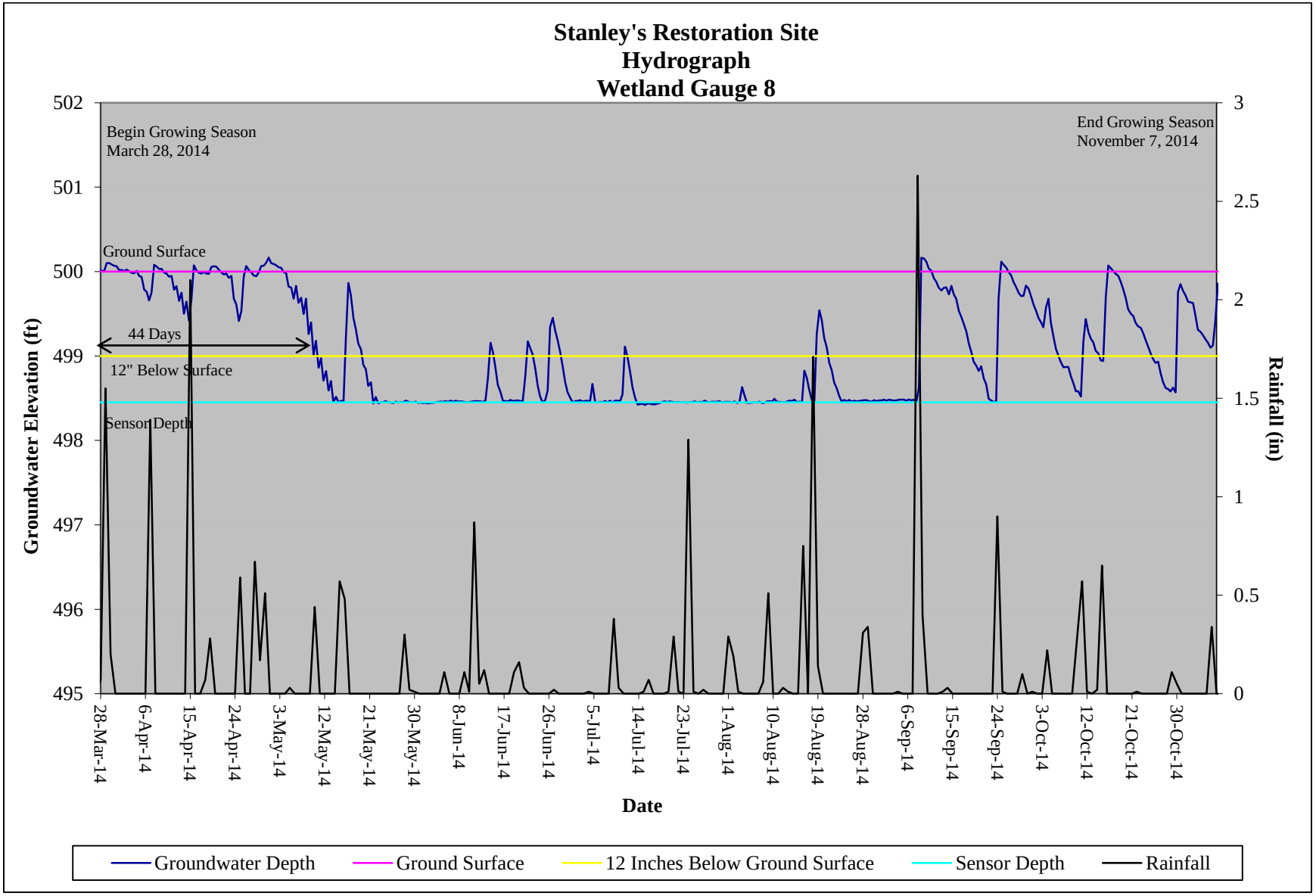
Table 10. Wetland Hydrology Criteria Attainment Stanley's Slough and Stanley's Slough II Restoration Sites, EEP Project Number 95356/95838								
		Success Criteria Achieved/Max Consecutive Days During Growing Season (Percentage)						
Location	Gauge	MY01 (2014)	MY02 (2015)	MY03 (2016)	MY04 (2017)	MY05 (2018)	MY06 (2019)	MY07 (2020)
SII Res.	6	No/10 (4.2%)						
SII Res.	7	No/12 (5.1%)						
SII Res.	8	Yes/44 (19.4%)						
SII Reh.	9	Yes/62 (27.5%)						
SII Res.	10	Yes/48 (21.2%)						
SII Res.	11	Yes/44 (19.4%)						
SSS Res.	12	Yes/44 (19.4%)						
SSS Res.	13	Yes/58 (25.7%)						
SSS Res.	14	Yes/44 (19.4%)						
SSS Reh.	15	Yes/61 (27.2%)						
SII Res.	16	Yes/56 (24.8%)						
SII Res.	17	Yes/47 (20.8%)						

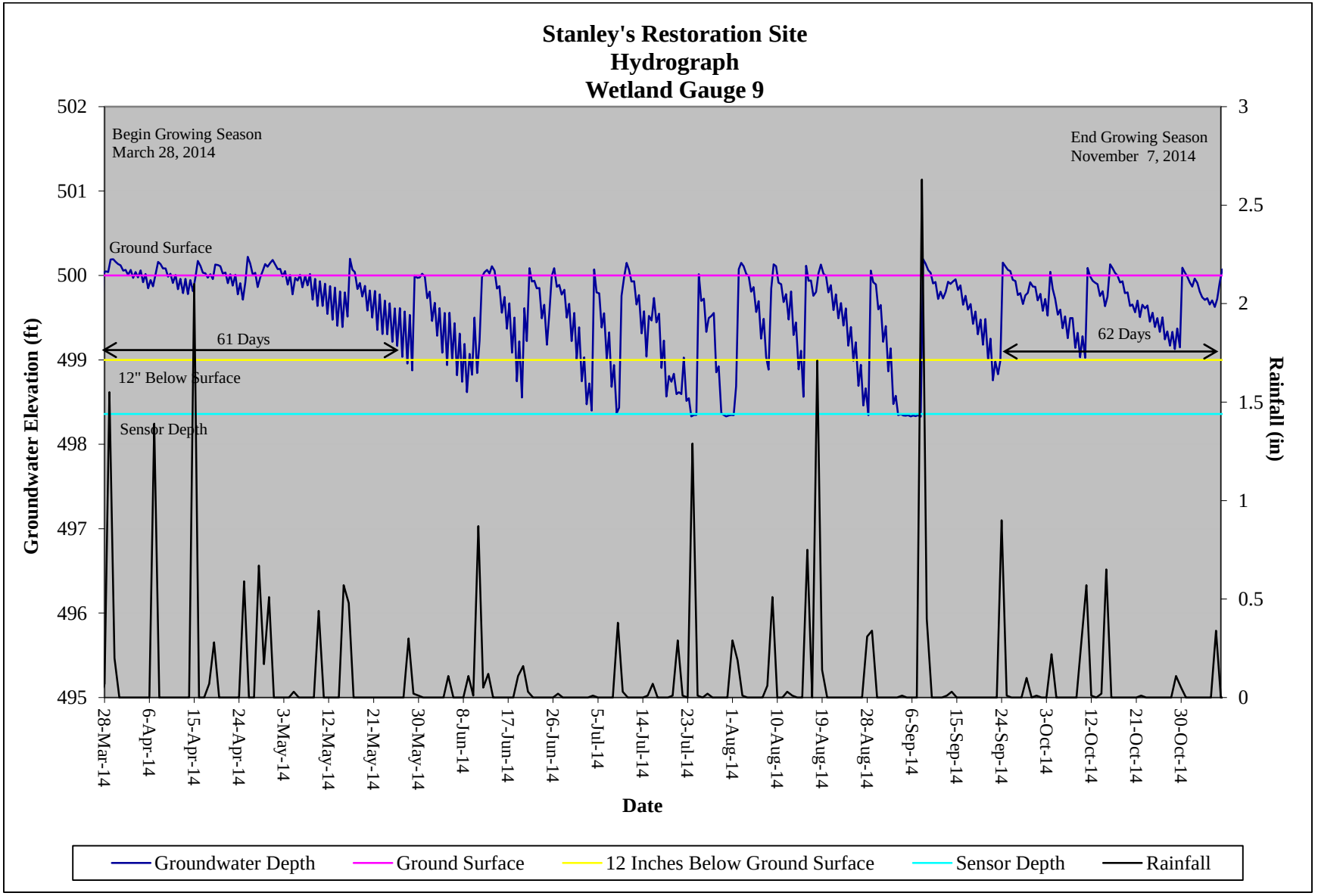
Res. = Wetland Reestablishment, Reh. = Wetland Rehabilitation

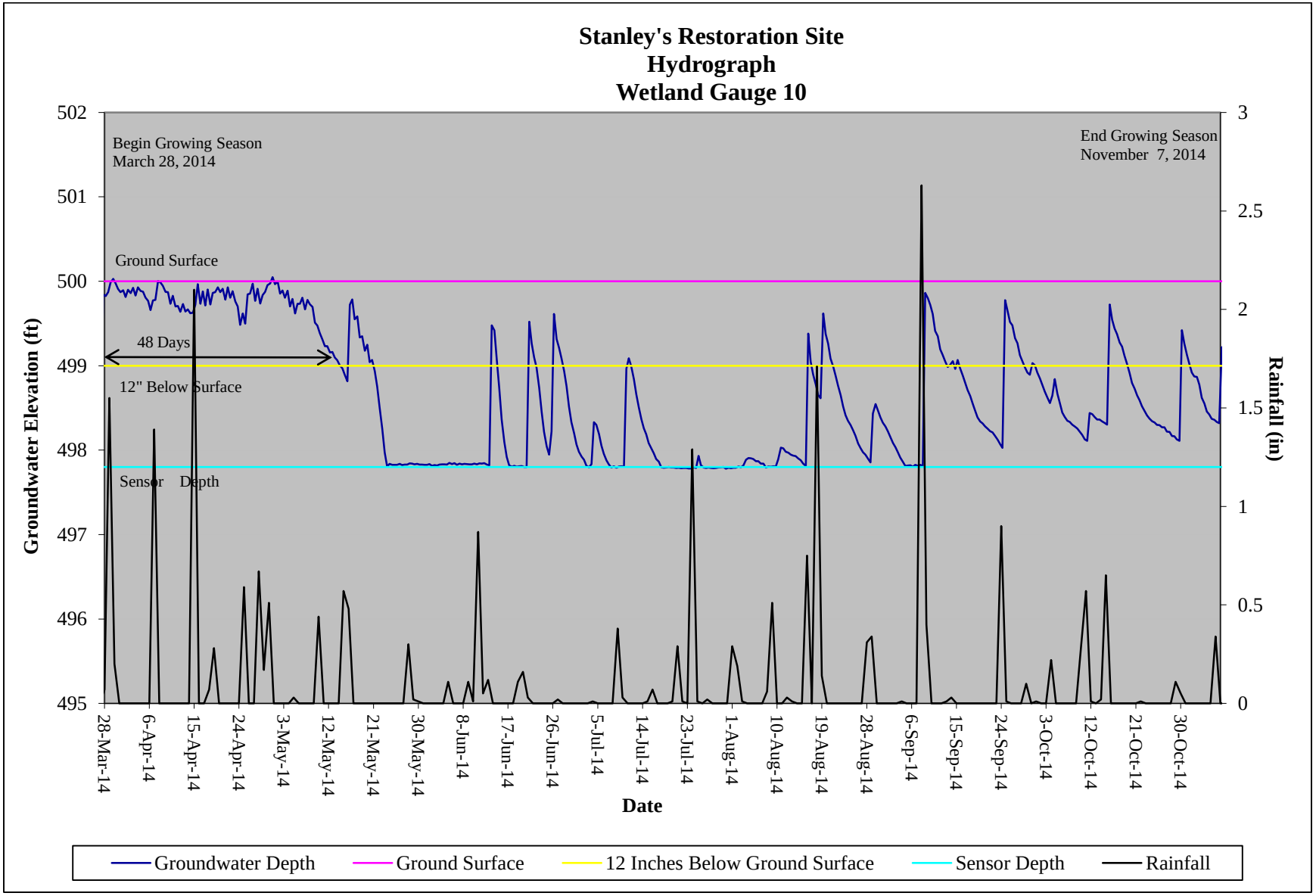

Stanley's Slough/Stanley's II Restoration Site
30-70 Percentile Graph
WETS Station Name: Jackson
Rainfall (in)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Date
2014 Rainfall
30% Less Than
30% Greater Than

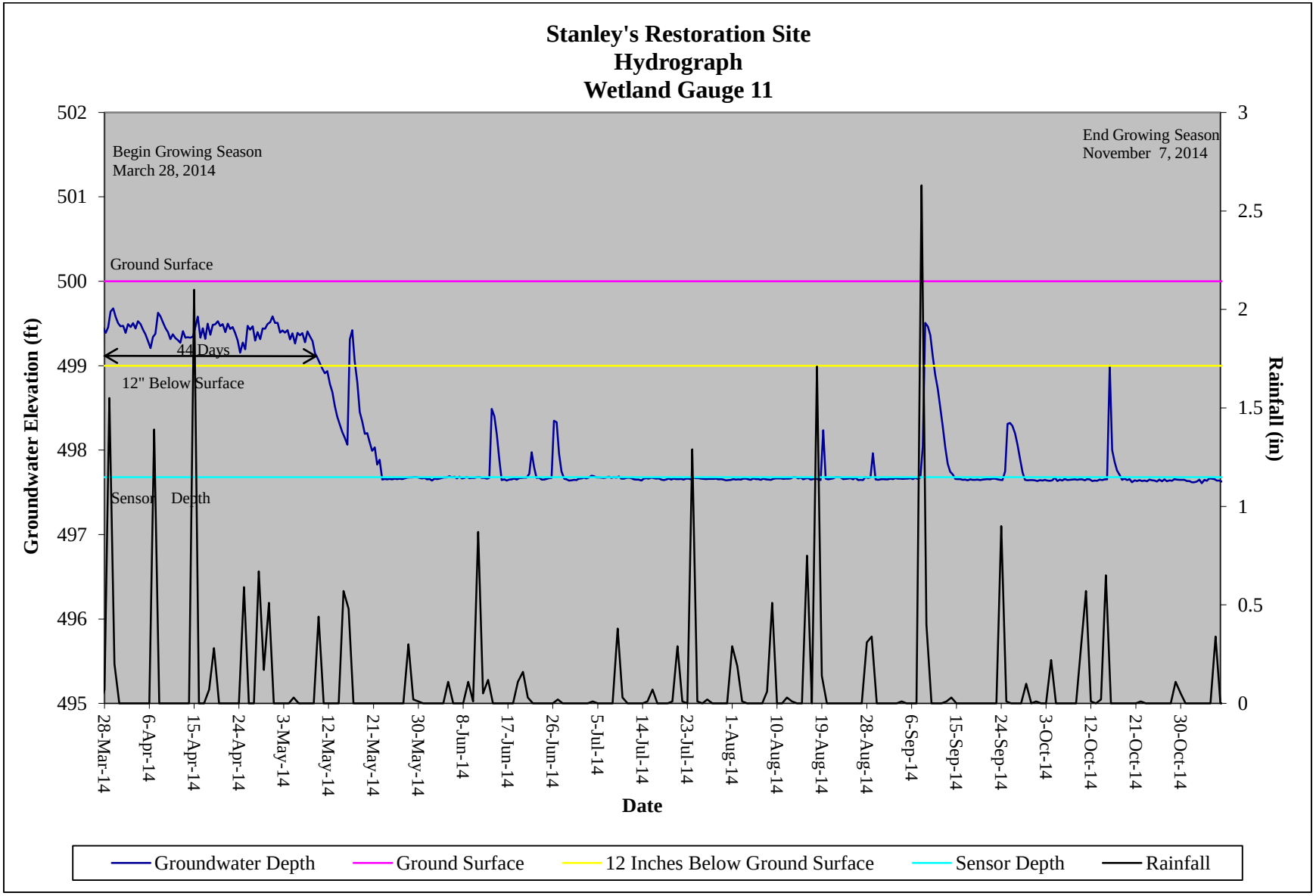

Stanley's Restoration Site
Hydrograph
Wetland Gauge 6
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
10 Days
Ground Surface
Gauge malfunction
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall

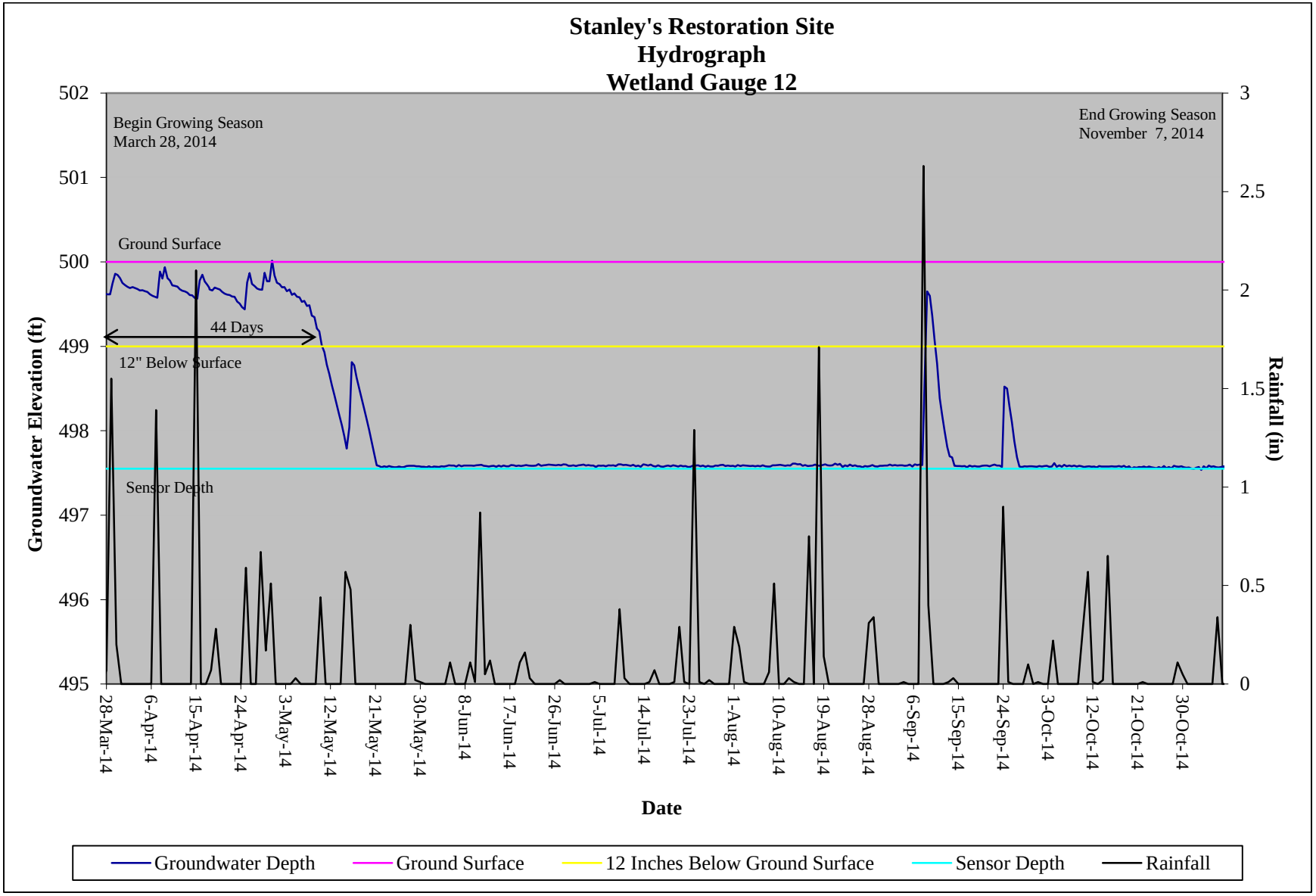

Stanley's Restoration Site
Hydrograph
Wetland Gauge 7
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
12 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall

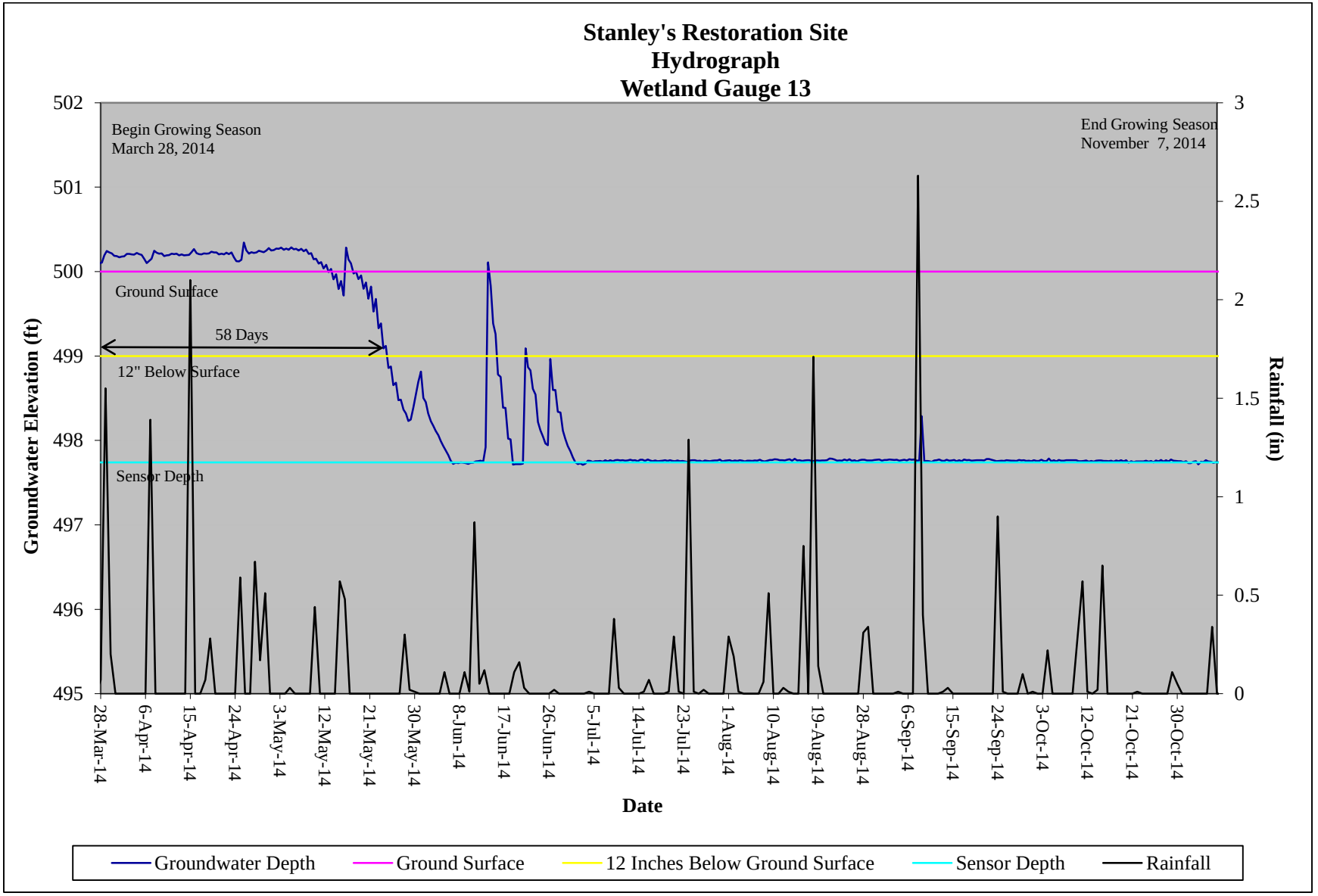

Stanley's Restoration Site
Hydrograph
Wetland Gauge 8
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
44 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall

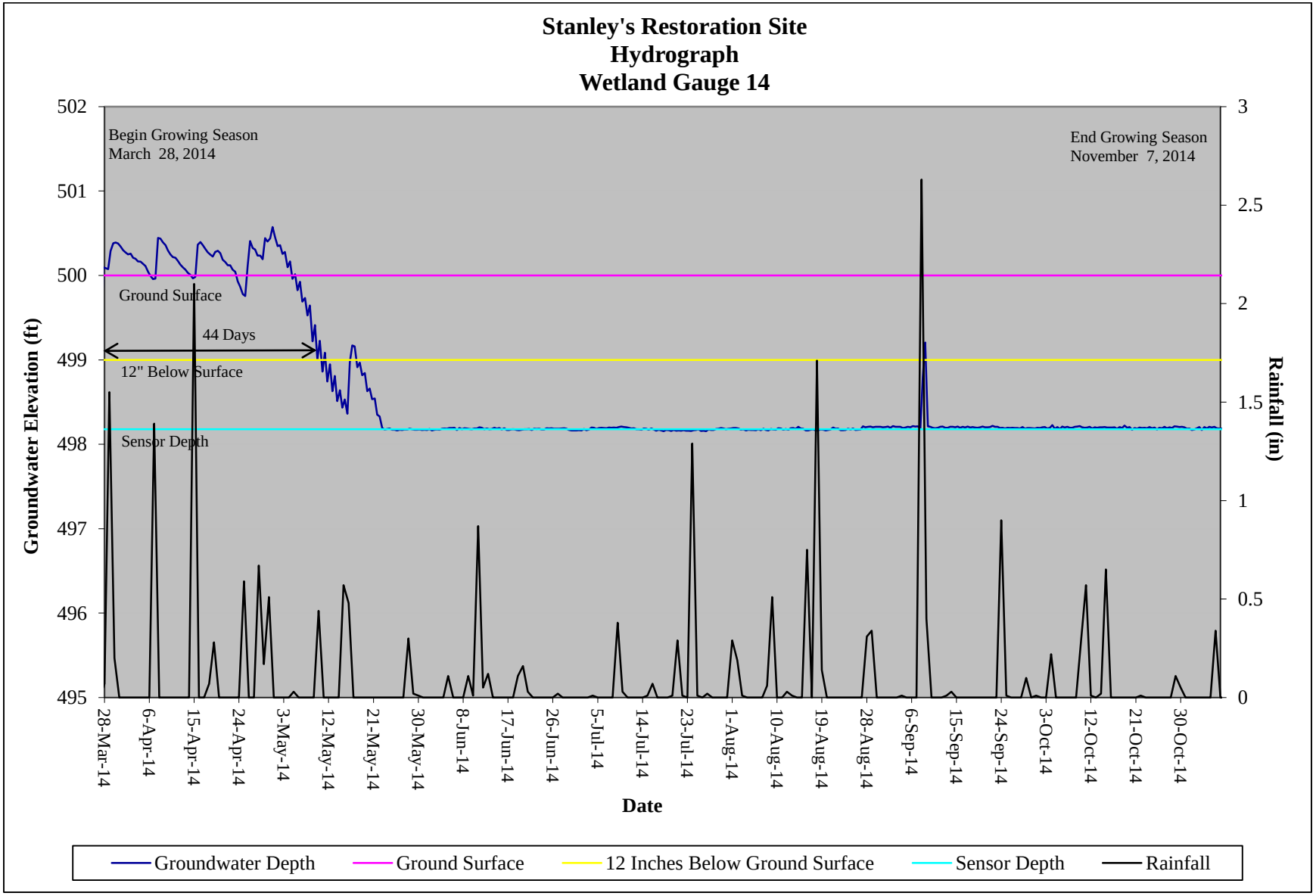

Stanley's Restoration Site
Hydrograph
Wetland Gauge 9
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
61 Days
62 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall

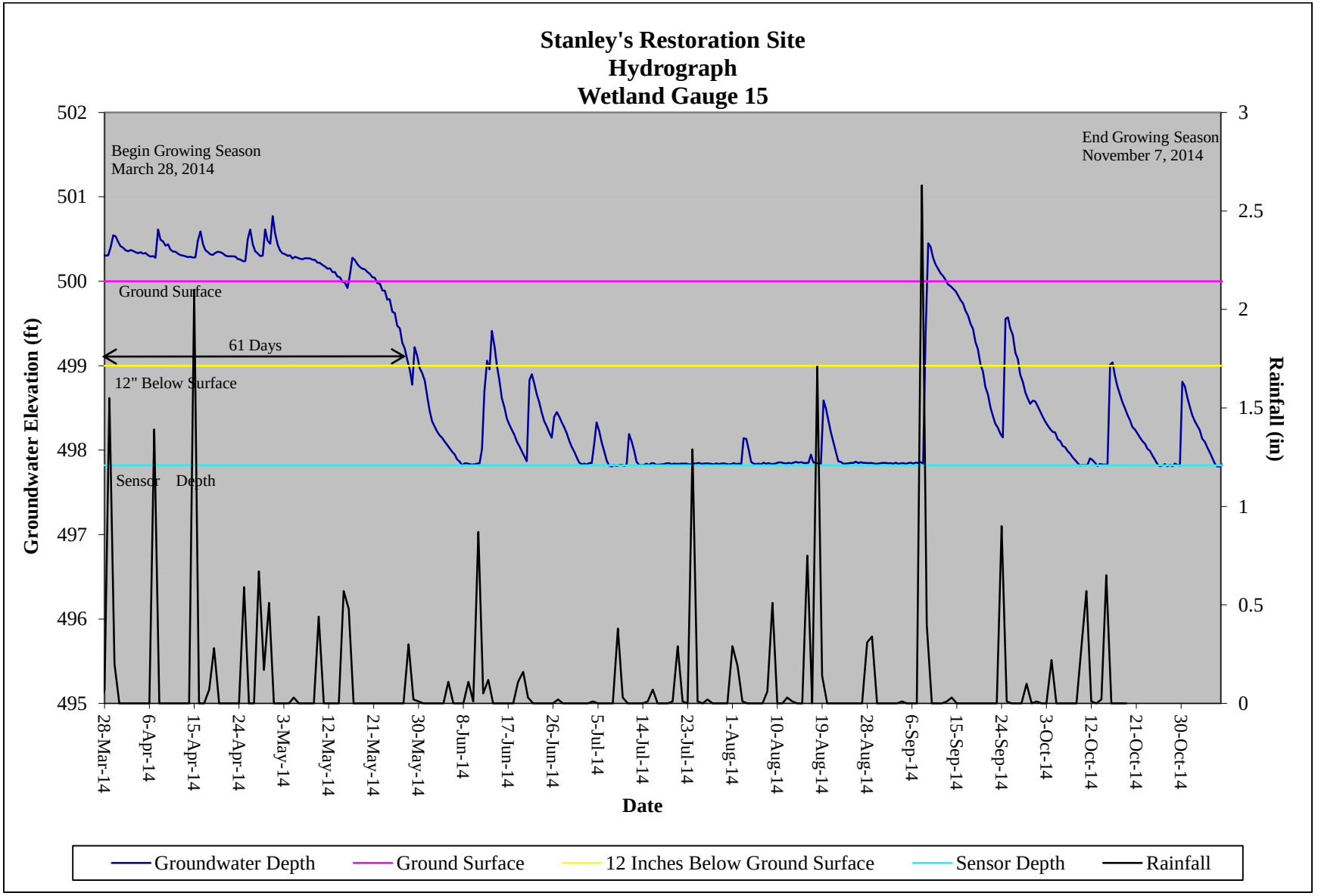

Stanley's Restoration Site
Hydrograph
Wetland Gauge 10
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
48 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall

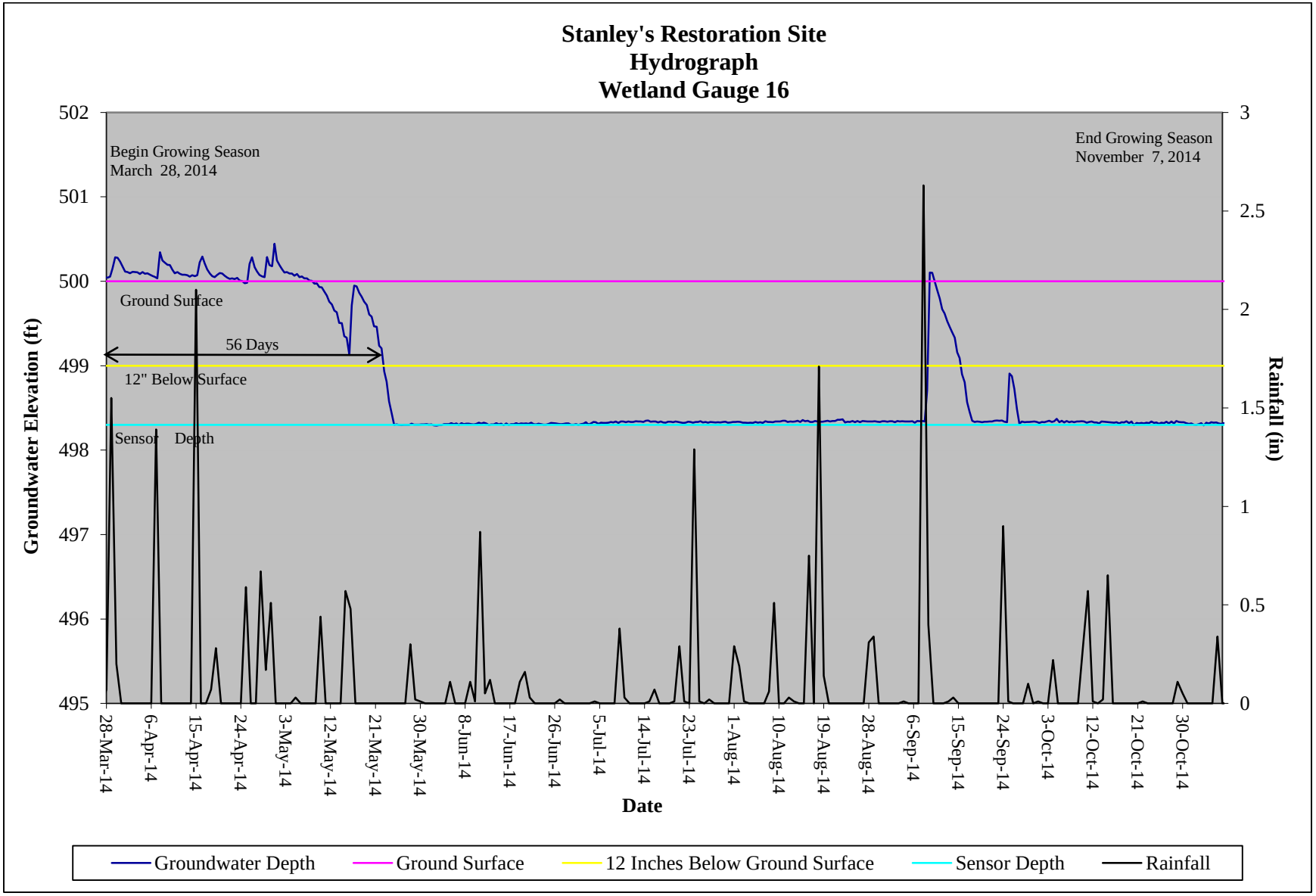

Stanley's Restoration Site
Hydrograph
Wetland Gauge 11
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
44 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Wetland Gauge 12
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
44 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Wetland Gauge 13
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
58 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Wetland Gauge 14
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
44 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Wetland Gauge 15
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
61 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
500
499
498
497
496
495
3
2.5
2
1.5
1
0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Wetland Gauge 16
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
56 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
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495
3
2.5
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1.5
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0.5
0
28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
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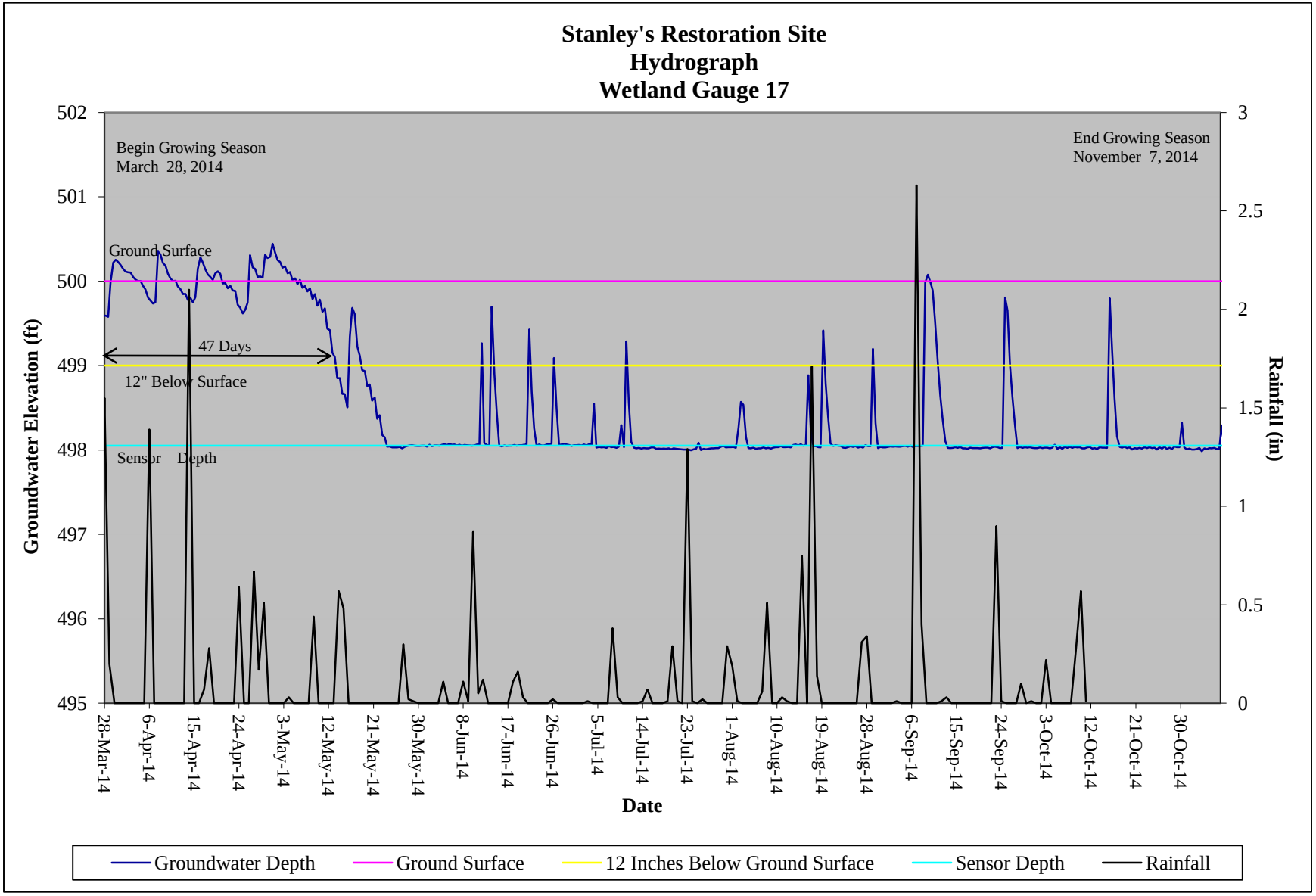
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall


Stanley's Restoration Site
Hydrograph
Wetland Gauge 17
Begin Growing Season
March 28, 2014
End Growing Season
November 7, 2014
Ground Surface
47 Days
12" Below Surface
Sensor Depth
Groundwater Elevation (ft)
Rainfall (in)
Date
502
501
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498
497
496
495
3
2.5
2
1.5
1
0.5
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28-Mar-14
6-Apr-14
15-Apr-14
24-Apr-14
3-May-14
12-May-14
21-May-14
30-May-14
8-Jun-14
17-Jun-14
26-Jun-14
5-Jul-14
14-Jul-14
23-Jul-14
1-Aug-14
10-Aug-14
19-Aug-14
28-Aug-14
6-Sep-14
15-Sep-14
24-Sep-14
3-Oct-14
12-Oct-14
21-Oct-14
30-Oct-14
Groundwater Depth
Ground Surface
12 Inches Below Ground Surface
Sensor Depth
Rainfall