

Sanford Sewerage District: 10 Years Later

City of Sanford, Maine

NEWEA Annual Conference & Exhibit
January 25, 2017
Session 30

Presented by:
Lindsey Shields, PE – Project Engineer, Wright-Pierce
Andre Brousseau – Superintendent, Sanford Sewerage District

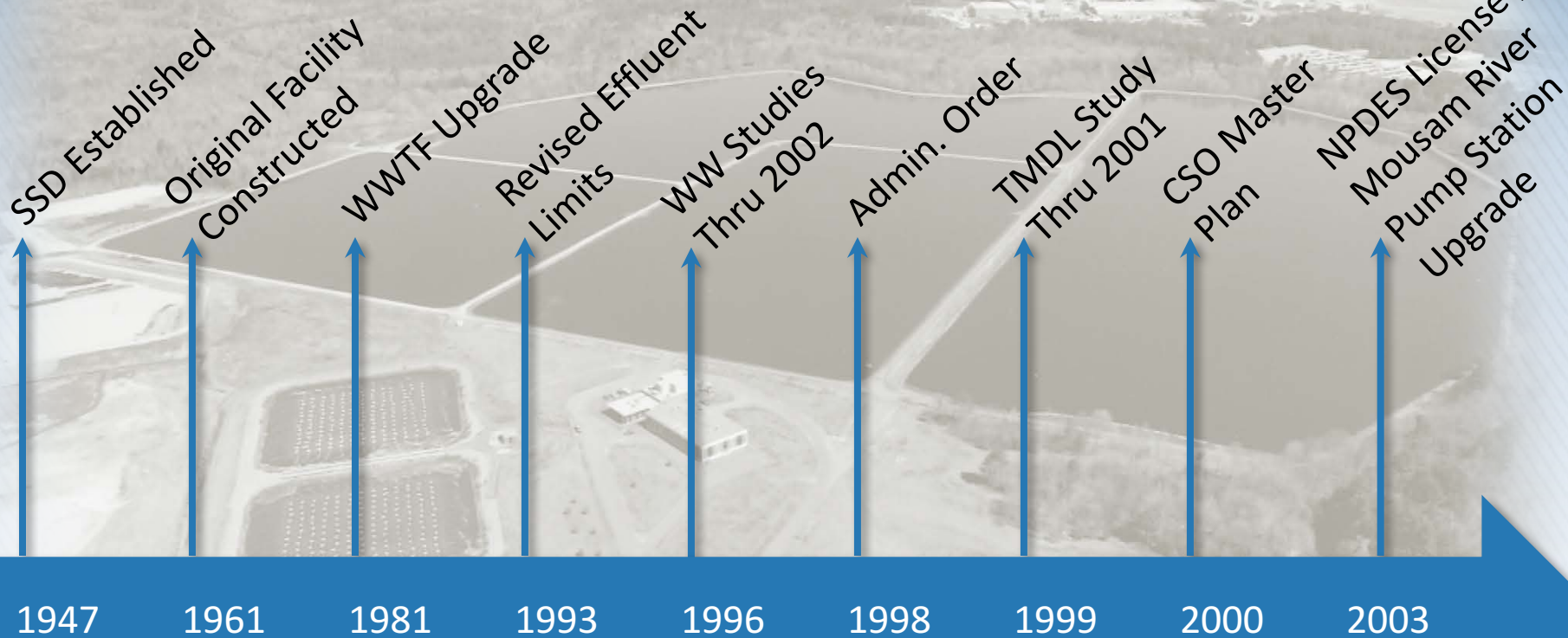


Background – City of Sanford, Maine

- **Incorporated: 1768**
- **Population: 20,800**
- **Industrial/Economic Center**
- **York County**
- **WWTF:**
 - **4.40 mgd Design Monthly Average**
 - **1.70 mgd Current Monthly Average**
- **Effluent to Mousam River**



Background – Sanford Sewerage District



Background – Sanford Sewerage District

Monthly Average Discharge Limitations	Summer (May 1 – September 30)	Non-Summer (October 1 – April 30)
Flow	3.48 mgd	4.4 mgd
BOD	10 mg/L	30 mg/L
TSS	10 mg/L	30 mg/L
Ammonia Nitrogen	14.5 lbs/day (0.5 mg/L)	276 lbs/day (7.5 mg/L)
Phosphorus (Total)	3.0 lbs/day (0.1 mg/L)	23 lbs/day (0.6 mg/L)
Dissolved Oxygen	> 7.5 ppm	N/A
E. Coli	126/100 mL	N/A
River Flow/Trigger Flow	20 cfs	20 cfs
Mercury	4.5 ng/L	
<i>Aluminum (Total)</i>	<i>9.39 lbs/day</i>	
<i>Copper (Total)</i>	<i>0.28 lbs/day</i>	

Background – Sanford Sewerage District

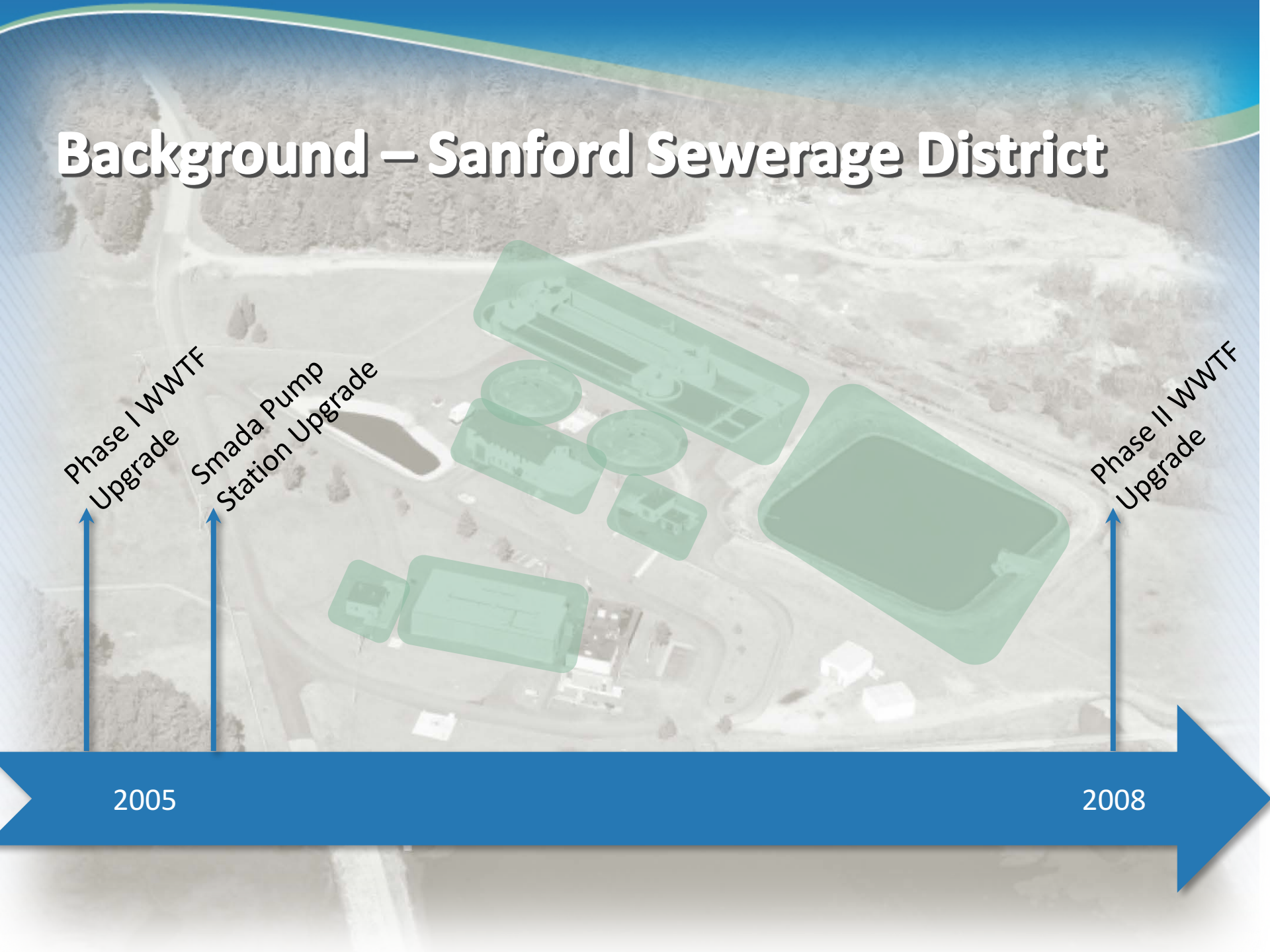
Phase I WWTF
Upgrade

Smada Pump
Station Upgrade

Phase II WWTF
Upgrade

2005

2008



Background – Sanford Sewerage District

NPDES License
Renewal



2008



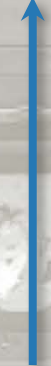
2009

WWTF Asset
Management Study



2011

Goodall Pump
Station Upgrade



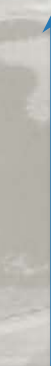
2012

Collection System
Asset Management
Study



2012

Revised NPDES
License



2013

Route 109 Pump
Station Upgrade



2014

Route 99 Pump
Station Upgrade



2016

[Compost Facility]



[2016]



Asset Management Program

- **Clean, CCTV all gravity sewer – 42% complete**
- **Street work**
 - **~10,000 feet of gravity sewer replaced**
 - **740 feet of AC pipe replaced via pipe bursting**
 - **48 manhole structures replaced**
 - **5 manhole structures rehabilitated**
 - **3 trenchless point repairs**
 - **40 catch basin separation**
 - **CSO structures sealed**



Brooks Street 0



Brooks Street 1



Brooks Street 2



Brooks Street 3



Brooks Street 4



Brooks Street 5



Madison Street



Oak Street 0



Oak Street 1



Oak Street 2



Oak Street 3



Park Street 0



Park Street 1



Park Street 2



Park Street 3



Park Street 4



Pleasant Street 0



Pleasant Street 1



Pleasant Street 2



Pleasant Street 3



Pleasant Street 4



Pleasant Street 5



Pleasant Street 6



Pleasant Street 7



Pleasant Street 8

Asset Management Program

Mission Communications x Options

Mission Communications LLC (US) | https://www.123mc.com/123mc/main2011.asp

Most Visited Getting Started Suggested Sites Web Slice Gallery

MISSION

Sanford Muni, ME Friday, January 13, 2017 6:56 A
Clear, 42.1°F Wind: W at 14 MPH Rain Last Hr: Non
Barometer: 30.13 Hg RH: 59% (DP: 29°F) Last 24 hrs: 0.07 in

Sanford Sewerage District, ME Tech Support: (877)993-1911 FAX: (770)685-7913 [Help](#) [Weather](#)

- Reports
- Current Status
 - Overview
 - Map
 - Detail
 - Realtime Viewer
 - Ack Alarm
- Data
- Commands
- Quick Message
- Setup
- Download
 - System Revision Log
 - Logout

KEY

OK	■
△M100 Alarm	■
○M110 Offline	■
□M800 Service	■
○M80 Disabled	■

Sanford Regional Airport

-70.81413, 43.44638

Staffing

- **Age of workforce – 45.7 → 48.7**
- **Summer interns**
- **Three employees PACP/NASSCO certified**
- **Three employees certified composters**



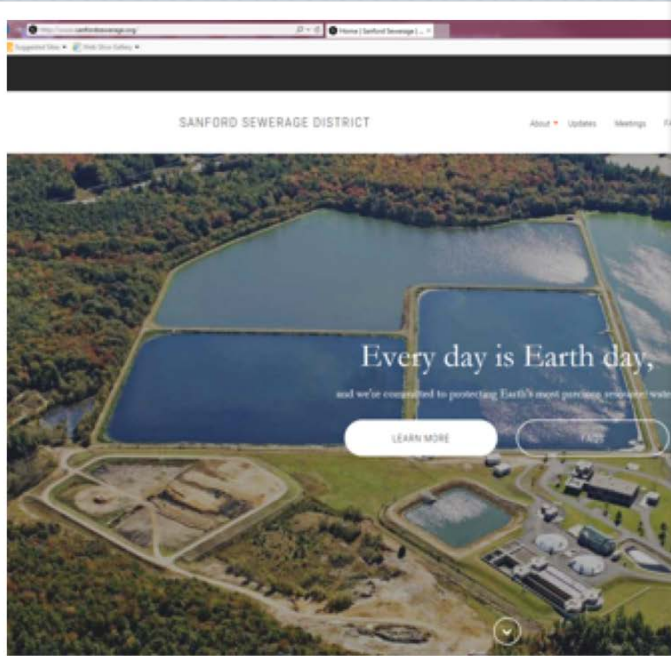
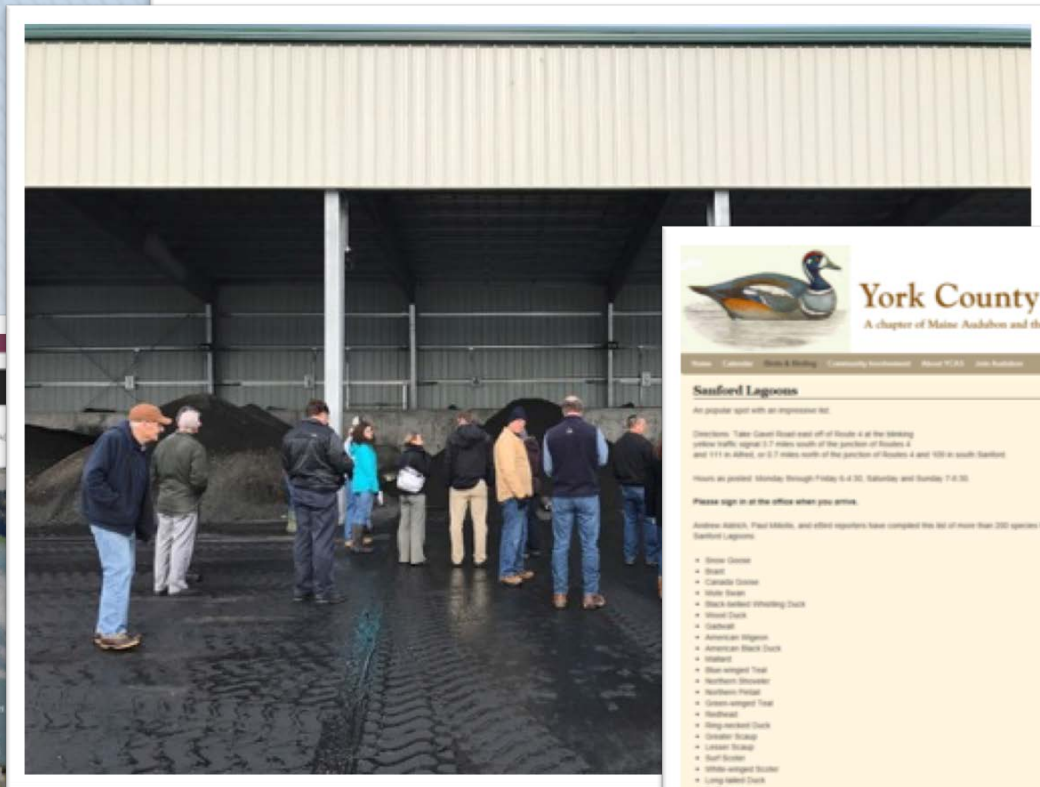
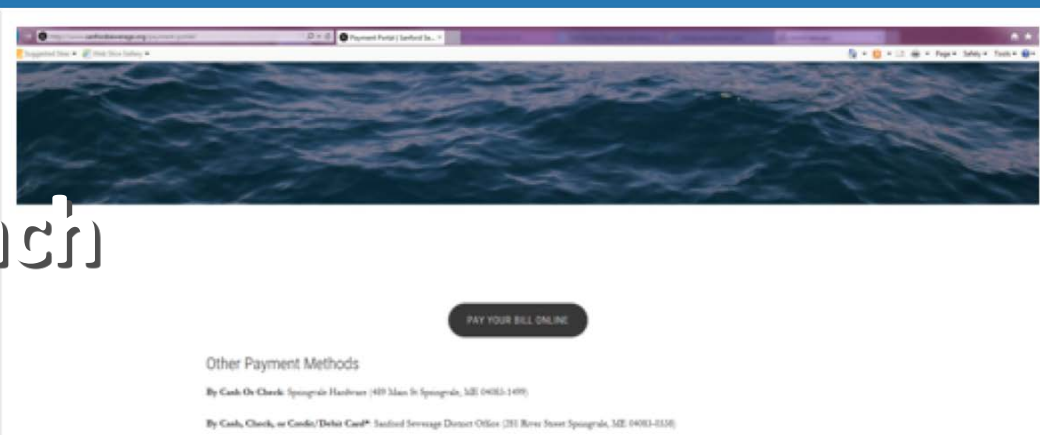
Capital Equipment Investments

- CCTV truck
- Mini excavator
- Jet/Vac truck
- Pug mill mixer
- Roll-off can
- Front-end loader



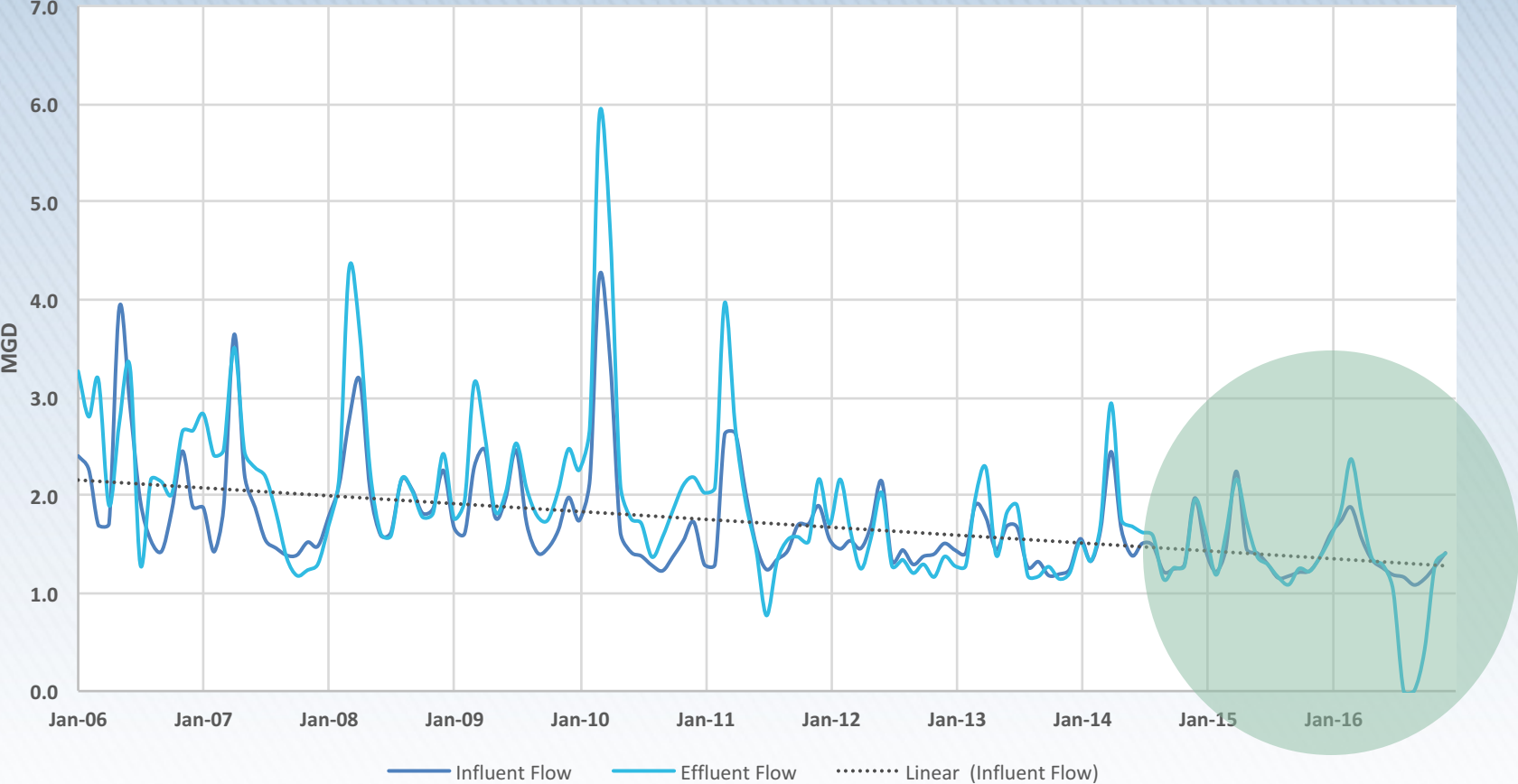
Community Outreach

- On-line billing
- Open houses
- Bird watching

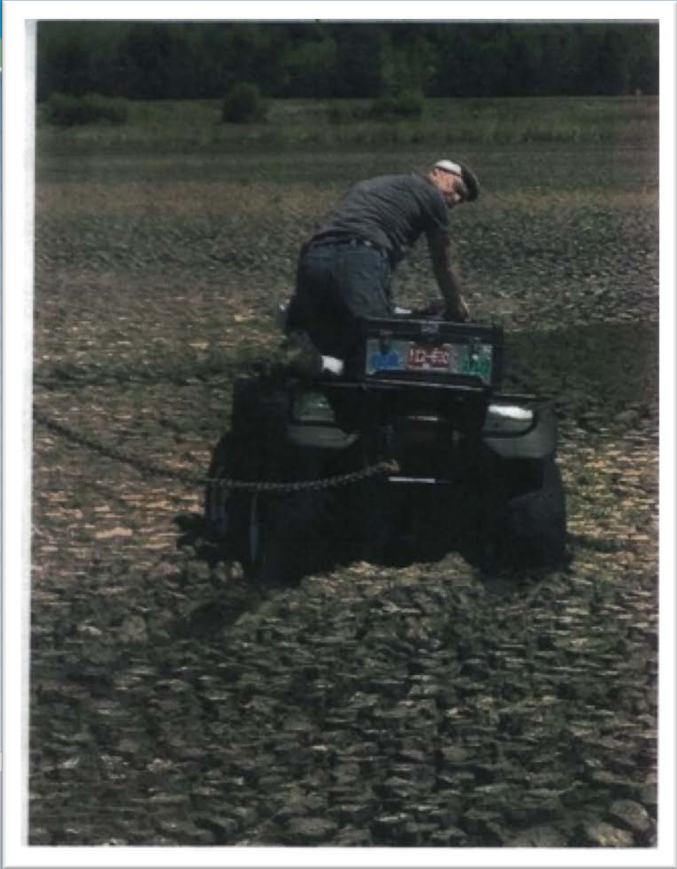
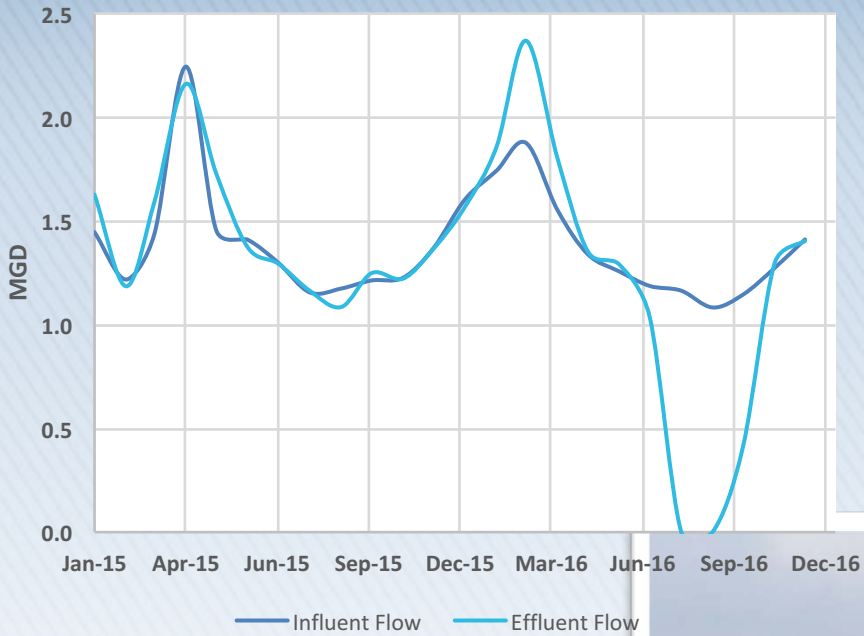


- Goodall Brook restoration

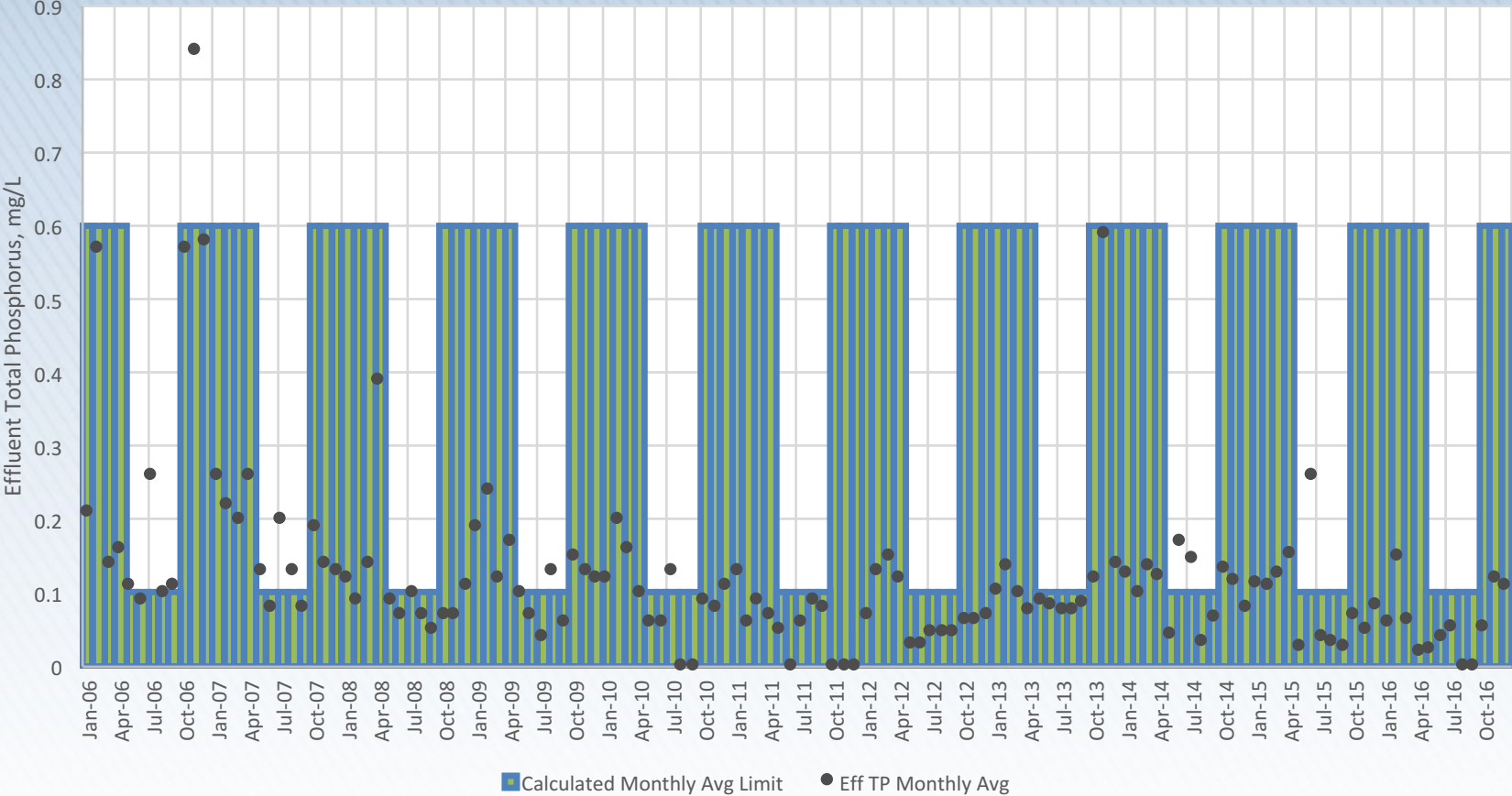
Plant Performance – Flows



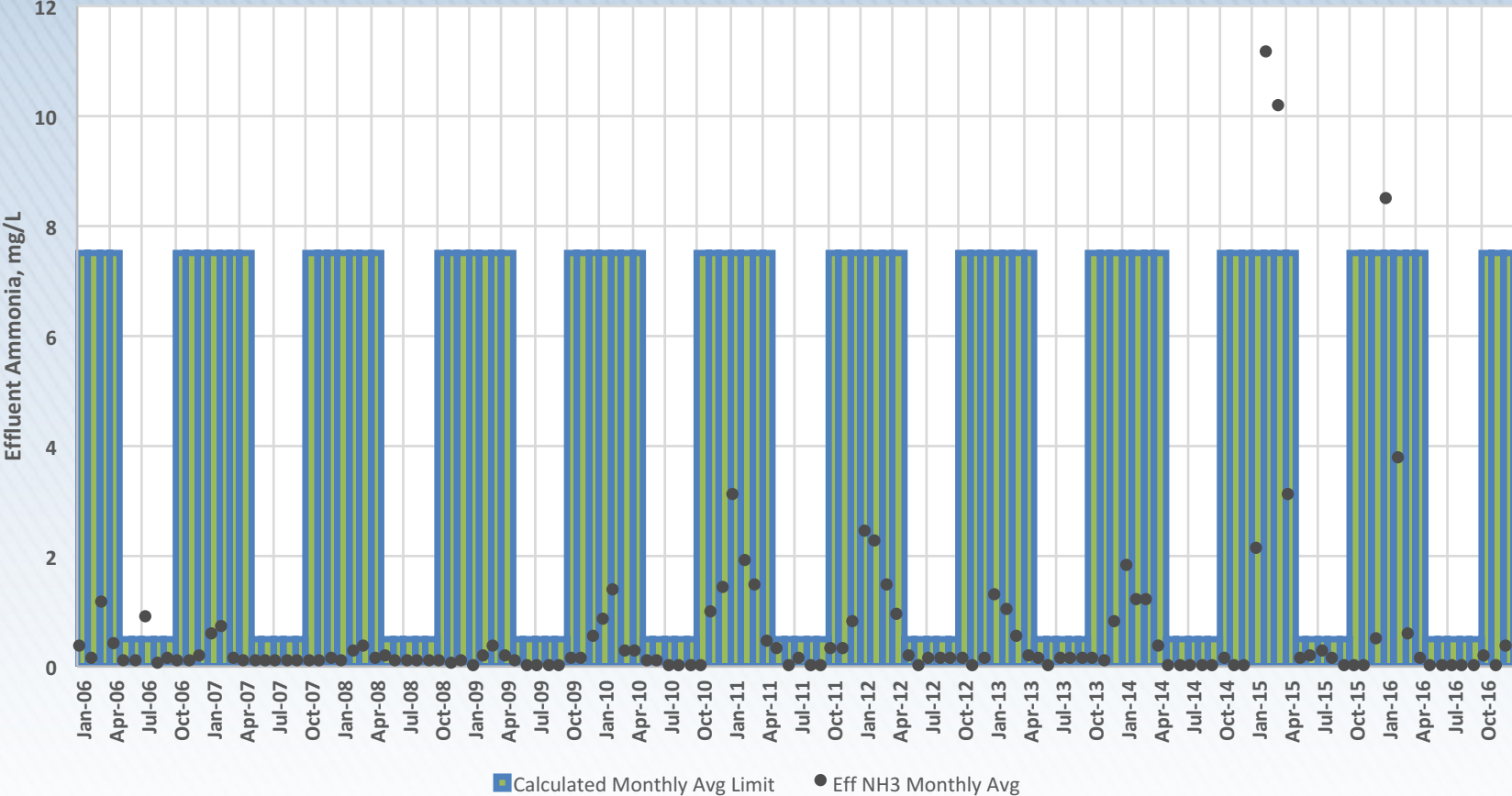
Plant Performance – Flows



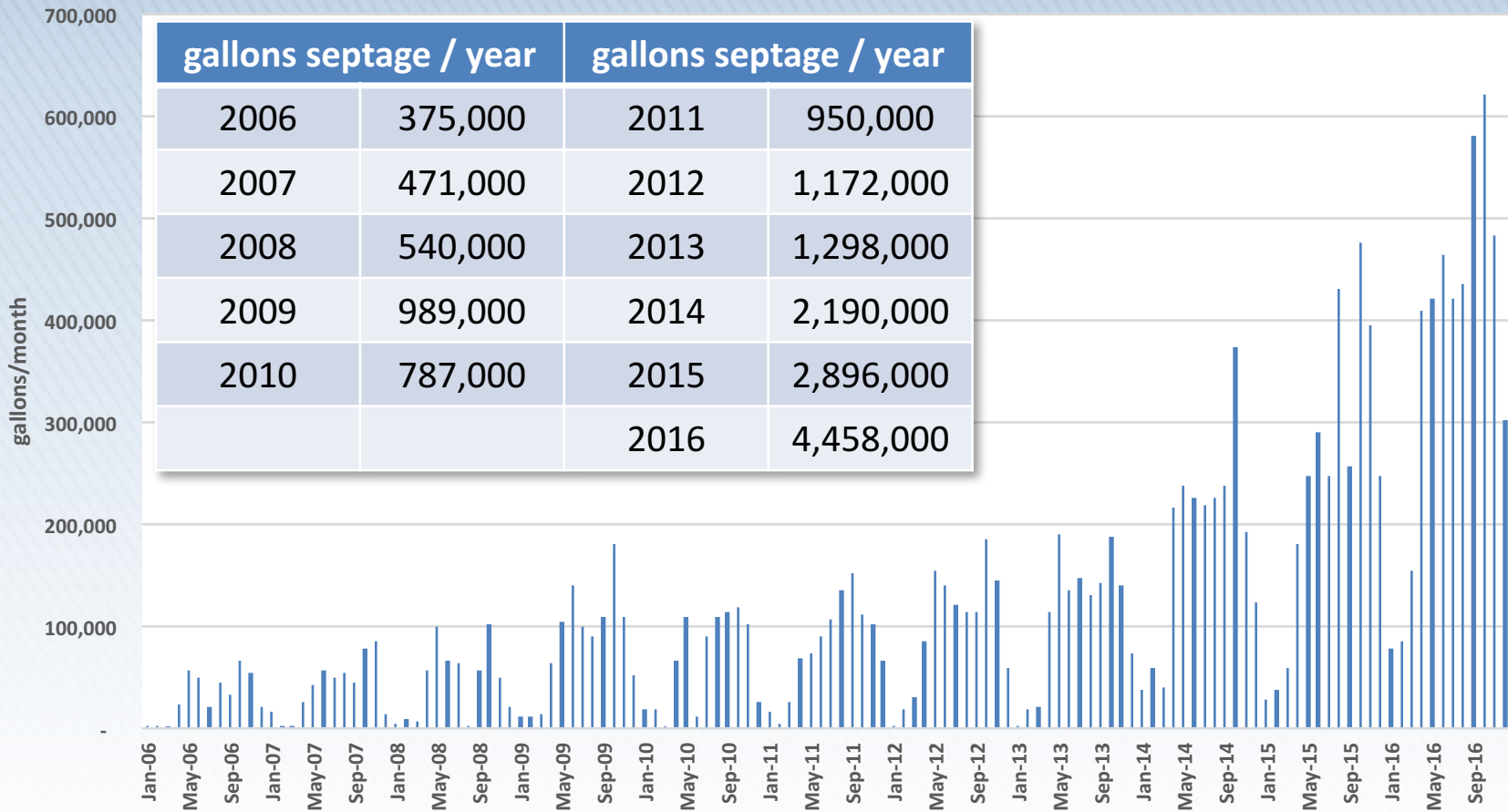
Plant Performance – Effluent Phosphorus



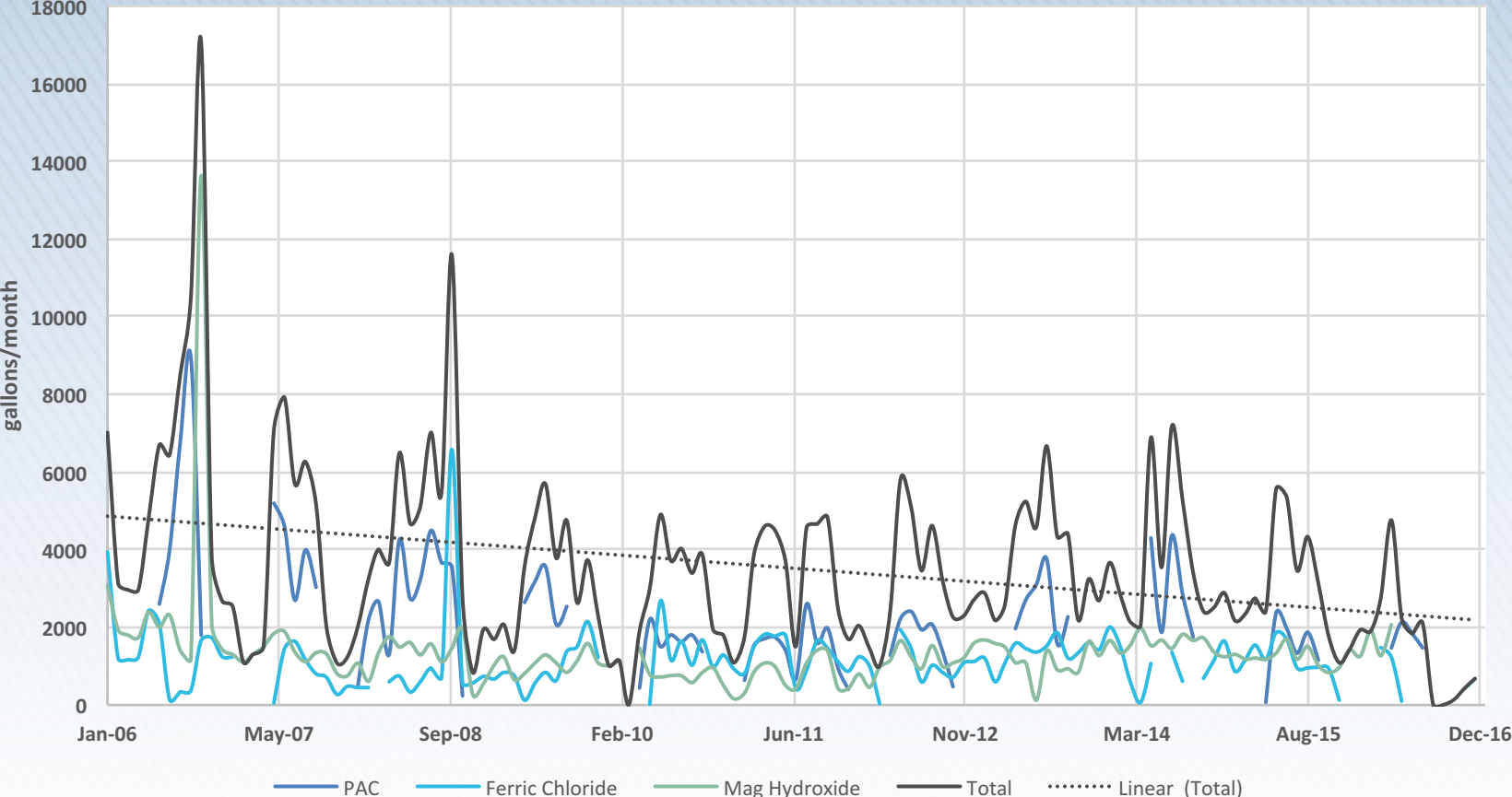
Plant Performance – Effluent Ammonia



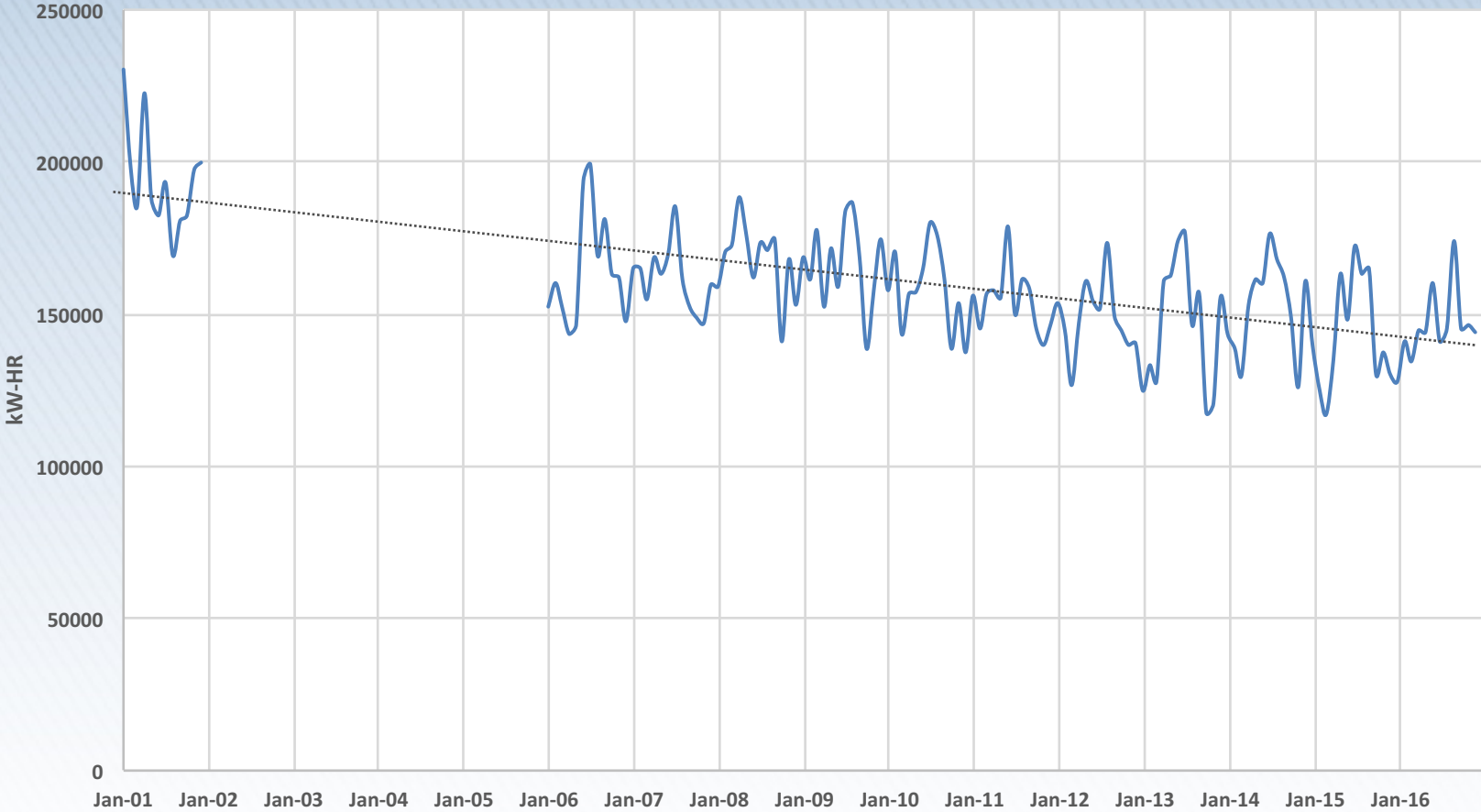
Plant Performance – Septage



Plant Performance – Chemicals



Plant Performance – Energy



Plant Performance – Solids Handling

On-site Secure
Sludge Landfill
Constructed

Prelim Design of
Compost
Facility

RFP for
Biosolids
Management

Permit Issued

Compost
Facility Preload

Compost
Facility Building

Landfill Closure
Plan

Early 1980s

2012

2013

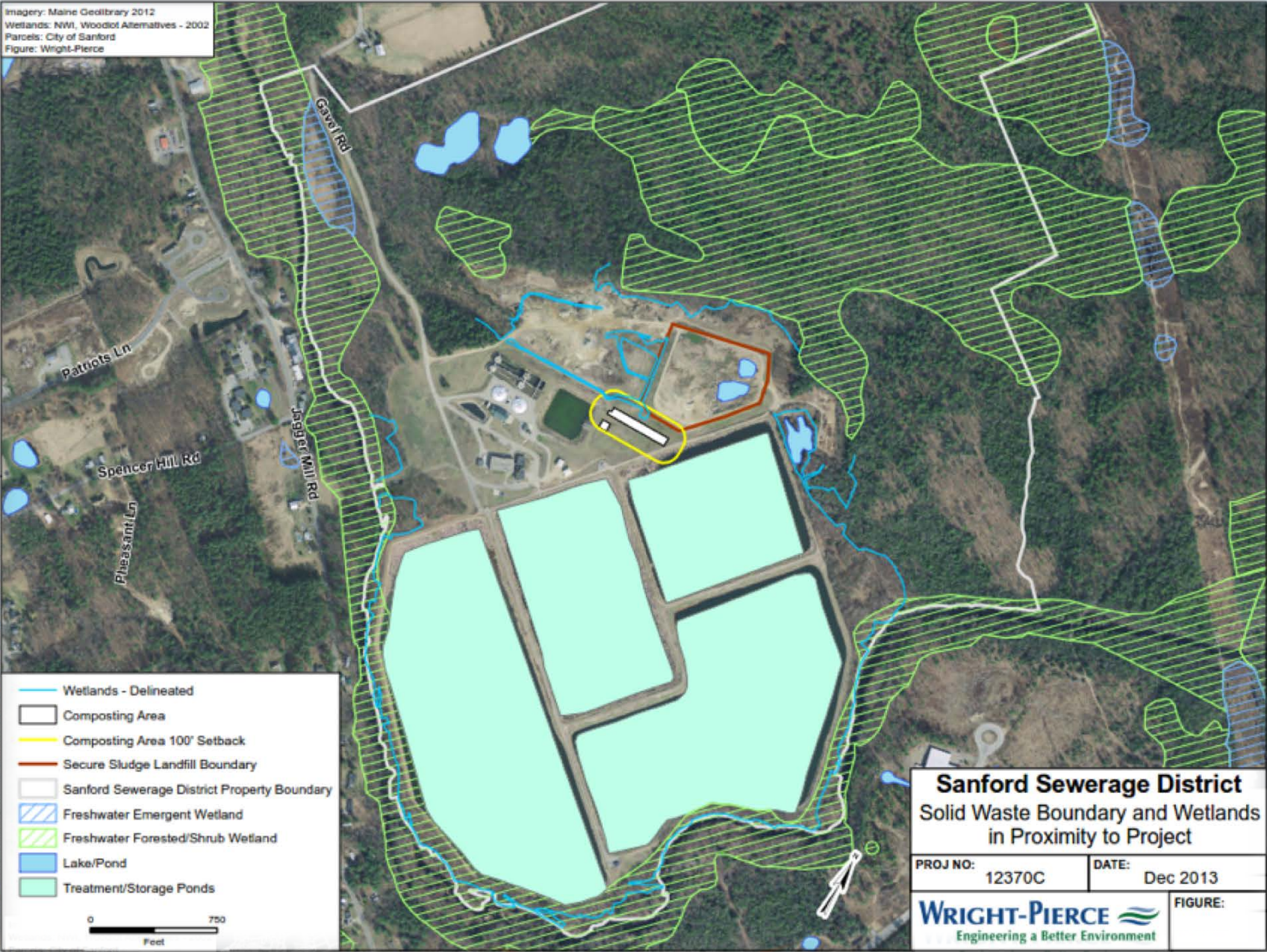
2014

2015

2016

2017

Imagery: Maine Geolibrary 2012
 Wetlands: NWI, Woodlot Alternatives - 2002
 Parcels: City of Sanford
 Figure: Wright-Pierce



C:\M. W. GIS_Development\Projects\ME_Sanford\12370C\MKDev\Fig 1 - Wetlands_0x11-Prusd.dwg

Sanford Sewerage District
 Solid Waste Boundary and Wetlands
 in Proximity to Project

PROJ NO: 12370C DATE: Dec 2013

WRIGHT-PIERCE 
 Engineering a Better Environment

FIGURE:

Figure: Wright-Pierce

Plant Performance – Solids Handling

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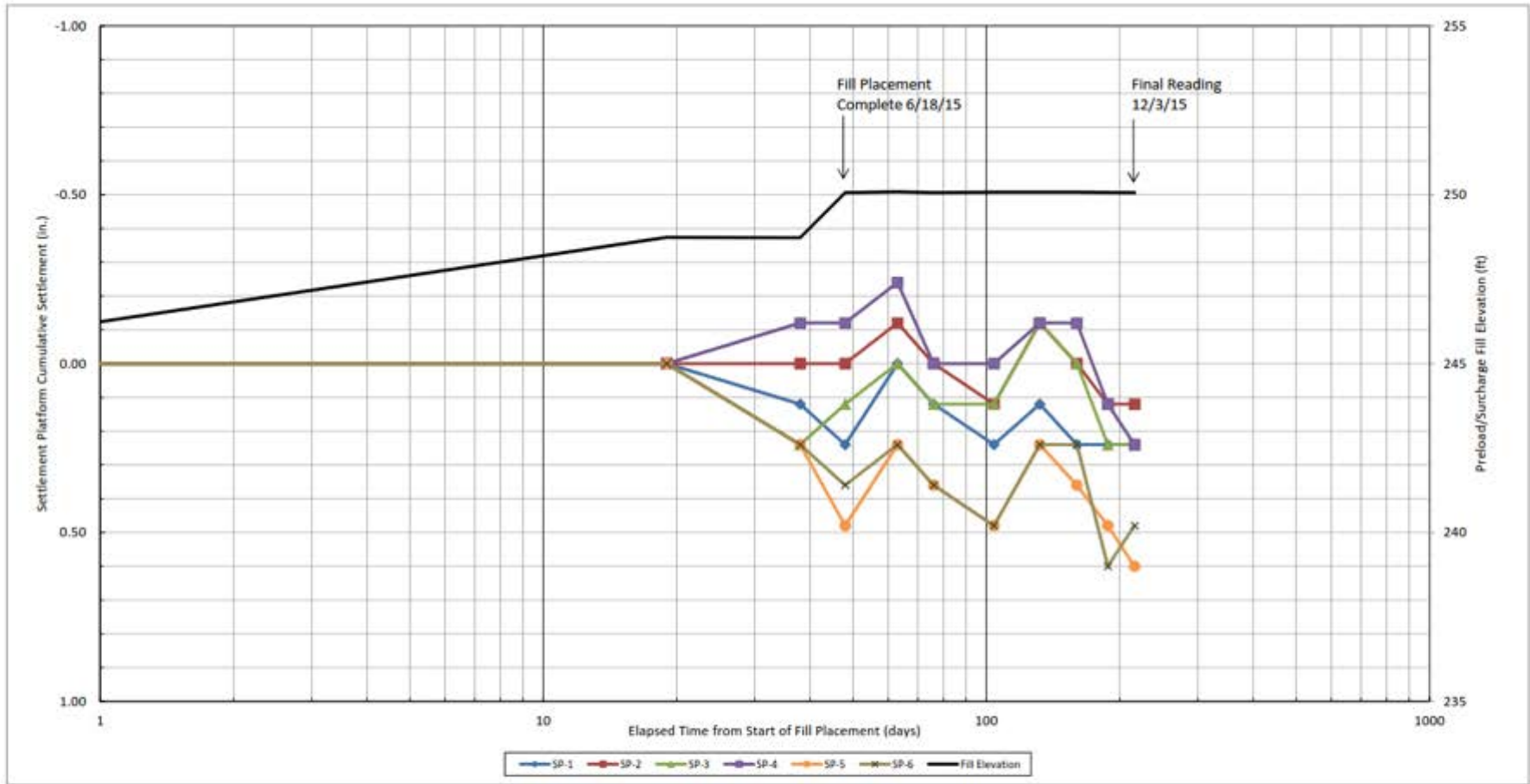
Acknowledgements

- **Sanford Sewerage District**
 - **Andre Brousseau, Superintendent**
 - **Scot Lausier, Chief Operator**



Questions?





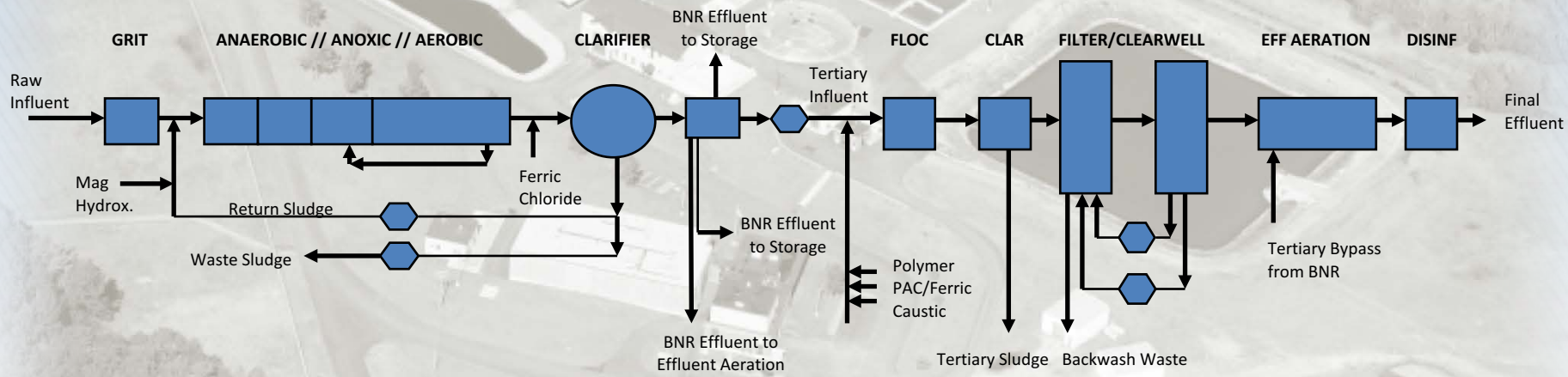
NOTES:
 1. Settlement platform and fill elevations provided by Wright-Pierce.
 2. Survey accuracy is 1/16 in. per Wright-Pierce.

COMPLETED BY: KAR
 CHECKED BY: EAF
 REVIEWED BY:

HALEY & ALDRICH PROPOSED COMPOSTING FACILITY
 SANFORD SEWERAGE DISTRICT
 SANFORD, MAINE

PRELOAD/SURCHARGE PROGRAM DATA
 1 MAY 2015 THROUGH 3 DECEMBER 2015

NOT TO SCALE
 DECEMBER 2015



TMDL Key Findings

- **Non-Attainment of Class C**
- **Low Assimilative Capacity**
- **Attached Growth Algae**
- **Decrease Nutrient Loadings**
 - **Ammonia-Nitrogen**
 - **Phosphorus**
- **Increase Dilution Factor**



Program Summary

- **Mousam River Pump Station Upgrade (\$0.5M)**
 - June 2002 to April 2003
- **WWTF Phase 1 Upgrade (\$15.5M)**
 - June 2003 to June 2005
 - Pilot testing
- **WWTF Phase 2 Upgrade (\$2.0M)**
 - October 2006 to February 2008
- **Compost Facility (\$2.0M)**
 - April 2015 to October 2017

Program Cost

- **Program Cost (2002 – Present)**
 - **Construction Costs: \$18.0M**
 - **Project Costs: \$21.4M**
 - **Projected Annual O&M Costs: \$1.5M**
 - **Construction Cost per Design ADF: \$5 per gpd**
- **Facility Construction Cost (1980 – Present)**
 - **Construction Costs: \$40M !!**
 - **Excludes Mousam River Pump Station**
 - **Excludes Treatment Plant Land (500ac.)**
 - **Construction Cost per Design ADF: \$12 per gpd**