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# 1.0 Executive Summary

This Annual Monitoring Report documents the results of monitoring activities during the 2012 growing season on the Wolf Pond Stream Restoration Project. Construction of the site, including planting of trees, was completed in March 2008. The 2012 data documents results from the fifth year of geomorphic and vegetation monitoring at the site.

The design for the Wolf Pond Stream Restoration Project was designated as stream restoration. After construction, it was determined that the project generated 4,513 feet of stream restoration. The As-Built Survey is included as Appendix B.

This Annual Monitoring Report presents data from five vegetation monitoring plots, one crest gauge, one rain gauge, eight cross sections, approximately 4,000 linear feet of profile survey and photographic reference locations, as specified in the approved Restoration Plan for the site.

A manual rain gauge was used in conjunction with the onsite automatic rain gauge to collect precipitation data. Rainfall data was then verified by comparison with the NOAA Rainfall Atlas 2012 data for nearby sites. Normal rainfall conditions prevailed in the 2012 monitoring period with a total 44.85 inches recorded for the year.

Vegetation monitoring for 2012 documented surviving planted stem densities between 323 and 566 stems per acre with an average of 422 stems per acre. This represents a survival rate of approximately 61% based on a baseline density of 691 stems per acre.

The project has met the final vegetative success criteria of an average of 260 five-year-old planted stems per acre at the end of five years of monitoring.

The restored stream channel has generally remained stable. Cattail growth and beaver impact was significant in all reaches of this restoration so the project is only partially providing the intended habitat and hydrologic functions. The monitored cross sections showed only minor adjustment in stream dimension for 2012. The longitudinal profile is generally stable but stability could be impacted by removal of the beaver dams and cattails.

Beaver dam backwater negated any accurate crest gauge readings. However, at least two bankfull events occurred based on rainfall data and historical site response to rainfall. The events probably occurred in July and August 2012.

The bed material in riffles continues to be finer than anticipated due to cropland runoff, the rapid growth of cattails throughout the reach and culvert and beaver dam backwater. There are sixteen identified problem areas for MY5. Seven are new for MY5. All problem areas will be inspected and repaired as needed during winter 2012/2013.

# 2.0 Introduction

## 2.1 Project Description

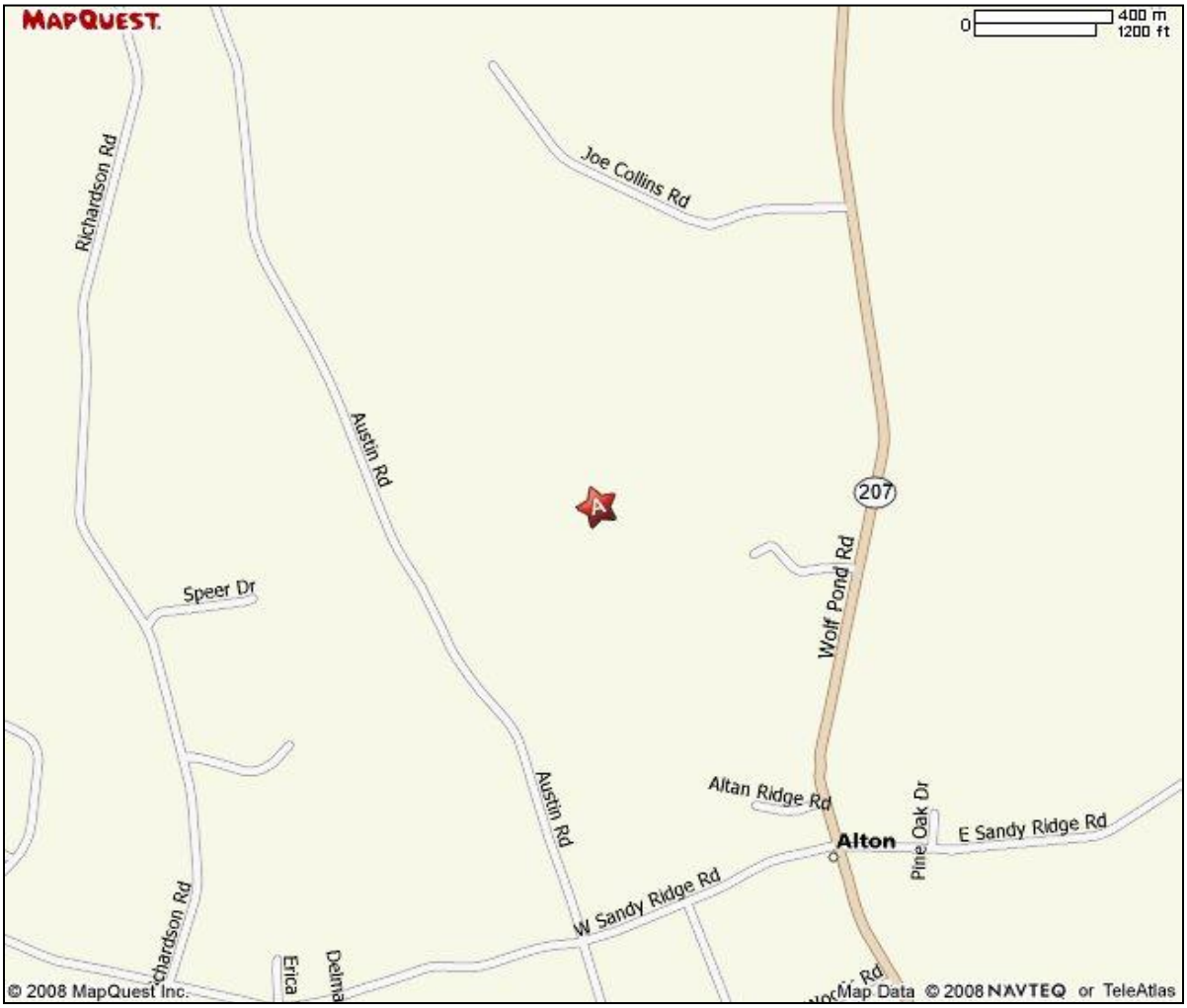



**Figure 1 - Wolf Pond Location Map**

The Wolf Pond site is located approximately 8 miles south of Monroe in Union County (see Figure 1). The property is located west of Wolf Pond Road, SR 207, and south of Joe Collins Road. The site is accessed by a farm path that runs adjacent to the main power transmission lines that bisect the property.

The project is a restoration of approximately 4,500 linear feet of unnamed tributaries to Adams Branch in the Yadkin Pee-Dee River Basin. The project is made up of an upper and lower section of UT2, referred to as Reach 3 and Reach 1, respectively for monitoring and UT1,

referred to as Reach 2 for monitoring. Reach 1, 2, and 3 stationing is summarized in Table 1. The Wolf Pond site has a drainage area of 0.95mi$^2$. The dominant historic land use was originally timber production followed by intensive agricultural production of crops including corn, soybeans, and winter wheat. The channel was straightened and channelized for agricultural purposes. This led to an incised condition with little to no floodplain access.

**Table 1 - Wolf Pond Monitoring Reaches**

| Reach Name | As-Built Length (ft) | Monitoring Stations | Restoration Approach |
|---|---|---|---|
| UT2/Reach 1/Reach 3 | 2,972 | 202+03 – 215+45<br>219+13 – 229+63 | Restoration (Priority I) |
| UT1/Reach 2 | 1,541 | 100+45 – 116+26 | Restoration (Priority I/II) |
| **Total** | 4,513 | 3,975 | |

## 2.2 Project Objectives

The Wolf Pond site was identified by EBX to support the NC EEP full delivery mitigation process. The objective of the project was to produce a minimum of 4,500 stream mitigation units (SMU) to NC EEP through the full delivery process in the Yadkin Pee-Dee River 03040105 hydrologic unit.

Due to the incised condition of the channel and lack of access to the floodplain, the existing channel was abandoned and a Priority I Natural Channel Design approach was selected for the majority of the project. Reach 2 existed at a higher elevation than Reaches 1 and 3, so a Priority II approach was used to create a floodplain at a lower elevation to reach appropriate elevations before the confluence with UT2 (Reach 1 and 3). Given the valley type VIII drainage, a C4 channel was chosen as the design channel. The design channel relies heavily on structures for grade control and bank protection.

Monitoring of the Wolf Pond site is required to demonstrate successful mitigation based on success criteria specified in the Restoration Plan. Stream and vegetation monitoring are conducted on an annual basis. This Annual Monitoring Report documents the results of the monitoring for 2012 (Year 5).

The as-built data documented 4,513 linear feet of stream restoration. The stream restoration will provide multiple ecological and water quality benefits within the Yadkin Pee-Dee River Basin. Those benefits are as follows:

***Hydrology***:

- Re-establishing floodplain connection by raising bed elevations
- Increase flood storage by re-establishing floodplain

***Water Quality***:

- Reducing turbidity by reducing sediment inputs
- Reducing water temperatures by providing shading
- Increasing/ stabilizing oxygen levels by reducing BOD/COD and increasing re-oxygenating turbulence

***Habitat***:

- Improve bed habitat by increasing riffle-pool diversity, reducing sediment deposition, and improving low flow water depths
- Improve bank habitat by increasing stability and woody biomass
- Improve floodplain habitat by establishing micro-topography and hydrology, removing invasive vegetation, and increasing habitat diversity
- Improve food web dynamics by adding biomass (such as detritus, wood debris, and leaf matter) and re-establishing floodplain connection

## 2.3 Project History

This project was identified by EBX in the winter of 2006.

**Table 2 - Wolf Pond Site History**

| Project Activity and Reporting History | | |
|---|---|---|
| **Activity or Report** | **Data Collection Complete** | **Actual Completion or Delivery** |
| Restoration Plan | February 2007 | April 2007 |
| Final Design - 90% | N/A | July 2007 |
| Construction | N/A | February 2008 |
| Temporary S&E mix applied to entire project area | N/A | February 2008 |
| Permanent seed mix applied to reach | N/A | February 2008 |
| Bare roots and live stakes | N/A | March 2008 |
| Mitigation Plan / As-built (Monitoring Baseline) | March 2008 | June 2008 |
| Year 1 Monitoring | March 2009 | March 2009 |
| Year 2 Monitoring | October 2009 | December 2009 |
| Year 3 Monitoring | September 2010 | December 2010 |
| Year 4 Monitoring | September 2011 | December 2011 |
| Year 5 Monitoring | September 2012 | December 2012 |

# 3.0 Project Condition and Monitoring Results

## 3.1 Vegetation Assessment

### 3.1.1 Vegetation Success Criteria

Successful establishment of vegetation in riparian areas will be the survival of 260 planted stems following Year 5 monitoring. The interim vegetative success criteria will be the survival of at least 320 planted stems per acre at the end of Year 3 monitoring. Up to 20% of the site species composition may be comprised of volunteers. Remedial action may be required should volunteers present a problem or exceed 20% composition.

A digital image photo log will be used to subjectively evaluate the restoration site over time. A series of images over the five year monitoring period should demonstrate maturation of planted vegetation and volunteer species.

### 3.1.2 Description of Vegetation Monitoring

Five semi-permanent vegetation plots were established within the planted restoration areas to monitor the success of planted vegetation. The vegetation plots are 0.01 hectares in size. The vegetation plots are distributed across the site, but the precise location and orientation of the plots was random (see location on as-built drawings.) The plots cover approximately two percent of the site. Seven species were planted on site (see Table 3).

**Table 3 - Wolf Pond Planted Species**

| Common Name | Scientific Name | Abbreviations |
|---|---|---|
| Paw Paw | Asimina triloba | AT |
| River Birch | Betula nigra | BN |
| Shag Bark Hickory | Carya ovate | CO |
| Green Ash | Fraxinus pennsylvanica | FP |
| Swamp Chestnut Oak | Quercus michauxii | QM |
| Water Oak | Quercus nigra | QN |
| Willow Oak | Quercus phellos | QP |
| Oak (unknown) | Quercus spp. | Q |

Each of the planted stems inside the plots was flagged to help in locating them in the future.

The taxonomic standard for vegetation used in this report was based on "Manual of the Vascular Flora of the Carolinas", by Albert E Radford et al. The vegetation monitoring protocol used for collecting vegetation data was established for this project in 2000 by the Wetland Restoration Program (WRP) and Karen Hall of NCSU.

### 3.1.3 Results of Vegetation Monitoring

All of the surviving plot plantings of Wolf Pond are in excellent vigor with few exceptions. Both stream forks were flowing slightly with tadpoles and small fish present. The dominate shrub on this site is Groundsel tree (*Baccharis halimifolia*) with Black berry so dense on site WP5 that a bush axe was needed to access the trees. No disturbance to the site was noted except the activities to remove several beaver (*Castor canadensis*) dams. Overall, the site appears to be doing well.

Original planting density, based on the five 0.01 hectare plots, (100 square meters) was 691 stems per acre. The current density is currently 422 stems per acre which represents a survival rate of approximately 61%. The planted stems in the monitoring plots ranged from 323 to 566 stems per acre. This site has met the success criteria of 260 stems per acre after five years.

**Table 4 - Baseline Stem Counts**

| Baseline Data | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| May 2008 | | | | | | | | | |
| Plot | PLANTED SPECIES | | | | | | | | LIVE PLANTED STEMS |
| | AT | BN | CO | FP | QM | QN | QP | Q | |
| WP1 | 1 | 4 | 1 | 5 | | 1 | 4 | 1 | 17 |
| WP2 | 2 | | 3 | 2 | 5 | 3 | | 1 | 16 |
| WP3 | 2 | 4 | 2 | 2 | 3 | 2 | 2 | 1 | 18 |
| WP4 | 1 | 5 | 1 | 2 | 3 | 2 | 2 | 3 | 19 |
| WP5 | 3 | 4 | 3 | 2 | | | 2 | 1 | 15 |
| TOTALS | 9 | 17 | 10 | 13 | 11 | 8 | 10 | 7 | 85 |
| Percent | 0.106 | 0.200 | 0.118 | 0.153 | 0.129 | 0.094 | 0.118 | 0.082 | 1.000 |

**Table 5 – MY5 (2012) Stem Counts**

| September 2012 (MY5) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot | PLANTED SPECIES | | | | | | | | LIVE PLANTED STEMS |
| | AT | BN | CO | FP | QM | QN | QP | Q | |
| WP1 | | 3 | | 5 | | | 2 | | 10 |
| WP2 | | | 2 | 2 | 3 | 1 | 1 | | 9 |
| WP3 | | 3 | 1 | 2 | 2 | 2 | 3 | | 13 |
| WP4 | | 5 | | 2 | 3 | | 2 | | 12 |
| WP5 | 2 | 3 | | 2 | | | 1 | | 8 |
| TOTALS | 2 | 14 | 3 | 13 | 8 | 3 | 9 | 0 | 52 |
| % of Surviving | 0.038 | 0.269 | 0.058 | 0.250 | 0.154 | 0.058 | 0.173 | 0.000 | 0.61 |

**Table 6 - Baseline Stems per Acre**

| Monitoring Plots Baseline Data | | | | | |
|---|---|---|---|---|---|
| May 2008 | | | | | |
| **Plot** | **Trees** | **Plot size** | **Plot size** | **Plot size** | **Stems** |
| | **$n_i$** | **$m^2$** | **$ft^2$** | **acre** | **per acre** |
| WP1 | 17 | 100 | 1076 | 0.0247 | 688 |
| WP2 | 16 | 100 | 1076 | 0.0247 | 647 |
| WP3 | 18 | 100 | 1076 | 0.0247 | 728 |
| WP4 | 19 | 100 | 1076 | 0.0247 | 769 |
| WP5 | 15 | 100 | 1076 | 0.0247 | 607 |
| **Totals:** | 85 | 500 | 5380 | 0.123 | |
| Stems per plot | 17 | | | Average | 691 |

**Table 7 – MY5 (2012) Stems per Acre**

| Fall Monitoring Data | | | | | |
|---|---|---|---|---|---|
| September 2012 | | | | | |
| **Plot** | **Trees** | **Plot size** | **Trees** | **Percent** | **Stems** |
| | **$n_i$** | **$m^2$** | **Lost** | **Lost** | **per acre** |
| WP1 | 10 | 100 | 0 | 0.000 | 404 |
| WP2 | 9 | 100 | 0 | 0.000 | 364 |
| WP3 | 13 | 100 | 1 | 0.071 | 566 |
| WP4 | 12 | 100 | -1 | -0.091 | 445 |
| WP5 | 8 | 100 | 0 | 0.000 | 323 |
| **Totals:** | 52 | 500 | | | |
| Trees/plot | 10.4 | | 0 | Average | 422 |

## 3.2 Stream Assessment

### 3.2.1 Stream Success Criteria

As stated in the approved Mitigation Plan, the stream restoration criteria for the site includes the following:

Bankfull Events: Two bankfull flow events must be documented within the five-year monitoring period.

Cross-Sections: There should be little change in as-built cross sections. Cross sections shall be classified using the Rosgen stream classification method and all monitored cross-sections should fall within the quantitative parameters defined for C type channels.

Longitudinal Profiles: The longitudinal profiles should show that the bedform features are remaining stable, e.g. they are not aggrading or degrading. Bedforms observed should be consistent with those observed in C type channels.

Photo Reference Stations: Photographs will be used to subjectively evaluate channel aggradation or degradation, bank erosion, success of riparian vegetation and effectiveness of erosion control measures.

### 3.2.2 Stream Morphology Monitoring Plan

Stream monitoring will document the stability of the restored channel. Monitoring will occur for 5 years or until the final success criteria have been achieved, whichever is longer. Monitoring methods used are based on US Army Corps of Engineering guidance documents and NC Division of Water Quality guidance documents.

#### *Cross Sections*

Two permanent cross sections, one at a riffle and one at a pool were installed for every 1,000 linear feet of restored stream. Each cross section was marked with permanent pins on both banks. Each cross section is tied to a benchmark to allow for comparison for data each year. The cross section survey takes into account water surface and all breaks in slope including thalweg, top of bank, and bankfull if present.

#### *Longitudinal Profile*

Longitudinal profile is surveyed once every year for five years or until the final success criteria are met. The longitudinal survey will include thalweg, water surface, bankfull and top of bank. Each survey point will occur at the head, midpoint, and end of each feature and the invert of each structure. The survey will be tied to a permanent benchmark.

***Hydrology***

Bankfull events will be monitored for the length of the monitoring period. One crest gauge is installed on site to capture bankfull events. Photographs of high water marks, wrack lines and sediment deposition will also be used to document these events.

***Photo Reference Stations***

Photographs will be taken at the same locations each year for the length of the monitoring period. These photos will document the progression of the site from year to year.

### 3.2.3 Stream Morphology Monitoring Results

Stream conditions are generally stable with the exception of the problem areas mentioned below. All problem areas are discussed in detail in section 3.2.4 Problem Areas.

There has been a rapid influx of beavers (*Castor canadensis*) in Reach 1. Five beaver dams were breached during the fall survey. Major dams are noted in the reach profiles in Appendix C.

All existing stability issues along all of Reach 1 and lower portions of Reaches 2 and 3 were controlled by the slowing of the stream flow due to dam backwater.

Future bank stability within these areas is jeopardized from the drowning of vegetative growth due to beaver dam backwater and woody stem consumption.

The heavy growth of cattails (*Typha latifolia*) within the stream bed in Reach 2 as well as backwater from the culvert within the reach has provided a stop to the sediment movement and a flattening of the stream bed with the resultant loss of riffle habitat. This is causing some channel relocation and crowding out other vegetation.

There are 30 structures within the monitoring reaches. All structures appear to be stable.

The channel has experienced some minor adjustment but is expected to stabilize as the beaver and cattail issues are addressed and the riparian vegetation is reestablished.

***Cross Sections***

The survey data was collected in September 2012, and the results are presented in Appendix C. All cross sections appear stable. Several cross sections, both pools and riffles have begun to display impact from backwater as a decrease in the as-built $D_{50}$ particle size.

All cross sectional variances from MY 4 were determined not to be problem areas but rather natural streambed adjustment, reaction to debris or variability in bed survey.

***Longitudinal Profile***

The longitudinal profile survey was conducted in September 2012; results are presented in Appendix C. The profile survey showed some adjustment in channel dimensions and profile. Reach 2 (R2) showed a flattening of features from station 111+50 downstream to station 116+00.

This has resulted in a change in the riffle lengths, the pool lengths and the riffle pool ratio. As mentioned above, vegetation growth in the stream bed and deposition due to the backwater above culverts in this area was the cause these adjustments. A headcut identified in Reach 2 at station 08+00 persists. The headcut will continue to migrate upstream for about five more feet before meeting a large natural stone nick point where it should stop. A positive aspect of the extensive beaver dam impact is that any issues with bank erosion and channel movement within all of Reach 1 and the lower portions of Reaches 2 and 3 were controlled by the backwater from the five beaver dams. Breaching all of these dams allowed for a more accurate morphological survey, but exposed much bare soil.

Note that the Elevation values for Reach 2 profile are in 5 foot increments while Reach 1 and 3 are in 2 foot increments

***Hydrology***

Backwater from beaver dams negated useable readings from the crest gauge. Two possible bankfull events were documented during this monitoring year by reviewing the rainfall data and comparing rain events with the previous monitoring year's response to similar events. The events probably occurred in July and August 2012. Significant debris evidence was found to support this idea.

### 3.2.4 Problem Areas

At the time of data collection in September 2012, nine previously identified problem areas were located. Seven new problem areas were discovered, for a total of sixteen. Nine are in Reach 1, five are in Reach 2 and two are in Reach 3. All sixteen problem areas will be repaired and replanted as needed during the winter/spring of 2012/2013. Each problem area is listed in Table 8 (sorted by Reach and station) and discussed in a paragraph below. See Appendix D for photographs of each problem area.

Five of the new problem areas were beaver dams. All were breached by the monitoring team, but will need to be totally removed and the beaver controlled. These include MY5-PA3, MY5-PA4, MY5-PA5, MY5-PA6 and MY5-PA7. While the beaver removed most streamside woody vegetation, the backwater the dams created prevented the continued bank erosion for any preexisting problem areas that were inundated.

**Table 8 – Wolf Pond MY5 Problem Areas**

| Pt. # | ID | Reach | Station | Description | Photo Number & page[1] |
|---|---|---|---|---|---|
| 1 | MY5 PA3 | 1 | 220+30 | Beaver Dam | See Cross sections and Photo Points |
| 2 | MY5 PA4 | 1 | 222+34 | Beaver Dam | Page 21 R1-RXS-1 Downstream |
| 3 | MY4 PA6 | 1 | 222+85 | LB scour | Page 70 |
| 4 | MY4 PA8 | 1 | 224+81 | LB cutoff channel | Page 70 |
| 5 | MY5 PA5 | 1 | 224+96 | Beaver Dam | Page 23 R1-PXS-1 Downstream |
| 6 | MY4 PA7 | 1 | 227+31 | LB cutoff channel | Page 71 |
| 7 | MY5 PA6 | 1 | 227+32 | Beaver Dam | Page 71 |
| 8 | MY3 PA4 | 1 | 229+75 | RB cutoff channel (Healed) | Page 71 |
| 9 | MY5 PA7 | 1 | 230+26 | Beaver Dam | No Photo |
| 10 | MY4 PA2 | 2 | 103+29 | LB gully entering | Page 72 |
| 11 | MY4 PA4 | 2 | 109+25 | Bank Scour above vane | Page 72 |
| 12 | MY4 PA3 | 2 | 107+79+108+02 | Headcut | Page 73 |
| 13 | MY4 PA5 | 2 | 107+92-107+98 | LB scour | Page 73 |
| 14 | MY4 PA1 | 2 | 100+43-107+46 | Cutoff channel both banks | Page 74 |
| 15 | MY5 PA2 | 3 | 210+76 | Backwater from dam | Page 74 |
| 16 | MY5 PA1 | 3 | 214+13 | Debris Dam | Page 75 |

Problem Area MY4-PA6 was a preexisting left bank scour in Reach 1 caused by in-stream vegetation and debris back up. The problem was eliminated when backwater killed the in-stream vegetation. It is bare earth and will need replanting.

MY4-PA8 and MY4-PA7 are both a preexisting left bank cutoff channel that being created by willow vegetation in Reach 1. The beavers have removed the willows and both problems have disappeared but the vegetation must be replaced to assure a stable stream bank.

[1] See Appendix D.

MY3-PA4 was a cutoff channel that was becoming stable with vegetation growth in Reach 1. Again beaver impact removed the woody vegetation but the other vegetation seems to be healing the cutoff channel. With careful vegetation location this problem area will be eliminated.

One factor affecting the stability of the stream occurred beyond the riparian buffer on Reach 2 field grading caused a concentration of overland flow into field swales and through the riparian buffer creating a gully transecting the buffer. This was identified as problem area MY4 PA-2 Reach 2. Measures should be taken to reduce the concentration of this flow and disperse it along the buffer.

MY4-PA4 is left bank scour and a cutoff channel around the right arm of a cross vane in Reach 2 caused by a willow growing just upstream of the vane. Debris has built up the right bank of the vane arm (as it is designed to do) and the problem has stabilized although the scour wall is still there. The offending tree will still need to be removed.

Problem Area MY4 PA-3 is a headcut from station 107+98 to station 108+20 in Reach 2. The headcut has migrated over 20 feet since first documented but will run into a stone nick point with less than four more feet of migration.

Problem area MY4 PA-5 is bank scour on the outside of a bend that occurs at station 107+79 to107+92 in Reach 2 and can be attributed to a steep point bar on the inside of a tight radius bend.

Problem area MY4 PA-1 as described in the MY4 monitoring report is the extensive cattail growth that has filled the channel for much of Reach 2 causing water to back up at high flows creating cutoff channels and filling constructed bedforms with sediment.

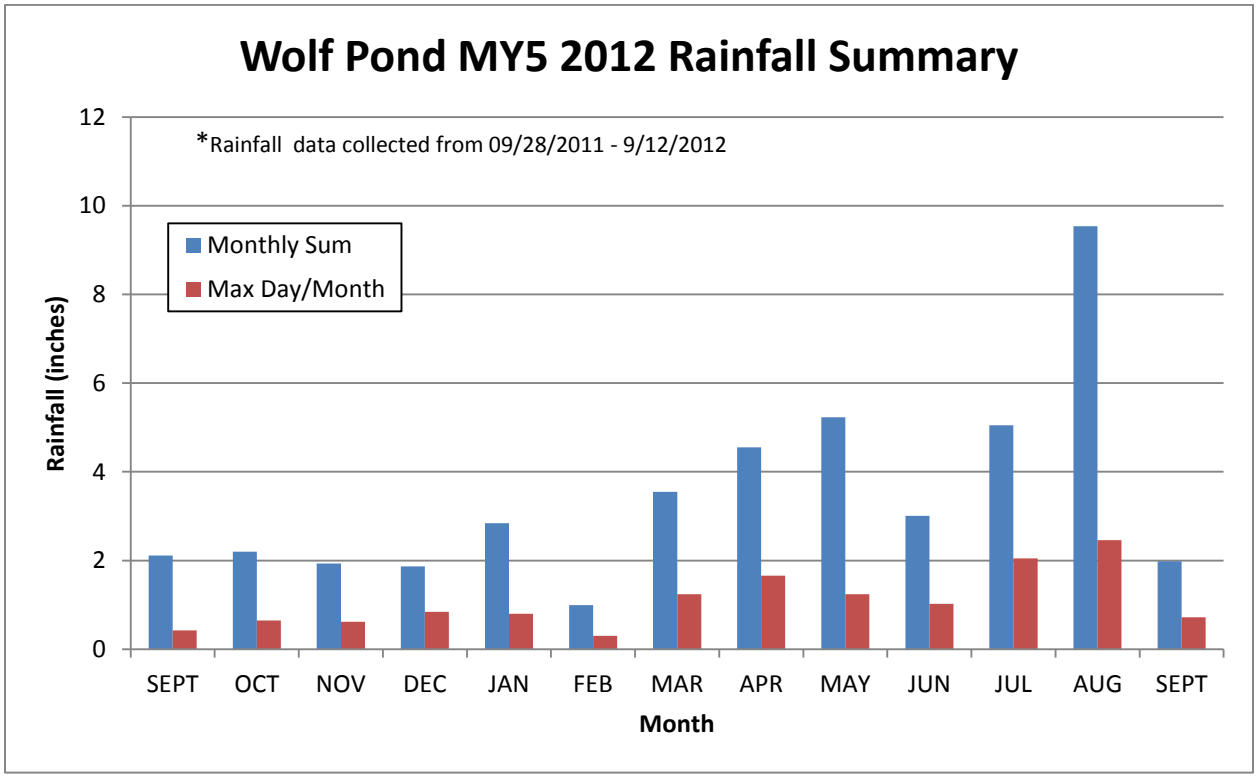
MY5-PA2 is the uppermost point of backwater on Reach 3 from beaver dams. Downstream of this point most understory vegetation has been killed and under the larger trees is only bare soil.

MY5-PA1 is a major debris dam causing a bypass channel to develop. The debris apparently comes from the field clearing that occurred upstream.

## 3.3 Rainfall Data

Rainfall data is collected by an automated rain gauge, confirmed with a manual rain gauge and calibrated by comparison with nearby NOAA rain data. The data shows that a normal rainfall amount of 44.85 inches occurred at this site for the entire monitoring period. The average monthly rainfall for the 2012 growing season was 3.45 inches with a maximum of 9.54 inches occurring in August. The average maximum single day amount per month was 1.08 inches with a maximum of 2.46 inches occurring in August. Complete daily rainfall data is shown in Appendix F.

**Figure 2 – MY5 Rainfall Data Summary**



# 4.0 Conclusions

Overall stream dimension, pattern, and profile are stable. Both volunteer and planted riparian vegetation is flourishing except in areas that have been flooded by beaver dam backwater. The vegetation in these areas is mostly gone. Cattails are causing impact to stream pattern and bedforms and reducing the overall stream function. All stream structures appear functional and stable. Revegetation of flooded areas and control of the beaver and cattails will assure that the site will achieve the stream stability success criteria. The site has met the vegetative success criteria specified in the Restoration Plan.

# Appendix A – As Built Survey

# Appendix B – MY4 Survey

**Figure B 1 - Wolf Pond Reach 1**

**Figure B 2 - Wolf Pond Reach 2**

**Figure B 3 - Wolf Pond Reach 3**

# Appendix C – Profile, Cross Sections, and Pebble Counts

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## Wolf Pond R1 RXS-1

**Photo C 1 – R1 RXS-1 Left Pin**

**Photo C 2 – R1 RXS-1 Right Pin**

**Photo C 3 – R1 RXS-1 Downstream**

**Figure C 1 – R1 RXS-1 Cross Section Plot**

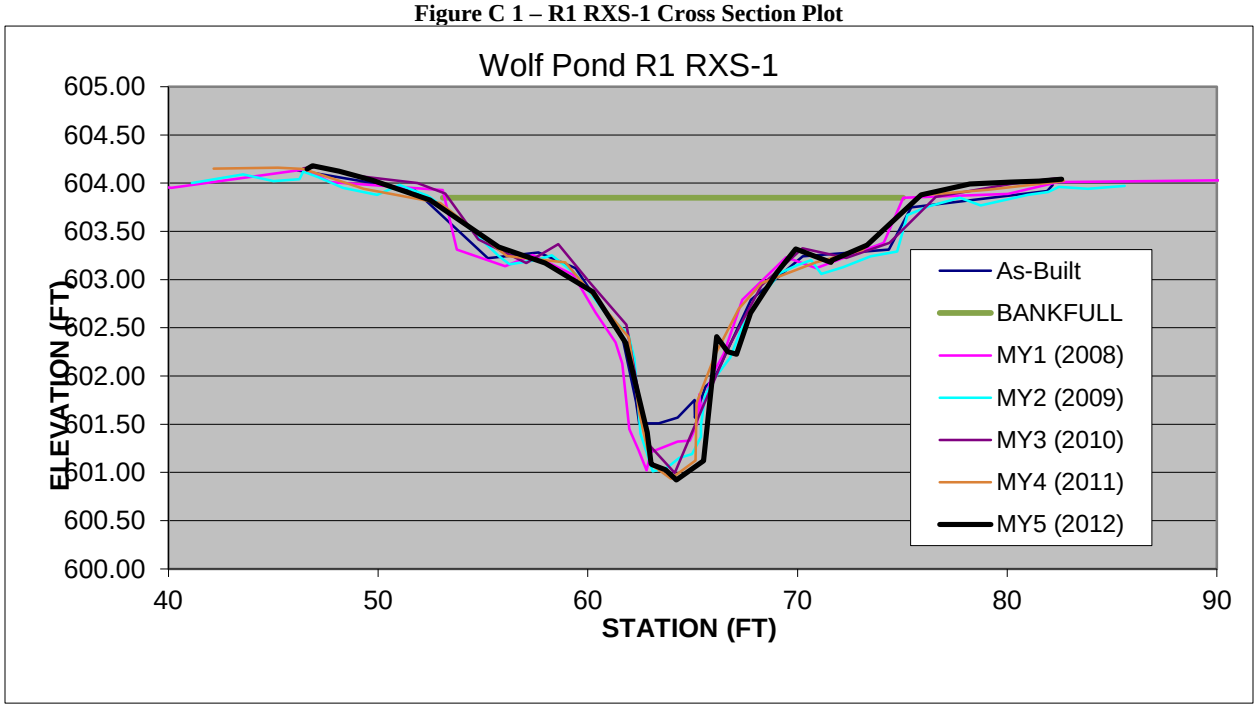


**Table C 1 - R1 RXS-1 Dimension Data**

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 46.17 | 604.13 | r1rxs1r | 13.29 | 604.41 | R1RXS1 | 41.12 | 604 | XS | 46.43 | 604.153 | R PIN | 82.7 | 604.023 | (ZXS)ZXS | 46.62 | 604.147 | XSLP |
| 46.51 | 604.12 | r1rxs1 | 25.51 | 604.01 | R1RXS1 | 43.56 | 604.09 | XS | 47.05 | 604.172 | Ground | 82.43 | 604.015 | (ZXSLP)ZXS | 46.87 | 604.181 | XS |
| 51.74 | 603.93 | r1rxs1tob | 35.5 | 604.079 | R1RXS1 | 45.01 | 604.02 | XS | 49.16 | 604.072 | Ground | 79.08 | 603.931 | (ZXS)ZXS | 48.14 | 604.123 | XS |
| 55.23 | 603.22 | r1rxs1 | 40.14 | 603.95 | R1RXS1 | 46.25 | 604.04 | XS | 51.88 | 604.001 | Ground | 75.88 | 603.874 | (ZXS)ZXS | 49.71 | 604.031 | XS |
| 57.64 | 603.28 | r1rxs1 | 46.43 | 604.14 | R1RXS1PR | 46.43 | 604.12 | XSRP09 | 53.21 | 603.893 | Ground | 73.1 | 603.308 | (ZXS)ZXS | 52.47 | 603.826 | XS |
| 59.41 | 603.12 | r1rxs1 | 46.85 | 604.11 | R1RXS1 | 47.16 | 604.06 | XS | 54.78 | 603.418 | Ground | 70.88 | 603.179 | (ZXS)ZXS | 55.75 | 603.339 | XS |
| 61.66 | 602.39 | r1rxs1 | 47.71 | 604.01 | R1RXS1 | 48.33 | 603.95 | XS | 57.07 | 603.172 | Ground | 68.28 | 602.961 | (ZXS)ZXS | 57.96 | 603.173 | XS |
| 62.3 | 601.73 | r1rxs1w | 53.08 | 603.93 | R1RXS1 | 49.96 | 603.88 | XS | 58.6 | 603.366 | Ground | 67.2 | 602.696 | (ZXS)ZXS | 60.24 | 602.872 | XS |
| 62.46 | 601.51 | r1rxs1 | 53.75 | 603.31 | R1RXS1 | 51.03 | 603.98 | XS | 60.06 | 602.979 | Ground | 66.08 | 602.225 | (ZXS)ZXS | 61.82 | 602.343 | XS |
| 63.39 | 601.51 | r1rxs1 | 56.06 | 603.14 | R1RXS1 | 52.37 | 603.87 | XS | 61.85 | 602.53 | Ground | 65.18 | 601.719 | (ZXS)ZXS | 62.84 | 601.416 | XS |
| 64.28 | 601.57 | r1rxs1 | 57.38 | 603.254 | R1RXS1 | 53.74 | 603.66 | XS | 62.84 | 601.306 | Ground | 65.14 | 601.125 | (ZXS)ZXS | 63.02 | 601.092 | XS |
| 65.1 | 601.75 | r1rxs1w | 59.31 | 603.05 | R1RXS1 | 55.77 | 603.24 | XS | 64.14 | 600.995 | Ground | 63.97 | 600.935 | (ZXS)ZXS | 63.07 | 601.081 | XS |
| 65.11 | 601.57 | r1rxs1 | 60.37 | 602.66 | R1RXS1 | 56.27 | 603.16 | XS | 64.91 | 601.387 | Ground | 63 | 601.087 | (ZXS)ZXS | 63.7 | 601.026 | XS |
| 65.61 | 601.89 | r1rxs1 | 61.33 | 602.35 | R1RXS1 | 57.54 | 603.2 | XS | 66.67 | 602.278 | Ground | 62.46 | 601.619 | (ZXS)ZXS | 64.22 | 600.921 | XS |
| 66.03 | 601.97 | r1rxs1 | 61.64 | 602.13 | R1RXS1 | 58.28 | 603.25 | XS | 68.29 | 602.939 | Ground | 61.96 | 602.398 | (ZXS)ZXS | 65.52 | 601.122 | XS |
| 67.78 | 602.79 | r1rxs1 | 61.98 | 601.45 | R1RXS1 | 58.29 | 603.25 | XS | 70.24 | 603.323 | Ground | 58.93 | 603.177 | (ZXS)ZXS | 66.14 | 602.408 | XSTREE |
| 70.25 | 603.24 | r1rxs1 | 62.42 | 601.23 | R1RXS1 | 59.42 | 603.06 | XS | 72.32 | 603.224 | Ground | 56.13 | 603.244 | (ZXS)ZXS | 66.67 | 602.251 | XS |
| 74.35 | 603.31 | r1rxs1 | 62.81 | 601.02 | R1RXS1 | 60.74 | 602.68 | XS | 74.39 | 603.382 | Ground | 52.98 | 603.792 | (ZXS)ZXS | 67.09 | 602.227 | XS |
| 75.43 | 603.75 | r1rxs1tob | 63.01 | 601.21 | R1RXS1 | 61.94 | 602.43 | XS | 76.6 | 603.859 | Ground | 49.32 | 603.942 | (ZXS)ZXS | 67.77 | 602.655 | XS |
| 81.91 | 603.92 | r1rxs1 | 64.28 | 601.32 | R1RXS1 | 62.23 | 602.18 | XS | 80.26 | 603.995 | Ground | 46.43 | 604.147 | (ZXSRP)ZX | 69.02 | 603.072 | XS |
| 82.17 | 603.98 | r1rxs1l | 64.87 | 601.33 | R1RXS1 | 62.52 | 601.4 | XS | 82.27 | 604.049 | Ground | 45.23 | 604.16 | (ZXS)ZXS | 69.92 | 603.317 | XS |
| | | | 65.22 | 601.51 | R1RXS1 | 62.79 | 601.22 | XS | 82.6 | 604.049 | L PIN | 42.16 | 604.152 | (ZXS)ZXS | 71.59 | 603.178 | XS |
| | | | 65.4 | 601.63 | R1RXS1 | 63.09 | 601.01 | XS | | | | | | | 71.62 | 603.198 | XS |
| | | | 65.32 | 601.81 | R1RXS1WS | 63.8 | 601.05 | XS | | | | | | | 73.32 | 603.357 | XS |
| | | | 65.94 | 602.01 | R1RXS1 | 64.36 | 601.15 | XS | | | | | | | 75.89 | 603.879 | XS |
| | | | 66.48 | 602.23 | R1RXS1 | 64.97 | 601.19 | XS | | | | | | | 78.22 | 603.991 | XS |
| | | | 67.36 | 602.79 | R1RXS1 | 65.4 | 601.37 | XS | | | | | | | 80.17 | 604.011 | XS |
| | | | 69.46 | 603.23 | R1RXS1 | 65.4 | 601.49 | XSW | | | | | | | 81.52 | 604.022 | XS |
| | | | 70.89 | 603.12 | R1RXS1 | 65.6 | 601.8 | XS | | | | | | | 82.6 | 604.041 | XSRP |
| | | | 74.11 | 603.38 | R1RXS1 | 66.05 | 601.98 | XS | | | | | | | | | |
| | | | 75.04 | 603.85 | R1RXS1 | 66.79 | 602.19 | XS | | | | | | | | | |
| | | | 80.03 | 603.89 | R1RXS1 | 67.36 | 602.51 | XS | | | | | | | | | |
| | | | 82.43 | 604.01 | R1RXS1PL | 68.18 | 602.8 | XS | | | | | | | | | |
| | | | 91.04 | 604.03 | R1RXS1 | 69.17 | 603.07 | XS | | | | | | | | | |
| | | | 104.03 | 604.05 | R1RXS1 | 69.97 | 603.15 | XS | | | | | | | | | |
| | | | 110.33 | 604.05 | R1RXS1 | 70.65 | 603.2 | XS | | | | | | | | | |
| | | | | | | 71.13 | 603.06 | XS | | | | | | | | | |
| | | | | | | 72.18 | 603.13 | XS | | | | | | | | | |
| | | | | | | 73.49 | 603.24 | XS | | | | | | | | | |
| | | | | | | 74.75 | 603.29 | XS | | | | | | | | | |
| | | | | | | 75.24 | 603.67 | XS | | | | | | | | | |
| | | | | | | 76.25 | 603.76 | XS | | | | | | | | | |
| | | | | | | 77.75 | 603.85 | XS | | | | | | | | | |
| | | | | | | 78.73 | 603.77 | XS | | | | | | | | | |
| | | | | | | 80.98 | 603.88 | XS | | | | | | | | | |
| | | | | | | 81.95 | 603.91 | XS | | | | | | | | | |
| | | | | | | 82.46 | 603.96 | XSLP09 | | | | | | | | | |
| | | | | | | 83.85 | 603.94 | XS | | | | | | | | | |
| | | | | | | 85.6 | 603.97 | XS | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 23.7 | | Bankfull Width (ft.) | 22.0 | | Bankfull Width (ft.) | 26.4 | | Bankfull Width (ft.) | 21.18 | | Bankfull Width (ft.) | 20 | | Bankfull Width (ft.) | 21 | |
| Bankfull Cross Sectional Area (sq ft) | 20.4 | | Bankfull Cross Sectional Area (sq ft) | 24.2 | | Bankfull Cross Sectional Area (sq ft) | 24.7 | | Bankfull Cross Sectional Area (sq ft) | 22.7 | | Bankfull Cross Sectional Area (sq ft) | 22.9 | | Bankfull Cross Sectional Area (sq ft) | 23.7 | |
| Bankfull Mean Depth (ft.) | 0.86 | | Bankfull Mean Depth (ft.) | 1.10 | | Bankfull Mean Depth (ft.) | 0.94 | | Bankfull Mean Depth (ft.) | 1.07 | | Bankfull Mean Depth (ft.) | 1.16 | | Bankfull Mean Depth (ft.) | 1.14 | |
| Bankfull Max Depth (ft.) | 2.24 | | Bankfull Max Depth (ft.) | 2.83 | | Bankfull Max Depth (ft.) | 2.84 | | Bankfull Max Depth (ft.) | 2.85 | | Bankfull Max Depth (ft.) | 2.31 | | Bankfull Max Depth (ft.) | 2.44 | |
| Flood Prone Width (ft) | 97 | | Flood Prone Width (ft) | 97 | | Flood Prone Width (ft) | 97 | | Flood Prone Width (ft) | 97 | | Flood Prone Width (ft) | 97 | | Flood Prone Width (ft) | 97 | |
| Entrenchment Ratio (ft/ft) | 4.09 | | Entrenchment Ratio (ft/ft) | 4.42 | | Entrenchment Ratio (ft/ft) | 3.68 | | Entrenchment Ratio (ft/ft) | 4.58 | | Entrenchment Ratio (ft/ft) | 4.91 | | Entrenchment Ratio (ft/ft) | 4.65 | |
| Width/Depth Ratio (ft/ft) | 27.50 | | Width/Depth Ratio (ft/ft) | 19.95 | | Width/Depth Ratio (ft/ft) | 28.15 | | Width/Depth Ratio (ft/ft) | 19.8 | | Width/Depth Ratio (ft/ft) | 17.0 | | Width/Depth Ratio (ft/ft) | 18.3 | |
| D50 (mm) | 8.88 | | D50 (mm) | 0.88 | | D50 (mm) | 0.06 | | D50 (mm) | 0.06 | | D50 (mm) | 0.06 | | D50 (mm) | 0.06 | |
| D84 (mm) | 18.75 | | D84 (mm) | 8.0 | | D84 (mm) | 0.06 | | D84 (mm) | 0.06 | | D84 (mm) | 4.68 | | D84 (mm) | 0.06 | |

## Wolf Pond R1 PXS-1

**Photo C 4 - R1 PXS-1 Left Pin**

**Photo C 5 - R1 PXS-1 Right Pin & MY 5 PA-5**

**Photo C 6 - R1 PXS-1 Downstream**

**Figure C 2 - R1 PXS-1 Cross Section Plot**

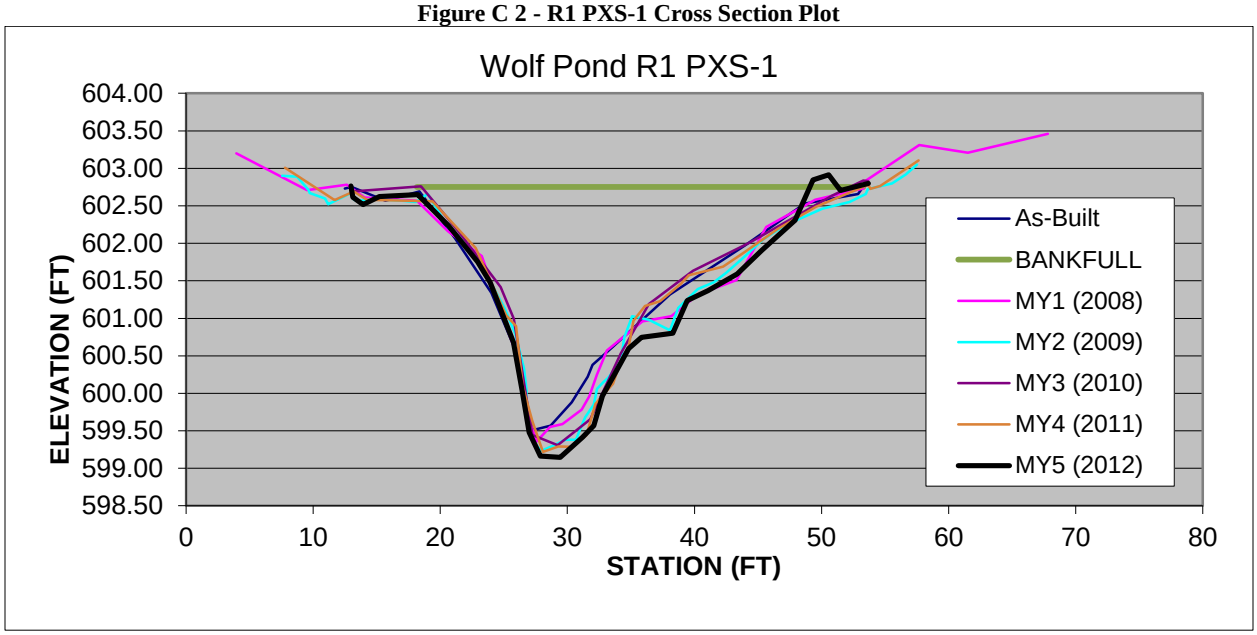


**Table C 2 - R1 PXS-1 Dimension Data**

| | | AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | | MY3 (2010) | | | | MY4 (2011) | | | | MY5 (2012) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 12.5 | 602.73 | r1rxs1r | 3.96 | 603.2 | R1PXS1 | 7.56 | 602.9 | XS | 12.92 | 602.733 | R PIN | 57.64 | 603.105 | (ZXS)ZXS | 53.68 | 602.797 | XSLP | | | |
| 13.01 | 602.75 | r1rxs1 | 9.51 | 602.71 | R1PXS1 | 8.73 | 602.89 | XS | 13.11 | 602.692 | Ground | 54.62 | 602.764 | (ZXS)ZXS | 51.49 | 602.704 | XS | | | |
| 15.7 | 602.57 | r1rxs1tob | 12.63 | 602.78 | R1PXS1PR | 9.64 | 602.71 | XS | 18.49 | 602.762 | Ground | 53.83 | 602.725 | (ZXS)ZXS | 50.57 | 602.915 | XS | | | |
| 18.35 | 602.69 | r1rxs1 | 14.06 | 602.61 | R1PXS1 | 9.73 | 602.67 | XS | 21.39 | 602.173 | Ground | 53.68 | 602.78 | (ZXSLP)ZXSLP | 49.32 | 602.845 | XS | | | |
| 21.15 | 602.07 | r1rxs1 | 18.16 | 602.75 | R1PXS1 | 10.94 | 602.6 | XS | 24.75 | 601.417 | Ground | 49.55 | 602.488 | (ZXS)ZXS | 47.92 | 602.308 | XS | | | |
| 24.03 | 601.34 | r1rxs1 | 20.63 | 602.16 | R1PXS1 | 11.19 | 602.52 | XS | 25.79 | 600.994 | Ground | 46.62 | 602.199 | (ZXS)ZXS | 45.29 | 601.907 | XS | | | |
| 25.42 | 600.78 | r1rxs1 | 23.28 | 601.83 | R1PXS1 | 12.98 | 602.67 | XSRP09 | 27.24 | 599.447 | Ground | 44.04 | 601.893 | (ZXS)ZXS | 43.35 | 601.59 | XS | | | |
| 25.81 | 600.62 | r1rxs1w | 26.46 | 600.29 | R1PXS1 | 13.16 | 602.59 | XS | 29.24 | 599.31 | Ground | 42.24 | 601.689 | (ZXS)ZXS | 41.07 | 601.368 | XS | | | |
| 26.03 | 600.39 | r1rxs1 | 26.89 | 599.69 | R1PXS1 | 13.36 | 602.57 | XS | 31.8 | 599.653 | Ground | 39.55 | 601.574 | (ZXS)ZXS | 39.43 | 601.239 | XS | | | |
| 26.35 | 600.14 | r1rxs1 | 27.61 | 599.36 | R1PXS1 | 14.85 | 602.59 | XS | 34.19 | 600.529 | Ground | 38.93 | 601.459 | (ZXS)ZXS | 38.29 | 600.8 | XS | | | |
| 27.26 | 599.51 | r1rxs1 | 28.64 | 599.55 | R1PXS1 | 16.99 | 602.57 | XS | 36.42 | 601.188 | Ground | 37.3 | 601.23 | (ZXS)ZXS | 35.84 | 600.748 | XS | | | |
| 28.67 | 599.57 | r1rxs1w | 29.61 | 599.59 | R1PXS1 | 18.06 | 602.55 | XS | 39.89 | 601.635 | Ground | 36.1 | 601.166 | (ZXS)ZXS | 34.82 | 600.595 | XS | | | |
| 30.34 | 599.88 | r1rxs1 | 31.12 | 599.78 | R1PXS1 | 19.01 | 602.66 | XS | 44.34 | 602.008 | Ground | 35.2 | 600.97 | (ZXS)ZXS | 33.68 | 600.248 | XS | | | |
| 31.61 | 600.22 | r1rxs1 | 31.74 | 599.96 | R1PXS1 | 20.61 | 602.22 | XS | 50.83 | 602.637 | Ground | 34.83 | 600.624 | (ZXS)ZXS | 32.77 | 599.966 | XS | | | |
| 31.99 | 600.38 | r1rxs1 | 32.32 | 600.25 | R1PXS1 | 21.5 | 602.08 | XS | 53.27 | 602.838 | Ground | 34.19 | 600.431 | (ZXS)ZXS | 32.08 | 599.567 | XS | | | |
| 33.56 | 600.62 | r1rxs1 | 33.11 | 600.57 | R1PXS1 | 22.68 | 601.81 | XS | 53.68 | 602.829 | L PIN | 33.58 | 600.129 | (ZXS)ZXS | 31.21 | 599.417 | XS | | | |
| 38.07 | 601.32 | r1rxs1 | 35.91 | 600.96 | R1PXS1 | 23.86 | 601.51 | XS | | | | 32.2 | 599.857 | (ZXS)ZXS | 29.43 | 599.146 | XS | | | |
| 43.96 | 601.97 | r1rxs1 | 38.17 | 601.03 | R1PXS1 | 25.05 | 601.14 | XS | | | | 31.5 | 599.442 | (ZXS)ZXS | 27.87 | 599.165 | XS | | | |
| 48.67 | 602.53 | r1rxs1tob | 40.29 | 601.32 | R1PXS1 | 25.9 | 600.79 | XS | | | | 30.33 | 599.289 | (ZXS)ZXS | 26.99 | 599.479 | XS | | | |
| 52.87 | 602.66 | r1rxs1 | 43.31 | 601.51 | R1PXS1 | 26.59 | 600.33 | XS | | | | 29.29 | 599.293 | (ZXS)ZXS | 26.44 | 600.037 | XS | | | |
| 53.39 | 602.78 | r1rxs1l | 45.65 | 602.22 | R1PXS1 | 26.78 | 600.03 | XS | | | | 28.07 | 599.217 | (ZXS)ZXS | 25.75 | 600.68 | XS | | | |
| | | | 49.51 | 602.58 | R1PXS1 | 26.72 | 599.84 | XS | | | | 27.25 | 599.629 | (ZXS)ZXS | 23.91 | 601.481 | XS | | | |
| | | | 53.27 | 602.73 | R1PXS1 | 27.19 | 599.38 | XS | | | | 26.5 | 600.093 | (ZXS)ZXS | 22.93 | 601.754 | XS | | | |
| | | | 53.54 | 602.84 | RPRXS1PL | 27.92 | 599.23 | XS | | | | 25.95 | 600.894 | (ZXS)ZXS | 20.66 | 602.234 | XS | | | |
| | | | 57.68 | 603.31 | R1PXS1 | 28.85 | 599.3 | XS | | | | 25.19 | 601.042 | (ZXS)ZXS | 18.23 | 602.65 | XS | | | |
| | | | 61.52 | 603.21 | R1PXS1 | 29.84 | 599.38 | XS | | | | 22.79 | 601.937 | (ZXS)ZXS | 18.17 | 602.648 | XS | | | |
| | | | 67.8 | 603.46 | R1PXS1 | 30.68 | 599.38 | XS | | | | 19.4 | 602.559 | (ZXS)ZXS | 15.21 | 602.625 | XS | | | |
| | | | | | | 31.39 | 599.68 | XS | | | | 14.22 | 602.58 | (ZXS)ZXS | 13.92 | 602.518 | XS | | | |
| | | | | | | 32.09 | 599.85 | XS | | | | 12.95 | 602.716 | (ZXSRP)ZXSRP | 13.11 | 602.615 | XS | | | |
| | | | | | | 32.34 | 600.06 | XSW | | | | 12.93 | 602.672 | (ZXS)ZXS | 12.96 | 602.763 | XSRP | | | |
| | | | | | | 32.79 | 600.14 | XS | | | | 11.69 | 602.576 | (ZXS)ZXS | | | | | | |
| | | | | | | 33.21 | 600.21 | XS | | | | 7.77 | 603.006 | (ZXS)ZXS | | | | | | |
| | | | | | | 34.22 | 600.43 | XS | | | | | | | | | | | | |
| | | | | | | 34.48 | 600.74 | XS | | | | | | | | | | | | |
| | | | | | | 35.11 | 601.03 | XS | | | | | | | | | | | | |
| | | | | | | 36.41 | 600.98 | XS | | | | | | | | | | | | |
| | | | | | | 38.08 | 600.84 | XS | | | | | | | | | | | | |
| | | | | | | 38.73 | 601.14 | XS | | | | | | | | | | | | |
| | | | | | | 40.26 | 601.39 | XS | | | | | | | | | | | | |
| | | | | | | 41.52 | 601.48 | XS | | | | | | | | | | | | |
| | | | | | | 42.51 | 601.61 | XS | | | | | | | | | | | | |
| | | | | | | 43.74 | 601.79 | XS | | | | | | | | | | | | |
| | | | | | | 45.4 | 602.05 | XS | | | | | | | | | | | | |
| | | | | | | 47.06 | 602.23 | XS | | | | | | | | | | | | |
| | | | | | | 48.2 | 602.32 | XS | | | | | | | | | | | | |
| | | | | | | 50.06 | 602.46 | XS | | | | | | | | | | | | |
| | | | | | | 52.19 | 602.55 | XS | | | | | | | | | | | | |
| | | | | | | 53.48 | 602.66 | XS | | | | | | | | | | | | |
| | | | | | | 53.63 | 602.72 | XSLP09 | | | | | | | | | | | | |
| | | | | | | 55.55 | 602.8 | XS | | | | | | | | | | | | |
| | | | | | | 56.64 | 602.92 | XS | | | | | | | | | | | | |
| | | | | | | 57.51 | 603.05 | XS | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 33.0 | Bankfull Width (ft.) | 35.1 | Bankfull Width (ft.) | 43.8 | Bankfull Width (ft.) | 37.91 | Bankfull Width (ft.) | 30.15 | Bankfull Width (ft.) | 27.26 |
| Bankfull Cross Sectional Area (sq ft) | 40.0 | Bankfull Cross Sectional Area (sq | 48.6 | Bankfull Cross Sectional Area (sq ft) | 52.2 | Bankfull Cross Sectional Area (sq ft) | 46.7 | Bankfull Cross Sectional Area (sq ft) | 42.4 | Bankfull Cross Sectional Area (sq ft) | 47.2 |
| Bankfull Mean Depth (ft.) | 1.21 | Bankfull Mean Depth (ft.) | 1.38 | Bankfull Mean Depth (ft.) | 1.19 | Bankfull Mean Depth (ft.) | 1.23 | Bankfull Mean Depth (ft.) | 1.41 | Bankfull Mean Depth (ft.) | 1.73 |
| Bankfull Max Depth (ft.) | 3.06 | Bankfull Max Depth (ft.) | 3.39 | Bankfull Max Depth (ft.) | 3.52 | Bankfull Max Depth (ft.) | 3.44 | Bankfull Max Depth (ft.) | 3.35 | Bankfull Max Depth (ft.) | 3.09 |
| Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - |
| Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - |
| Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - |
| D50 (mm) | 6.21 | D50 (mm) | 4.0 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 |
| D84 (mm) | 14.21 | D84 (mm) | 11.3 | D84 (mm) | 0.06 | D84 (mm) | 6.47 | D84 (mm) | 0.06 | D84 (mm) | 0.06 |

## Wolf Pond R2 RXS-1

**Photo C 7 - R2 RXS-1 Left Pin**

**Photo C 8 - R2 RXS-1 Right Pin**

**Photo C 9 - R2 RXS-1 Downstream**

**Figure C 3 - R2 RXS-1 Cross Section Plot**

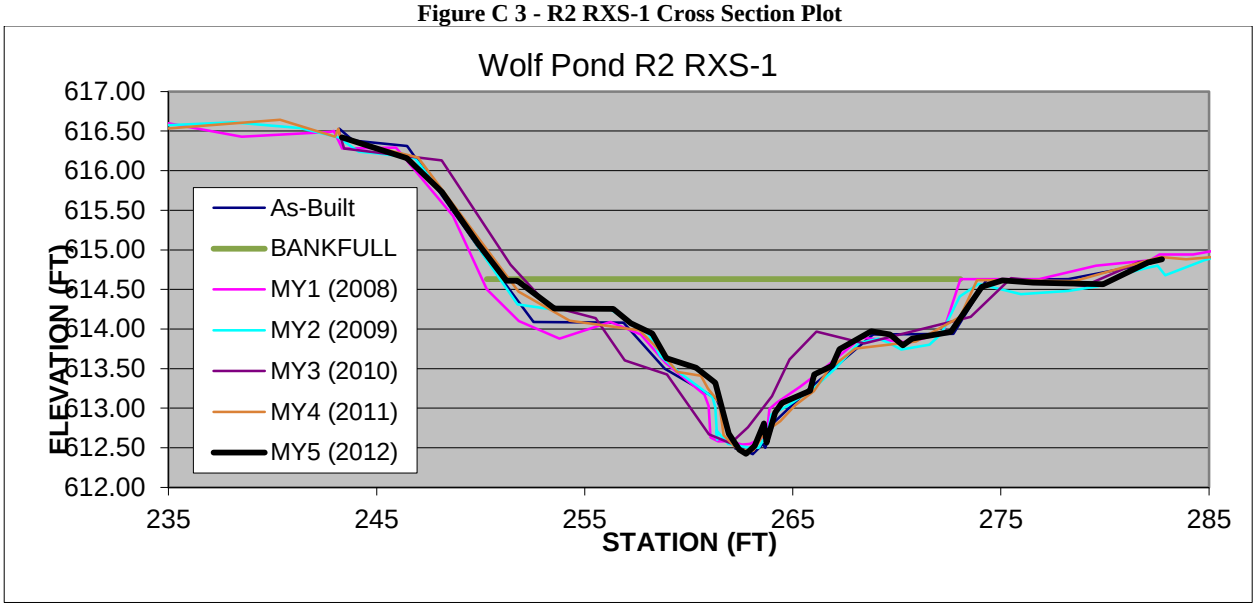


**Table C 2 - R2 RXS-1 Dimension Data**

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 243.2 | 616.53 | r2rxs1r | 20.35 | 624.87 | R2RXS1 | 223.98 | 616.47 | XS | 243.16 | 616.519 | R PIN | 288.87 | 614.99 | (ZXS)ZXS | 282.74 | 614.882 | XSRP |
| 243.87 | 616.38 | r2rxs1 | 40.29 | 624.21 | R2RXS1 | 226.37 | 616.59 | XS | 243.43 | 616.279 | Ground | 283.9 | 614.881 | (ZXS)ZXS | 282.06 | 614.839 | XS |
| 246.46 | 616.31 | r2rxs1tob | 67.31 | 623.02 | R2RXS1 | 230.07 | 616.25 | XS | 248.13 | 616.128 | Ground | 282.67 | 614.91 | (ZXSLP)ZXSLP | 279.92 | 614.565 | XS |
| 250.19 | 614.92 | r2rxs1 | 92.19 | 621.76 | R2RXS1 | 234.66 | 616.57 | XS | 251.44 | 614.813 | Ground | 278.54 | 614.608 | (ZXS)ZXS | 276.55 | 614.586 | XS |
| 252.54 | 614.09 | r2rxs1 | 121.49 | 619.8 | R2RXS1 | 238.09 | 616.61 | XS | 253.25 | 614.295 | Ground | 273.86 | 614.619 | (ZXS)ZXS | 275.07 | 614.614 | XS |
| 256.86 | 614.08 | r2rxs1b | 149.27 | 618.92 | R2RXS1 | 241.33 | 616.54 | XS | 255.53 | 614.136 | Ground | 273.04 | 614.152 | (ZXS)ZXS | 274.09 | 614.533 | XS |
| 258.85 | 613.5 | r2rxs1 | 185.64 | 617.45 | R2RXS1 | 243.16 | 616.42 | XSRP09 | 256.93 | 613.602 | Ground | 270.92 | 613.841 | (ZXS)ZXS | 272.59 | 613.964 | XS |
| 261.34 | 613.12 | r2rxs1 | 201.14 | 617.05 | R2RXS1 | 244.15 | 616.24 | XS | 258.96 | 613.424 | Ground | 268.01 | 613.753 | (ZXS)ZXS | 270.74 | 613.879 | XS |
| 262.25 | 612.49 | r2rxs1 | 210.6 | 617.16 | R2RXS1 | 245.02 | 616.22 | XS | 260.96 | 612.668 | Ground | 266.74 | 613.496 | (ZXS)ZXS | 270.28 | 613.793 | XS |
| 262.29 | 612.52 | r2rxs1w | 213.73 | 616.78 | R2RXS1 | 246.84 | 616.16 | XS | 262.02 | 612.558 | Ground | 266.01 | 613.216 | (ZXS)ZXS | 269.67 | 613.932 | XS |
| 263.08 | 612.42 | r2rxs1 | 217.3 | 616.57 | R2RXS1 | 248.71 | 615.51 | XS | 262.85 | 612.759 | Ground | 265.12 | 613.038 | (ZXS)ZXS | 268.77 | 613.973 | XS |
| 263.56 | 612.55 | r2rxs1w | 222.11 | 616.61 | R2RXS1 | 250.14 | 614.93 | XS | 263.99 | 613.149 | Ground | 264.39 | 612.837 | (ZXS)ZXS | 267.63 | 613.8 | XS |
| 263.68 | 612.5 | r2rxs1 | 227.97 | 616.52 | R2RXS1 | 251.77 | 614.31 | XS | 264.84 | 613.615 | Ground | 263.64 | 612.694 | (ZXS)ZXS | 267.24 | 613.744 | XS |
| 264.09 | 612.82 | r2rxs1 | 235 | 616.6 | R2RXS1 | 253.37 | 614.25 | XS | 266.13 | 613.966 | Ground | 263.11 | 612.462 | (ZXS)ZXS | 266.89 | 613.536 | XS |
| 265.73 | 613.23 | r2rxs1 | 238.51 | 616.43 | R2RXS1 | 254.92 | 614.26 | XS | 268.42 | 613.818 | Ground | 262.68 | 612.469 | (ZXS)ZXS | 266.03 | 613.424 | XS |
| 268.86 | 613.93 | r2rxs1b | 242.76 | 616.49 | R2RXS1PR | 256.16 | 614.26 | XS | 273.54 | 614.154 | Ground | 262.28 | 612.497 | (ZXS)ZXS | 265.82 | 613.221 | XS |
| 272.72 | 613.94 | r2rxs1 | 242.95 | 616.5 | R2RXS1PR | 257.38 | 614.06 | XS | 275.48 | 614.641 | Ground | 261.67 | 612.656 | (ZXS)ZXS | 264.48 | 613.067 | XS |
| 274.3 | 614.62 | r2rxs1tob | 243.35 | 616.28 | R2RXS1 | 258.07 | 613.93 | XS | 279.02 | 614.547 | Ground | 261.46 | 613.072 | (ZXS)ZXS | 264.15 | 612.946 | XS |
| 278.24 | 614.63 | r2rxs1 | 245.93 | 616.29 | R2RXS1 | 258.63 | 613.66 | XS | 281.64 | 614.846 | Ground | 260.92 | 613.248 | (ZXS)ZXS | 263.73 | 612.566 | XS |
| 282.18 | 614.83 | r2rxs1 | 248.67 | 615.43 | R2RXS1 | 259.64 | 613.43 | XS | 282.74 | 614.878 | L PIN | 260.59 | 613.411 | (ZXS)ZXS | 263.61 | 612.806 | XS |
| 282.8 | 614.91 | r2rxs1l | 250.29 | 614.5 | R2RXS1 | 260.52 | 613.26 | XS | | | | 259.44 | 613.46 | (ZXS)ZXS | 263.17 | 612.524 | XS |
| | | | 251.84 | 614.1 | R2RXS1 | 261.14 | 613.14 | XS | | | | 258.58 | 613.732 | (ZXS)ZXS | 262.75 | 612.425 | XS |
| | | | 253.79 | 613.88 | R2RXS1 | 261.27 | 613.01 | XS | | | | 257.63 | 613.982 | (ZXS)ZXS | 262.43 | 612.477 | XS |
| | | | 256.23 | 614.09 | R2RXS1 | 261.36 | 612.6 | XS | | | | 254.28 | 614.104 | (ZXS)ZXS | 261.92 | 612.678 | XS |
| | | | 257.69 | 613.93 | R2RXS1 | 261.33 | 612.72 | XSW | | | | 251.82 | 614.474 | (ZXS)ZXS | 261.27 | 613.321 | XS |
| | | | 258.89 | 613.57 | R2RXS1 | 261.89 | 612.55 | XS | | | | 246.99 | 616.167 | (ZXS)ZXS | 260.36 | 613.509 | XS |
| | | | 260.75 | 613.17 | R2RXS1 | 262.51 | 612.52 | XS | | | | 244.98 | 616.295 | (ZXS)ZXS | 258.93 | 613.633 | XS |
| | | | 260.95 | 613.03 | R2RXS1 | 262.91 | 612.5 | XS | | | | 243.23 | 616.434 | (ZXS)ZXS | 258.24 | 613.943 | XS |
| | | | 261.05 | 612.63 | R2RXS1 | 263.36 | 612.5 | XS | | | | 243.16 | 616.528 | (ZXSRP)ZXSRP | 257.21 | 614.072 | XS |
| | | | 261.41 | 612.58 | R2RXS1 | 263.78 | 612.69 | XS | | | | 243.01 | 616.427 | (ZXS)ZXS | 256.37 | 614.256 | XS |
| | | | 261.97 | 612.58 | R2RXS1 | 263.7 | 612.57 | XS | | | | 240.36 | 616.643 | (ZXS)ZXS | 253.54 | 614.259 | XS |
| | | | 262.57 | 612.54 | R2RXS1 | 263.97 | 612.92 | XS | | | | 234.44 | 616.52 | (ZXS)ZXS | 251.76 | 614.61 | XS |
| | | | 262.93 | 612.55 | R2RXS1 | 264.75 | 613.03 | XS | | | | | | | 251.24 | 614.61 | XS |
| | | | 263.73 | 612.65 | R2RXS1WS | 266.04 | 613.26 | XS | | | | | | | 249.88 | 615.076 | XS |
| | | | 263.75 | 612.68 | R2RXS1 | 267.07 | 613.51 | XS | | | | | | | 248.15 | 615.731 | XS |
| | | | 263.87 | 612.99 | R2RXS1 | 268.16 | 613.82 | XS | | | | | | | 246.45 | 616.157 | XS |
| | | | 264.23 | 613.07 | R2RXS1 | 269.12 | 613.88 | XS | | | | | | | 243.33 | 616.42 | XSLP |
| | | | 265.34 | 613.27 | R2RXS1 | 269.58 | 613.83 | XS | | | | | | | | | |
| | | | 266.26 | 613.45 | R2RXS1 | 270.21 | 613.74 | XS | | | | | | | | | |
| | | | 268.29 | 613.89 | R2RXS1 | 271.57 | 613.8 | XS | | | | | | | | | |
| | | | 270.59 | 613.83 | R2RXS1 | 272.13 | 613.94 | XS | | | | | | | | | |
| | | | 272.21 | 613.95 | R2RXS1 | 273.03 | 614.41 | XS | | | | | | | | | |
| | | | 273.06 | 614.63 | R2RXS1 | 273.93 | 614.57 | XS | | | | | | | | | |
| | | | 276.84 | 614.63 | R2RXS1 | 275.96 | 614.44 | XS | | | | | | | | | |
| | | | 279.57 | 614.8 | R2RXS1 | 277.54 | 614.47 | XS | | | | | | | | | |
| | | | 282.18 | 614.87 | R2RXS1 | 278.23 | 614.48 | XS | | | | | | | | | |
| | | | 282.62 | 614.94 | R2RXS1PL | 279.68 | 614.54 | XS | | | | | | | | | |
| | | | 284.24 | 614.94 | R2RXS1 | 281.14 | 614.71 | XS | | | | | | | | | |
| | | | 290.41 | 615.23 | R2RXS1 | 282.01 | 614.77 | XS | | | | | | | | | |
| | | | 294.64 | 615.24 | R2RXS1 | 282.52 | 614.8 | XSLP09 | | | | | | | | | |
| | | | 299.06 | 615.71 | R2RXS1 | 282.89 | 614.68 | XS | | | | | | | | | |
| | | | 307.87 | 616.9 | R2RXS1 | 284.78 | 614.87 | XS | | | | | | | | | |
| | | | 324.46 | 617.21 | R2RXS1 | 286.69 | 615.01 | XS | | | | | | | | | |
| | | | 412.44 | 624.2 | R2RXS1 | 289.93 | 615.07 | XS | | | | | | | | | |
| | | | | | | 293.76 | 615.23 | XS | | | | | | | | | |
| | | | | | | 295.12 | 614.97 | XS | | | | | | | | | |
| | | | | | | 296.94 | 614.99 | XS | | | | | | | | | |
| | | | | | | 299.06 | 615.94 | XS | | | | | | | | | |
| | | | | | | 299.78 | 616.07 | XS | | | | | | | | | |
| | | | | | | 299.74 | 616.02 | XS | | | | | | | | | |
| | | | | | | 300.6 | 615.71 | XS | | | | | | | | | |
| | | | | | | 302.44 | 615.82 | XS | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 24.1 | | Bankfull Width (ft.) | 22.8 | | Bankfull Width (ft.) | 26.5 | | Bankfull Width (ft.) | 25.77 | | Bankfull Width (ft.) | 24.26 | | Bankfull Width (ft.) | 28.16 | |
| Bankfull Cross Sectional Area (sq ft) | 22.1 | | Bankfull Cross Sectional Area (sq | 22.4 | | Bankfull Cross Sectional Area (sq ft) | 20.6 | | Bankfull Cross Sectional Area (sq ft) | 21.0 | | Bankfull Cross Sectional Area (sq ft) | 21.7 | | Bankfull Cross Sectional Area (sq ft) | 20.2 | |
| Bankfull Mean Depth (ft.) | 0.92 | | Bankfull Mean Depth (ft.) | 0.99 | | Bankfull Mean Depth (ft.) | 0.78 | | Bankfull Mean Depth (ft.) | 0.81 | | Bankfull Mean Depth (ft.) | 0.90 | | Bankfull Mean Depth (ft.) | 0.72 | |
| Bankfull Max Depth (ft.) | 2.2 | | Bankfull Max Depth (ft.) | 2.09 | | Bankfull Max Depth (ft.) | 2.07 | | Bankfull Max Depth (ft.) | 2.07 | | Bankfull Max Depth (ft.) | 2.17 | | Bankfull Max Depth (ft.) | 2.14 | |
| Flood Prone Width (ft) | 94 | | Flood Prone Width (ft) | 94 | | Flood Prone Width (ft) | 94 | | Flood Prone Width (ft) | 94.14 | | Flood Prone Width (ft) | 94.14 | | Flood Prone Width (ft) | 94.14 | |
| Entrenchment Ratio (ft/ft) | 3.90 | | Entrenchment Ratio (ft/ft) | 4.13 | | Entrenchment Ratio (ft/ft) | 3.55 | | Entrenchment Ratio (ft/ft) | 3.65 | | Entrenchment Ratio (ft/ft) | 3.88 | | Entrenchment Ratio (ft/ft) | 3.34 | |
| Width/Depth Ratio (ft/ft) | 26.35 | | Width/Depth Ratio (ft/ft) | 23.10 | | Width/Depth Ratio (ft/ft) | 34.01 | | Width/Depth Ratio (ft/ft) | 31.7 | | Width/Depth Ratio (ft/ft) | 27.1 | | Width/Depth Ratio (ft/ft) | 39.3 | |
| D50 (mm) | 19.87 | | D50 (mm) | 13.49 | | D50 (mm) | 13.65 | | D50 (mm) | 0.06 | | D50 (mm) | 14.43 | | D50 (mm) | 0.06 | |
| D84 (mm) | 34.4 | | D84 (mm) | 21.4 | | D84 (mm) | 32.00 | | D84 (mm) | 27.30 | | D84 (mm) | 30.12 | | D84 (mm) | 23.36 | |

## Wolf Pond R2 RXS-2

**Photo C 1 - R2 RXS-2 Left Pin**

**Photo C 2 - R2 RXS-2 Right Pin**

**Photo C 12 - R2 RXS-2 Downstream**

**Figure C 4 - R2 RXS-2 Cross Section Plot**

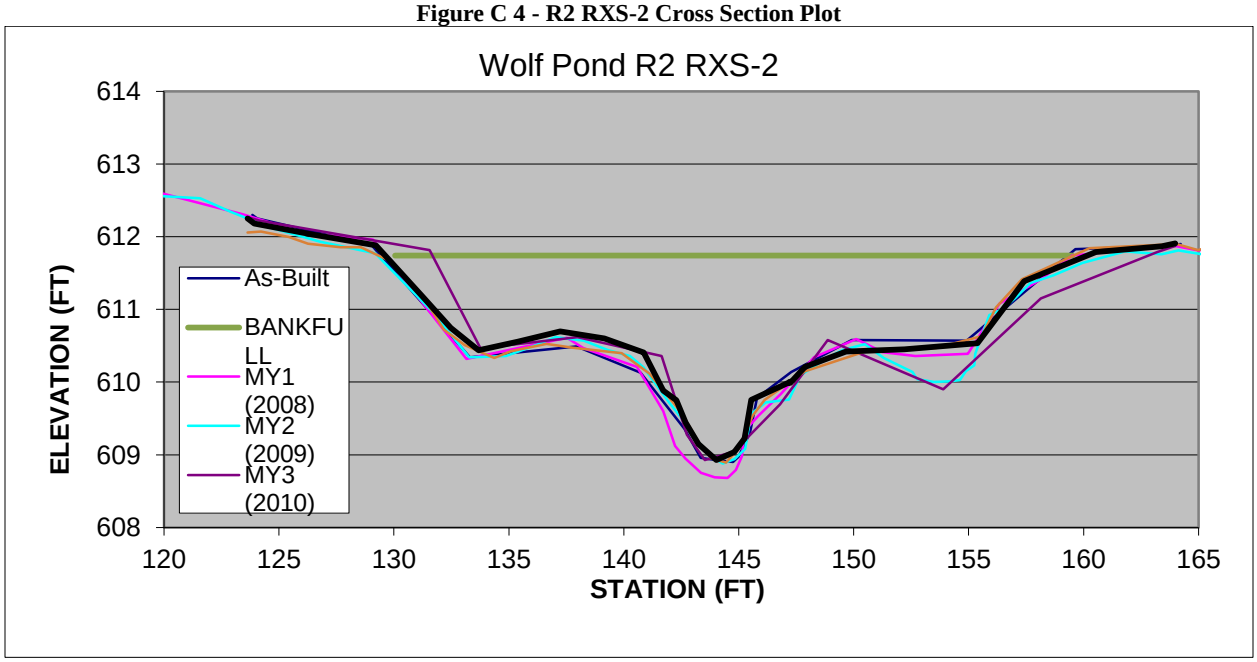


**Table C 3 - R2 RXS-2 Dimension Data**

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 123.84 | 612.3 | r2rxs2r | 9.49 | 619.56 | R2RXS2 | 99.15 | 613.39 | XS | 123.64 | 612.268 | R PIN | 169.19 | 612.136 | (ZXS)ZXS | 163.99 | 611.907 | XSLP |
| 124.05 | 612.25 | r2rxs2 | 28.99 | 618.8 | R2RXS2 | 101.49 | 613.33 | XS | 124.16 | 612.222 | Ground | 164.97 | 611.815 | (ZXS)ZXS | 163.4 | 611.868 | XS |
| 129.04 | 611.88 | r2rxs2tob | 72.93 | 615.94 | R2RXS2 | 104.92 | 613.32 | XS | 131.55 | 611.816 | Ground | 164.04 | 611.899 | (ZXSLP)ZXSLP | 160.53 | 611.787 | XS |
| 133.31 | 610.34 | r2rxs2 | 92.74 | 613.88 | R2RXS2 | 107.87 | 612.84 | XS | 133.77 | 610.466 | Ground | 160.25 | 611.84 | (ZXS)ZXS | 157.41 | 611.39 | XS |
| 137.94 | 610.49 | r2rxs2b | 104.39 | 613.42 | R2RXS2 | 112.77 | 612.88 | XS | 137.98 | 610.617 | Ground | 157.32 | 611.415 | (ZXS)ZXS | 155.39 | 610.534 | XS |
| 140.73 | 610.13 | r2rxs2 | 112.17 | 613.07 | R2RXS2 | 118.57 | 612.58 | XS | 141.64 | 610.36 | Ground | 156.19 | 611.028 | (ZXS)ZXS | 152.21 | 610.45 | XS |
| 142.64 | 609.36 | r2rxs2 | 119.61 | 612.62 | R2RXS2 | 121.57 | 612.53 | XS | 142.75 | 609.274 | Ground | 155.57 | 610.633 | (ZXS)ZXS | 149.67 | 610.418 | XS |
| 143.35 | 608.96 | r2rxs2w | 123.42 | 612.31 | R2RXS2PR | 122.92 | 612.34 | XS | 143.52 | 608.928 | Ground | 153.59 | 610.467 | (ZXS)ZXS | 147.88 | 610.209 | XS |
| 143.71 | 608.94 | r2rxs2 | 126.13 | 612.34 | R2RXS2 | 123.64 | 612.25 | XSRP09 | 144.78 | 609.041 | Ground | 150.57 | 610.43 | (ZXS)ZXS | 147.24 | 609.989 | XS |
| 144.75 | 608.9 | r2rxs2 | 130.05 | 611.96 | R2RXS2 | 124.34 | 612.15 | XS | 146.8 | 609.695 | Ground | 147.87 | 610.149 | (ZXS)ZXS | 147.23 | 610.006 | XS |
| 144.99 | 608.97 | r2rxs2w | 134.72 | 610.16 | R2RXS2 | 126.81 | 611.93 | XS | 148.87 | 610.578 | Ground | 146.13 | 609.756 | (ZXS)ZXS | 147.14 | 609.989 | XS |
| 145.49 | 609.3 | r2rxs2 | 137.52 | 610.61 | R2RXS2 | 129.19 | 611.77 | XS | 153.9 | 609.902 | Ground | 145.61 | 609.543 | (ZXS)ZXS | 145.54 | 609.754 | XS |
| 145.8 | 609.78 | r2rxs2 | 138.23 | 610.47 | R2RXS2 | 131.73 | 610.95 | XS | 158.14 | 611.15 | Ground | 145.01 | 609.091 | (ZXS)ZXS | 145.25 | 609.224 | XS |
| 147.28 | 610.14 | r2rxs2 | 140.58 | 610.21 | R2RXS2 | 133.28 | 610.34 | XS | 163.21 | 611.789 | Ground | 144.45 | 608.892 | (ZXS)ZXS | 144.81 | 609.04 | XS |
| 149.91 | 610.58 | r2rxs2b | 141.72 | 609.6 | R2RXS2 | 134.87 | 610.36 | XS | 163.99 | 611.873 | L PIN | 143.8 | 608.956 | (ZXS)ZXS | 144.03 | 608.928 | XS |
| 154.91 | 610.57 | r2rxs2 | 142.23 | 609.12 | R2RXS2 | 136.11 | 610.5 | XS | | | | 143.29 | 609.156 | (ZXS)ZXS | 143.24 | 609.147 | XS |
| 159.65 | 611.83 | r2rxs2tob | 142.68 | 608.95 | R2RXS2 | 137.03 | 610.62 | XS | | | | 142.77 | 609.435 | (ZXS)ZXS | 142.69 | 609.442 | XS |
| 163.46 | 611.87 | r2rxs2 | 143.36 | 608.75 | R2RXS2 | 138.26 | 610.57 | XS | | | | 142.3 | 609.659 | (ZXS)ZXS | 142.29 | 609.749 | XS |
| 164.22 | 611.9 | r2rxs2l | 143.95 | 608.69 | R2RXS2 | 139.29 | 610.44 | XS | | | | 141.12 | 610.116 | (ZXS)ZXS | 141.72 | 609.883 | XS |
| | | | 144.51 | 608.68 | R2RXS2 | 140.27 | 610.36 | XS | | | | 139.91 | 610.398 | (ZXS)ZXS | 140.87 | 610.408 | XS |
| | | | 144.87 | 608.79 | R2RXS2 | 140.86 | 610.2 | XS | | | | 137.78 | 610.472 | (ZXS)ZXS | 139.16 | 610.602 | XS |
| | | | 145.14 | 608.98 | R2RXS2 | 142 | 609.71 | XS | | | | 136.63 | 610.524 | (ZXS)ZXS | 137.23 | 610.697 | XS |
| | | | 145.25 | 609.33 | R2RXS2WS | 142.65 | 609.45 | XS | | | | 135.09 | 610.423 | (ZXS)ZXS | 135.4 | 610.557 | XS |
| | | | 145.86 | 609.54 | R2RXS2 | 143.15 | 609.21 | XS | | | | 134.37 | 610.333 | (ZXS)ZXS | 133.68 | 610.439 | XS |
| | | | 146.84 | 609.84 | R2RXS2 | 143.77 | 608.99 | XS | | | | 133.09 | 610.507 | (ZXS)ZXS | 132.47 | 610.746 | XS |
| | | | 148.27 | 610.34 | R2RXS2 | 144.3 | 608.88 | XS | | | | 132.17 | 610.723 | (ZXS)ZXS | 131.21 | 611.19 | XS |
| | | | 150.11 | 610.59 | R2RXS2 | 144.82 | 608.94 | XS | | | | 131.32 | 611.15 | (ZXS)ZXS | 129.22 | 611.88 | XS |
| | | | 151.27 | 610.41 | R2RXS2 | 145.28 | 609.08 | XS | | | | 129.75 | 611.68 | (ZXS)ZXS | 126.52 | 612.028 | XS |
| | | | 152.69 | 610.36 | R2RXS2 | 145.35 | 609.21 | XSW | | | | 128.56 | 611.857 | (ZXS)ZXS | 123.93 | 612.18 | XS |
| | | | 154.97 | 610.39 | R2RXS2 | 145.53 | 609.56 | XS | | | | 127.69 | 611.853 | (ZXS)ZXS | 123.63 | 612.25 | XSRP |
| | | | 156.35 | 611.08 | R2RXS2 | 146.17 | 609.72 | XS | | | | 126.26 | 611.903 | (ZXS)ZXS | | | |
| | | | 158.13 | 611.41 | R2RXS2 | 147.19 | 609.76 | XS | | | | 125.43 | 611.994 | (ZXS)ZXS | | | |
| | | | 159.5 | 611.74 | R2RXS2 | 147.67 | 610.09 | XS | | | | 124.22 | 612.07 | (ZXS)ZXS | | | |
| | | | 163.85 | 611.88 | R2RXS2PL | 148.84 | 610.33 | XS | | | | 123.64 | 612.058 | (ZXSRP)ZXSRP | | | |
| | | | 164.99 | 611.81 | R2RXS2 | 149.53 | 610.44 | XS | | | | | | | | | |
| | | | 170.97 | 612.08 | R2RXS2 | 150.49 | 610.52 | XS | | | | | | | | | |
| | | | 181.58 | 612.29 | R2RXS2 | 151.3 | 610.33 | XS | | | | | | | | | |
| | | | 189.78 | 612.68 | R2RXS2 | 152.56 | 610.14 | XS | | | | | | | | | |
| | | | 200.11 | 612.56 | R2RXS2 | 152.75 | 610.04 | XS | | | | | | | | | |
| | | | 214.86 | 612.35 | R2RXS2 | 153.49 | 610 | XS | | | | | | | | | |
| | | | 233.86 | 612.73 | R2RXS2 | 154.19 | 610.01 | XS | | | | | | | | | |
| | | | 246.31 | 613.2 | R2RXS2 | 154.62 | 610.03 | XS | | | | | | | | | |
| | | | 276.09 | 614.4 | R2RXS2 | 154.89 | 610.15 | XSW | | | | | | | | | |
| | | | 299.38 | 616.07 | R2RXS2 | 155.24 | 610.23 | XS | | | | | | | | | |
| | | | | | | 155.28 | 610.39 | XS | | | | | | | | | |
| | | | | | | 155.9 | 610.92 | XS | | | | | | | | | |
| | | | | | | 156.51 | 611.01 | XS | | | | | | | | | |
| | | | | | | 157.07 | 611.17 | XS | | | | | | | | | |
| | | | | | | 157.68 | 611.36 | XS | | | | | | | | | |
| | | | | | | 158.69 | 611.47 | XS | | | | | | | | | |
| | | | | | | 159.95 | 611.64 | XS | | | | | | | | | |
| | | | | | | 161.8 | 611.8 | XS | | | | | | | | | |
| | | | | | | 163.39 | 611.76 | XS | | | | | | | | | |
| | | | | | | 164.12 | 611.81 | XSLP09 | | | | | | | | | |
| | | | | | | 165.67 | 611.73 | XS | | | | | | | | | |
| | | | | | | 167.44 | 611.95 | XS | | | | | | | | | |
| | | | | | | 168.38 | 611.73 | XS | | | | | | | | | |
| | | | | | | 171.75 | 612.06 | XS | | | | | | | | | |
| | | | | | | 173.92 | 612.24 | XS | | | | | | | | | |
| | | | | | | 177.4 | 612.2 | XS | | | | | | | | | |
| | | | | | | 178.7 | 612.32 | XS | | | | | | | | | |
| | | | | | | 181.94 | 612.35 | XS | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Bankfull Width (ft.) | | 30.6 | Bankfull Width (ft.) | | 30.4 | Bankfull Width (ft.) | | 30.8 | Bankfull Width (ft.) | | 26.59 | Bankfull Width (ft.) | | 28.93 | Bankfull Width (ft.) | | 29.32 |
| Bankfull Cross Sectional Area (sq ft) | | 42.5 | Bankfull Cross Sectional Area (sq | | 41.4 | Bankfull Cross Sectional Area (sq ft) | | 41.7 | Bankfull Cross Sectional Area (sq ft) | | 40.8 | Bankfull Cross Sectional Area (sq ft) | | 39.4 | Bankfull Cross Sectional Area (sq ft) | | 38 |
| Bankfull Mean Depth (ft.) | | 1.39 | Bankfull Mean Depth (ft.) | | 1.36 | Bankfull Mean Depth (ft.) | | 1.35 | Bankfull Mean Depth (ft.) | | 1.53 | Bankfull Mean Depth (ft.) | | 1.36 | Bankfull Mean Depth (ft.) | | 1.3 |
| Bankfull Max Depth (ft.) | | 2.93 | Bankfull Max Depth (ft.) | | 3.06 | Bankfull Max Depth (ft.) | | 2.86 | Bankfull Max Depth (ft.) | | 2.81 | Bankfull Max Depth (ft.) | | 2.85 | Bankfull Max Depth (ft.) | | 2.26 |
| Flood Prone Width (ft) | | 203 | Flood Prone Width (ft) | | 203 | Flood Prone Width (ft) | | 203 | Flood Prone Width (ft) | | 203 | Flood Prone Width (ft) | | 203 | Flood Prone Width (ft) | | 203 |
| Entrenchment Ratio (ft/ft) | | 6.63 | Entrenchment Ratio (ft/ft) | | 6.68 | Entrenchment Ratio (ft/ft) | | 6.6 | Entrenchment Ratio (ft/ft) | | 7.63 | Entrenchment Ratio (ft/ft) | | 7.02 | Entrenchment Ratio (ft/ft) | | 6.92 |
| Width/Depth Ratio (ft/ft) | | 22.07 | Width/Depth Ratio (ft/ft) | | 22.36 | Width/Depth Ratio (ft/ft) | | 22.71 | Width/Depth Ratio (ft/ft) | | 17.3 | Width/Depth Ratio (ft/ft) | | 21.3 | Width/Depth Ratio (ft/ft) | | 22.6 |
| D50 (mm) | | 14.53 | D50 (mm) | | 2.0 | D50 (mm) | | 10.97 | D50 (mm) | | 0.06 | D50 (mm) | | 0.06 | D50 (mm) | | 0.06 |
| D84 (mm) | | 27.85 | D84 (mm) | | 11.3 | D84 (mm) | | 22.60 | D84 (mm) | | 13.65 | D84 (mm) | | 32.00 | D84 (mm) | | 11.30 |

## Wolf Pond R2 PXS-1

**Photo C 3 - R2 PXS-1 Left Pin**

**Photo C 4 - R2 PXS-1 Right Pin**

**Photo C 5 - R2 PXS-1 Downstream**

**Figure C 5 - R2 PXS-1 Cross Section Plot**

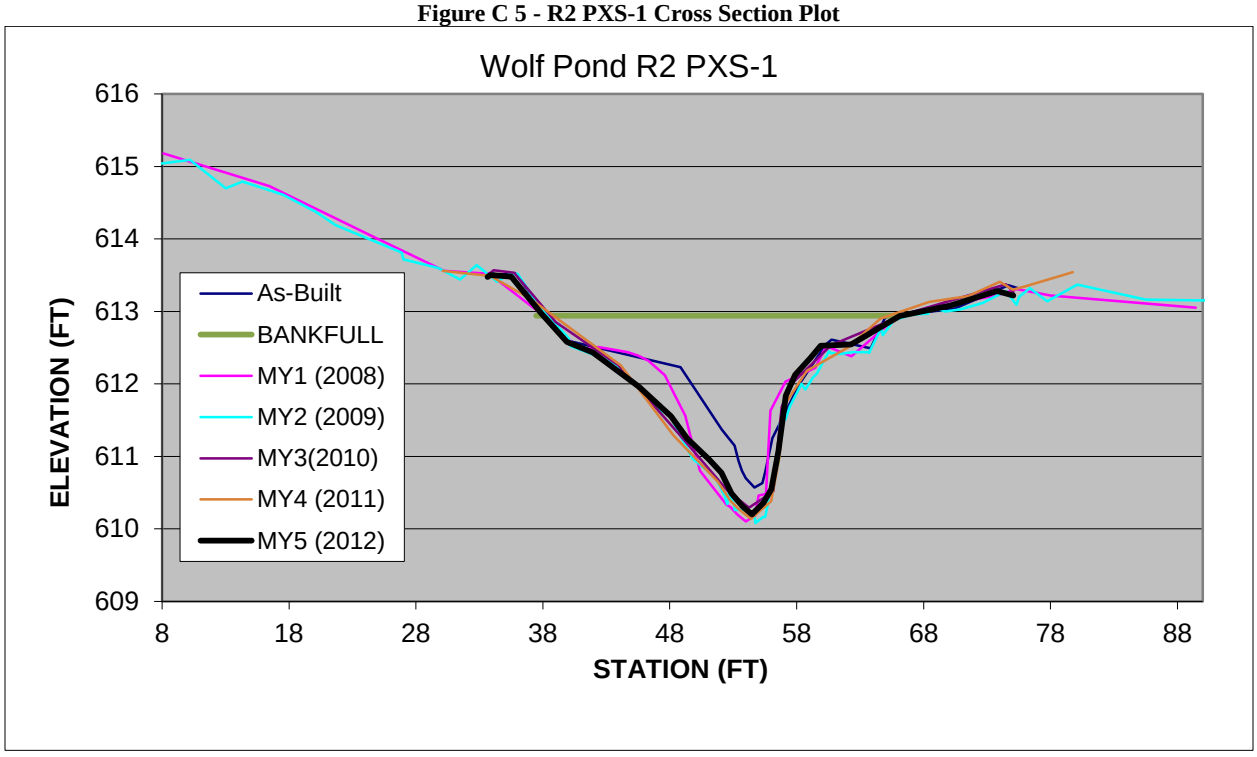


**Table C 4 - R2 PXS-1 Dimension Data**

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 34.12 | 613.52 | r2pxs1r | 8.11 | 615.18 | R2PXS1 | 1.06 | 615.74 | XSRP09 | 33.7 | 613.507 | R PIN | 79.76 | 613.544 | (ZXS)ZXS | 75.06 | 613.22 | XSLP |
| 34.53 | 613.5 | r2pxs1 | 16.45 | 614.73 | R2PXS1 | 1.37 | 615.8 | XS | 34.12 | 613.567 | Ground | 75.96 | 613.343 | (ZXS)ZXS | 73.78 | 613.28 | XS |
| 35.81 | 613.53 | r2pxs1tob | 24.31 | 614.06 | R2PXS1 | 4.14 | 614.82 | XSRP09 | 35.74 | 613.534 | Ground | 75.02 | 613.301 | (ZXSLP)ZXSLP | 70.06 | 613.076 | XS |
| 39.83 | 612.6 | r2pxs1 | 30.25 | 613.56 | R2PXS1 | 7.06 | 615.02 | XS | 39.02 | 612.851 | Ground | 74.02 | 613.411 | (ZXS)ZXS | 66.12 | 612.939 | XS |
| 48.84 | 612.23 | r2pxs1b | 33.7 | 613.52 | R2PXS1PR | 10.2 | 615.09 | XSRP09 | 43.95 | 612.255 | Ground | 71.5 | 613.209 | (ZXS)ZXS | 62.29 | 612.543 | XS |
| 52.09 | 611.37 | r2pxs1 | 33.72 | 613.52 | R2PXS1 | 13.01 | 614.7 | XS | 48.6 | 611.333 | Ground | 68.45 | 613.131 | (ZXS)ZXS | 59.89 | 612.527 | XS |
| 53.11 | 611.15 | r2pxs1 | 33.72 | 613.53 | R2PXS1PR | 14.32 | 614.79 | XSRP09 | 52.55 | 610.527 | Ground | 64.6 | 612.903 | (ZXS)ZXS | 59.12 | 612.364 | XS |
| 53.41 | 610.94 | r2pxs1 | 37.48 | 613.02 | R2PXS1 | 17.53 | 614.61 | XS | 54.25 | 610.291 | Ground | 62 | 612.5 | (ZXS)ZXS | 57.87 | 612.123 | XS |
| 53.7 | 610.8 | r2pxs1w | 40.96 | 612.47 | R2PXS1 | 20.12 | 614.37 | XSRP09 | 56.17 | 610.518 | Ground | 58.8 | 612.184 | (ZXS)ZXS | 57.14 | 611.839 | XS |
| 54 | 610.7 | r2pxs1 | 42.38 | 612.51 | R2PXS1 | 21.67 | 614.19 | XS | 56.82 | 611.679 | Ground | 56.93 | 611.684 | (ZXS)ZXS | 56.56 | 611.075 | XS |
| 54.66 | 610.57 | r2pxs1 | 44.69 | 612.44 | R2PXS1 | 26.89 | 613.81 | XS | 57.59 | 611.999 | Ground | 56.64 | 610.987 | (ZXS)ZXS | 56.01 | 610.549 | XS |
| 55.31 | 610.63 | r2pxs1 | 45.53 | 612.39 | R2PXS1 | 27.01 | 613.72 | XSRP09 | 60.73 | 612.537 | Ground | 55.99 | 610.382 | (ZXS)ZXS | 55.37 | 610.358 | XS |
| 55.52 | 610.79 | r2pxs1w | 46.32 | 612.32 | R2PXS1 | 29.77 | 613.6 | XS | 66.72 | 612.973 | Ground | 55.31 | 610.28 | (ZXS)ZXS | 54.47 | 610.2 | XS |
| 56.08 | 611.25 | r2pxs1 | 47.61 | 612.12 | R2PXS1 | 31.48 | 613.44 | XSRP09 | 74.5 | 613.372 | Ground | 54.39 | 610.137 | (ZXS)ZXS | 53.75 | 610.311 | XS |
| 58.22 | 612 | r2pxs1 | 48.23 | 611.9 | R2PXS1 | 32.79 | 613.64 | XS | 75.06 | 613.27 | L PIN | 53.42 | 610.274 | (ZXS)ZXS | 52.85 | 610.49 | XS |
| 60.26 | 612.54 | r2pxs1b | 49.22 | 611.56 | R2PXS1 | 34.13 | 613.45 | | | | | 52.75 | 610.392 | (ZXS)ZXS | 52.07 | 610.772 | XS |
| 60.74 | 612.61 | b/tob | 49.63 | 611.28 | R2PXS1 | 34.4 | 613.41 | XS | | | | 51.76 | 610.656 | (ZXS)ZXS | 51.09 | 610.96 | XS |
| 63.83 | 612.49 | r2pxs1 | 50.38 | 610.8 | R2PXS1 | 35.32 | 613.51 | XSRP09 | | | | 48.28 | 611.296 | (ZXS)ZXS | 49.38 | 611.245 | XS |
| 64.99 | 612.92 | r2pxs1tob | 52.47 | 610.33 | R2PXS1 | 36.01 | 613.52 | XS | | | | 44.16 | 612.251 | (ZXS)ZXS | 48.08 | 611.555 | XS |
| 70.42 | 613.04 | r2pxs1 | 52.79 | 610.3 | R2PXS1 | 37.74 | 613.07 | XS | | | | 37.04 | 613.172 | (ZXS)ZXS | 45.57 | 611.962 | XS |
| 74.69 | 613.36 | r2pxs1 | 53.32 | 610.2 | R2PXS1 | 40.06 | 612.63 | XS | | | | 33.7 | 613.507 | (ZXSRP)ZXSRP | 41.95 | 612.433 | XS |
| 75.43 | 613.32 | r2pxs1l | 53.99 | 610.1 | R2PXS1 | 40.17 | 612.52 | XSRP09 | | | | 33.48 | 613.498 | (ZXS)ZXS | 39.9 | 612.58 | XS |
| | | | 54.71 | 610.18 | R2PXS1 | 42.8 | 612.35 | XS | | | | 30.12 | 613.56 | (ZXS)ZXS | 37.89 | 612.974 | XS |
| | | | 55 | 610.46 | R2PXS1 | 43.85 | 612.24 | XSRP09 | | | | | | | 35.51 | 613.481 | XS |
| | | | 55.57 | 610.48 | R2PXS1WS | 45.12 | 612.02 | XS | | | | | | | 33.87 | 613.501 | XS |
| | | | 55.92 | 611.63 | R2PXS1 | 47.02 | 611.66 | XSRP09 | | | | | | | 33.65 | 613.474 | XSRP |
| | | | 57.11 | 612.03 | R2PXS1 | 48 | 611.57 | XS | | | | | | | | | |
| | | | 59.45 | 612.22 | R2PXS1 | 49.76 | 610.98 | XSRP09 | | | | | | | | | |
| | | | 60.32 | 612.52 | R2PXS1 | 49.99 | 610.94 | XS | | | | | | | | | |
| | | | 62.32 | 612.38 | R2PXS1 | 51.56 | 610.72 | XS | | | | | | | | | |
| | | | 66.01 | 612.94 | R2PXS1 | 52.29 | 610.47 | XSRP09 | | | | | | | | | |
| | | | 70.3 | 613.11 | R2PXS1 | 52.53 | 610.34 | XS | | | | | | | | | |
| | | | 73.72 | 613.22 | R2PXS1 | 52.64 | 610.49 | XS | | | | | | | | | |
| | | | 75.34 | 613.31 | R2PXS1PL | 53.08 | 610.33 | XS | | | | | | | | | |
| | | | 78 | 613.22 | R2PXS1 | 53.11 | 610.26 | XSRP09 | | | | | | | | | |
| | | | 89.45 | 613.05 | R2PXS1 | 54.08 | 610.26 | XS | | | | | | | | | |
| | | | | | | 54.73 | 610.14 | XS | | | | | | | | | |
| | | | | | | 54.75 | 610.08 | XSRP09 | | | | | | | | | |
| | | | | | | 55.32 | 610.16 | XSRP09 | | | | | | | | | |
| | | | | | | 55.53 | 610.17 | XS | | | | | | | | | |
| | | | | | | 55.75 | 610.37 | XS | | | | | | | | | |
| | | | | | | 55.77 | 610.46 | XSRP09 | | | | | | | | | |
| | | | | | | 56.09 | 610.57 | XSW | | | | | | | | | |
| | | | | | | 56.6 | 610.93 | XS | | | | | | | | | |
| | | | | | | 56.66 | 611.45 | XSRP09 | | | | | | | | | |
| | | | | | | 57.12 | 611.51 | XS | | | | | | | | | |
| | | | | | | 57.46 | 611.69 | XS | | | | | | | | | |
| | | | | | | 58.38 | 612 | XS | | | | | | | | | |
| | | | | | | 58.67 | 611.92 | XSRP09 | | | | | | | | | |
| | | | | | | 59.28 | 612.09 | XS | | | | | | | | | |
| | | | | | | 59.58 | 612.14 | XSRP09 | | | | | | | | | |
| | | | | | | 60.54 | 612.45 | XS | | | | | | | | | |
| | | | | | | 60.61 | 612.43 | XSRP09 | | | | | | | | | |
| | | | | | | 61.36 | 612.41 | XS | | | | | | | | | |
| | | | | | | 62.42 | 612.44 | XS | | | | | | | | | |
| | | | | | | 63.73 | 612.44 | XS | | | | | | | | | |
| | | | | | | 63.7 | 612.43 | XSRP09 | | | | | | | | | |
| | | | | | | 64.67 | 612.78 | XSRP09 | | | | | | | | | |
| | | | | | | 64.78 | 612.67 | XS | | | | | | | | | |
| | | | | | | 65.67 | 612.88 | XS | | | | | | | | | |
| | | | | | | 67.14 | 612.96 | XS | | | | | | | | | |
| | | | | | | 68.37 | 612.97 | XSRP09 | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 25.2 | Bankfull Width (ft.) | 28.5 | Bankfull Width (ft.) | 27.9 | Bankfull Width (ft.) | 21.71 | Bankfull Width (ft.) | 20.44 | Bankfull Width (ft.) | 22.39 |
| Bankfull Cross Sectional Area (sq ft) | 21.9 | Bankfull Cross Sectional Area (sq | 27.7 | Bankfull Cross Sectional Area (sq ft) | 32.4 | Bankfull Cross Sectional Area (sq ft) | 29.6 | Bankfull Cross Sectional Area (sq ft) | 30.7 | Bankfull Cross Sectional Area (sq ft) | 29.2 |
| Bankfull Mean Depth (ft.) | 0.87 | Bankfull Mean Depth (ft.) | 0.97 | Bankfull Mean Depth (ft.) | 1.16 | Bankfull Mean Depth (ft.) | 1.36 | Bankfull Mean Depth (ft.) | 1.50 | Bankfull Mean Depth (ft.) | 1.3 |
| Bankfull Max Depth (ft.) | 2.35 | Bankfull Max Depth (ft.) | 2.84 | Bankfull Max Depth (ft.) | 2.86 | Bankfull Max Depth (ft.) | 2.65 | Bankfull Max Depth (ft.) | 2.80 | Bankfull Max Depth (ft.) | 2.38 |
| Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - |
| Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - |
| Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - |
| D50 (mm) | 0.15 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 |
| D84 (mm) | 0.40 | D84 (mm) | 8.00 | D84 (mm) | 13.65 | D84 (mm) | 0.06 | D84 (mm) | 11.30 | D84 (mm) | 25.29 |

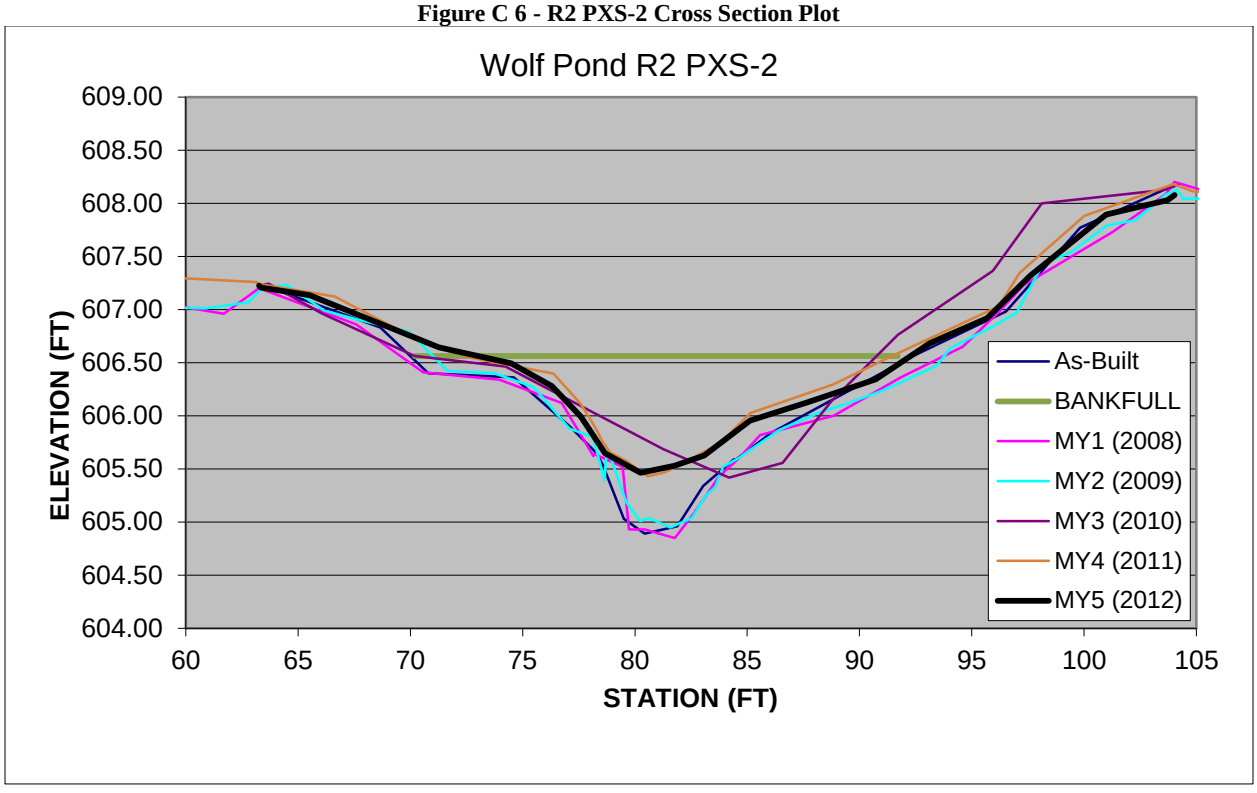
## Wolf Pond R2 PXS-2

**Photo C 6 - R2 PXS-2 Left Pin**

**Photo C 7 - R2 PXS-2 Right Pin**

**Photo C 8 - R2 PXS-2 Downstream**

**Figure C 6 - R2 PXS-2 Cross Section Plot**



## Table C 5 - R2 PXS-2 Dimension Data

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 63.54 | 607.23 | r2pxs2r | 5.09 | 607.75 | R2PXS2 | 44.3 | 607.62 | XS | 63.27 | 607.225 | R PIN | 109.74 | 608.087 | (ZXS)ZXS | 104.03 | 608.077 | XSLP |
| 63.69 | 607.21 | r2pxs2 | 37.18 | 607.68 | R2PXS2 | 47.49 | 607.36 | XS | 63.69 | 607.244 | (205)Ground | 104.87 | 608.112 | (ZXS)ZXS | 103.71 | 608.03 | XS |
| 68.66 | 606.83 | r2pxs2 | 51.18 | 607.33 | R2PXS2 | 50.29 | 607.23 | XS | 66.05 | 606.964 | (205)Ground | 103.98 | 608.181 | (ZXSLP)ZXSLP | 100.98 | 607.895 | XS |
| 70.8 | 606.4 | r2pxs2 | 61.7 | 606.96 | R2PXS2 | 51.84 | 607.34 | XS | 70.19 | 606.564 | (205)Ground | 100.01 | 607.881 | (ZXS)ZXS | 97.6 | 607.319 | XS |
| 74.6 | 606.36 | r2pxs2b | 63.27 | 607.2 | R2PXS2PR | 54.93 | 607.32 | XS | 74.23 | 606.464 | (205)Ground | 97.14 | 607.345 | (ZXS)ZXS | 95.68 | 606.917 | XS |
| 77.1 | 605.9 | r2pxs2 | 67.58 | 606.86 | R2PXS2 | 57.5 | 607.03 | XS | 81.26 | 605.687 | (205)Ground | 96.19 | 607.028 | (ZXS)ZXS | 93.13 | 606.682 | XS |
| 78.28 | 605.65 | r2pxs2w | 70.58 | 606.41 | R2PXS2 | 60.92 | 607.01 | XS | 84.19 | 605.418 | (205)Ground | 91.26 | 606.545 | (ZXS)ZXS | 90.72 | 606.344 | XS |
| 78.57 | 605.54 | r2pxs2 | 73.97 | 606.34 | R2PXS2 | 62.8 | 607.07 | XS | 86.58 | 605.558 | (205)Ground | 88.82 | 606.294 | (ZXS)ZXS | 87.63 | 606.123 | XS |
| 79.51 | 605.03 | r2pxs2 | 76.74 | 606.12 | R2PXS2 | 63.4 | 607.2 | XSRP09 | 88.73 | 606.131 | (205)Ground | 85.15 | 606.027 | (ZXS)ZXS | 85.12 | 605.954 | XS |
| 80.44 | 604.89 | r2pxs2 | 78.15 | 605.62 | R2PXS2 | 64.51 | 607.23 | XS | 91.71 | 606.761 | (205)Ground | 83.77 | 605.739 | (ZXS)ZXS | 83.08 | 605.626 | XS |
| 81.89 | 604.96 | r2pxs2 | 78.18 | 605.64 | R2PXS2WS | 66.15 | 606.99 | XS | 95.93 | 607.364 | (205)Ground | 82.85 | 605.634 | (ZXS)ZXS | 81.76 | 605.531 | XS |
| 83.04 | 605.34 | r2pxs2 | 79.45 | 605.52 | R2PXS2 | 67.75 | 606.9 | XS | 98.11 | 607.998 | (205)Ground | 82.22 | 605.556 | (ZXS)ZXS | 80.25 | 605.463 | XS |
| 84.41 | 605.59 | r2pxs2w | 79.74 | 604.93 | R2PXS2 | 69.94 | 606.79 | XS | 103.56 | 608.126 | (205)Ground | 81.34 | 605.47 | (ZXS)ZXS | 78.67 | 605.646 | XS |
| 84.45 | 605.58 | r2pxs2 | 80.43 | 604.93 | R2PXS2 | 71.65 | 606.42 | XS | 104.02 | 608.16 | L PIN | 80.56 | 605.431 | (ZXS)ZXS | 77.6 | 605.99 | XS |
| 86.07 | 605.84 | r2pxs2 | 81.78 | 604.85 | R2PXS2 | 73.73 | 606.4 | XS | | | | 79.57 | 605.58 | (ZXS)ZXS | 76.3 | 606.281 | XS |
| 92.36 | 606.56 | r2pxs2b | 82.66 | 605.09 | R2PXS2 | 75.49 | 606.27 | XS | | | | 78.9 | 605.652 | (ZXS)ZXS | 74.49 | 606.492 | XS |
| 96.52 | 606.98 | r2pxs2 | 83.75 | 605.43 | R2PXS2 | 77.09 | 605.88 | XS | | | | 78.55 | 605.759 | (ZXS)ZXS | 71.27 | 606.645 | XS |
| 99.83 | 607.77 | r2pxs2tob | 84.63 | 605.6 | R2PXS2 | 78.12 | 605.8 | XS | | | | 78.26 | 605.883 | (ZXS)ZXS | 65.52 | 607.134 | XS |
| 103.7 | 608.14 | r2pxs2 | 85.58 | 605.82 | R2PXS2 | 78.65 | 605.39 | XS | | | | 77.77 | 606.051 | (ZXS)ZXS | 63.33 | 607.208 | XS |
| 104.21 | 608.18 | r2pxs2l | 88.84 | 606 | R2PXS2 | 78.7 | 605.57 | XS | | | | 77.55 | 606.12 | (ZXS)ZXS | 63.27 | 607.225 | XSRP |
| | | | 91.84 | 606.36 | R2PXS2 | 78.79 | 605.68 | XSW | | | | 76.38 | 606.398 | (ZXS)ZXS | | | |
| | | | 94.6 | 606.65 | R2PXS2 | 79.61 | 605.19 | XS | | | | 72.74 | 606.544 | (ZXS)ZXS | | | |
| | | | 96.17 | 606.97 | R2PXS2 | 80.23 | 605.01 | XS | | | | 70.64 | 606.681 | (ZXS)ZXS | | | |
| | | | 97.32 | 607.23 | R2PXS2 | 80.62 | 605.04 | XS | | | | 66.63 | 607.124 | (ZXS)ZXS | | | |
| | | | 101.28 | 607.73 | R2PXS2 | 81.58 | 604.95 | XS | | | | 63.27 | 607.24 | (ZXSRP)ZXSRP | | | |
| | | | 103.66 | 608.09 | R2PXS2 | 82.34 | 605.02 | XS | | | | 63.15 | 607.259 | (ZXS)ZXS | | | |
| | | | 104.02 | 608.2 | R2PXS2PL | 82.55 | 605.04 | XS | | | | 56.62 | 607.33 | (ZXS)ZXS | | | |
| | | | 109.45 | 607.86 | R2PXS2 | 83.16 | 605.25 | XS | | | | | | | | | |
| | | | 117.52 | 608.27 | R2PXS2 | 83.58 | 605.33 | XS | | | | | | | | | |
| | | | 128.17 | 608.24 | R2PXS2 | 83.93 | 605.52 | XS | | | | | | | | | |
| | | | | | | 84.69 | 605.61 | XS | | | | | | | | | |
| | | | | | | 85.14 | 605.68 | XS | | | | | | | | | |
| | | | | | | 86.46 | 605.87 | XS | | | | | | | | | |
| | | | | | | 88.28 | 606.04 | XS | | | | | | | | | |
| | | | | | | 89.39 | 606.11 | XS | | | | | | | | | |
| | | | | | | 91.07 | 606.24 | XS | | | | | | | | | |
| | | | | | | 93.42 | 606.47 | XS | | | | | | | | | |
| | | | | | | 94.07 | 606.64 | XS | | | | | | | | | |
| | | | | | | 95.85 | 606.83 | XS | | | | | | | | | |
| | | | | | | 96.99 | 606.97 | XS | | | | | | | | | |
| | | | | | | 98.18 | 607.43 | XS | | | | | | | | | |
| | | | | | | 99.43 | 607.54 | XS | | | | | | | | | |
| | | | | | | 101.02 | 607.79 | XS | | | | | | | | | |
| | | | | | | 102.28 | 607.84 | XS | | | | | | | | | |
| | | | | | | 103.63 | 608.08 | XS | | | | | | | | | |
| | | | | | | 104.13 | 608.13 | XSLP09 | | | | | | | | | |
| | | | | | | 104.41 | 608.04 | XS | | | | | | | | | |
| | | | | | | 106.56 | 608.05 | XS | | | | | | | | | |
| | | | | | | 108.16 | 608.08 | XS | | | | | | | | | |
| | | | | | | 109.15 | 607.8 | XS | | | | | | | | | |
| | | | | | | 110.23 | 607.98 | XS | | | | | | | | | |
| | | | | | | 111.16 | 607.85 | XS | | | | | | | | | |
| | | | | | | 112.73 | 608.13 | XS | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 21.6 | Bankfull Width (ft.) | 21.3 | Bankfull Width (ft.) | 17.3 | Bankfull Width (ft.) | 18.54 | Bankfull Width (ft.) | 11.27 | Bankfull Width (ft.) | 14.42 |
| Bankfull Cross Sectional Area (sq ft) | 11.4 | Bankfull Cross Sectional Area (sq | 12.2 | Bankfull Cross Sectional Area (sq ft) | 11.8 | Bankfull Cross Sectional Area (sq ft) | 8.3 | Bankfull Cross Sectional Area (sq ft) | 6.7 | Bankfull Cross Sectional Area (sq ft) | 7.6 |
| Bankfull Mean Depth (ft.) | 0.53 | Bankfull Mean Depth (ft.) | 0.57 | Bankfull Mean Depth (ft.) | 0.68 | Bankfull Mean Depth (ft.) | 0.45 | Bankfull Mean Depth (ft.) | 0.59 | Bankfull Mean Depth (ft.) | 0.53 |
| Bankfull Max Depth (ft.) | 1.5 | Bankfull Max Depth (ft.) | 1.6 | Bankfull Max Depth (ft.) | 1.46 | Bankfull Max Depth (ft.) | 0.99 | Bankfull Max Depth (ft.) | 0.98 | Bankfull Max Depth (ft.) | 0.82 |
| Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - |
| Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - |
| Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - |
| D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 | D50 (mm) | 0.06 |
| D84 (mm) | 4.85 | D84 (mm) | 0.06 | D84 (mm) | 0.06 | D84 (mm) | 0.06 | D84 (mm) | 0.06 | D84 (mm) | 0.06 |

## Wolf Pond R3 RXS-1

**Photo C 19 - R3 RXS-1 Left Pin**

**Photo C 9 - R3 RXS-1 Right Pin**

**Photo C 10 - R3 RXS-1 Downstream**

**Figure C 7 - R3 RXS-1 Cross Section Plot**

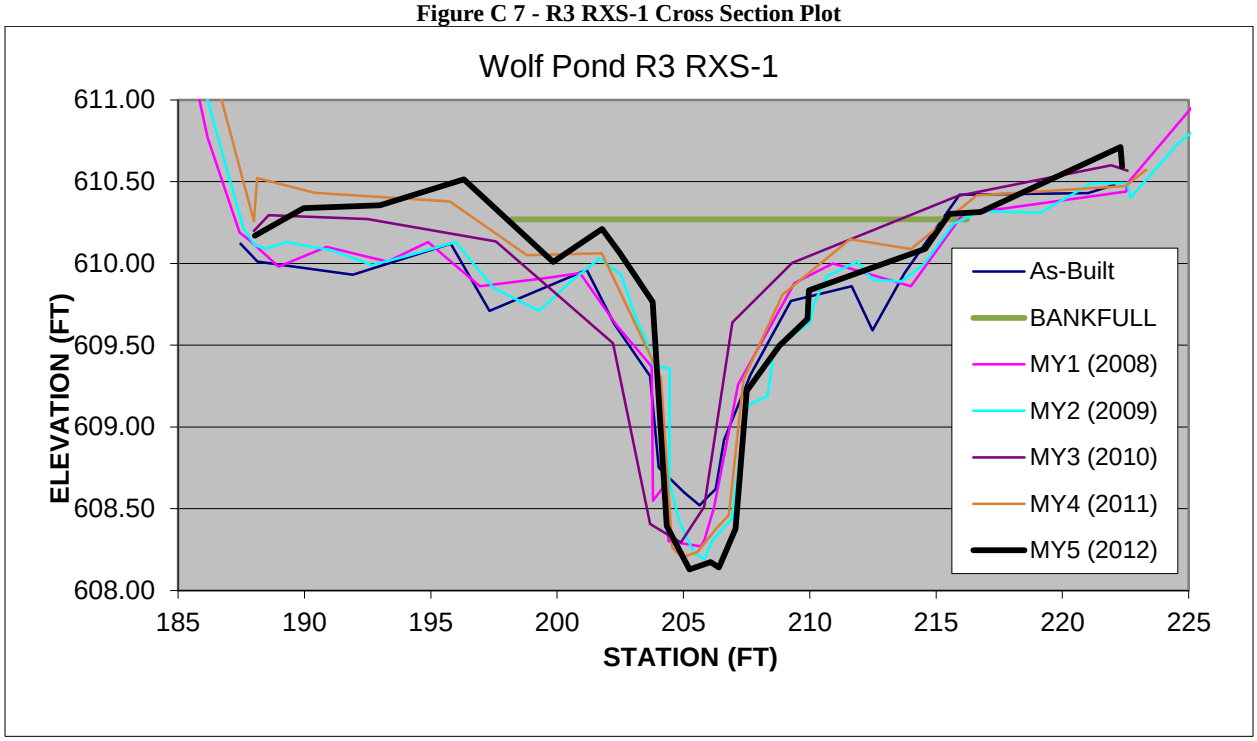


**Table C 6 - R3 RXS-1 Dimension Data**

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 187.47 | 610.12 | r3rxs1r | 65.43 | 612.57 | R3PXS1 | 177.92 | 611.48 | XS | 188 | 610.198 | R PIN | 223.31 | 610.572 | (ZXS)ZXS | 222.37 | 610.592 | XSLP |
| 188.14 | 610.01 | r3rxs1 | 101.5 | 611.9 | R3PXS1 | 179.17 | 611.49 | XS | 188.59 | 610.294 | Ground | 222.49 | 610.473 | (ZXSLP)ZXSLP | 222.3 | 610.711 | XS |
| 191.92 | 609.93 | r3rxs1 | 112.14 | 611.87 | R3PXS1 | 181.6 | 611.53 | XS | 192.49 | 610.271 | Ground | 216.62 | 610.416 | (ZXS)ZXS | 216.77 | 610.314 | XS |
| 195.79 | 610.12 | r3rxs1tob | 128.94 | 611.43 | R3PXS1 | 183.11 | 611.71 | XS | 197.58 | 610.135 | Ground | 214.01 | 610.087 | (ZXS)ZXS | 215.53 | 610.303 | XS |
| 197.32 | 609.71 | r3rxs1 | 140.25 | 611.49 | R3PXS1 | 184.01 | 611.58 | XS | 202.21 | 609.512 | Ground | 211.6 | 610.147 | (ZXS)ZXS | 214.57 | 610.089 | XS |
| 201.18 | 609.96 | r3rxs1 | 156.99 | 611.21 | R3PXS1 | 185.74 | 611.24 | XS | 203.68 | 608.406 | Ground | 208.92 | 609.809 | (ZXS)ZXS | 209.97 | 609.834 | XS |
| 202.27 | 609.63 | r3rxs1 | 161.71 | 611.04 | R3PXS1 | 186.77 | 610.66 | XS | 204.9 | 608.293 | Ground | 207.38 | 609.293 | (ZXS)ZXS | 209.91 | 609.661 | XS |
| 203.68 | 609.31 | r3rxs1 | 169.33 | 611.1 | R3PXS1 | 187.6 | 610.21 | XS | 205.82 | 608.512 | Ground | 206.8 | 608.461 | (ZXS)ZXS | 209.8 | 609.496 | XS |
| 204.03 | 608.75 | r3rxs1 | 173.28 | 611.47 | R3PXS1 | 188.04 | 610.11 | XSRP09 | 206.94 | 609.64 | Ground | 206.31 | 608.38 | (ZXS)ZXS | 207.51 | 609.22 | XS |
| 205.03 | 608.6 | r3rxs1w | 178.57 | 611.24 | R3PXS1 | 188.47 | 610.09 | XS | 209.31 | 610.004 | Ground | 205.54 | 608.234 | (ZXS)ZXS | 207.07 | 608.378 | XS |
| 205.64 | 608.52 | r3rxs1 | 181.37 | 611.5 | R3PXS1 | 189.28 | 610.13 | XS | 215.85 | 610.412 | Ground | 204.94 | 608.204 | (ZXS)ZXS | 206.4 | 608.14 | XS |
| 205.95 | 608.57 | r3rxs1 | 183.75 | 611.54 | R3PXS1 | 191.09 | 610.08 | XS | 221.94 | 610.6 | Ground | 204.56 | 608.264 | (ZXS)ZXS | 206.07 | 608.173 | XS |
| 206.28 | 608.62 | r3rxs1w | 185.5 | 611.25 | R3PXS1 | 192.67 | 609.99 | XS | 222.58 | 610.567 | L PIN | 204.11 | 609.298 | (ZXS)ZXS | 205.24 | 608.128 | XS |
| 206.61 | 608.92 | r3rxs1 | 186.16 | 610.77 | R3PXS1 | 194.17 | 610.05 | XS | | | | 201.77 | 610.061 | (ZXS)ZXS | 204.34 | 608.394 | XS |
| 207.66 | 609.32 | r3rxs1 | 187.43 | 610.19 | R3PXS1 | 195.98 | 610.13 | XS | | | | 198.8 | 610.051 | (ZXS)ZXS | 203.78 | 609.764 | XS |
| 209.25 | 609.77 | r3rxs1 | 187.84 | 610.14 | R3RXS1PR | 197.47 | 609.85 | XS | | | | 195.75 | 610.378 | (ZXS)ZXS | 202.52 | 610.056 | XS |
| 211.66 | 609.86 | r3rxs1 | 188.98 | 609.98 | R3PXS1 | 199.29 | 609.71 | XS | | | | 190.4 | 610.431 | (ZXS)ZXS | 201.78 | 610.211 | XS |
| 212.48 | 609.59 | r3rxs1 | 190.88 | 610.1 | R3PXS1 | 200.48 | 609.88 | XS | | | | 188.13 | 610.521 | (ZXS)ZXS | 199.84 | 610.009 | XS |
| 213.75 | 609.94 | r3rxs1 | 193.28 | 610.01 | R3PXS1 | 201.68 | 610.03 | XS | | | | 188 | 610.257 | (ZXSRP)ZXSRP | 196.31 | 610.514 | XS |
| 215.93 | 610.42 | r3rxs1tob | 194.89 | 610.13 | R3PXS1 | 202.53 | 609.93 | XS | | | | 186.21 | 611.293 | (ZXS)ZXS | 192.99 | 610.355 | XS |
| 221.02 | 610.43 | r3rxs1 | 196.94 | 609.86 | R3PXS1 | 203.14 | 609.66 | XS | | | | 183.72 | 611.654 | (ZXS)ZXS | 189.96 | 610.338 | XS |
| 222.06 | 610.48 | r3rxs1l | 199.5 | 609.91 | R3PXS1 | 203.52 | 609.53 | XS | | | | | | | 188.04 | 610.17 | XSRP |
| | | | 200.91 | 609.94 | R3PXS1 | 203.84 | 609.37 | XS | | | | | | | | | |
| | | | 202.37 | 609.62 | R3PXS1 | 204.45 | 609.36 | XS | | | | | | | | | |
| | | | 203.74 | 609.37 | R3PXS1 | 204.44 | 608.66 | XS | | | | | | | | | |
| | | | 203.8 | 608.55 | R3RXS1WS | 204.85 | 608.42 | XS | | | | | | | | | |
| | | | 204.19 | 608.63 | R3PXS1 | 205.38 | 608.24 | XS | | | | | | | | | |
| | | | 204.42 | 608.3 | R3PXS1 | 205.81 | 608.19 | XS | | | | | | | | | |
| | | | 205.7 | 608.27 | R3PXS1 | 206.17 | 608.31 | XS | | | | | | | | | |
| | | | 205.84 | 608.31 | R3PXS1 | 206.57 | 608.38 | XS | | | | | | | | | |
| | | | 206.22 | 608.51 | R3PXS1 | 206.93 | 608.44 | XS | | | | | | | | | |
| | | | 207.17 | 609.26 | R3PXS1 | 207.13 | 608.69 | XS | | | | | | | | | |
| | | | 209.39 | 609.88 | R3PXS1 | 207.55 | 609.13 | XS | | | | | | | | | |
| | | | 210.92 | 610 | R3PXS1 | 208.33 | 609.19 | XS | | | | | | | | | |
| | | | 214.01 | 609.86 | R3PXS1 | 208.6 | 609.48 | XS | | | | | | | | | |
| | | | 216.06 | 610.3 | R3PXS1 | 210.02 | 609.64 | XS | | | | | | | | | |
| | | | 222.53 | 610.44 | R3PXS1 | 210.15 | 609.75 | XS | | | | | | | | | |
| | | | 222.58 | 610.49 | R3RXS1PL | 210.68 | 609.92 | XS | | | | | | | | | |
| | | | 225.54 | 611.03 | R3PXS1 | 211.88 | 610.01 | XS | | | | | | | | | |
| | | | 247.02 | 611.86 | R3PXS1 | 212.49 | 609.9 | XS | | | | | | | | | |
| | | | 259.18 | 612.28 | R3PXS1 | 213.63 | 609.89 | XS | | | | | | | | | |
| | | | | | | 214.48 | 609.99 | XS | | | | | | | | | |
| | | | | | | 215.68 | 610.24 | XS | | | | | | | | | |
| | | | | | | 216.75 | 610.32 | XS | | | | | | | | | |
| | | | | | | 219.13 | 610.31 | XS | | | | | | | | | |
| | | | | | | 221.16 | 610.49 | XS | | | | | | | | | |
| | | | | | | 222.58 | 610.49 | XSLP09 | | | | | | | | | |
| | | | | | | 222.69 | 610.4 | XS | | | | | | | | | |
| | | | | | | 224.56 | 610.73 | XS | | | | | | | | | |
| | | | | | | 226.06 | 610.92 | XS | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 20.1 | Bankfull Width (ft.) | 21.2 | Bankfull Width (ft.) | 25.2 | Bankfull Width (ft.) | 20.4 | Bankfull Width (ft.) | 12.24 | Bankfull Width (ft.) | 12.79 |
| Bankfull Cross Sectional Area (sq ft) | 10.4 | Bankfull Cross Sectional Area (sq | 10.3 | Bankfull Cross Sectional Area (sq ft) | 9.7 | Bankfull Cross Sectional Area (sq ft) | 10.5 | Bankfull Cross Sectional Area (sq ft) | 10.4 | Bankfull Cross Sectional Area (sq ft) | 11.3 |
| Bankfull Mean Depth (ft.) | 0.52 | Bankfull Mean Depth (ft.) | 0.49 | Bankfull Mean Depth (ft.) | 0.39 | Bankfull Mean Depth (ft.) | 0.5 | Bankfull Mean Depth (ft.) | 0.85 | Bankfull Mean Depth (ft.) | 0.88 |
| Bankfull Max Depth (ft.) | 1.6 | Bankfull Max Depth (ft.) | 1.86 | Bankfull Max Depth (ft.) | 1.94 | Bankfull Max Depth (ft.) | 1.8 | Bankfull Max Depth (ft.) | 2.07 | Bankfull Max Depth (ft.) | 2.14 |
| Flood Prone Width (ft) | 121 | Flood Prone Width (ft) | 121 | Flood Prone Width (ft) | 121 | Flood Prone Width (ft) | 121 | Flood Prone Width (ft) | 121 | Flood Prone Width (ft) | 121 |
| Entrenchment Ratio (ft/ft) | 6.01 | Entrenchment Ratio (ft/ft) | 5.72 | Entrenchment Ratio (ft/ft) | 4.80 | Entrenchment Ratio (ft/ft) | 5.9 | Entrenchment Ratio (ft/ft) | 9.89 | Entrenchment Ratio (ft/ft) | 9.46 |
| Width/Depth Ratio (ft/ft) | 39.10 | Width/Depth Ratio (ft/ft) | 43.35 | Width/Depth Ratio (ft/ft) | 65.17 | Width/Depth Ratio (ft/ft) | 39.8 | Width/Depth Ratio (ft/ft) | 14.4 | Width/Depth Ratio (ft/ft) | 14.5 |
| D50 (mm) | 13.47 | D50 (mm) | 6.47 | D50 (mm) | 0.06 | D50 (mm) | 2.50 | D50 (mm) | 4.85 | D50 (mm) | 2.57 |
| D84 (mm) | 22.6 | D84 (mm) | 20.95 | D84 (mm) | 5.70 | D84 (mm) | 12.87 | D84 (mm) | 12.08 | D84 (mm) | 6.95 |

## Wolf Pond R3 PXS-1

**Photo C 11 - R3 PXS-1 Left Pin**

**Photo C 12 - R3 PXS-1 Right Pin**

**Photo C 13 - R3 PXS-1 Downstream**

**Figure C 8 - R3 PXS-1 Cross Section Plot**

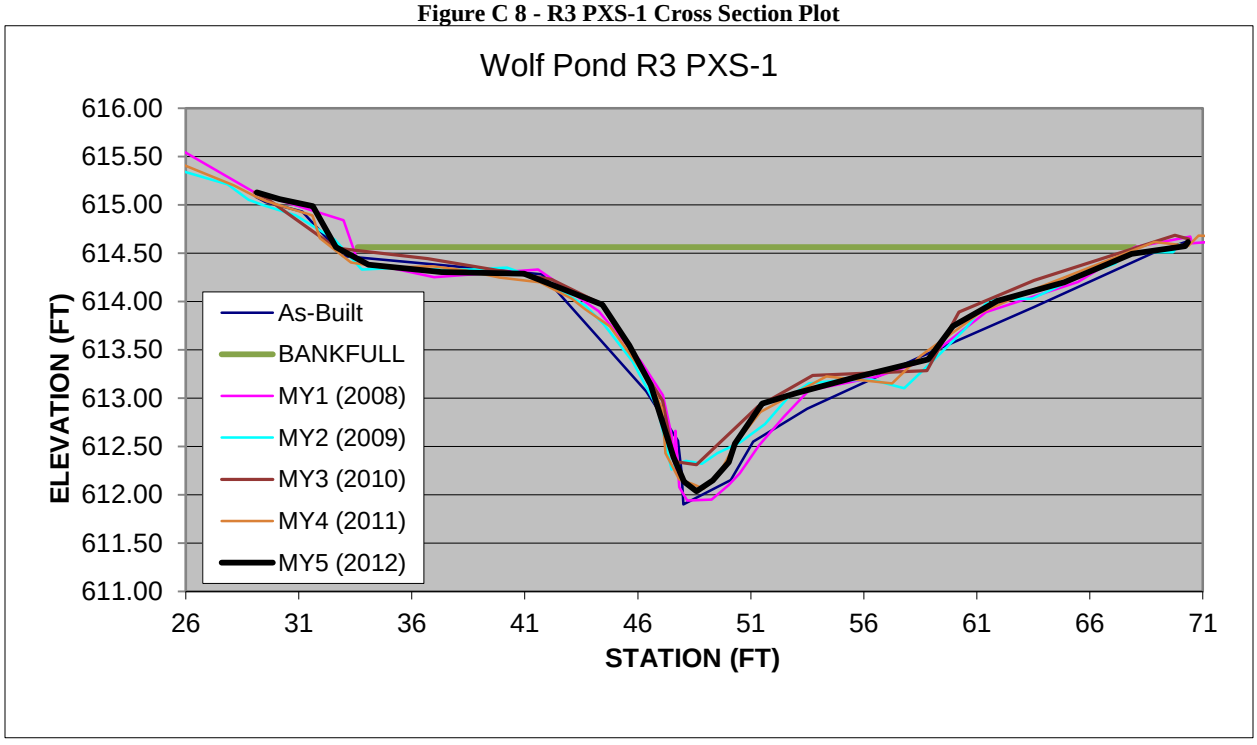


**Table C 7 - R3 PXS-1 Dimension Data**

| AS-BUILT | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description | Station | Elevation | Description |
| 29.1 | 615.08 | r3pxs1r | 1.04 | 618.09 | R3PXS1 | 18.35 | 616.48 | XS | 29.03 | 615.127 | R PIN | 25.1 | 615.49 | (ZXS)ZXS | 29.15 | 615.127 | XSRP |
| 29.52 | 615.03 | r3pxs1 | 15.85 | 616.47 | R3PXS1 | 19.71 | 616.09 | XS | 29.58 | 615.066 | Ground | 28.12 | 615.202 | (ZXS)ZXS | 30.15 | 615.058 | XS |
| 31.16 | 614.93 | r3pxs1tob | 25.02 | 615.67 | R3PXS1 | 21.78 | 615.82 | XS | 32.66 | 614.551 | Ground | 29.15 | 615.077 | (ZXSLP)ZXSLP | 31.62 | 614.985 | XS |
| 32.96 | 614.47 | r3pxs1 | 29.09 | 615.12 | R3PXS1PR | 23.46 | 615.73 | XS | 36.7 | 614.442 | Ground | 29.59 | 615.036 | (ZXS)ZXS | 32.64 | 614.56 | XS |
| 41.76 | 614.28 | r3pxs1 | 29.26 | 615.11 | R3PXS1PR | 25.97 | 615.34 | XS | 42.18 | 614.226 | Ground | 31.61 | 614.891 | (ZXS)ZXS | 34.08 | 614.38 | XS |
| 46.37 | 613.07 | r3pxs1 | 32.98 | 614.84 | R3PXS1 | 27.86 | 615.21 | XS | 44.37 | 613.977 | Ground | 31.94 | 614.655 | (ZXS)ZXS | 37.31 | 614.303 | XS |
| 47.78 | 612.56 | r3pxs1w | 33.6 | 614.42 | R3PXS1 | 28.77 | 615.05 | XSRP09 | 47.09 | 612.974 | Ground | 33.31 | 614.402 | (ZXS)ZXS | 40.97 | 614.286 | XS |
| 47.93 | 612.24 | r3pxs1 | 36.99 | 614.25 | R3PXS1 | 29.39 | 615 | XS | 47.6 | 612.342 | Ground | 34.77 | 614.35 | (ZXS)ZXS | 44.43 | 613.965 | XS |
| 48.01 | 611.9 | r3pxs1 | 41.59 | 614.33 | R3PXS1 | 30.87 | 614.89 | XS | 48.6 | 612.31 | Ground | 36.93 | 614.362 | (ZXS)ZXS | 45.63 | 613.545 | XS |
| 50.11 | 612.15 | r3pxs1 | 44.26 | 613.9 | R3PXS1 | 32.59 | 614.64 | XS | 51.3 | 612.908 | Ground | 38.37 | 614.321 | (ZXS)ZXS | 46.57 | 613.136 | XS |
| 51.1 | 612.55 | r3pxs1w | 46.14 | 613.38 | R3PXS1 | 33.79 | 614.33 | XS | 53.73 | 613.235 | Ground | 39.87 | 614.246 | (ZXS)ZXS | 47.57 | 612.389 | XS |
| 53.49 | 612.89 | r3pxs1 | 47.11 | 613.03 | R3PXS1 | 35.61 | 614.35 | XS | 58.79 | 613.283 | Ground | 41.68 | 614.197 | (ZXS)ZXS | 48.04 | 612.134 | XS |
| 58.33 | 613.41 | r3pxs1 | 47.5 | 612.6 | R3PXS1 | 36.82 | 614.33 | XS | 60.2 | 613.888 | Ground | 43.08 | 614.029 | (ZXS)ZXS | 48.59 | 612.037 | XS |
| 63.5 | 613.94 | r3pxs1 | 47.65 | 612.26 | R3PXS1 | 38.63 | 614.33 | XS | 63.53 | 614.216 | Ground | 43.67 | 613.918 | (ZXS)ZXS | 49.32 | 612.147 | XS |
| 68.77 | 614.5 | r3pxs1tob | 47.66 | 612.66 | R3PXS1WS | 40.21 | 614.35 | XS | 69.76 | 614.685 | Ground | 44.78 | 613.739 | (ZXS)ZXS | 50.02 | 612.336 | XS |
| 70.31 | 614.62 | r3pxs1l | 47.83 | 612.08 | R3PXS1 | 41.85 | 614.21 | XS | 70.38 | 614.644 | L PIN | 45.9 | 613.369 | (ZXS)ZXS | 50.3 | 612.529 | XS |
| | | | 48.18 | 611.94 | R3PXS1 | 43.65 | 613.96 | XS | | | | 46.63 | 613.121 | (ZXS)ZXS | 51.5 | 612.943 | XS |
| | | | 49.26 | 611.95 | R3PXS1 | 44.51 | 613.76 | XS | | | | 47.07 | 612.892 | (ZXS)ZXS | 52.97 | 613.049 | XS |
| | | | 50.01 | 612.1 | R3PXS1 | 45.76 | 613.38 | XS | | | | 47.22 | 612.431 | (ZXS)ZXS | 55.66 | 613.216 | XS |
| | | | 50.51 | 612.22 | R3PXS1 | 46.87 | 612.9 | XS | | | | 47.83 | 612.158 | (ZXS)ZXS | 58.85 | 613.398 | XS |
| | | | 51.36 | 612.51 | R3PXS1 | 47.49 | 612.26 | XS | | | | 48.41 | 612.11 | (ZXS)ZXS | 59.93 | 613.744 | XS |
| | | | 52.48 | 612.81 | R3PXS1 | 47.65 | 612.31 | XS | | | | 48.91 | 612.061 | (ZXS)ZXS | 61.9 | 614.006 | XS |
| | | | 53.56 | 613.08 | R3PXS1 | 48.13 | 612.35 | XS | | | | 49.7 | 612.259 | (ZXS)ZXS | 64.86 | 614.199 | XS |
| | | | 56.56 | 613.22 | R3PXS1 | 48.83 | 612.32 | XS | | | | 50.29 | 612.523 | (ZXS)ZXS | 66.72 | 614.378 | XS |
| | | | 58.6 | 613.38 | R3PXS1 | 49.52 | 612.43 | XS | | | | 51.43 | 612.857 | (ZXS)ZXS | 67.85 | 614.492 | XS |
| | | | 61.41 | 613.89 | R3PXS1 | 50.51 | 612.54 | XS | | | | 52.61 | 613.004 | (ZXS)ZXS | 70.21 | 614.572 | XS |
| | | | 65.47 | 614.2 | R3PXS1 | 51.62 | 612.73 | XS | | | | 54.34 | 613.224 | (ZXS)ZXS | 70.34 | 614.615 | XSLP |
| | | | 67.99 | 614.56 | R3PXS1 | 52.66 | 613.01 | XS | | | | 55.8 | 613.186 | (ZXS)ZXS | | | |
| | | | 70.44 | 614.67 | R3PXS1PL | 53.56 | 613.15 | XS | | | | 57.25 | 613.152 | (ZXS)ZXS | | | |
| | | | 70.51 | 614.6 | R3PXS1 | 54.85 | 613.18 | XS | | | | 58.51 | 613.437 | (ZXS)ZXS | | | |
| | | | 73.83 | 614.66 | R3PXS1 | 56.32 | 613.19 | XS | | | | 61.12 | 613.88 | (ZXS)ZXS | | | |
| | | | 76.59 | 615.09 | R3PXS1 | 57.78 | 613.1 | XS | | | | 63.63 | 614.136 | (ZXS)ZXS | | | |
| | | | 84.08 | 615.12 | R3PXS1 | 58.94 | 613.36 | XS | | | | 66.52 | 614.399 | (ZXS)ZXS | | | |
| | | | 88.6 | 615.79 | R3PXS1 | 60.5 | 613.72 | XS | | | | 68.86 | 614.613 | (ZXS)ZXS | | | |
| | | | 98.31 | 615.86 | R3PXS1 | 61.53 | 614.02 | XS | | | | 70.35 | 614.576 | (ZXSLP)ZXSRP | | | |
| | | | 105.57 | 615.55 | R3PXS1 | 63.45 | 614.03 | XS | | | | 70.81 | 614.68 | (ZXS)ZXS | | | |
| | | | 115.46 | 615.07 | R3PXS1 | 65.84 | 614.29 | XS | | | | 73.26 | 614.655 | (ZXS)ZXS | | | |
| | | | 127.21 | 615.1 | R3PXS1 | 67.11 | 614.39 | XS | | | | | | | | | |
| | | | | | | 67.64 | 614.51 | XS | | | | | | | | | |
| | | | | | | 69.68 | 614.51 | XS | | | | | | | | | |
| | | | | | | 69.96 | 614.59 | XSLP09 | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bankfull Width (ft.) | 35.8 | Bankfull Width (ft.) | 34.4 | Bankfull Width (ft.) | 37.1 | Bankfull Width (ft.) | 30.87 | Bankfull Width (ft.) | 33.21 | Bankfull Width (ft.) | 35.21 |
| Bankfull Cross Sectional Area (sq ft) | 31.6 | Bankfull Cross Sectional Area (sq | 32.1 | Bankfull Cross Sectional Area (sq ft) | 31.4 | Bankfull Cross Sectional Area (sq ft) | 27.9 | Bankfull Cross Sectional Area (sq ft) | 31.0 | Bankfull Cross Sectional Area (sq ft) | 30.5 |
| Bankfull Mean Depth (ft.) | 0.88 | Bankfull Mean Depth (ft.) | 0.93 | Bankfull Mean Depth (ft.) | 0.85 | Bankfull Mean Depth (ft.) | 0.90 | Bankfull Mean Depth (ft.) | 0.93 | Bankfull Mean Depth (ft.) | 0.87 |
| Bankfull Max Depth (ft.) | 2.6 | Bankfull Max Depth (ft.) | 2.62 | Bankfull Max Depth (ft.) | 2.3 | Bankfull Max Depth (ft.) | 2.25 | Bankfull Max Depth (ft.) | 2.50 | Bankfull Max Depth (ft.) | 2.16 |
| Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - | Flood Prone Width (ft) | - |
| Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - | Entrenchment Ratio (ft/ft) | - |
| Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - | Width/Depth Ratio (ft/ft) | - |
| D50 (mm) | 5.96 | D50 (mm) | 2.63 | D50 (mm) | 0.96 | D50 (mm) | 0.63 | D50 (mm) | 0.48 | D50 (mm) | 0.06 |
| D84 (mm) | 12.71 | D84 (mm) | 5.70 | D84 (mm) | 5.70 | D84 (mm) | 4.00 | D84 (mm) | 7.14 | D84 (mm) | 13.65 |

**Figure C 9 - Reach 1 Longitudinal Profile**

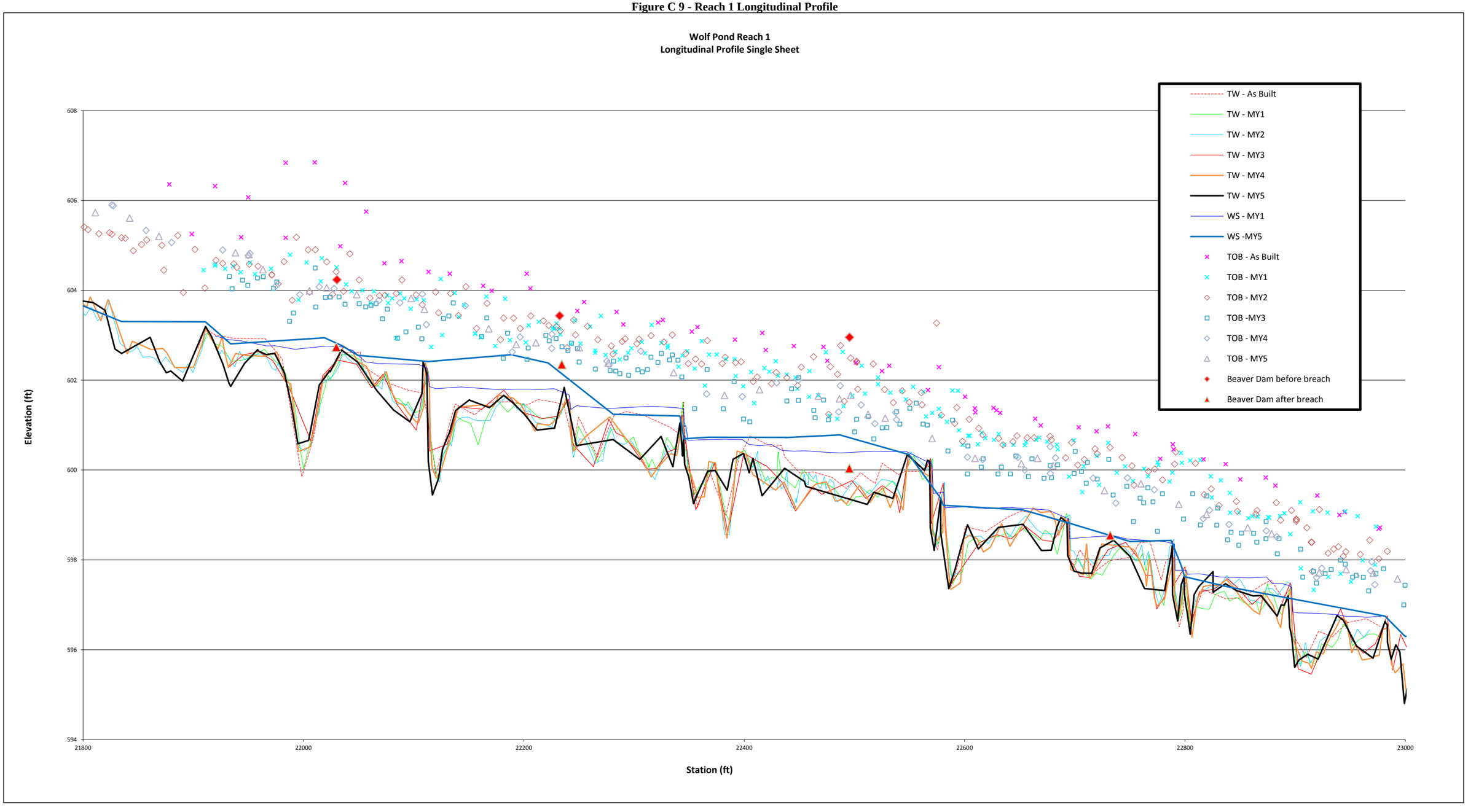


**Figure C 10 - Reach 2 Longitudinal Profile**

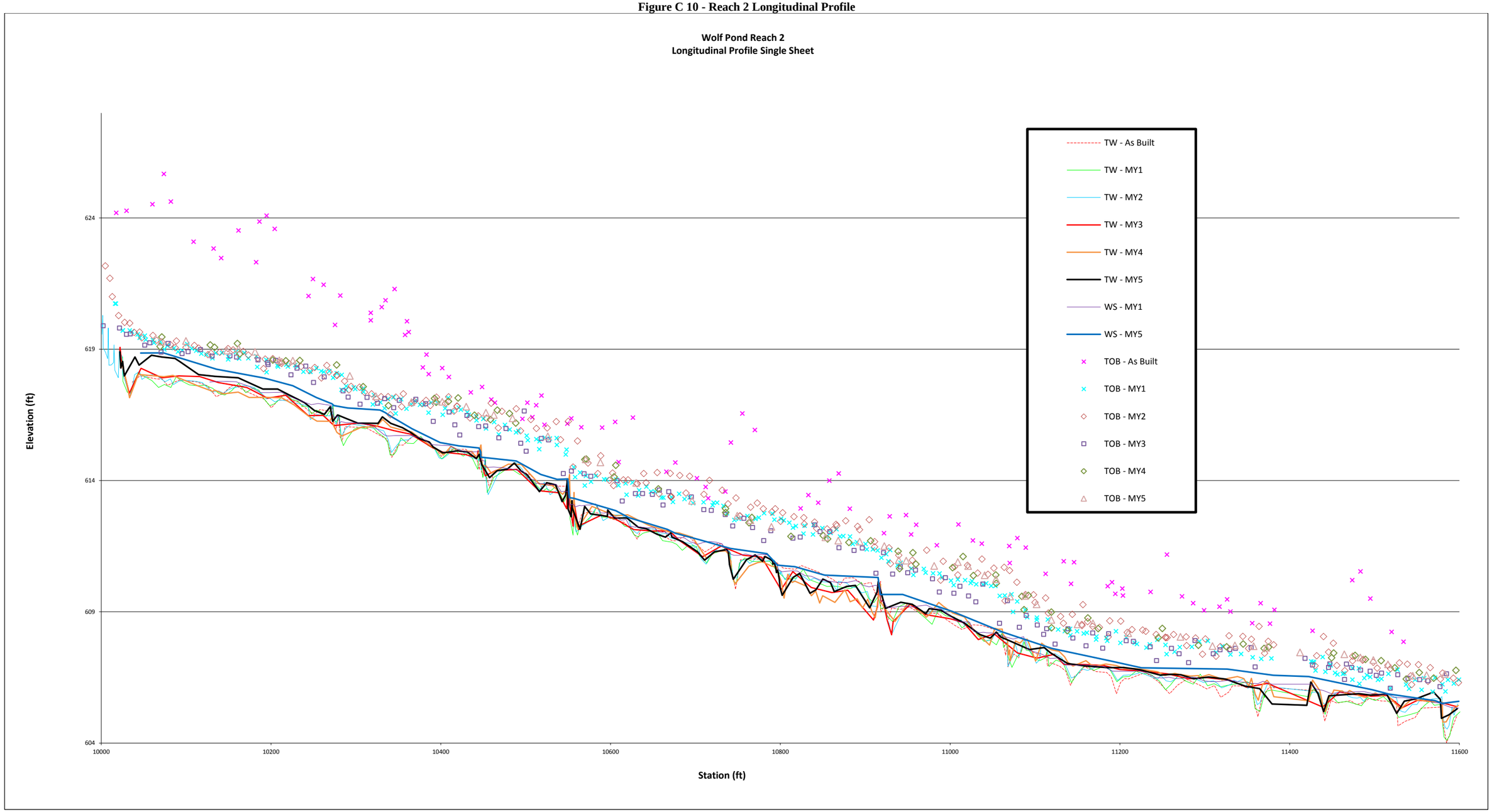


**Figure C 11 - Reach 3 Longitudinal Profile**

**Figure C 12 - R1 RXS-1 Pebble Count**

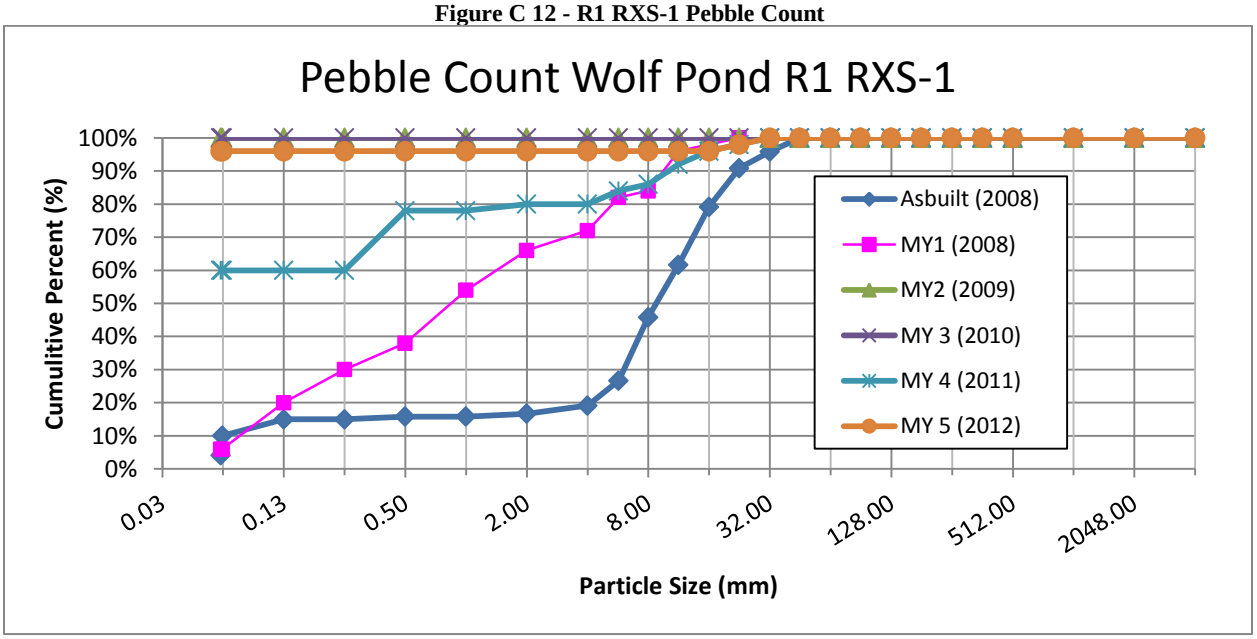



**Figure C 13 - R1 PXS-1 Pebble Count**

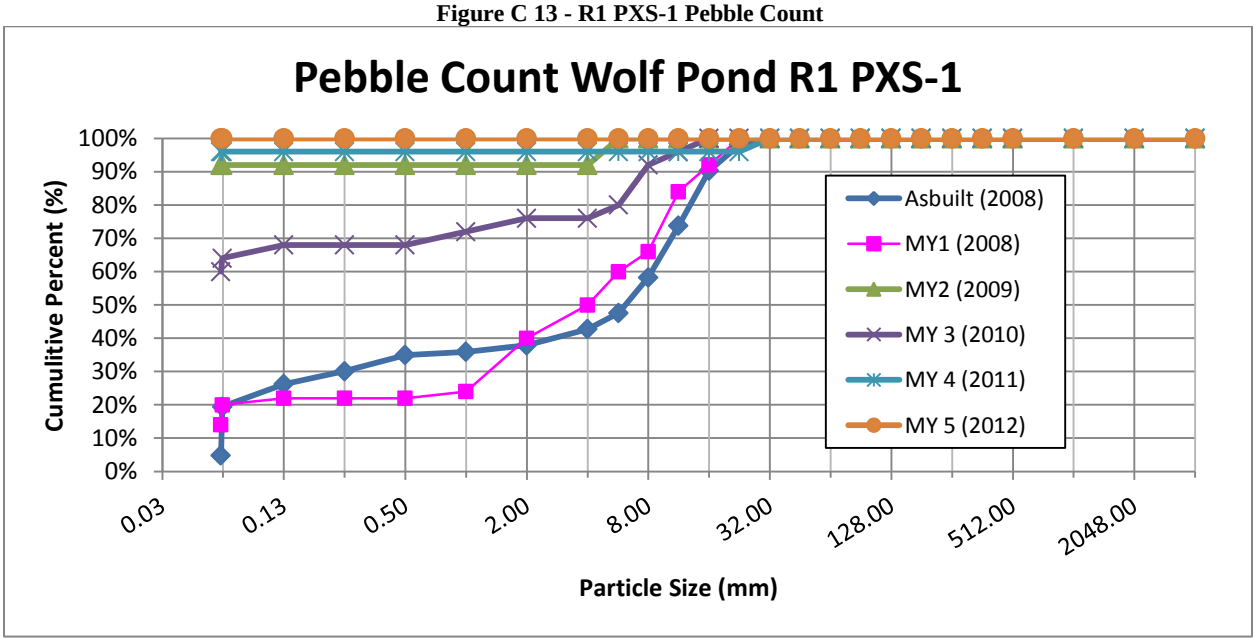


**Figure C 14 - R2 RXS-1 Pebble Count**

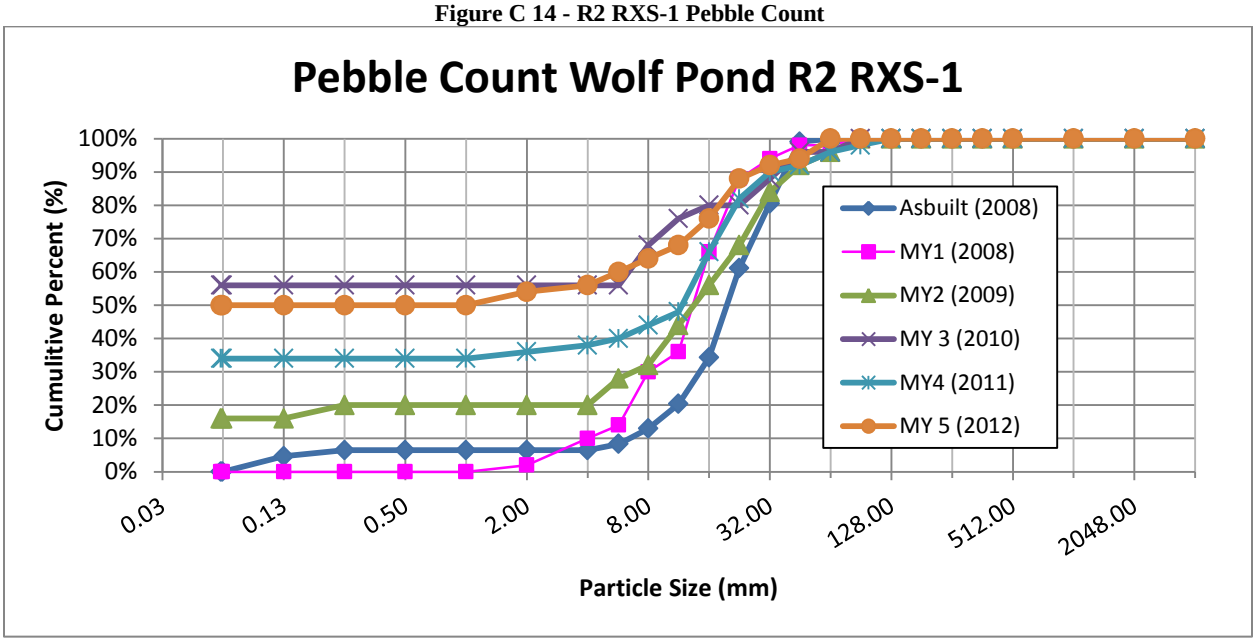



**Figure C 15 - R2 RXS-2 Pebble Count**

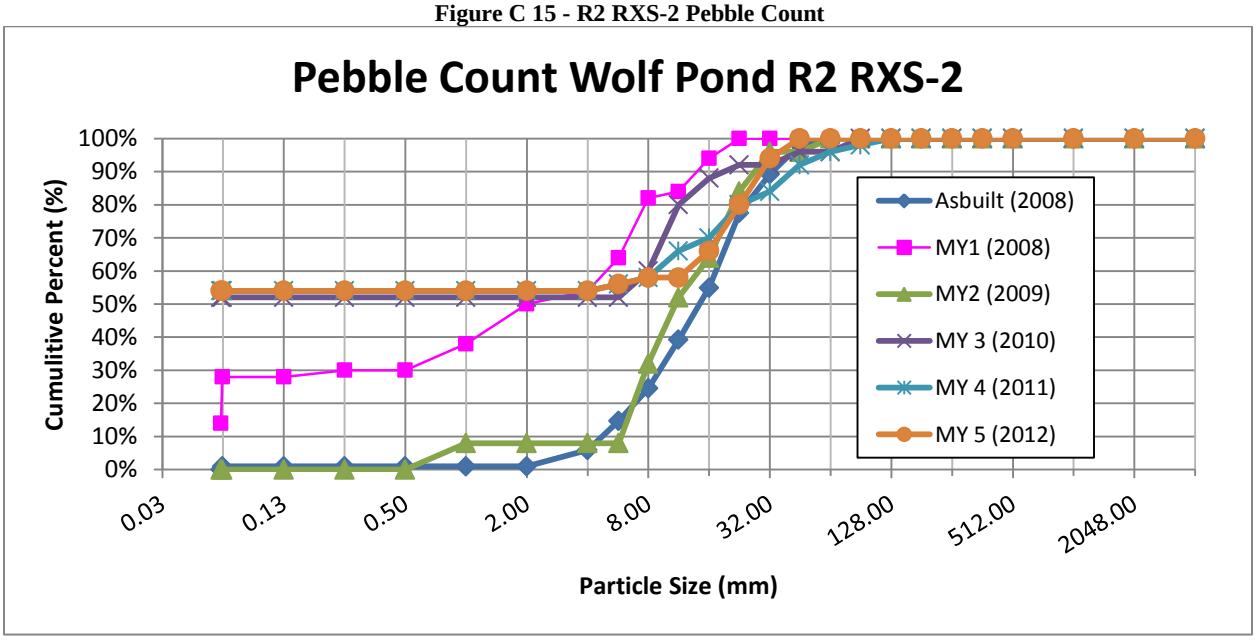


**Figure C 16 - R2 PXS-1 Pebble Count**

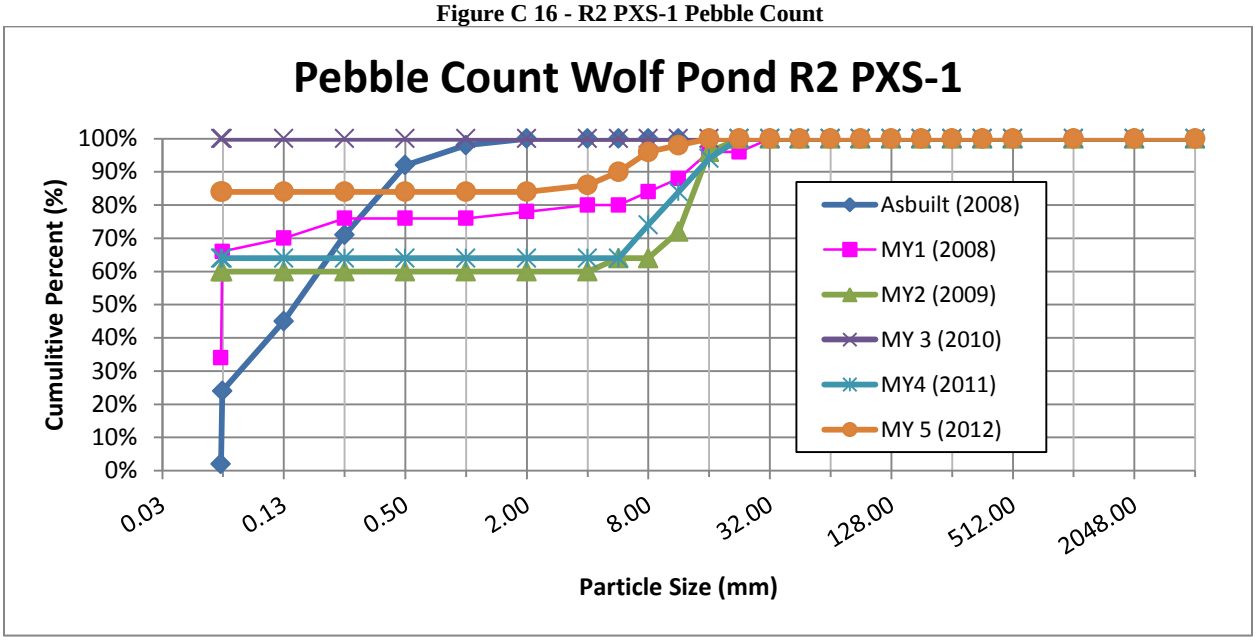



**Figure C 17 - R2 PXS-2 Pebble Count**

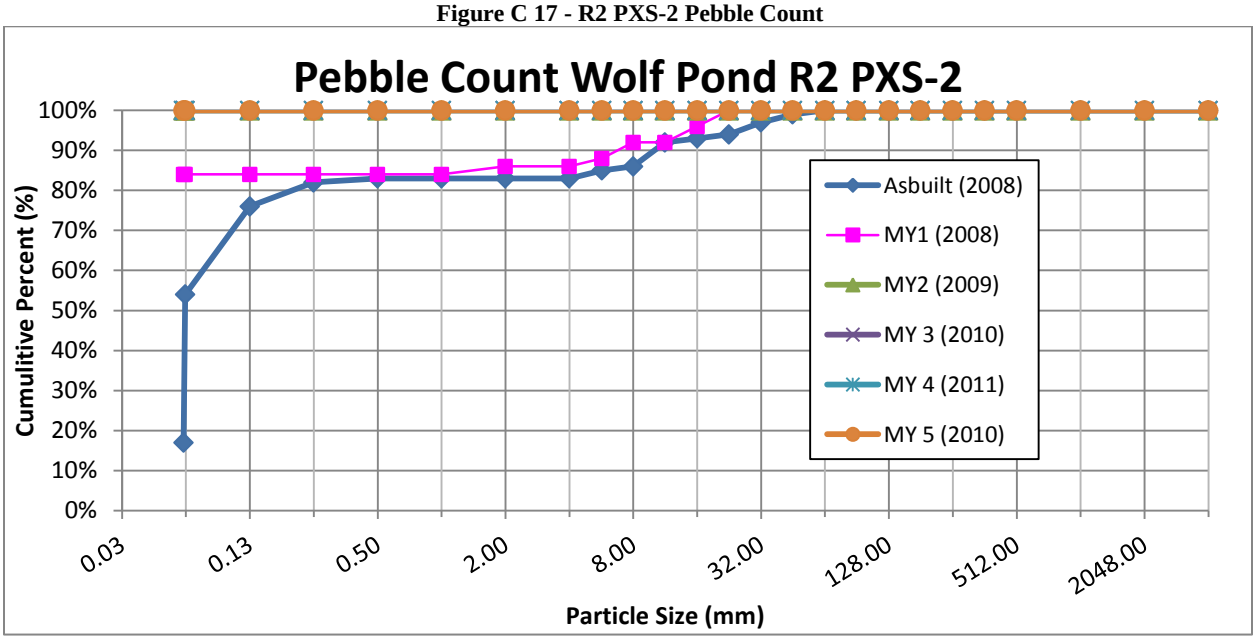


**Figure C 18 - R3 RXS-1 Pebble Count**

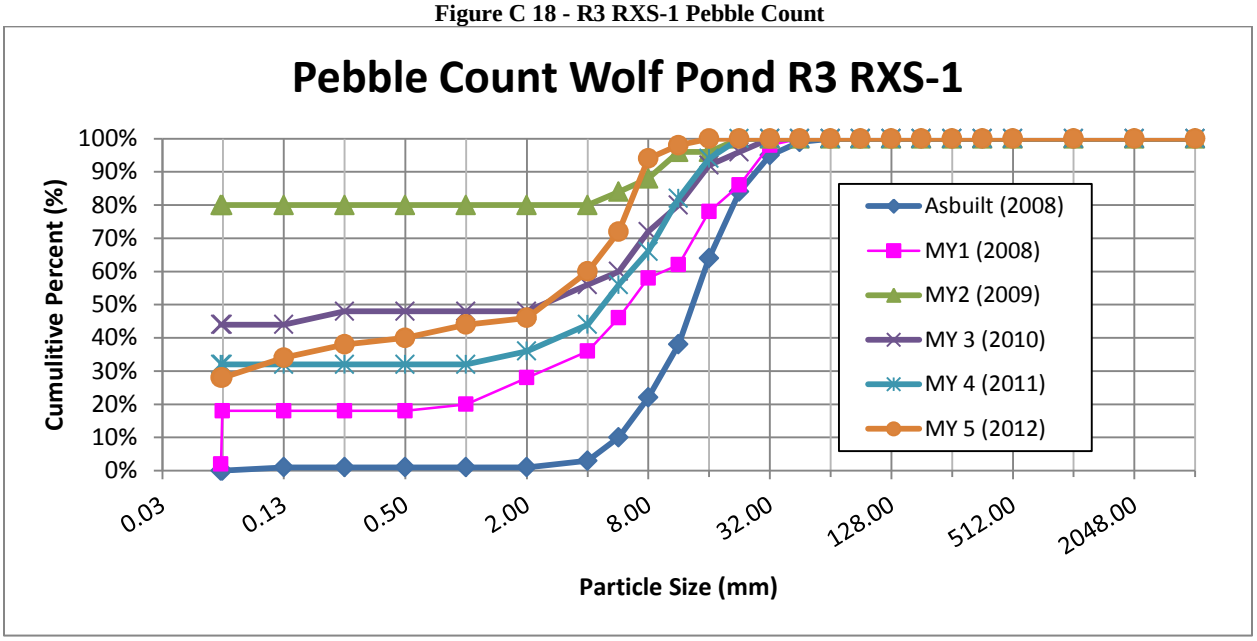
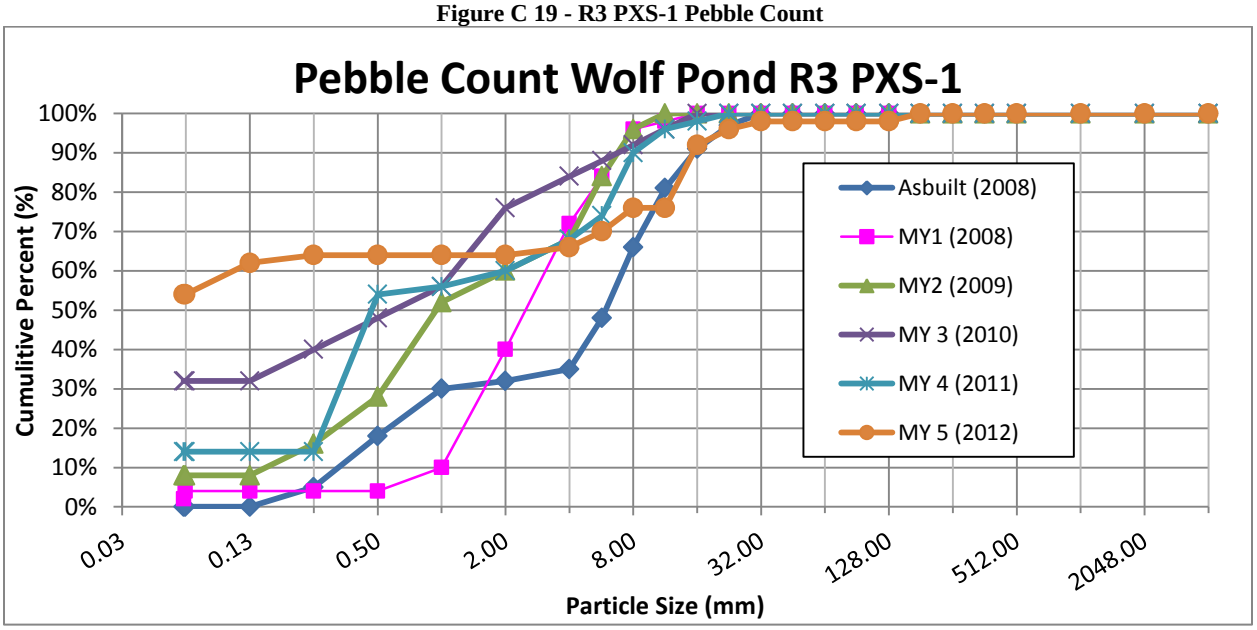



**Figure C 19 - R3 PXS-1 Pebble Count**



# Appendix D – Site Photos

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## Photo Points

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**Photo Point 10**

**Photo Point 11**

**Photo Point 12**

**Photo Point 13**

**Photo Point 14**

**Photo Point 15**

**Photo Point 16**

**Photo Point 17 (Vane flooded by backwater)**

**Photo Point 18**

**Photo Point 19**

**Photo Point 20**

**Photo Point 21**

**Photo Point 22**

**Photo Point 23**

**Photo Point 24**

**Photo Point 25**

**Photo Point 26**

**Photo Point 27 (sill is under beaver dam)**

**Photo Point 28**

**Photo Point 29**

**Photo Point 30**

**Photo Point 31**

**Photo Point 32**

**Photo Point 33**

## Problem Area Photos

**Problem Area MY4 PA-6**

**Problem Area MY4 PA-8**

**Problem Area MY4 PA-7 and MY 5 PA-6**

**Problem Area MY3 PA-4 Healed**

**Problem Area MY4 PA-2**

**Problem Area MY4 PA-4**

**Problem Area MY4 PA-3**

**Problem Area MY4 PA-5**

**Problem Area MY4 PA-1**

**Problem Area MY5 PA-2**

**Problem Area MY5 PA-1**

## Vegetation Photos

**Photo D 1a - Vegetation Plot WP1 Spring 2012**


**Photo D 1b - Vegetation Plot WP1 Fall 2012**

**Photo D2a - Vegetation Plot WP2 Spring 2012**


**Photo D2b - Vegetation Plot WP2 Fall 2012**

**Photo D3a - Vegetation Plot WP3 Spring 2012**


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**Photo D4a - Vegetation Plot WP4 Spring 2012**


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**Photo D5a - Vegetation Plot WP5 Spring 2012**


**Photo D5b - Vegetation Plot WP5 Fall 2012**

# Appendix E – Vegetation Data

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## Table E 1 – MY5 (2012) Plot WP1 Data

| | | | | Spring Data | | | | Fall Data | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | Species | Coordinates | | ddh | Height | DBH | Vigor | ddh | Height | DBH | Vigor | |
| | | X (m) | Y (m) | (mm) | (cm) | (cm) | | (mm) | (cm) | (cm) | | |
| 1 | FP | 0.29 | 9.59 | | 330 | 37 | 4 | | 384 | 55 | 4 | |
| 2 | FP | 0.35 | 2.49 | 16 | 191 | 6 | 4 | | 315 | 17 | 4 | |
| 3 | FP | 0.39 | 0.28 | | 265 | 14 | 4 | | 359 | 22 | 4 | |
| 4 | AT | 0.62 | 4.51 | | | | | | | | | |
| 5 | FP | 1.57 | 6.73 | | 315 | 27 | 4 | | 437 | 45 | 4 | |
| 6 | FP | 2.67 | 9.00 | | 348 | 37 | 4 | | 431 | 68 | 4 | |
| 7 | CO | 2.93 | 1.19 | | | | | | | | | |
| 8 | Q | 3.32 | 3.46 | | | | | | | | | |
| 9 | QP | 3.90 | 5.33 | | | | | | | | | |
| 10 | BN | 4.70 | 7.21 | | 531* | 48 | 4 | | 531* | 79 | 4 | |
| 11 | BN | 5.59 | 2.50 | | 397* | 35 | 4 | | 397* | 65 | 4 | |
| 12 | QN | 5.61 | 9.14 | | | | | | | | | |
| 13 | BN | 6.13 | 5.04 | | 371 | 30 | 4 | | 371* | 58 | 4 | |
| 14 | BN | 6.97 | 7.60 | | | | | | | | | |
| 15 | QP | 8.26 | 2.43 | | | | | | | | | |
| 16 | QP | 8.53 | 5.05 | 10 | 60 | | 4 | 10 | 64 | | 4 | Browsed |
| 17 | QP | 9.81 | 7.56 | 18 | 207 | 6 | 4 | | 292 | 11 | 4 | |

## Table E 2 – MY5 (2012) Plot WP2 Data

| | | | | Spring Data | | | | Fall Data | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | Species | Coordinates | | ddh | Height | DBH | Vigor | ddh | Height | DBH | Vigor | |
| | | X (m) | Y (m) | (mm) | (cm) | (cm) | | (mm) | (cm) | (cm) | | |
| 1 | AT | 0.22 | 5.02 | | | | | | | | | |
| 2 | CO | 0.26 | 7.97 | 3 | 23 | | 4 | 5 | 28 | | 4 | |
| 3 | CO | 0.35 | 0.41 | | | | | | | | | |
| 4 | FP | 1.97 | 2.76 | 26 | 247 | 13 | 4 | | 313 | 21 | 4 | |
| 5 | QM | 2.48 | 5.21 | 16 | 138 | | 4 | 25 | 197 | 9 | 4 | |
| 6 | CO | 3.01 | 0.37 | 6 | 25 | | 4 | 7 | 25 | | 4 | |
| 7 | QM | 3.25 | 8.07 | | | | | | | | | |
| 8 | FP | 4.44 | 2.83 | 26 | 194 | 10 | 4 | 30 | 227 | 14 | 4 | |
| 9 | QM | 5.03 | 5.14 | | | | | | | | | |
| 10 | QN | 5.55 | 0.56 | | | | | | | | | |
| 11 | QP | 6.18 | 8.00 | 5 | 55 | | 4 | 9 | 63 | | 4 | |
| 12 | QM | 7.01 | 2.96 | 26 | 190 | 6 | 4 | | 279 | 15 | 4 | |
| 13 | QM | 7.73 | 5.52 | 9 | 60 | | 4 | 11 | 73 | | 4 | |
| 14 | QN | 8.20 | 0.84 | | 315* | 15 | 4 | | 381 | 22 | 4 | |
| 15 | AT | 8.99 | 8.06 | | | | | | | | | |
| 16 | QN | 9.58 | 2.13 | | | | | | | | | |

* No attempt to measure height

## Table E 3 – MY5 (2012) Plot WP3 Data

| | | | | Spring Data | | | | Fall Data | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | Species | Coordinates | | ddh | Height | DBH | Vigor | ddh | Height | DBH | Vigor | |
| | | X (m) | Y (m) | (mm) | (cm) | (cm) | | (mm) | (cm) | (cm) | | |
| 1 | FP | 0.15 | 7.12 | | 253 | 11 | 4 | | 253 | 15 | 4 | |
| 2 | AT | 0.29 | 1.45 | | | | | | | | | |
| 3 | QM | 0.30 | 9.80 | 10 | 121 | | 4 | 13 | 190 | 5 | 4 | |
| 4 | QP | 0.37 | 4.29 | 6 | 63 | | 4 | 6 | 94 | | 4 | Browsed |
| 5 | FP | 2.31 | 7.16 | | 295 | 18 | 4 | | 320 | 21 | 4 | |
| 6 | CO | 2.86 | 9.91 | 10 | 94 | | 4 | 11 | 75 | | 4 | |
| 7 | BN | 2.87 | 1.65 | 11 | 49 | | 4 | | | | | |
| 8 | QM | 3.13 | 4.21 | 12 | 195 | 5 | 4 | 16 | 226 | 8 | 4 | |
| 9 | AT | 4.58 | 7.21 | | | | | | | | | |
| 10 | BN | 5.29 | 1.81 | | 283 | 9 | 4 | | 307 | 10 | 4 | |
| 11 | CO | 5.65 | 9.85 | | | | | | | | | |
| 12 | QN | 5.82 | 4.47 | 8 | 94 | | 4 | 8 | 105 | | 4 | |
| 13 | CO | 6.65 | 7.28 | | | | | | | | | |
| 14 | BN | 7.46 | 1.68 | | 277 | 11 | 4 | | 333 | 13 | 4 | |
| 15 | QP | 8.48 | 4.42 | 6 | 30 | | 2 | 7 | 118 | | 4 | |
| 16 | QM | 8.62 | 9.86 | 22 | 204 | 8 | 4 | 32 | 210 | 12 | 4 | |
| 17 | QN | 8.82 | 7.25 | | 260 | 9 | 4 | | 303 | 14 | 4 | |
| 18 | BN | 9.90 | 1.68 | 16 | 220 | 5 | 3 | 16 | 220 | 5 | 3 | |

## Table E 4 – MY5 (2012) Plot WP4 Data

| | | | | Spring Data | | | | Fall Data | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | Species | Coordinates | | ddh | Height | DBH | Vigor | ddh | Height | DBH | Vigor | |
| | | X (m) | Y (m) | (mm) | (cm) | (cm) | | (mm) | (cm) | (cm) | | |
| 1 | CO | 0.87 | 0.22 | | | | | | | | | |
| 2 | QM | 0.95 | 9.83 | | | | 0 | 15 | 176 | 7 | 4 | Stump Sprout |
| 3 | QN | 1.01 | 7.32 | | | | | | | | | |
| 4 | FP | 1.03 | 4.62 | | 293 | 19 | 4 | | 409 | 32 | 4 | |
| 5 | Q | 1.23 | 2.40 | | | | | | | | | |
| 6 | Q | 3.06 | 9.49 | | | | | | | | | |
| 7 | Q | 3.17 | 0.34 | | | | | | | | | |
| 8 | QM | 3.20 | 6.91 | | 348 | 24 | 4 | | 437 | 37 | 4 | |
| 9 | QP | 3.32 | 2.56 | | 292 | 18 | 4 | | 363 | 19 | 4 | |
| 10 | QM | 3.36 | 4.72 | | 318 | 20 | 4 | | 417 | 30 | 4 | |
| 11 | BN | 5.59 | 5.70 | | 349 | 23 | 4 | | 349* | 31 | 4 | |
| 12 | BN | 5.66 | 9.70 | | 281 | 20 | 4 | | 281* | 35 | 4 | |
| 13 | BN | 5.70 | 7.65 | | 372 | 29 | 4 | | 372* | 46 | 4 | |
| 14 | BN | 6.00 | 3.63 | | 395* | 41 | 4 | | 395* | 55 | 4 | |
| 15 | BN | 6.01 | 1.54 | | 388* | 30 | 4 | | 388* | 48 | 4 | |
| 16 | FP | 8.30 | 8.38 | | 297 | 23 | 4 | | 340 | 35 | 4 | |
| 17 | AT | 8.86 | 3.86 | | | | | | | | | |
| 18 | QN | 8.90 | 1.65 | | | | | | | | | |
| 19 | QP | 9.00 | 6.04 | 19 | 248 | 13 | 4 | 5 | 114 | | 4 | Stump Sprout |

* No attempt to measure height

**Table E 5 – MY5 (2012) Plot WP5 Data**

| | | | | Spring Data | | | | Fall Data | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | Species | Coordinates | | ddh | Height | DBH | Vigor | ddh | Height | DBH | Vigor | |
| | | X (m) | Y (m) | (mm) | (cm) | (cm) | | (mm) | (cm) | (cm) | | |
| 1 | AT | 0.32 | 7.22 | | | | 0 | 2 | 17 | | 4 | Stump Sprout |
| 2 | AT | 1.38 | 2.12 | | | | 0 | 8 | 123 | | 4 | Stump Sprout |
| 3 | AT | 1.40 | 4.89 | | | | | | | | | |
| 4 | FP | 2.49 | 9.88 | | 355* | 33 | 4 | | 355* | 59 | 4 | |
| 5 | QP | 3.65 | 7.74 | | | | | | | | | |
| 6 | QP | 4.35 | 5.29 | | 327 | 19 | 4 | | 327* | 35 | 4 | |
| 7 | FP | 4.47 | 2.61 | | 341 | 29 | 4 | | 341* | 52 | 4 | |
| 8 | CO | 5.60 | 9.50 | 7 | 38 | | 4 | | | | 0 | |
| 9 | CO | 6.67 | 7.21 | | | | | | | | | |
| 10 | Q | 6.95 | 2.18 | | | | | | | | | |
| 11 | CO | 7.18 | 4.73 | 4 | 18 | | 4 | | | | 0 | |
| 12 | BN | 8.91 | 8.37 | | | | | | | | | |
| 13 | BN | 9.57 | 0.48 | | 369* | 29 | 4 | | 369* | 43 | 4 | |
| 14 | BN | 9.88 | 3.00 | | 332 | 18 | 4 | | 332* | 22 | 4 | |
| 15 | BN | 9.95 | 5.40 | | 355 | 22 | 4 | | 355* | 28 | 4 | |

* No attempt to measure height

# Appendix F – Rainfall Data

### EBX Wolf Pond MY 5 2012 Rainfall Daily Summary

| Date | (Rainfall) |
|---|---|
| 9/28/2011 | 0.01 |
| 9/30/2011 | 0.01 |
| 10/11/2011 | 0.65 |
| 10/12/2011 | 0.34 |
| 10/13/2011 | 0.02 |
| 10/14/2011 | 0.01 |
| 10/17/2011 | 0.01 |
| 10/19/2011 | 0.49 |
| 10/26/2011 | 0.01 |
| 10/28/2011 | 0.05 |
| 10/29/2011 | 0.61 |
| 10/30/2011 | 0.01 |
| 11/3/2011 | 0.13 |
| 11/4/2011 | 0.41 |
| 11/5/2011 | 0.02 |
| 11/6/2011 | 0.01 |
| 11/8/2011 | 0.01 |
| 11/11/2011 | 0.08 |
| 11/16/2011 | 0.02 |
| 11/17/2011 | 0.08 |
| 11/18/2011 | 0.29 |
| 11/19/2011 | 0.01 |
| 11/21/2011 | 0.04 |
| 11/22/2011 | 0.01 |
| 11/23/2011 | 0.62 |
| 11/24/2011 | 0.01 |
| 11/25/2011 | 0.01 |
| 11/27/2011 | 0.01 |
| 11/28/2011 | 0.15 |
| 11/29/2011 | 0.02 |
| 12/1/2011 | 0.5 |
| 12/3/2011 | 0.01 |
| 12/5/2011 | 0.03 |
| 12/7/2011 | 0.18 |
| 12/18/2011 | 0.01 |
| 12/20/2011 | 0.02 |
| 12/21/2011 | 0.13 |
| 12/22/2011 | 0.01 |
| 12/24/2011 | 0.03 |
| 12/27/2011 | 0.84 |
| 12/28/2011 | 0.1 |
| 12/29/2011 | 0.01 |
| 1/1/2012 | 0.01 |
| 1/8/2012 | 0.12 |
| 1/9/2012 | 0.24 |
| 1/10/2012 | 0.02 |
| 1/12/2012 | 0.01 |
| 1/13/2012 | 0.8 |
| 1/14/2012 | 0.03 |
| 1/17/2012 | 0.2 |
| 1/18/2012 | 0.27 |
| 1/19/2012 | 0.03 |
| 1/20/2012 | 0.06 |
| 1/21/2012 | 0.3 |
| 1/25/2012 | 0.3 |
| 1/27/2012 | 0.36 |
| 1/28/2012 | 0.09 |
| 2/2/2012 | 0.21 |
| 2/4/2012 | 0.07 |
| 2/5/2012 | 0.09 |
| 2/11/2012 | 0.01 |
| 2/16/2012 | 0.06 |
| 2/17/2012 | 0.01 |
| 2/19/2012 | 0.3 |
| 2/20/2012 | 0.01 |
| 2/21/2012 | 0.01 |
| 2/23/2012 | 0.04 |
| 2/24/2012 | 0.14 |
| 2/27/2012 | 0.04 |
| 3/2/2012 | 0.34 |
| 3/3/2012 | 0.02 |
| 3/4/2012 | 0.02 |
| 3/5/2012 | 1.24 |
| 3/6/2012 | 0.09 |
| 3/9/2012 | 0.27 |
| 3/13/2012 | 0.02 |
| 3/15/2012 | 0.11 |
| 3/16/2012 | 0.04 |
| 3/17/2012 | 0.09 |
| 3/18/2012 | 0.19 |
| 3/19/2012 | 0.01 |
| 3/23/2012 | 0.01 |
| 3/24/2012 | 0.41 |
| 3/25/2012 | 0.01 |
| 3/30/2012 | 0.04 |
| 3/31/2012 | 0.64 |
| 4/1/2012 | 0.01 |
| 4/2/2012 | 0.01 |
| 4/4/2012 | 1.66 |
| 4/5/2012 | 0.18 |
| 4/6/2012 | 0.35 |
| 4/18/2012 | 0.24 |
| 4/19/2012 | 0.02 |
| 4/22/2012 | 1.2 |
| 4/25/2012 | 0.13 |
| 4/26/2012 | 0.62 |
| 4/27/2012 | 0.13 |
| 5/8/2012 | 0.42 |
| 5/9/2012 | 0.84 |
| 5/13/2012 | 0.24 |
| 5/14/2012 | 1.24 |
| 5/16/2012 | 0.6 |
| 5/21/2012 | 0.17 |
| 5/22/2012 | 0.13 |
| 5/23/2012 | 0.24 |
| 5/28/2012 | 0.14 |
| 5/29/2012 | 1.18 |
| 5/30/2012 | 0.03 |
| 6/1/2012 | 0.92 |
| 6/4/2012 | 0.01 |

| | |
|---|---|
| 6/5/2012 | 0.11 |
| 6/10/2012 | 0.01 |
| 6/11/2012 | 0.46 |
| 6/12/2012 | 0.06 |
| 6/13/2012 | 0.26 |
| 6/20/2012 | 1.02 |
| 6/23/2012 | 0.06 |
| 6/24/2012 | 0.04 |
| 6/26/2012 | 0.06 |
| 7/1/2012 | 0.17 |
| 7/3/2012 | 0.67 |
| 7/4/2012 | 0.08 |
| 7/5/2012 | 2.05 |
| 7/10/2012 | 0.43 |
| 7/12/2012 | 0.04 |
| 7/13/2012 | 0.05 |
| 7/16/2012 | 0.3 |
| 7/17/2012 | 0.11 |
| 7/18/2012 | 0.06 |
| 7/20/2012 | 0.02 |
| 7/21/2012 | 0.01 |
| 7/23/2012 | 0.01 |
| 7/25/2012 | 0.07 |
| 7/27/2012 | 0.01 |
| 7/28/2012 | 0.87 |
| 7/30/2012 | 0.03 |
| 7/31/2012 | 0.07 |

| | |
|---|---|
| 8/1/2012 | 0.01 |
| 8/2/2012 | 0.48 |
| 8/4/2012 | 0.02 |
| 8/5/2012 | 0.01 |
| 8/6/2012 | 0.11 |
| 8/7/2012 | 0.96 |
| 8/8/2012 | 2.46 |
| 8/9/2012 | 1.23 |
| 8/10/2012 | 0.05 |
| 8/11/2012 | 0.11 |
| 8/12/2012 | 0.01 |
| 8/16/2012 | 0.01 |
| 8/17/2012 | 0.71 |
| 8/19/2012 | 1.58 |
| 8/20/2012 | 0.76 |
| 8/22/2012 | 0.03 |
| 8/25/2012 | 0.01 |
| 8/27/2012 | 0.42 |
| 8/28/2012 | 0.39 |
| 8/29/2012 | 0.18 |
| 9/2/2012 | 0.01 |
| 9/3/2012 | 0.72 |
| 9/4/2012 | 0.68 |
| 9/6/2012 | 0.37 |
| 9/7/2012 | 0.01 |
| 9/8/2012 | 0.18 |
| 9/12/2012 | 0.01 |

# Appendix G – Morphology Tables

## Table G-1 – MY4 (2011) Wolfpond Reach 1 Morphology and Hydraulic Monitoring Summary

| **Parameter** | R1 RXS-1 Riffle | | | | | | R1 PXS-1 Pool | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dimension** | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 |
| BF Width (ft) | 23.7 | 22.0 | 26.4 | 21.2 | 19.8 | 20.8 | 33.0 | 35.1 | 43.8 | 37.9 | 30.2 | 27.26 |
| Floodprone Width (ft) | 97 | 97 | 97 | 97 | 97 | 97 | - | - | - | - | - | - |
| BF Cross Sectional Area ($ft^2$) | 20.4 | 24.2 | 24.7 | 22.7 | 22.9 | 23.7 | 40.0 | 48.6 | 52.2 | 46.7 | 42.4 | 47.2 |
| BF Mean Depth (ft) | 0.86 | 1.10 | 0.94 | 1.07 | 1.16 | 1.14 | 1.21 | 1.3831 | 1.19 | 1.23 | 1.41 | 1.73 |
| BF Max Depth (ft) | 2.24 | 2.83 | 2.84 | 2.86 | 2.31 | 2.44 | 3.06 | 3.39 | 3.52 | 3.44 | 3.35 | 3.09 |
| Width/Depth Ratio | 27.50 | 19.95 | 28.15 | 19.80 | 17.00 | 18.3 | - | - | - | - | - | - |
| Entrenchment Ratio | 4.09 | 4.42 | 3.68 | 4.6 | 4.91 | 4.65 | - | - | - | - | - | - |
| Bank Height Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - | - | - | - | - | - |
| **Substrate** | | | | | | | | | | | | |
| d50 (mm) | 8.88 | 0.88 | 0.06 | 0.06 | 0.06 | 0.06 | 6.21 | 4.00 | 0.06 | 0.06 | 0.06 | 0.06 |
| d84 (mm) | 18.75 | 8.00 | 0.06 | 0.06 | 4.68 | 0.06 | 14.21 | 11.30 | 0.06 | 6.47 | 0.06 | 0.06 |

| **Parameter** | MY0 (2008) | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pattern | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med |
| Channel Beltwidth (ft) | 56.02 | 94.54 | 79.61 | 55 | 98 | 81 | 50.72 | 90.9 | 74.52 | 47.3 | 84.14 | 70.8 | 52.81 | 89.26 | 76.59 | 50.6 | 87.2 | 74.3 |
| Radius of Curvature (ft) | 36.57 | 66.6 | 39.06 | 35 | 70 | 40 | 37.1 | 69.36 | 39.89 | 31.77 | 63.92 | 37.4 | 34.37 | 66.45 | 38.23 | 33.33 | 65.4 | 37.9 |
| Meander Wavelength (ft) | 160.5 | 233.4 | 179.37 | 158 | 230 | 177 | 167.1 | 221.05 | 180.6 | 171.3 | 234.11 | 189 | 169.5 | 231.1 | 185.66 | 170.22 | 232 | 187 |
| Meander Width ratio | 2.36 | 3.99 | 3.36 | 2.5 | 4.45 | 3.68 | 1.924 | 3.45 | 2.83 | 2.23 | 3.97 | 3.34 | 2.67 | 4.52 | 3.878 | 2.19 | 3.91 | 3.24 |
| Profile | | | | | | | | | | | | | | | | | | |
| Riffle length (ft) | 21.96 | 62.85 | 40.81 | 20.83 | 52.6 | 38.8 | 14.42 | 78.37 | 43.64 | 17.58 | 84.1 | 42.6 | 4.437 | 33.25 | 6.82 | 5.75 | 55.1 | 10.4 |
| Riffle slope (ft/ft) | 0.0093 | 0.0401 | 0.0134 | 0.006 | 0.04 | 0.01 | 0.011 | 0.020 | 0.011 | 0.014 | 0.028 | 0.015 | 0.009 | 0.051 | 0.029 | 0.009 | 0.05 | 0.03 |
| Pool length (ft) | 49.25 | 84.26 | 73.26 | 59.28 | 82.7 | 72.6 | 34.32 | 139.45 | 47.07 | 40.22 | 90.25 | 51.8 | 29.09 | 148.5 | 47.89 | 30.2 | 143 | 48.3 |
| Pool spacing (ft) | 94.75 | 136.1 | 113.19 | 92 | 145 | 119 | 91.17 | 124.71 | 105.41 | 90.34 | 133.67 | 99.9 | 26.31 | 232.9 | 129.57 | 11.79 | 88.3 | 16.5 |
| Additional Reach Parameters | | | | | | | | | | | | | | | | | | |
| Valley Length (ft) | | | | | | | | | | | | | | | | | | |
| Channel Length (ft) | | | 1056 | | | 1056 | | | 1056 | | | 1056 | | | 1056 | | | 1056 |
| Sinuosity | | | 1.26 | | | 1.26 | | | 1.26 | | | 1.26 | | | 1.26 | | | 1.26 |
| Water Surface Slope (ft/ft) | | | 0.0062 | | | 0.0058 | | | 0.0058 | | | N/A | | | N/A | | | N/A |
| BF slope (ft/ft) | | | 0.0068 | | | 0.0059 | | | 0.0059 | | | 0.0056 | | | 0.0061 | | | 0.0061 |
| Rosgen Classification | | | C4 | | | C4 | | | C4 | | | C4 | | | C4 | | | C4 |
| Habitat Index* | | | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | | N/A |
| Macrobenthos* | | | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | | N/A |

**Table G-2 – MY4 (2011) Wolfpond Reach 2 Morphology and Hydraulic Monitoring Summary**

| Parameter | | Wolf Pond R2 RXS-1 | | | | | Wolf Pond R2 PXS-1 | | | | | | Wolf Pond R2 RXS-2 | | | | | | Wolf Pond R2 PXS-2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Riffle | | | | | Pool | | | | | | Riffle | | | | | | Pool | | | | | |
| **Dimension** | M | MY1 | MY2 | MY3 | MY4 | MY5 | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 |
| BF Width (ft) | 2 | 22.8 | 26.5 | 25.8 | 24.3 | 28.2 | 25.2 | 28.5 | 27.9 | 21.7 | 20.4 | 22.4 | 30.6 | 30.4 | 30.8 | 26.6 | 28.9 | 29.3 | 21.6 | 21.3 | 17.3 | 18.5 | 11.3 | 14.4 |
| Floodprone Width | 9 | 94 | 94 | 94 | 94 | 94 | - | - | - | - | - | - | 203 | 203 | 203 | 203 | 203 | 203 | - | - | - | - | - | - |
| BF Cross Sectional | 2 | 22.4 | 20.6 | 21.0 | 27.1 | 20.2 | 21.9 | 27.7 | 32.4 | 29.6 | 30.7 | 29.2 | 42.5 | 41.4 | 41.7 | 40.8 | 39.4 | 38 | 11.4 | 12.2 | 11.8 | 8.3 | 6.7 | 7.6 |
| BF Mean Depth (ft) | 0 | 0.99 | 0.78 | 0.81 | 0.9 | 0.72 | 0.87 | 0.97 | 1.16 | 1.36 | 1.5 | 1.3 | 1.39 | 1.36 | 1.35 | 1.53 | 1.36 | 1.3 | 0.53 | 0.57 | 0.68 | 0.45 | 0.59 | 0.53 |
| BF Max Depth (ft) | 2 | 2.09 | 2.07 | 2.07 | 2.17 | 2.14 | 2.35 | 2.84 | 2.86 | 2.65 | 2.8 | 2.38 | 2.93 | 3.06 | 2.86 | 2.81 | 2.85 | 2.26 | 1.51 | 1.56 | 1.46 | 0.99 | 0.98 | 0.82 |
| Width/Depth Ratio | 2 | 23.10 | 34.01 | 31.70 | 27.10 | 39.3 | - | - | - | - | - | - | 22.07 | 22.36 | 22.71 | 17.30 | 21.30 | 22.6 | - | - | - | - | - | - |
| Entrenchment Ratio | 3 | 4.13 | 3.55 | 3.65 | 3.88 | 3.34 | - | - | - | - | - | - | 6.63 | 6.68 | 6.6 | 7.63 | 7.02 | 6.92 | - | - | - | - | - | - |
| Bank Height Ratio | 1 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - | - | - | - | - | - | 1.00 | 1.02 | 1.02 | 1.00 | 1.00 | 1.0 | - | - | - | - | - | - |
| **Substrate** | | | | | | | | | | | | | | | | | | | | | | | | |
| d50 (mm) | 1 | 13.49 | 13.65 | 0.06 | 14.4 | 0.06 | 0.15 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 14.53 | 2.00 | 10.97 | 0.06 | 0.06 | 2.57 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| d84 (mm) | 3 | 21.40 | 32.00 | 27.3 | 30.1 | 23.3 | 0.40 | 8.00 | 13.65 | 0.06 | 11.3 | 25.29 | 27.85 | 11.30 | 22.60 | 13.65 | 32 | 6.95 | 4.85 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |

| Parameter | | MY0 (2008) | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pattern** | M | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med |
| Channel Beltwidth | 2 | 50.55 | 39.92 | 23 | 48 | 40 | 28.36 | 57.94 | 40.44 | 26.45 | 53.63 | 38.4 | 28.16 | 58.74 | 37.6 | 27.6 | 60.5 | 38.7 |
| Radius of Curvature | 1 | 38.46 | 25.26 | 18 | 40 | 28 | 19.41 | 39.89 | 25.26 | 13.62 | 33.76 | 20.7 | 19.97 | 38.73 | 26.3 | 19.57 | 39.89 | 27.1 |
| Meander Wavelength | 8 | 147.9 | 104.23 | 85 | 140 | 100 | 85.4 | 123.5 | 99.83 | 81.52 | 130.8 | 104.7 | 89.68 | 144.22 | 86.3 | 87.89 | 148.5 | 88.8 |
| Meander Width ratio | 0 | 1.85 | 1.46 | 1.01 | 2.11 | 1.75 | 0.991 | 2.025 | 1.413 | 1.009 | 2.047 | 1.466 | 1.06 | 2.21 | 1.41 | 1.002 | 2.056 | 1.53 |
| **Profile** | | | | | | | | | | | | | | | | | | |
| Riffle length (ft) | 1 | 54.61 | 32.17 | 15 | 60 | 35 | 9.1 | 79.53 | 27.67 | 11.09 | 85.34 | 26.98 | 7.83 | 86.03 | 18.2 | 11.27 | 181.4 | 22.2 |
| Riffle slope (ft/ft) | 0 | 0.0502 | 0.0114 | 0 | 0.05 | 0.01 | 0.001 | 0.028 | 0.006 | 0.001 | 0.039 | 0.008 | 0.004 | 0.0521 | 0.02 | 0.004 | 0.035 | 0.01 |
| Pool length (ft) | 9 | 59.93 | 23.94 | 15 | 60 | 36 | 7.25 | 79.53 | 25.89 | 8.496 | 51.47 | 28.5 | 10.47 | 99.81 | 24.5 | 18.32 | 63.12 | 25.6 |
| Pool spacing (ft) | 2 | 94.77 | 58.87 | 30 | 105 | 66 | 34.99 | 105.1 | 54.33 | 34.67 | 112.6 | 51.47 | 107.7 | 420.36 | 162 | 25.23 | 139.5 | 30 |
| **Additional Reach Parameters** | | | | | | | | | | | | | | | | | | |
| Valley Length (ft) | | 1332 | | | | | | | | | | | | | | | | |
| Channel Length (ft) | | 1590 | | 1590 | | | 1590 | | | 1590 | | | 1590 | | | 1590 | | |
| Sinuosity | | 1.19 | | 1.19 | | | 1.19 | | | 1.19 | | | 1.18 | | | 1.18 | | |
| Water Surface Slope | | 0.0099 | | 0.0089 | | | 0.0089 | | | N/A | | | N/A | | | N/A | | |
| Water Surface Slope | | 0.0041 | | 0.0039 | | | 0.0039 | | | N/A | | | N/A | | | N/A | | |
| BF slope 1 (ft/ft) | | 0.0103 | | 0.01 | | | 0.01 | | | 0.01 | | | 0.01 | | | 0.01 | | |
| BF slope 2 (ft/ft) | | 0.0043 | | 0.004 | | | 0.004 | | | 0.004 | | | 0.004 | | | 0.004 | | |
| Rosgen Classification | | C4 | | C4 | | | C4 | | | C4 | | | C4 | | | C4 | | |
| Habitat Index* | | N/A | | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | |
| Macrobenthos* | | N/A | | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | |

**Table G-3 – MY4 (2011) Wolfpond Reach 3 Morphology and Hydraulic Monitoring Summary**

| **Parameter** | Wolfpond R3 RXS-1 | | | | | | Wolfpond R3 PXS-1 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Riffle | | | | | | Pool | | | | | |
| **Dimension** | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 | MY0 | MY1 | MY2 | MY3 | MY4 | MY5 |
| BF Width (ft) | 20.1 | 21.2 | 25.2 | 16.8 | 12.2 | 12.8 | 35.8 | 34.4 | 37.1 | 30.9 | 33.2 | 35.2 |
| Floodprone | 121 | 121 | 121 | 121 | 121 | 121 | - | - | - | - | - | - |
| BF Cross | 10.4 | 10.3 | 9.7 | 11.2 | 10.4 | 11.3 | 31.6 | 32.1 | 31.4 | 27.9 | 31.0 | 30.5 |
| BF Mean | 0.52 | 0.49 | 0.39 | 0.67 | 0.85 | 0.88 | 0.88 | 0.93 | 0.85 | 0.9 | 0.93 | 0.87 |
| BF Max Depth | 1.6 | 1.86 | 1.94 | 1.98 | 2.07 | 2.14 | 2.6 | 2.62 | 2.3 | 2.25 | 2.5 | 2.16 |
| Width/Depth | 39.10 | 43.35 | 65.17 | 25.30 | 14.40 | 14.5 | - | - | - | - | - | - |
| Entrenchment | 6.01 | 5.72 | 4.80 | 7.19 | 9.87 | 9.46 | - | - | - | - | - | - |
| Bank Height | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | - | - | - | - | - | - |
| **Substrate** | | | | | | | | | | | | |
| d50 (mm) | 13.47 | 6.47 | 0.06 | 2.5 | 4.85 | 2.57 | 5.96 | 2.63 | 0.96 | 0.63 | 0.048 | 0.06 |
| d84 (mm) | 22.60 | 20.95 | 5.70 | 12.8 | 12.1 | 6.95 | 12.71 | 5.70 | 5.70 | 4 | 7.14 | 13.65 |

| **Parameter** | MY0 (2008) | | | MY1 (2008) | | | MY2 (2009) | | | MY3 (2010) | | | MY4 (2011) | | | MY5 (2012) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pattern** | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med | Min | Max | Med |
| Channel | 49.12 | 97.21 | 69.46 | 47 | 100 | 72 | 43.3 | 87.52 | 61.08 | 42.7 | 98.44 | 70.34 | 46.62 | 103 | 66.78 | | | |
| Radius of | 22.52 | 41.45 | 31.91 | 25 | 44 | 33 | 28.4 | 59.06 | 35.96 | 24.53 | 38.85 | 32.73 | 29.14 | 48.53 | 34.7 | | | |
| Meander | 129.6 | 203.7 | 158.46 | 135 | 206 | 165 | 128 | 178 | 159 | 121.6 | 170.2 | 158.8 | 129.6 | 186.1 | 167.3 | | | |
| Meander | 2.44 | 4.83 | 3.45 | 2.13 | 4.72 | 3.40 | 1.72 | 3.473 | 2.424 | 2.542 | 5.86 | 4.19 | 3.81 | 8.42 | 5.46 | | | |
| **Profile** | | | | | | | | | | | | | | | | | | |
| Riffle length | 21.73 | 65.62 | 44.5 | 25 | 60 | 42 | 3.05 | 65.66 | 20.83 | 5.73 | 59.47 | 31.33 | 9.51 | 32.61 | 13.73 | | | |
| Riffle slope | 0.0006 | 0.0309 | 0.0107 | 0.01 | 0.03 | 0.011 | 0.001 | 0.068 | 0.018 | 0.0017 | 0.041 | 0.0214 | 0.0124 | 0.0378 | 0.0267 | | | |
| Pool length (ft) | 30.54 | 74.55 | 42.32 | 32 | 78 | 45 | 21.3 | 97.79 | 58.68 | 28.42 | 72.98 | 40.84 | 20.00 | 97.62 | 49.84 | | | |
| Pool spacing | 64.93 | 119.90 | 92.23 | 66 | 122 | 94 | 29.8 | 122.1 | 79.28 | 46.16 | 118 | 91.69 | 66.21 | 264 | 118.2 | | | |
| **Additional Reach Parameters** | | | | | | | | | | | | | | | | | | |
| Valley Length | 1129 | | | | | | | | | | | | | | | | | |
| Channel | 1351 | | | 1351 | | | 1351 | | | 1351 | | | 1351 | | | 1351 | | |
| Sinuosity | 1.20 | | | 1.2 | | | 1.2 | | | 1.2 | | | 1.2 | | | 1.2 | | |
| Water Surface | 0.0019 | | | 0.002 | | | 0.002 | | | 0.002 | | | 0.002 | | | 0.002 | | |
| Water Surface | 0.0068 | | | 0.007 | | | 0.007 | | | 0.007 | | | 0.007 | | | 0.007 | | |
| BF slope 1 | 0.0040 | | | 0.004 | | | 0.004 | | | 0.004 | | | 0.004 | | | 0.004 | | |
| BF slope 2 | 0.0063 | | | 0.006 | | | 0.006 | | | 0.006 | | | 0.006 | | | 0.006 | | |
| Rosgen | C4 | | | C4 | | | C4 | | | C4 | | | C4 | | | C4 | | |
| Habitat Index* | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | |
| Macrobenthos* | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | | N/A | | |