AGENDA FOR THE CITY OF BARABOO PUBLIC SAFETY COMMITTEE

Members noticed must notify Committee Chairman Wedekind at least 24 hours before the meeting if they will not be able to attend.

Date and Time: Monday, June 27, 2016 – 1:00 P.M.
Location: **City Services Center** – 450 Roundhouse Court, Baraboo, Wisconsin
Members Noticed: Phil Wedekind, Tom Kolb, Michael Plautz
Others Noticed: Administrator E. Geick, Mayor M. Palm, Attorney A. Bolin, Police Chief M. Schauf, Fire Chief K. Stieve, T. Pinion, R. Koss, W. Peterson, E. Robkin, Media, and Library.

1. Call to Order

a. Note compliance with the Open Meeting Law.
b. Roll call.
c. Approve agenda.
d. Approve minutes of May 31, 2016 Public Safety Committee meeting.

2. New Business

a. Review and recommendation to close Oak Street, between 2nd and 3rd Streets, for a Special Event – "Foo Fest", on September 10th from Noon to Midnight, sponsored by Brothers on Oak (as a fundraiser for the Baraboo Fire Fighters' Association).
b. Consider request by Craig Hoppe to allow a connection to the City's watermain for his 10-acre parcel located on the east side of CTH A approximately 350 feet north of Trap Shoot Road in the Town of Fairfield.
c. Review Proposal summary and recommend awarding a contract for an Asbestos Abatement Project at 212 14th Street.
d. Consider Proposed Amendment to Agreement with US Cellular for the CTH A Water Tower Site
e. Review and recommend approval of the WWTP's 2015 Compliance Maintenance Annual Report.
f. Review Biosolids Process Upgrade Study for our WWTP with Tom Fitzwilliams of MSA Professional Services.

3. Reports

a. Utility Superintendent's Report
b. Street Superintendent's Report
c. Police Chief's Report
d. Fire Chief's Report

4. Adjournment

Phil Wedekind, Chairperson

Agenda Prepared by Kris Jackson
Agenda Posted by Kris Jackson June 24 , 2016

PLEASE TAKE NOTICE that any person who has a qualifying disability as defined by the Americans with Disabilities Act, that requires the meeting or materials at the meeting to be in an accessible location or format, should contact the Municipal Clerk (135 Fourth Street or phone 355-2700) during regular business hours at least 48 hours before the meeting so that reasonable arrangements can be made to accommodate each request.

It is possible that members of and possibly a quorum of members of other governmental bodies of the City of Baraboo, who are not members of the above Council, committee, commission, or board, may be in attendance at the above stated meeting to gather information. However, no formal action will be taken by any governmental body at the above stated meeting, **other than the Council, committee, commission, or board identified in the caption of this notice.**

FOR INFORMATION ONLY, NOT TO BE PUBLISHED

MEMORANDUM City of Baraboo

Date: June 24, 2016
To: Public Safety Committee
From: Tom Pinion
Re: Background for June 27th Meeting **@ 1:00 pm – City Service Center**

New Business:

Item A. Brothers on Oak has applied for a Special Event Permit for their "Foo Fest" on September 10th. This event is a fundraiser for the Baraboo Fire Fighters Association. Since the request involves the partial closure of a public street, our ordinance requires approval by the Public Safety Committee. The application form should be self-explanatory and both Chiefs can address any issues or concerns they may have. Please note that they are requesting permission to host the event until mid-night.

Item B. The City received a request from the prospective buyer of the 10-acre parcel on the east side of CTH A located approx. 350 north of Trap Shoot Road in the Town of Fairfield to connect to the City's watermain on the east side of CTH A rather than drill a new well. Section NR 812 of the Wisconsin Administrative Code prohibits private wells within 1,200 feet of any landfill (existing, proposed, or abandoned) and the majority of Mr. Hoppe's property lies within that "restricted area". Section 13.15 of the General Code of Ordinances prohibits connections to properties outside the City Limits and includes a list of specific properties that are exceptions and will be allowed to connect to this watermain. A map of these "excepted properties" is included in the packet and as you can see, Mr. Hoppe's property is not one of those properties. Ideally, we would like properties to annex to the City of Baraboo prior to requesting water service. In this case, annexation is unlikely given its proximity to the City's corporate boundaries. In order to allow Mr. Hoppe to connect, the ordinance would need to be changed. Recent case law appears to preclude any sort of pre-annexation agreement in exchange for utility service.

Item C. The City recently acquired the property at 212 14th Street from Sauk County through a tax foreclosure. The property includes a small single-family dwelling and detached garage. The existing structure is beyond repair and is scheduled for demolition. We arranged for samples to be collected and tested for asbestos containing materials and as you might expect, there is plenty. I issued an RFP for Asbestos Abatement and the Proposal Summary is attached. The plan is to demolish the buildings and offer the vacant lot in conjunction with the sale of the house the City purchased at 227 5th Avenue, which provides an opportunity to relocate a home within the City and get it back on the tax roll.

Item D. US Cellular currently leases space on the top of our CTH A water tower. They are looking to upgrade their facilities and add some additional equipment to the tower. Accordingly, we have requested they amend the existing lease agreement and they have agreed. Attached is the proposed Amendment with several pages of the plans showing the additional equipment. At our request, they did submit a structural review of the tower that verified the additional load would not affect the integrity of the tower.

Item E. Wade and the staff at the WWTP have completed their annual Compliance Maintenance Annual Report (CMAR) summarizing the previous year's operations at the WWTP. The CMAR "report card" is attached and it should be noted that Eugene Doro and the entire staff at the WWTP continue to do an outstanding job operating the plant! A full copy of the CMAR will be available at the meeting for your review.

Item F. Our capital plan for the WWTP includes the replacement of our biosolids equipment in the next few years. Since this project will necessarily result in an increase to the user rate, we wanted to review available technologies and decide which one will work best for our situation and establish a corresponding budget for this project. Earlier this year, we hired MSA Professional Services to prepare the study and Tom Fitzwilliams from MSA will be there to provide a brief progress report. Attached is a brief summary of Tom's presentation.

Have a great weekend.

See you at the **City Services Center on Monday**!

Minutes of the Public Safety Committee Meeting – May 31, 2016

Members Present: Phil Wedekind, Tom Kolb, and Mike Plautz. **Others Present:** Tom Pinion, Ed Geick, R Koss, Chief Schauf, and Atty. Alene Kleczek Bolin.

Call to Order - Committee Chairman Phil Wedekind called the meeting to order at 1:00 P.M. at the City Services Center, 450 Roundhouse Court, Baraboo, Wisconsin. Compliance with the Open Meeting Law was noted. It was moved by Kolb, seconded by Plautz to approve the agenda as posted and by voice vote, the motion carried. It was moved by Plautz, seconded by Kolb to approve the minutes of the May 2 meeting. By voice vote the motion carried.

New Business

a. Review City's Special Assessment procedure for new sidewalks and consider an alternative procedure utilizing a special charge – Pinion said that this has come up more by accident than by design. Atty Bolin joined the City and sat through the sidewalk assessment procedure this year and informed him what seems to be a much simpler procedure, at least statutory wise, instead of a special assessment, it is called a special charge; however, it follows the general same course. Under the special charge system, the Council would say what they wanted done, the order is issued and it is done, it eliminates the public hearing component. He said the special assessment charge maintains the public hearing component. He said that if the Commission feels that the special charge may be a bit simpler it doesn't mean that a public hearing has to be held; however, it doesn't mean that one can't be held, one could be held at the committee level or at Council. Attorney Bolin said that under the Special Assessment procedure there is a Preliminary Resolution, then the public hearing, and then the final resolution; however, under the Special Charge there is either resolution or ordinance, and the City can provide as much notice as wanted. Wedekind feels that the Special Assessment process gives residents too many chances at it and gets too repetitious. Pinion said from his perspective it has been a positive thing that the Council has been consistent, if they start to waiver from policy that is what will create more controversy. Plautz said that he likes the way it is done; he likes to hear what the citizens have to say before the City assesses them. Attorney Bolin said that the citizens would have a chance to speak before the resolution or ordinance was done. Discussion then took place regarding where the citizens should speak if going with the special charge procedure, at the Commission level or Council. Atty Bolin said that the City would still have to use the same procedure that is currently being used now for everything other than sidewalks. Geick feels that for sidewalks it would be a good idea and simplifies the matter. Pinion said that the payment options would remain the same under either procedure. Kolb moved to utilize the special charge procedure as long as all affected citizens are notified prior to the work being done. The motion was seconded by Plautz. Motion carried unanimously.

b. Consider imposing a parking restriction on Waldo Street between South Blvd. and Quarry Street – Pinion said that he has received a handful of complaints, especially since South Blvd. as been finished. He said that this is an offset intersection with Hitchcock, but with vehicles parking along Pointon Communications, it is more difficult to see traffic that is cued up there, it effectively narrows the street which makes traffic turning movement more difficult to achieve. Therefore, a suggestion has been made to eliminate parking. He said that it is already posted as no parking on the east side of the road, and now it is being requested to restrict parking on the west side also. I was moved by Kolb, seconded by Plautz to restrict parking on the west side of Waldo Street between South Blvd. and Quarry Street. Motion carried unanimously.

c. Consider imposing a parking restriction on the west side of Broadway north of 7th Avenue – Pinion said that he has several complaints from the same individual, he has lived there for seven years and doesn't like the vehicles parked along Gateway Gardens. He said that there is a truck and trailer that is parked there routinely, and the individual feels that it impairs his ability to see oncoming traffic. He said that he has not received any other complaints and he and Chief Schauf have reviewed this and they don't see this as being problematic. Schauf said that it is a pickup truck and trailer parked there, but it isn't in violation of ordinance and does not create any specific sight or roadway obstruction that has caused him any concern. It was moved by Wedekind, seconded by Kolb not to impose a parking restrict on the west side of Broadway north of 7th Avenue. Motion carried unanimously.

d. Consider request for a Handicap Accessible Parking Stall on west side of Oak Street, between 2nd and 3rd Avenues, near Yarns Art Café at 401 Oak Street – Pinion said that he has had several requests from the proprietor of the Yarn Arts Café, which use to be located next to the Coffee Bean on 5th Avenue and Oak Street and is now located at the old Alliant Energy Building on 2nd and Oak. He said that the owner has said that she has some elderly customers that come in to crochet and knit and she would like an accessible parking stall so they would have a place to park. He then gave the Committee a summary of parking stalls, there are 10 different on-site accessible stalls in the downtown area, an additional 15 in municipal parking lots in the immediate downtown area. He said that when stalls are posted for accessible parking, it is exclusively for the people that are eligible and taking away one for the general public. He said that he asked Lacey Steffes, President of DBI as to whether they would be willing to offer some recommendations on these, whether we should move one or add one when these requests come in and she said that DBI would more than willing to provide the City with that level of feedback. He said that he doesn't know if the Committee has to act on it now, DBI's next meeting isn't until June 21, but in this particular case where Yarns Art Café is on the northwest quadrant of that section, and kitty-corner across the intersection is the upper parking lot of the Civic Center parking lot and there are three stalls in that lot marked as accessible. Kolb asked Schauf if those stalls were routinely filled and he said no. Pinion said that another difficulty with a on-street parking stall, in this case these are parallel stalls, there is no accessible isle, the ramp would have to fold down on top of the curb to give good wheelchair access from the vehicle to the sidewalk, if that isn't the situation, people still have to navigate that six-inch high curb or roll their wheelchair down to the corner where there is a ramp. Plautz moved, Kolb seconded to deny the request for a handicap accessible parking stall on the west side of Oak Street, between 2nd and rd Avenues, near Yarns Art Café at 401 Oak Street. Motion carried unanimously.

e. Consider request by Gary Zellmer, owner of the property at S4159 CTH A in the Town of Baraboo, to connect to the City's watermain on CTH A – Attorney Bolin said that the City can decide the boundaries of where to provide utilities and water; therefore, it is a legal thing that can occur. She said that she was approached by Engineer Pinion to look at doing a pre-annexation agreement which would require the owner to agree to annex the property once that it became contiguous to the City; however, legally we can't do that, therefore, there is really nothing that the City can do to insure that the owner would annex the property at a later date. She said that one thing that would be helpful, that the City hasn't been able to accomplish is a boundary agreement with the Town of Baraboo. Pinion said that once the property owners have sewer and/or water, it takes away their incentive to annex because they have the services that would really afford them; however, the Water Utility could always use the addition revenue. Pinion said at this time the ordinance restricts access outside the City to the 13 designated properties, if the Committee wants to expand that, the ordinance would need to be changed; however, there couldn't be any string attached to it that would be associated with annexation at any point in the future. Pinion said that Zellmer just purchased this property and the property condition report suggests the well needs new casings, so he can spend dollars on another temporary well, or he could put the money towards a permanent connection to the City's water main. Kolb moved, Plautz seconded to deny the request of Gary Zellmer, owner of the property at S4159 CTH A in the Town of Baraboo to connect to the City's watermain on CTA A. Motion carried u unanimously.

f. Review and Approval monthly Billing Adjustments/Credits for Sewer and Water Customers for May 2016 – It was moved by Kolb, seconded by Plautz to approve the monthly billing adjustments/credits for Sewer and Water Customers for May. Motion carried unanimously.

Reports

a. Utility Superintendent's Report – Peterson was not present, due to an emergency dig, where a vehicle hit a fire hydrant on Ash Street. Pinion said that Trenchless Technology project on Water Street went very well, and it was finished one week ahead of the Circus World Museum's summer opening. The Department is now on its valve exercising and flushing program at this time. He said that the department has started their 10-hour days earlier in the month, which is going very well. The department has a summer intern that will be sharing time between the water utility and sewer utility doing some of the small tasks; he graduated from high school last week and will be majoring in natural resources at UW-Stevens Point. He said that the department is working toward the 4th Street Water Main Project that was awarded to A-1 Construction at the last Council meeting and that won't begin until the end of July, following the Circus Parade. Wedekind asked start times for other street projects. Pinion said that A-1 is moving in to start those projects on June 13th, starting on Barker. Koss went to retrieve schedule. Pinion said that a little bit of grinding is being done and a company is doing some sidewalk raising, and the sidewalk maintenance program is also starting. He said that the Washington and 3rd Street project will begin immediately following the fair. He said that this is week number four on the railroad project in the Industrial Park and is going well.

b. Street Superintendent's Report – Koss said that the last truck that needs major improvements is Truck 8, 1996 Ford 8000. He said the chassis is in excellent shape, the box that is being looked at is the same type that was on it, which was 16 years old and is the one that discharges salt in front of the rear wheels. He said that he would like to keep one truck that is setup this way, which is called an all-purpose box. He said that the only difference with this box is instead of an auger it is just a belt. He said that he received two quotes, one from Universal and one from Monroe. The Universal quote was $56,000, and Monroe was $38,000, the difference in price being the Monroe box the City can utilize all the same hydraulics, which is the old cable type that functions very well. The Universal had the electrical hydraulic, the newer type, but more problems. Koss suggested going with Monroe, saying he talked to the people that are currently operating this type of box and they love it, it is stainless steel and should definitely last the lifetime of the truck. He said that the money will be coming out of the Capital Equipment Fund. He went to say that they will be starting basins on 8th; it will be milled probably in August. Wedekind asked when the project on 8th is going to be done, Pinion said that he has to finish up the bid in the next couple weeks and in talking with the asphalt contractors it would fit their schedules best in August.

c. Police Chief's Report – Schauf said the department is getting into the busy season with parades, festivals, and the fair. He said that the Community Dinner that was held two weekends ago without a hitch, problem, or concern. He went on to say that the department is gearing up for the homicide trial, four different suspects that will be going to trial at some point and they have a lot of work to do on that. He then said that the department is trying to get rid of property, they donated 15 bikes to St. Vincent de Paul, 15 to People Helping People, and 15 to Habitat For Humanity.

d. Fire Chief's Report – Chief Stieve was not present.

ADJOURNMENT – Kolb moved, Plautz seconded to adjourn the meeting at 1:50 p.m. Motion carried.

Respectfully submitted,

Phil Wedekind, Chairman

SPECIAL EVENT AND ENTERTAINMENT APPLICATION
(Outdoor Event That May Disrupt Normal Use of Public Facilities)
City of Baraboo, 135 4th Street, Baraboo, WI 53913
608-355-2700 or 608-356-9666 (fax)

FOR OFFICE USE
Fee due at time of filing, non-refundable and non-transferable. $150.00 if event involves use of public property or right-of-way. $35.00 if only held on private property.
100-10-44290
Receipt #_____
Copies to:
o BID (if downtown)
Fee waived for units of Gov't.

Per Section 12.05 Municipal Code of Baraboo: Any person operating, conducting or managing any outdoors exhibition, shows, amusement, carnival, circus, parade, lecture, speech or assembly, concert or musical entertainment where the general public is invited shall obtain a license.

Name of Organization: Brothers On Oak

Address of Organization: 412 Oak St

Organization is tax exempt: [ ] Yes Payer Identification# _____ [X] Not tax exempt

NAME OF SPONSOR (PERSON RESPONSIBLE FOR EVENT)	STREET ADDRESS	CITY, ZIP	PHONE # (ALL POSSIBLE NUMBERS)	EMAIL ADD.
GRANT SLAYTON	412 Oak St	Baraboo 53913	608-356-8000 608 963 8196	grequiswoods@hotmail.com

NAME OF SECONDARY CONTACT PERSON	STREET ADDRESS	CITY, ZIP	PHONE # (ALL POSSIBLE NUMBERS)	EMAIL ADD.

[X] **Insurance Requirements (If event includes use of public property or right-of-way):** Please provide required certificate of insurance at least seven working days prior to the event. Sponsor understands that permission will not be granted until the required proof of insurance wherein the City of Baraboo is named as an additional insured is received. Required limits are contractual liability with minimum limits of $300,000 for the injury or death of one person, $50,000 for property damage, and $1,000,000.00 coverage for the event. (Waived if event is held at the Sauk County Fairgrounds.)

Name of Event: FOO FEST

Describe Event: (attached copy of any promotional material you will be distributing for this event)
See Attached

Check Types of Activities Being Planned: (Some activities may require additional licenses)

[X] Vendors [X] Amplified Music [ ] Unamplified Music [X] Dance [ ] Auction [X] Concessions
[X] Alcohol [ ] Crafts [ ] Religious Service [ ] Speeches [ ] Flea Market [ ] Parade

Estimated Crowd Attendance: 1000 people

Date(s) of Event: Sept. 10, 2016 Duration: (Start) 9/10/16 (Finish) 9/11/16

If less than full day, specify hours: 12:00pm to 12:00am (with VARIANCE)
OR 12:00pm to 10:00pm without VARIANCE

Exclusive Vending Rights Desired? (Means Event Organizer will schedule and place vendors at specific locations) ☒ Yes ☐ No

Proposed Vendor Fees: _____ Number Desired: _____

If yes, List Vendor Contact Person Name Greg Slayton

Address 412 Oak St Baraboo Phone # 608-963-8196

Location of Event: Oak St between 2nd street and 3rd street.

Street Name(s), intersections and specific block(s) including alley(s), parking stall(s) and sidewalk(s) that will be closed or impaired from normal use as a result of this event: (illustrate on attached map)

See Attached

Handicap Parking Guidelines (where applicable): The Sponsor acknowledges that if an event closes a street or parking lot, all handicap spaces eliminated must be replaced on a 1-to-1 basis. A map is attached to this application. Please indicate which stalls will be relocated including their temporary relocation.

# of handicap spaces eliminated: 0 # of handicap spaces replaced: _____

- **Payment of City Services**: If the City estimates that the City costs for the event exceed $500, the license shall not be issued unless a bond is filed with the City Clerk. The applicant must pay itemized actual costs of city services within 30 days of demand, or the bond shall be forfeited. The applicant has appeal rights before the Administrative Review Committee. In addition, the applicant may request that costs be waived to the Finance Committee per Code 12.05(4)(c).
- **Notice of Termination of Event**: A license may be terminated by the Baraboo Police Department or Fire Department before or during the event per Code 12.05(6).
- **Emergency Access Routes:** An unobstructed access lane of at least 18 feet wide and continuous must be maintained.
- **Clean Up:** The Sponsor of the event shall be responsible for the cleanup of all streets, sidewalks and alleys within the area of the permit

Signature of Sponsor: _____ Date: 5/25/16

Sponsor understands that they are directly responsible for conducting the event.

Must be Co-Signed by an Officer of the Organization:

GRS MGT LLC
Name

GRANT SLAYTON
Printed Name

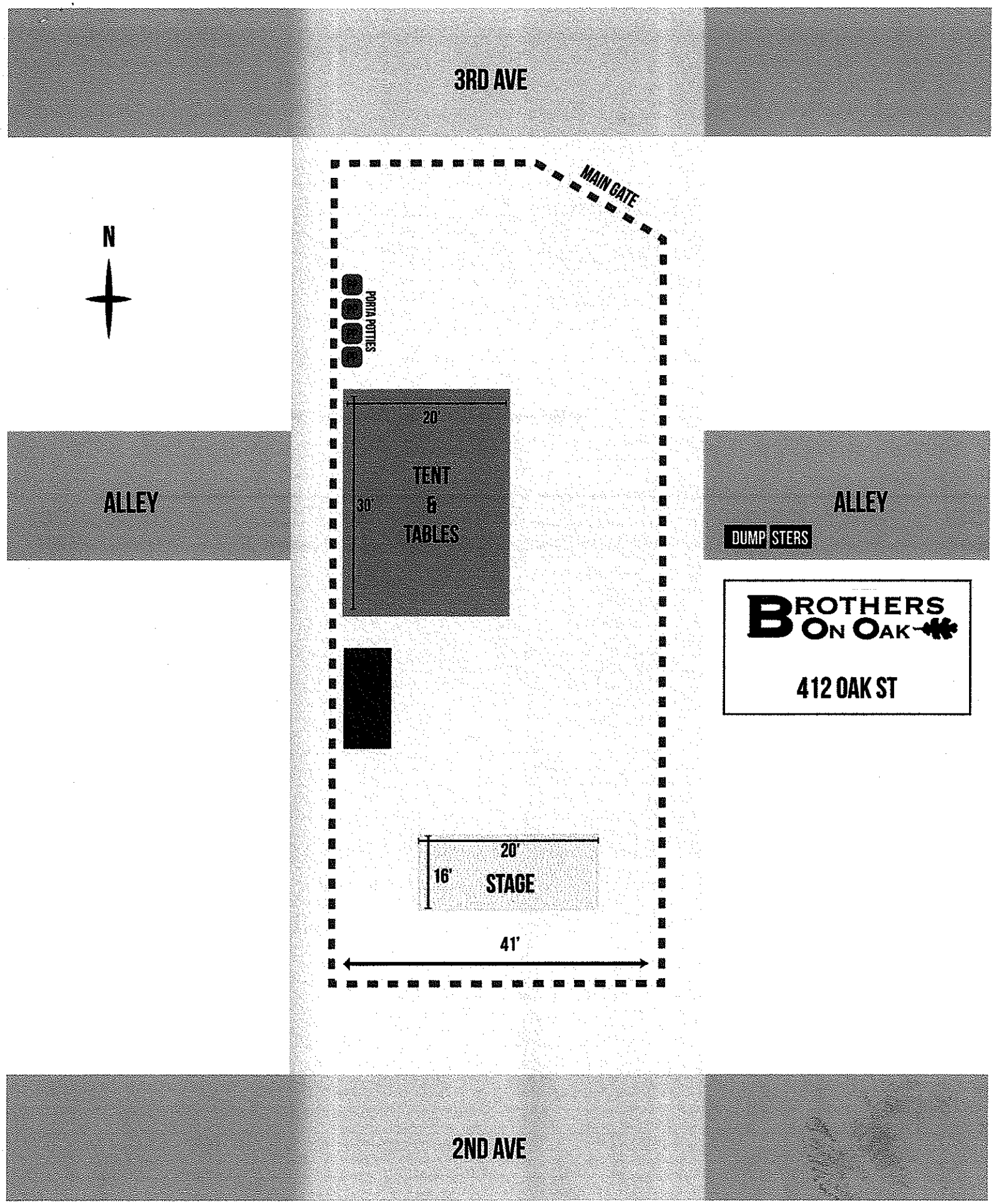
MANAGING Member
Title

5/25/16
Date

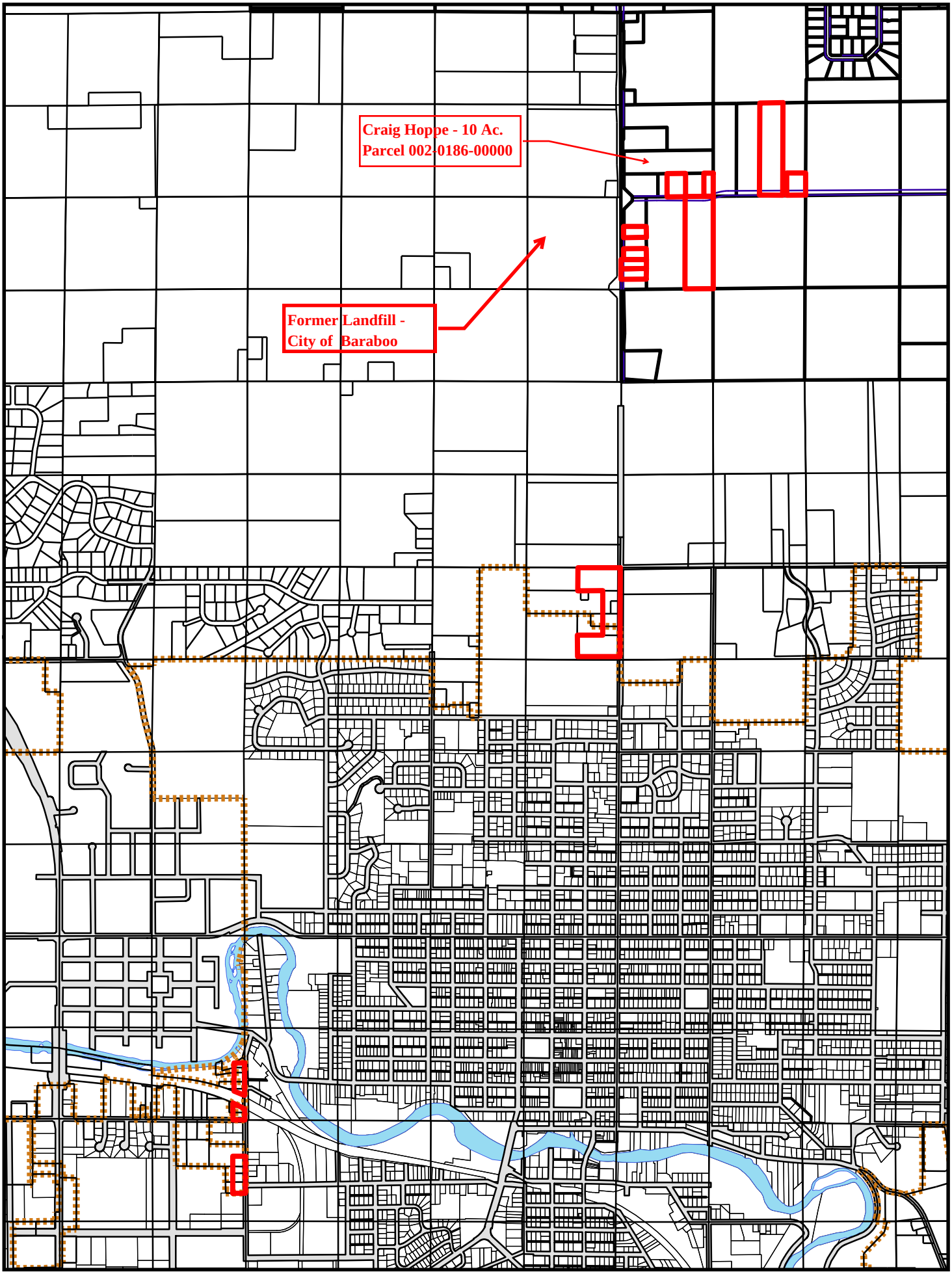
Untitled

Our plans are to hold an event (FOO FEST) that will be held from 12:00pm to Midnight on Saturday, September 10th; in the 400 Block of Oak Street between 2nd and 3rd Ave. The event will primarily be a fund raiser for the Baraboo Fire Dept. Beer, Brats and Raffle Tickets will be sold by volunteer fireman during the event. All profits from the outdoor event will go to BFD. All out of pocket start up costs will be covered by Brothers on Oak. There will be a live DJ playing Top 40 from the stage area under the 20' x 30" tent (provided by Tents and Events). The tent will be erected at approximately 8:00pm on Saturday and taken down Sunday morning at 6:00am. The Baraboo Police Dept. will be present during the entirety of the event. Brothers on Oak will provide a license supervisor all of the beer servers and provide additional security. All entrants will be given a wrist brand for age verification. No minors will be allowed in the fenced area. The 400 block running from 2nd ave to 3rd Ave will be enclosed with snow fencing and barrels. There will be and entrance on the north end of the enclosed area. There will be 4 portal potties placed in the SE corner. They will delivered before the event and picked up Monday Sept 12th. All clean up will be completed by 7:00am Sept. 11th. 4 construction dumpsters will be placed in the alley. They are 42" wide and will not impede traffic through the alley. There are currently 4 in the alley now. Picnic tables will be placed in open areas and under the tent. A map of the proposed area is attached. I've drawn as close to scale as I can. A more professional rending will be presented to the council.

We are requesting a variance to the city's 10:00 pm noise ordinance. We would like live music to be allowed to be played till 11:30 pm. This will allow us 30 minutes to disperse the crowed and to conclude the event by Midnight. We are prepared to speak with all residential occupants and business owners along Oak St. that may be effected by the live music extension time. We believe this extra two hours of event time could potentially more then double the event sales for the BFD. There was no incidents last year associated with the event and we are prepared to reimburse the city for police supervision.


3RD AVE
MAIN GATE
N
PORTA POTTIES
20'
30'
TENT
&
TABLES
ALLEY
ALLEY
DUMPSTERS
BROTHERS ON OAK
412 OAK ST
20'
16'
STAGE
41'
2ND AVE

OUTSIDE WATER SERVICE AREA



CITY OF BARABOO
ASBESTOS ABATEMENT @ 212 14TH STREET
Proposal Summary

June 21, 2016

BIDDER	APPROX QTY	UNIT OF ITEM	TOTAL PRICE
Airtite Environmental Services, LLC	1	LS	$7,240.00
A & A Environmental, Inc.	1	LS	$7,389.00
Dirty Ducts Cleaning Environmental & Insulation, Inc	1	LS	$11,125.00
Robinson Brothers Environmental, Inc	1	LS	$12,585.00

SECOND AMENDMENT LICENSE AGREEMENT

THIS SECOND AMENDMENT TO LICENSE AGREEMENT (the "Second Amendment"), made the _____ day of _____, 2016, modifies that certain License Agreement dated the 15th of December, 2001, as amended by the First Amendment to License Agreement dated the 25th of March, 2015 (collectively, the "Agreement") by and between the City of Baraboo ("City") and United States Cellular Operating Company LLC, a Delaware limited liability company, Attention: Real Estate Lease Administration, 8410 West Bryn Mawr Avenue, Chicago, Illinois 60631 ("Company").

WHEREAS, City and Company entered into the Agreement to allow Company to locate telecommunications equipment on the water tower owned by City and located at 4329 County Hwy A in the City of Baraboo, and;

WHEREAS, City and Company hereby agree to amend the Agreement to add equipment onto the Property.

NOW THEREFORE, the parties agree that the Agreement is hereby modified as follows:

I. Section 2b, License, is hereby modified only to allow the addition of three (3) Remote Radio Units ("RRUs") and one (1) Raycap to the already agreed upon twelve (12) antennas already located on the Property.

Effective the first day of the month following installation of Company's equipment contemplated under this Amendment, the annual License Fee will increase by two thousand four hundred and 00/100 dollars ($2,400.00) a year and pro-rated for any partial year. The same annual escalator shall apply and in no case shall the amount due under the Agreement be reduced.

II. Section6(f), Installation and Maintenance of Communication Facilities, is hereby modified only to the extent that the maintenance inspection will only occur five (5) years.

III. Section 22, Security for Removal, is hereby deleted and replaced as follows:

"Company shall provide to City a performance bond in the amount of ten thousand ($10,000.00) dollars to ensure that the Communications Facilities will be removed and the Premises restored at termination or expiration of this Agreement. The City will be named as the obligee in the bond.

IV. Agreement Exhibit B is hereby amended as shown on the attached Amendment Exhibit B-1.

V. The structural analysis contained in Agreement Exhibit C is hereby superseded and replaced with the structural analysis contained in Amendment Exhibit C-1.

VI. Company shall assist City in complying with requests made under the Wisconsin Open Records Law.

VII. In all other respects the Agreement is hereby ratified and affirmed without change.

IN WITNESS WHEREOF, the parties hereto bind themselves to this Amendment as of the date of full execution.

City of Baraboo	United States Cellular Operating Company LLC
By: _____	By: _____
Printed: _____	Printed: _____
Title: _____	Title: Vice President
Date: _____	Date: _____

[NOTARY PAGE TO FOLLOW]

STATE OF _____)
)
COUNTY OF _____)

I, the undersigned, a notary public in and for the State and County aforesaid, do hereby certify that _____, known to me to be the same person whose name is subscribed to the foregoing Second Amendment to License Agreement, appeared before me this day in person and acknowledged that he signed the said Amendment as his free and voluntary act for the uses and purposes therein stated.

Given under my hand and seal this ____ day of _____, 20___.

_____

Notary Public

My commission expires _____

STATE OF ILLINOIS)
)
COUNTY OF COOK)

I, the undersigned, a notary public in and for the State and County aforesaid, do hereby certify that _____, Vice President, known to me to be the same person whose name is subscribed to the foregoing Second Amendment to License Agreement, appeared before me this day in person and acknowledged that, pursuant to his authority, he signed the said Amendment as his free and voluntary act on behalf of the named Company, for the uses and purposes therein stated.

Given under my hand and seal this ____ day of _____, 20___.

_____

Notary Public

My commission expires _____

EXHIBIT B-1

(see attached pages)

SITE LOCATION MAP

LOCATION SCAN

U.S. Cellular

BARABOO NW [#785325]
BARABOO, WISCONSIN
LTE CAPACITY DRAWINGS
110' WATER TOWER

SHEET INDEX:

NO.:	PAGE TITLE:
T-1	TITLE SHEET
C-1	SITE PLAN
C-2	ENLARGED SITE PLAN
A-1	TOWER ELEVATION
A-2	ANTENNA DETAILS
A-3	INSTALLATION DETAILS
A-4	INSTALLATION DETAILS
A-5	COAX ROUTING DETAILS
A-6	COAX ROUTING DETAILS
N-1	INSTALLATION NOTES

STRUCTURAL NOTE

LTE CAPACITY STRUCTURAL ANALYSIS:
COMPLETED BY:
EDGE CONSULTING ENGINEERS, INC.
REPORT #:10814
DATED: 09/11/2014
CONCLUSION: STRUCTURALLY ADEQUATE

LTE CAPACITY SCOPE

EXISTING ANTENNAS:	(6) CDMA ANTENNAS TO REMAIN, (3) PCS ANTENNAS TO REMAIN, (3) LTE ANTENNAS TO BE REPLACED.
PROPOSED EQUIPMENT:	(3) 8' LTE ANTENNAS, (1) HYBRID CABLE, (1) RAYCAP SPD & (3) REMOTE RADIO UNITS TO BE INSTALLED
EXIST. SHELTER PENETRATION:	NEW PENETRATION NEEDED TO ACCOMODATE HYBRID CABLE.
EXIST. INTERIOR G.B.:	CAN ACCOMMODATE ADDITION OF (1) HYBRID CABLE. CAN ACCOMMODATE ADDITION OF (1) GROUND KIT.
EXIST. LOWER AGB:	FIELD VERIFY CAPACITY OF EXISTING GROUND BAR AND REPLACE IF NECESSARY.
EXIST. UPPER AGB:	(1) 8" SCH 40 PVC CONDUIT PROPOSED TO ACCOMODATE PROPOSED HYBRID CABLE
SPECIAL REQUIREMENTS:	WATER TOWER COAX ENCLOSURE TO BE REPLACED TO ACCOMODATE ADDTIONAL STUB UP PROPOSED SHELTER COAX ENCLOSURE TO ACCOMODATE CONDUIT STUB UP PROPOSED BETA SECTOR LTE ANTENNA TO BE RELOCATED TO EMPTY MAST PIPE AND MOVED SOUTH TO ALLOW MUNICIPALITY OMNI ANTENNA IT'S OWN MAST PIPE

PROJECT DIRECTORY:

ENGINEERING COMPANY:
EDGE CONSULTING ENGINEERS, INC.
624 WATER STREET
PRAIRIE DU SAC, WI 53578
CONTACT: DAVID LYSHEK
PHONE: 608.644.1449

U.S. CELLULAR
ONE PIERCE PLACE
SUITE 800
ITASCA, IL 60143
CONTACT: MICHAEL VANSELOW
PHONE: 630-285-1971

SITE ACQUISITION:
WIRELESS PLANNING, LLC
2310 MILL STREET
NEW LONDON, WI 54961
CONTACT: JIM WEINMANN
PHONE: 920.986.3286

PREVIOUS SURVEYOR:
SIMMONS & ASSOCIATES CONSULTING
515 LONCOLN HIGHWAY
ROCHELLE, IL 61068
815.562.9087

PROJECT INFO:

SITE LOCATION:
S. 4329 COUNTY HWY A (EAST ST.)
BARABOO, WI 53913

SITE #: 785325

PROPERTY OWNER:
CITY OF BARABOO
135 4TH STREET
BARABOO, WI 53913
CONTACT: WADE PETERSON
PHONE: 608.355.2740

2C INFORMATION (NAD 1983/91)
-TOWER BASE- (APPROX.)
LAT: 43°-29'-16.50"
LONG: 89°-44'-26.03"
GROUND ELEVATION (NGVD 29): 1103'

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN, CALL DIGGER'S HOTLINE

TOLL FREE
1-800-242-8511
FAX A LOCATE 1-800-338-3860

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

ENGINEER SEAL:
WISCONSIN
DAVID C. LYSHEK
39472
PRAIRIE DU SAC, WI
PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN.

Signature:

Date: 5/12/2016

Edge
Consulting Engineers, Inc.
624 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
608.644.1549 fax
www.edgeconsult.com

SHEET TITLE:
TITLE SHEET
BARABOO NW [#785325]
BARABOO, WISCONSIN

ISSUE DATE:
FINAL DRAWINGS - 01/28/2015
REVISIONS:
ANTENNA REVISIONS - 1/28/2015
CONDUIT REVISIONS - 7/16/2015
LL REVISIONS - 5/11/2016
DRAWN BY: AGJ, ADP, LMK
CHECKED BY: DLL
PLOT DATE: 5/11/2016
PROJECT #: 13175
FILE NAME: T-1.dgn
SHEET NUMBER: T-1

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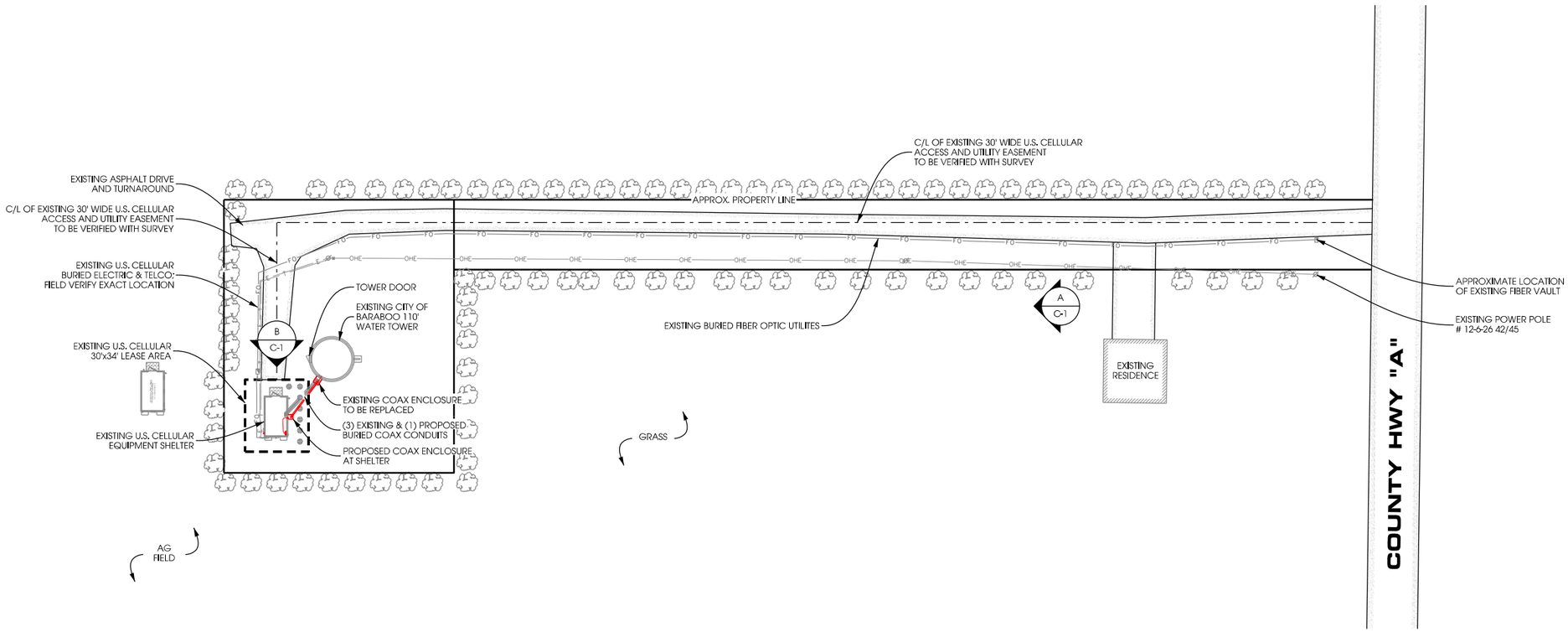
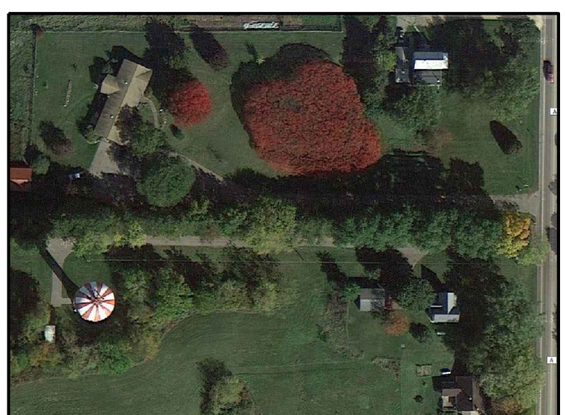
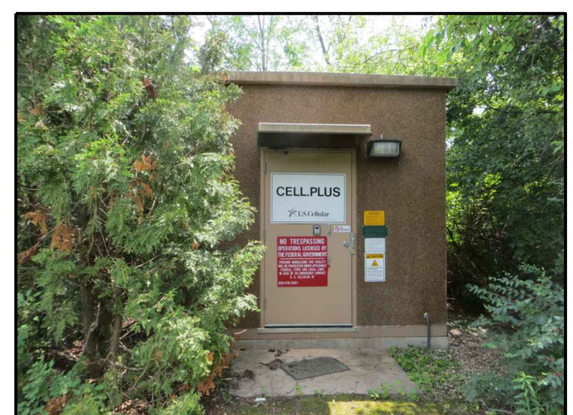




AERIAL OVERVIEW

A **SITE OVERVIEW (LOOKING WEST)**



B **COMPOUND OVERVIEW (LOOKING SOUTH)**

NOTE:

NO NEW SURVEY PROVIDED. SITE LAYOUT BASED ON PREVIOUS SURVEY PERFORMED BY SIMMONS & ASSOCIATES.

30' 0' 30' 60'

SCALE: 11" x 17" - 1" = 60'
22" x 34" - 1" = 30'

Edge Consulting Engineers, Inc.
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Prairie du Sac, WI 53578
608.644.1449 voice
608.644.1549 fax
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SHEET TITLE:

SITE PLAN
BARABOO NW [#785325]
BARABOO, WISCONSIN

ISSUE DATE:	
FINAL DRAWINGS - 01/28/2015	
REVISIONS:	
ANTENNA REVISIONS - 1/28/2015	
CONDUIT REVISIONS - 7/16/2015	
LL REVISIONS - 5/11/2016	
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AGJ, ADP, LMK	
CHECKED BY:	
DLL	
PLOT DATE:	
5/11/2016	
PROJECT #:	
13175	
FILE NAME:	
C-1.dgn	
SHEET NUMBER:	
C-1	

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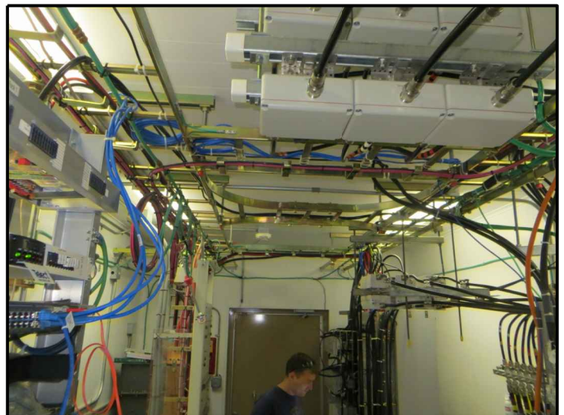
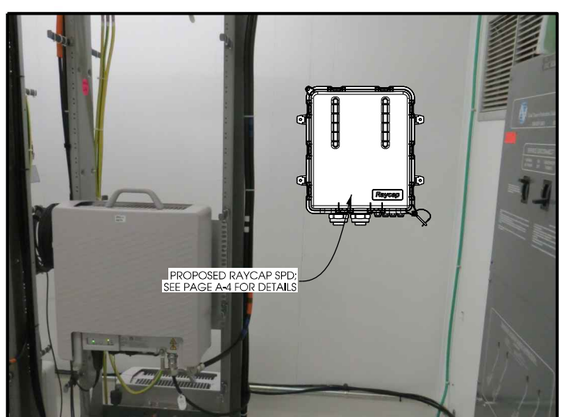
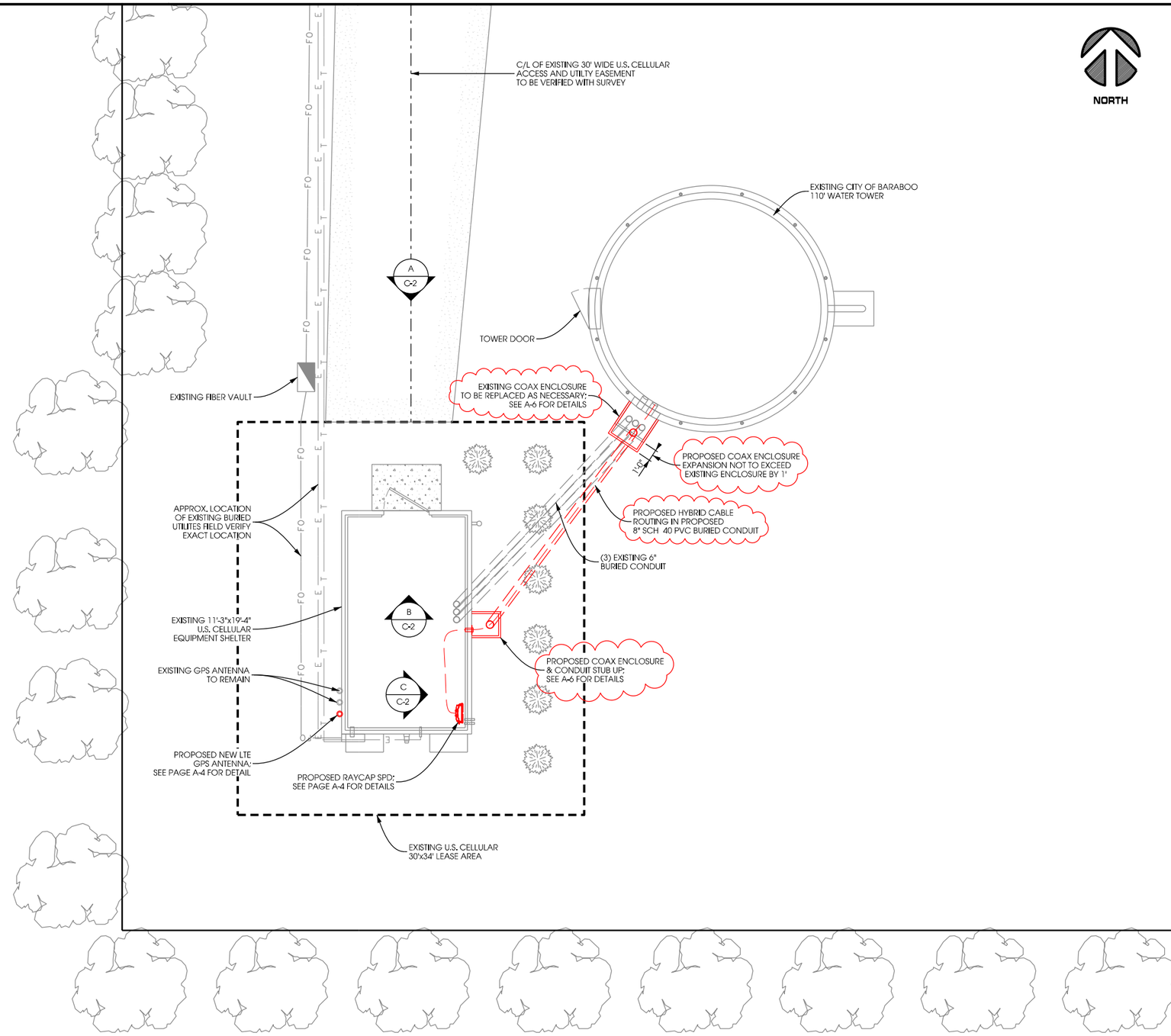
A **COMPOUND OVERVIEW [LOOKING SOUTH]**



B **EQUIPMENT SHELTER INTERIOR VIEW [LOOKING NORTH]**



C **DESTINATION OF PROPOSED RAYCAP SPD**



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ENLARGED SITE PLAN
BARABOO NW [#785325]
BARABOO, WISCONSIN

SHEET TITLE:

ISSUE DATE:	
FINAL DRAWINGS - 01/28/2015	
REVISIONS:	
ANTENNA REVISIONS - 1/28/2015	
CONDUIT REVISIONS - 7/16/2015	
LL REVISIONS - 5/11/2016	
DRAWN BY:	AGJ, ADP, LMK
CHECKED BY:	DLL
PLOT DATE:	5/11/2016
PROJECT #:	13175
FILE NAME:	C-2.dgn
SHEET NUMBER:	C-2

NOTE:

NO NEW SURVEY PROVIDED. SITE LAYOUT BASED ON PREVIOUS SURVEY PERFORMED BY SIMMONS & ASSOCIATES.

5' 0' 5' 10'

SCALE: 11" x 17" - 1" = 10'
22" x 34" - 1" = 5'

I:\13100\13175\CAD\Plot\C-2.dgn

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NOTES:

CONTRACTOR TO VERIFY HEIGHT AND DIRECTION OF ANTENNA WITH PROJECT MANAGER.

ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH.

ANTENNA LAYOUT BASED ON TOWER INVENTORY - SEE PAGE T-1.

REFER TO STRUCTURAL ANALYSIS AS IDENTIFIED ON PAGE T-1. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND COAX ROUTING. ANY DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

NOTES:

EXISTING WATER TOWER IS PAINTED WITH ALTERNING RED AND WHITE STRIPS. PAINT REPLACEMENT ANTENNAS IN ACCORDANCE WITH THEIR ALIGNMENT WITH UNDERLYING STRIPES.

9 x 18 HYBRID CABLE LENGTH		
QUANTITY FROM EQUIPMENT RACK	1	
LENGTH FROM EQUIPMENT RACK	55 FT	20 m
LENGTH FROM T.O.C. TO BREAKOUT	125 FT	40 m
TOTAL LENGTH OF HYBRID CABLE	180 FT	60 m
* HYBRID CABLE LENGTH OF 32 - 164 FT (10 - 50m) = 10 AWG CABLE (1.12 IN. DIA.)		
* HYBRID CABLE LENGTH OF 165 - 328 FT (60 - 100m) = 8 AWG CABLE (1.3 IN. DIA.)		
* HYBRID CABLE CAN ONLY BE ORDERED IN 32' (10m) LENGTHS ONLY		

FIBER JUMPER CABLE INFO		
	BREAKOUT TO RRU	
ALPHA SECTOR	4 FT	1.22 m
BETA SECTOR	10 FT	3.05 m
GAMMA SECTOR	10 FT	3.05 m
* MAXIMUM JUMPER LENGTH OF 16' (5m)		

COAX JUMPER CABLE INFO	
	RRU TO PROPOSED ANTENNA
ALPHA SECTOR	10 FT
BETA SECTOR	10 FT
GAMMA SECTOR	10 FT
COAX JUMPERS TO BE ROUNDED TO 5' INCREMENTS	

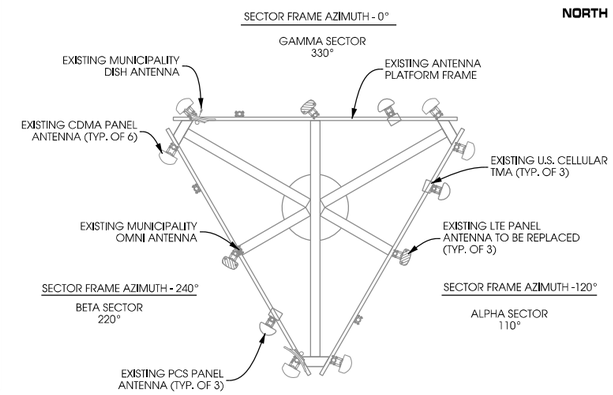
ANTENNA LEGEND:

- PROPOSED ANTENNA TO BE INSTALLED
- PROPOSED RRU TO BE INSTALLED
- PROPOSED RAYCAP SPD TO BE INSTALLED
- EXISTING LTE ANTENNA TO BE REPLACED
- EXISTING CDMA ANTENNA TO REMAIN
- EXISTING PCS ANTENNA TO BE REMAIN
- EXISTING TMA UNIT TO REMAIN

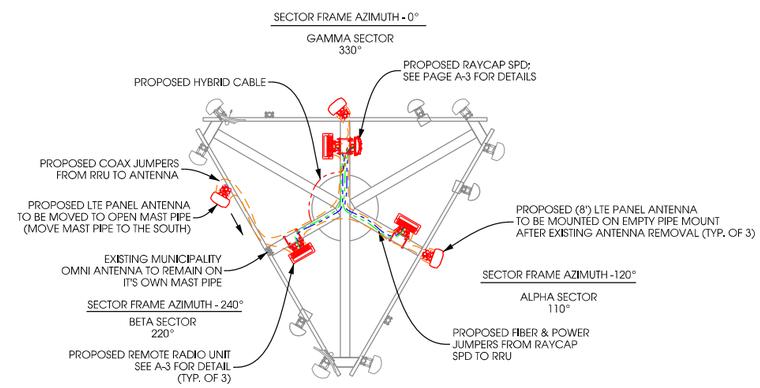
NOTE:

ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH

NORTH



EXISTING



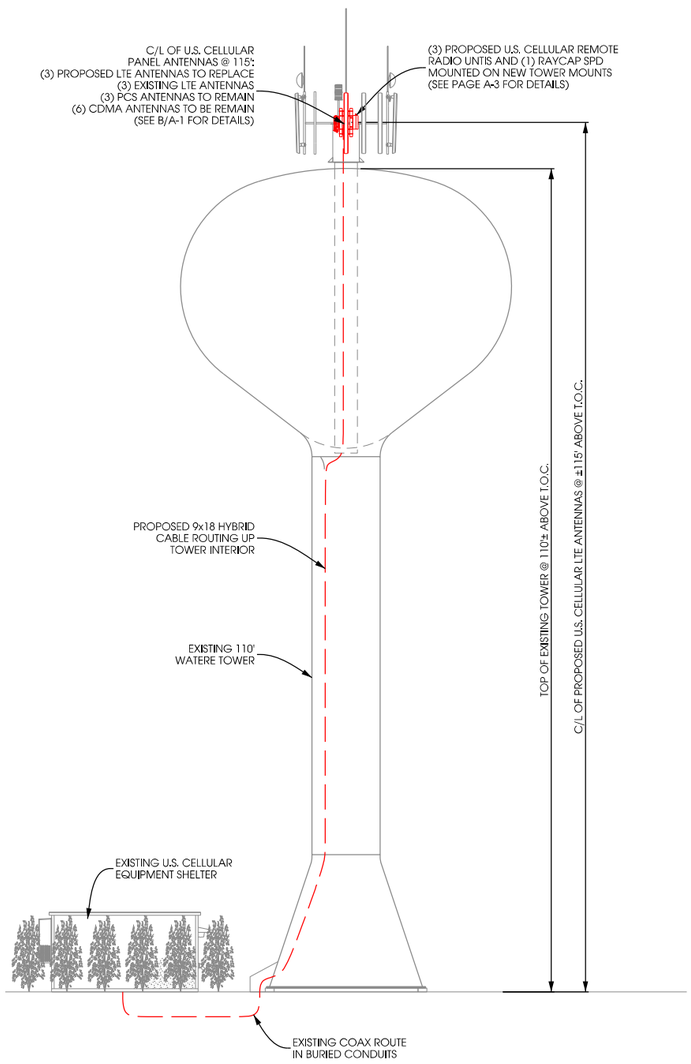
PROPOSED

U.S. CELLULAR RF ENGINEER TO VERIFY ANTENNA CONFIGURATION

Proposed Loading

Sector	Antenna Model	Ant Qty	Tech	Band	Rad Ctr.	Coax Size	Coax Qty	Coax Length	Azm	Mech Tilt	"RET" Tilt	Top Bias-T	Btm Bias-T	Combiner
Alpha	800 10766V01	1	LTE	B5/B12/B2	115	1-5/8"	2		110	0		1	0	DBC0056F1V1-1
Alpha			LTE	B2	115	H 9x18	1	70m						RRU11
Alpha	WPA-80080-6CF-EDIN-0	2	CDMA	B5	115	7/8"	2		110	0		0	0	None
Alpha	HB-X-AW-19-65-0TM-RET	1	PCS	B4	115	7/8"			110	0		0	0	TMA
Beta	800 10766V01	1	LTE	B5/B12/B2	115	1-5/8"	2		210	0		1	0	DBC0056F1V1-1
Beta			LTE	B2										RRU11
Beta	WPA-80063-6CF-EDIN-0	2	CDMA	B5	115	7/8"	2		210	0		0	0	None
Beta	HB-X-AW-19-65-0TM-RET	1	PCS	B4	115	7/8"			210	0		0	0	TMA
Gamma	800 10766V01	1	LTE	B5/B12/B2	115	1-5/8"	2		320	0		1	0	DBC0056F1V1-1
Gamma			LTE	B2										RRU11
Gamma	WPA-80080-8CF-EDIN-0	2	CDMA	B5	115	7/8"	2		320	0		0	0	None
Gamma	HB-X-AW-19-65-0TM-RET	1	PCS	B4	115	7/8"			320	0		0	0	TMA

OPERATING BAND	FREQUENCY BAND	COMMON NAME
BAND 2	1900	PCS
BAND 4	1700	AWS
BAND 12	700	SMH



A **TOWER PROFILE (EAST ELEVATION)**

SCALE: 11" x 17" - 1" = 20'-0"
22" x 34" - 1" = 10'-0"

TOWER ELEVATION - LOOKING WEST -

B **ANTENNA PLATFORM ASSIGNMENT**

SCALE: NTS

SEE N-1 FOR COLOR CODING

Edge Consulting Engineers, Inc.
624 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
608.644.1549 fax
www.edgeconsult.com

TOWER ELEVATION
BARABOO NW [#785325]
BARABOO, WISCONSIN

SHEET TITLE:

ISSUE DATE:
FINAL DRAWINGS - 01/28/2015

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ANTENNA REVISIONS - 1/28/2015
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LL REVISIONS - 5/11/2016

DRAWN BY: AGJ, ADP, LMK
CHECKED BY: DLL
PLOT DATE: 5/11/2016
PROJECT #: 13175
FILE NAME: A-1.dgn

SHEET NUMBER: **A-1**

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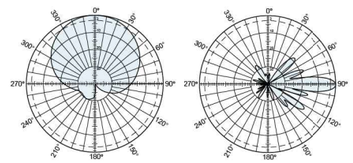
KATHREIN
SCALA DIVISION

800 10766

700 MHz Dual Band 8', 65 Degree Antenna RET

- X-polarized (+45° and -45°).
- UV resistant fiberglass radomes.
- Wideband vector dipole technology.
- DC Grounded metallic parts for impulse suppression.
- RET motor housed inside the radome and field replaceable.

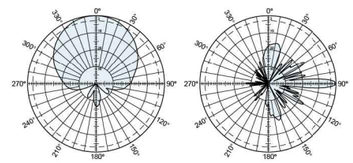
698–894 MHz



Horizontal pattern ±45°- polarization

Vertical pattern ±45°- polarization 0°–10° electrical downtilt

1710–2170 MHz

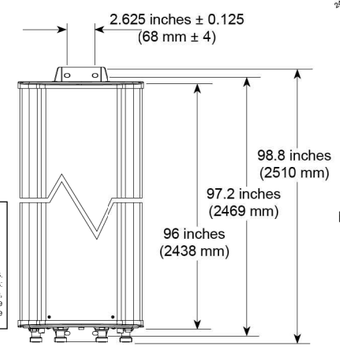


Horizontal pattern ±45°- polarization

Vertical pattern ±45°- polarization 0°–10° electrical downtilt

General specifications:

Frequency range	698–894 MHz // 1710–2170 MHz
Impedance	50 ohms
VSWR	<1.5:1
Intermodulation (2x20w)	IM3:< -150 dBc
Polarization	+45° and -45°
Connector	4 x 7-16 DIN female (long neck)
Isolation	intrasystem >30 dB // intersystem >35 dB
See reverse for order information.	

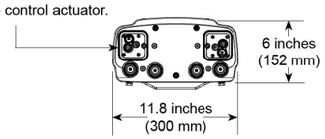


KATHREIN 860 10149

Tested To Comply With FCC Standards

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: Refer to part number 860 10149 for the specifications of the remote control actuator.



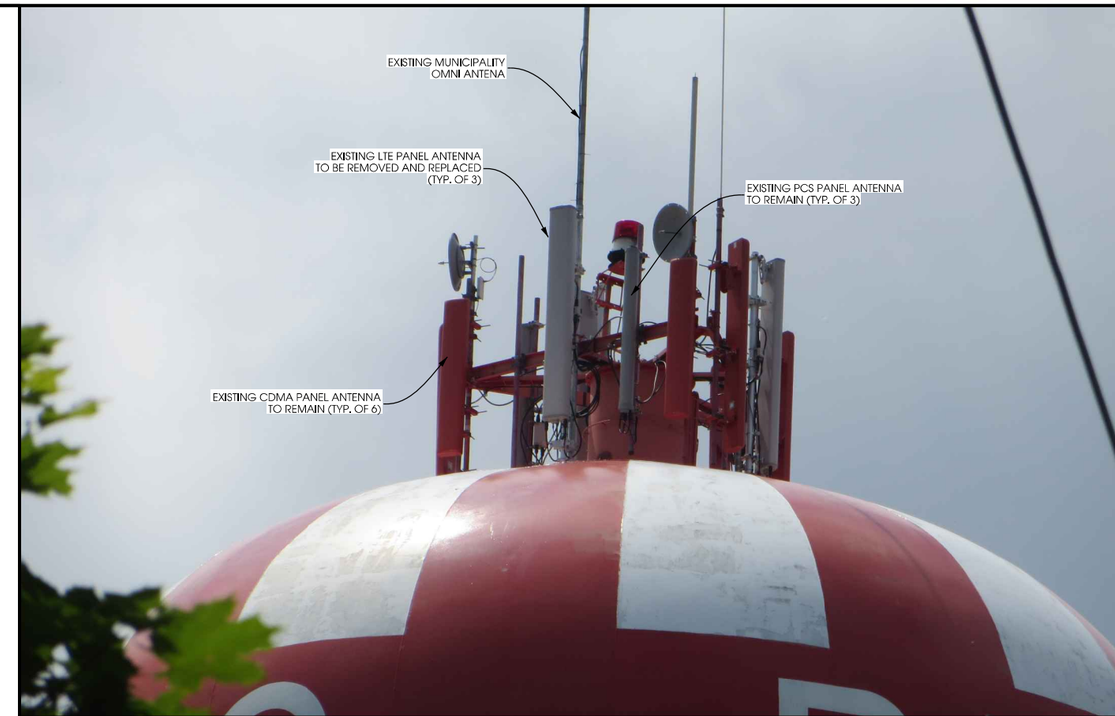
Mechanical specifications:

Weight	58.4 lb (26.5 kg)
Dimensions	96 x 11.8 x 6 inches (2438 x 300 x 152 mm)
Wind load Front/Side/Rear	at 93 mph (150kph) 286 lbf / 106 lbf / 297 lbf (1270 N) / (470 N) / (1320 N)
Mounting category	H (Heavy)
Wind survival rating*	150 mph (240 kph)
Shipping dimensions	104.6 x 12.6 x 7.5 inches (2656 x 320 x 190 mm)
Shipping weight	71.6 lb (32.5 kg)
Mounting	Mounting hardware included for 2 to 4.6 inch (50 to 115 mm) OD masts.

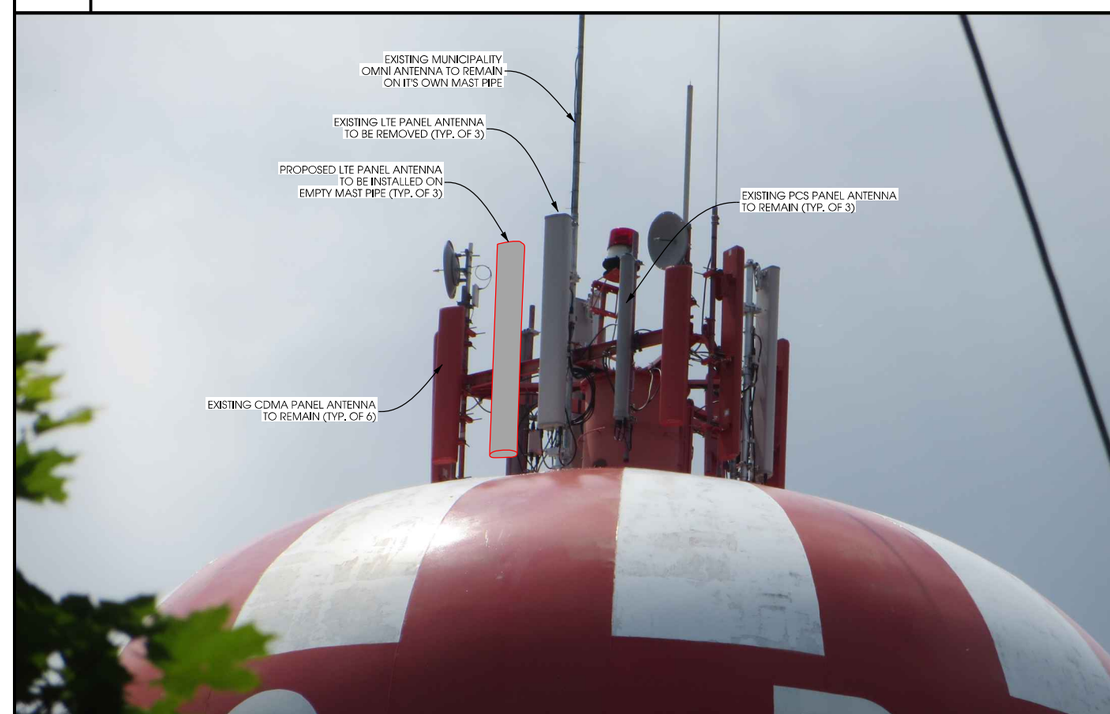
Specifications:	**698–806 MHz**	**824–894 MHz**	**1710–1755 MHz**	**1850–1990 MHz**	**2110–2170 MHz**
Gain	16.4 dBi	16.8 dBi	18 dBi	18.5 dBi	18 dBi
Front-to-back ratio	>30 dB (co-polar) 34 dB (average)	>30 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)
Maximum input power per input	500 watts (at 50°C)	500 watts (at 50°C)	300 watts (at 50°C)	300 watts (at 50°C)	300 watts (at 50°C)
+45° and -45° polarization horizontal beamwidth	68° (half-power)	65° (half-power)	63° (half-power)	62° (half-power)	63° (half-power)
+45° and -45° polarization vertical beamwidth	9.5° (half-power)	8.7° (half-power)	5.8° (half-power)	5.8° (half-power)	5.8° (half-power)
Electrical downtilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–10°	0°–10°
Min sidelobe suppression for first sidelobe above main beam average	0° 5° 10° T 16 16 16 dB 18 20 18 dB	0° 5° 10° T 18 18 16 dB 20 20 20 dB	0° 5° 10° T 18 18 18 dB 20 22 20 dB	0° 5° 10° T 18 18 18 dB 20 22 20 dB	0° 5° 10° T 18 18 18 dB 20 22 20 dB
Cross polar ratio Main direction 0° Sector ±60°	 25 dB (typical) >10 dB, 15 dB (avg)	 20 dB (typical) >10 dB, 12 dB (avg)	 25 dB (typical) >8 dB, 15 dB (avg)	 30 dB (typical) >10 dB, 15 dB (avg)	 25 dB (typical) >8 dB, 15 dB (avg)
Tracking, avg.	1 dB	1 dB	1.5 dB	1.5 dB	1.5 dB
Squint	±2.5°	±2.5°	±3°	±3°	±3°

A **ANTENNA SPECIFICATION**

SCALE: NTS



B **EXISTING U.S. CELLULAR ANTENNAS @ 115.0'**



C **PROPOSED U.S. CELLULAR ANTENNAS @ 115.0'**

Edge Consulting Engineers, Inc.
624 Water Street
Prairie du Sac, WI 53578
608.644.1449 voice
608.644.1549 fax
www.edgeconsult.com

ANTENNA DETAILS
BARABOO NW [#785325]
BARABOO, WISCONSIN

SHEET TITLE:

ISSUE DATE:	FINAL DRAWINGS - 01/28/2015
REVISIONS:	ANTENNA REVISIONS - 1/28/2015
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PROJECT #:	13175
FILE NAME:	A-2.dgn
SHEET NUMBER:	A-2

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Compliance Maintenance Annual Report

Baraboo Wastewater Treatment Facility

Last Updated: 6/17/2016 Reporting For: 2015

Grading Summary

WPDES No: 0020605

SECTIONS	LETTER GRADE	GRADE POINTS	WEIGHTING FACTORS	SECTION POINTS
Influent	A	4	3	12
BOD/CBOD	A	4	10	40
TSS	A	4	5	20
Phosphorus	A	4	3	12
Biosolids	A	4	5	20
Staffing/PM	A	4	1	4
OpCert	A	4	1	4
Financial	A	4	1	4
Collection	A	4	3	12
TOTALS			32	128
GRADE POINT AVERAGE (GPA) = 4.00				

Notes:

A = Voluntary Range (Response Optional)

B = Voluntary Range (Response Optional)

C = Recommendation Range (Response Required)

D = Action Range (Response Required)

F = Action Range (Response Required)

MSA PROFESSIONAL SERVICES
More ideas. Better solutions.®

Memo

To: Wade Peterson & Eugene Doro

From: Bill Weaver, P.E. , Tom Fitzwilliams

Subject: Wastewater Treatment Facility Biosolids Process Upgrade Study

Date: June 21, 2016

Biosolids Processing Study

The City of Baraboo's existing biosolids handling and stabilization equipment has reached the end of its design life. Continued maintenance and diminishing performance of the existing equipment has become a financial burden on the City.

Currently, waste activated sludge (WAS) is dewatered by a belt filter press, stabilized through an N-Viro lime stabilization process, stored, and utilized as a soil conditioner. The stabilization process involves the addition of lime and cement kiln dust, to dewatered sludge. The sludge is allowed to cure while meeting specific criteria for time, temperature, and pH. Following stabilization, the dry product can be stacked and stored without significant odor or loss of stability prior to land application.

The City's current biosolids dewatering and stabilization processes and options for future equipment replacement will be evaluated in this study. The following items will be evaluated and summarized:

- Existing WWTF Data and Performance
- Biosolids Processing Design Conditions
- Biosolids Dewatering Process Evaluation
- Biosolids Stabilization Process Evaluation
- Recommended Plan

<u>Existing WWTF Data and Performance</u>

Figures 1 through **4** are attached and summarize treatment parameters that are significant to understanding the City's historical treatment trends and forecasting their future flows and loadings. Each figure shows eight years of data and ranges from January 2008 to December 2015. **Figure 1** shows daily WWTF effluent flows and clearly identifies a downward trend. **Figure 2**

shows the daily WWTF influent TSS concentrations and clearly identifies an increasing trend. **Figure 4** shows the daily influent BOD concentrations and clearly identifies an increasing trend. Due to a steadily rising influent TSS and BOD concentration and a declining forward flow, the daily influent TSS and BOD loadings have remained relatively constant and are shown in **Figures 3 and 5** respectively. The City's declining forward flow and increased TSS and BOD concentration are likely due to their continued efforts to reduce infiltration and inflow from the collection system. **Figure 4** shows the average daily volume of activated sludge that is wasted from the WWTF's biological treatment process and identifies a relatively stable trend. Currently, the waste activated sludge is dewatered via belt filter press, stabilized via lime stabilization, and stored prior to land application. On average the existing belt filter press produces 16-17% cake and uses approximately 14 pounds of active polymer per dry ton of dewatered biosolids. The dewatered cake is then transferred to an N-Viro lime stabilization process that routinely produces a 46% dry product and uses approximately 37 pounds of lime and 970 pounds of cement kiln dust per wet ton of processed biosolids.

Biosolids Processing Design Conditions

In order to conservatively forecast the future design conditions for new biosolids processing equipment, it's critical to understand the City's projected population growth. **Figure 7**, attached, shows two sets of population projections, the City's 2005 Comprehensive Plan using Wisconsin DOA projections through 2025 and the current Wisconsin DOA projections through 2040. Both sets of projections indicate future growth for the City, however the WWTF data presented in **Figures 1** through **6** contradict the projections and indicate a stable population with minimal growth between January 2008 and December 2015. The current Wisconsin DOA projections indicate the City will experience a 15% increase in population between 2015 and 2035. DOA population projections indicate minimal growth, 0.7%, between 2035 and 2040. A 15% increase in population over the next 20-years will be assumed when calculating the biosolids process and handling design conditions. The 20-year design population is 14,450.

The existing biosolids processing and storage facility design was based on an average day WAS wasting rate of 39,000 gallons per day (gpd) at 1.2% biosolids concentration. The current basis of design results in a dry biosolids wasting rate of 3,900 pounds per day (lb/day). The actual daily average WAS wasting rate over the past 8 years is 23,000 gpd. Average annual biosolids concentrations ranged from 1.0 to 1.2%, with the highest annual average biosolids concentration occurring in 2015 at 1.23%. **Table 1** summarizes the City's historical WAS wasting rates.

Table 1 – Historical WAS Wasting Rates

	Hydraulic Load		Biosolids Load	
WAS	**Year(s)**	**gallons/day**	**Year(s)**	**pounds/day**
Minimum	2012	20,100	2013	1,600
Maximum	2006	24,700	2014	2,400
Average	2008-2015	22,700	2008-2015	2,100

Two changes in future WAS production that should be considered include the potential for increases in sludge production resulting from future chemical phosphorus removal and increases in biosolids loading to the WWTF from new commercial or industrial users. For the purposes of this study, a 30% increase in sludge production due to chemical phosphorus removal and an increase in WAS biosolids concentration to 1.4% will be conservatively assumed over a 20-year planning period. **Table 2** summarizes existing basis of design, current conditions and design conditions under the assumptions mentioned above. The 2036 design conditions outlined in **Table 2** identify the biosolids processing and handling capacities required by the City for the next 20 years. The City currently has sufficient storage capacity to handle the proposed 20-year design conditions. Modifications to the City's existing biosolids storage building are not anticipated.

Table 2 – Design Conditions

2036 Population – 14,450 **WAS**	**Existing Basis of Design**	**Current Conditions**	**2036 Design Conditions**
Average Daily Hydraulic Load (gpd)	39,000	23,000	35,000
Average Daily Biosolids Load (lb/day)	3900	2100	4100
Average Concentration (%)	1.2	1.1	1.4

<u>Biosolids Dewatering Process Evaluation</u>

In the summer of 2015, that City evaluated a Schwing dewatering screw press and Centrisys dewatering centrifuge as potential technologies to replace their aging belt filter press. Pilot studies were conducted at the WWTF for both the screw press and centrifuge. In review of the initial results, the City determined that a dewatering centrifuge would be the most cost effective replacement for the belt filter press.

A summary of the centrifuge pilot test, as provided by Centrisys, is attached in **Appendix A**. Two liquid emulsion polymers were used during the pilot test, Ashland K279FLX and AquaChem EM1835. The AquaChem polymer is currently used by the City for dewatering with the WWTF's existing belt filter press. Use of the Ashland polymer for the pilot test was recommended by Centrisys. The centrifuge produced cake biosolids with an average concentration of 20.5%. The average biosolids capture efficiency was 98.5%. The average polymer dose required by the centrifuge was 27.5 pounds active polymer per dry ton of processed biosolids. Following completion of the pilot study, Centrisys has proposed a polymer dose of 25 pounds active polymer per dry ton of processed biosolids.

In comparison, the existing belt filter press historically produces cake biosolids with an average concentration of 16-17%, has an average biosolids capture efficiency of 95%, and requires an average polymer dose of 14 pounds of active polymer per dry ton of processed biosolids. Even though polymer consumption was higher with the Centrifuge as compared to the City's existing belt filter press, the enhanced performance of the centrifuge to provide higher percent cake biosolids and increased capture efficiency are significant. Costs due to increases in polymer usage with a centrifuge will likely be offset by lower lime and cement kiln dust usage for the

downstream stabilization process. **Table 3** presents the cost savings resulting from increased polymer, reduced lime, and reduced cement kiln dust usage due to increased dewatered solids concentration. **Table 3** also summarizes the estimated annual power, water and assumed maintenance costs associated with the City's existing belt filter press and the proposed centrifuge. Savings could approach $39,000 per year assuming historical average lime and cement kiln dust dosing. **Table 3** assumes the production of Class A biosolids.

Table 3 – Annual Chemical Usage

Dewatering Chemical Use	**Centrifuge**	**Belt Filter Press**
Active Polymer		
Unit Cost ($/ton)	$ 5,000	$ 5,000
Dose (ton/dry ton solids)	25	14
Annual Usage (ton)	9	5
Annual cost ($)	$ 47,000	$ 26,000
Cake Solids Concentration	20%	16%
Solids Capture Efficiency	98.5%	95%
N-Viro Stabilization Chemical Use		
Lime		
Unit Cost ($/ton)	$ 150	$ 150
Dose (ton/wet ton solids)	150	150
Annual Usage (ton)	276	332
Annual Cost	$ 41,000	$ 50,000
Cement Kiln Dust		
Unit Cost ($/ton)	$ 50	$ 50
Dose (ton/wet ton solids)	800	800
Annual Usage (ton)	1,470	1,772
Annual Cost	$ 74,000	$ 89,000
Processed Solids Concentration	46%	46%
Annual Cost Comparison and Savings		
Annual Chemical Cost	$ 122,000	$ 165,000
Annual Water Costs	$ 9,800	$ 14,400
Annual Power Costs	$ 15,000	$ 5,000
Annual Maintenance	$ 3,900	$ 5,300
Subtotal	$ 150,700	$ 189,700
Annual Savings	$ 39,000	$ -

In conclusion of the centrifuge pilot study, Centrisys recommended the installation of a model CS21-4 centrifuge with a design hydraulic loading of 110 gallons per minute (gpm) and biosolids loading capacity of 771 pounds per hour to replace the existing belt filter press. The proposed design hydraulic loading rate would require the City to dewater approximately 5 days per week in order to meet the proposed design conditions. Through follow-up discussions with Centrisys, it was determined that a model CS21-4HC with a design hydraulic loading capacity of 150 gpm

and biosolids loading of 1,051 pounds per hour would serve as a more appropriate replacement for the City's existing belt filter press. The increase in the design hydraulic loading rate from 110 gpm to 150 gpm, will allow that City to run their dewatering operations three days per week, at 6 hours per day, under current conditions. Under the proposed 20-year design conditions, it is anticipated that the City would need to run their dewatering operations five days per week, at 6 hours per day. **Table 4** outlines the equipment and initial budgetary capital costs associated with each item. The costs in **Table 4** do not include installation or ancillary items such as piping, electrical, structural modifications, etc. Additional information regarding capital costs, operation and maintenance costs, and present worth costs are summarized in **Appendix B**.

Table 4 – Biosolids Dewatering Equipment

Equipment	Budgetary Capital Costs
Centrifuge Feed Pump	$25,000
Centrifuge	$394,300
Sludge Cake Conveyors	$75,000
Polymer System	$25,000
Centrate Return Pumps	$16,000
Total	$535,300

<u>Biosolids Stabilization Process Evaluation</u>

Two lime stabilization processes were evaluated as part of this study. The City currently operates a CemenTech (manufacturer recently change their name to Alka-Tech) N-Viro process and has been very satisfied with its historical performance. Dewatered cake is fed to a large hopper were a combination of lime and cement kiln dust are fed from two existing silos and mixed with the cake. The alkaline mixture is used to increase the pH of the sludge to greater than 12, and to increase the temperature sufficiently to kill pathogenic organisms in the sludge. The lime and cement kiln dust mixture absorb much of the moisture and also drives some of it off with increased temperature. Sludge odors (particularly hydrogen sulfide) are destroyed in the process, though the odor of ammonia being driven off at the elevated pH may be noticeable. Once the sludge and admixture are combined, they are transferred to the biosolids storage building via belt conveyor for additional handling and storage. The N-Viro process is capable of producing both Class A and Class B biosolids. This process is performed by manipulating the fractions of lime and cement kiln dust dosed to the dewatered cake biosolids. Manipulation of these admixtures is commonly a seasonal consideration and depends on available land for disposal as a soil conditioner. Typically Class A biosolids would require a higher dose of lime as compared to Class B biosolids. The initial budgetary capital costs for this equipment is $498,758. Replacement of the City's existing equipment with this process would be considered in-kind.

The Schwing Bioset process was the second lime stabilization process evaluated in this study. The process fundamentally operates on the same principals as the N-Viro process and is capable of

similar performance, but reaches the end goal through subtly different mechanical means. The initial budgetary capital costs for this equipment is $855,275.

Table 5 compares the 20-year present worth costs for both stabilization alternatives assuming dewatering will be accomplished via centrifuge. **Table 5** assumes the production of Class A biosolids. Due to the difference in capital costs, the City's familiarity with the N-Viro equipment, and historical reliability of the N-Viro process, the City should replace their existing N-Viro stabilization equipment in-kind.

Table 5 – Present Worth Comparison

	Capital Costs	O&M	20-Year Present Worth
Centrifuge & N-Viro Stabilization	$2,331,000	$196,000	$4,839,000
Centrifuge & Stabilization via Bioset	$2,958,000	$175,000	$5,188,000

Recommended Plan

Dewatering via centrifuge and stabilizing sludge via the N-Viro process are cost effective and reliable biosolids handling and treatment options for the City. **Table 6** summarizes the major recommended equipment upgrades. **Figure 8** illustrates the anticipated biosolids processing flow schematic. **Figure 9** provides a potential equipment layout within the City's existing biosolids processing building. **Table 7** summarizes the estimated present worth cost of upgrading the City's biosolids dewatering and stabilization equipment. Additional information regarding capital costs, operation and maintenance costs, and present worth costs are summarized in **Appendix B**.

Table 6 – Recommended New Equipment

Equipment
Centrifuge Feed Pump
Dewatering Centrifuge
Polymer System
Sludge Reversing Conveyor
Sludge Transfer Conveyor
Centrate Return Pumps
N-Viro Stabilization Equipment
Lime conveyor
Cement kiln dust conveyor

Table 7 – Estimated Costs

Structure	Item	Design Life	Total Capital Cost	Replacement Cost	Salvage Value
Solids Handling Building Improvements	Architectural & Structural	40	$ 326,000		$ 163,000
	Dewatering Equipment	20	$ 705,000		$ -
	Stabilization Equipment	20	$ 615,000		$ -
		Subtotal	**$ 1,646,000**	**$ -**	**$ 163,000**
Contingencies (20%)			**$ 329,000**		
		Subtotal	**$ 1,975,000**		
Engineering (18%)			**$ 356,000**		
Total Estimated Capital Costs			**$ 2,331,000**		
Annual Operation and Maintenance Costs			**Annual Cost**		
Electrical			$ 18,000		
Operations & Maintenance			$ 7,000		
Water & Chemical			$ 171,000		
		Subtotal	**$ 261,000**		
20 Year Present Worth			**Cost**	**Present Worth**	
Initial Capital Cost			$ 2,331,000	$ 2,331,000	
Replacement Cost (20 years)			$ -	$0.00	
Annual O & M Cost			$ 196,000	$ 2,577,000	
Salvage Value			$ 163,000	$ (69,000)	
Present Worth estimated using discount rate =	4.375%				
TOTAL ESTIMATE OF PRESENT WORTH				**$ 4,839,000**	

Financial Planning

The City of Baraboo has standing contractual sewer service agreements with the Village of West Baraboo, the Town of Baraboo Sanitary District #1, and Devils Lake State Park. The Village of West Baraboo's sewer service agreement states that the Village agrees to pay a prorated amount of the capital cost of the new wastewater treatment facility based on the two municipalities' latest official population. According to the 2010-2014 American Community Survey 5 Year Estimates, the Village's and the City's 2014 population were 1,584 and 12,046, respectively. This results in the Village being responsible for 11.4% of the capital cost of the new biosolids

processing system for the WWTF. The Town of Baraboo's sewer service agreement with the City states that the Town agrees to pay a prorated amount based on the total annual flow of the Town users and total annual flow of the WWTF for the most recent year. According to the City's records, the Town of Baraboo was billed for 5,753,400 gallons of sewage flow in 2015, and the total annual sewage flow was 353,728,600 gallons. This results in the Town being responsible for 1.6% of the project cost. The State Park sewer service agreement with the City does not detail what portion of project costs are the responsibility of the State Park. For this financial assessment, it is assumed to be prorated based on sewage flow. The billable sewage flow for the State Park in 2015 was 2,778,300, which results in the State Park being responsible for 0.8% of the WWTF project. Table 8 summarizes the cost of the new biosolids processing system for each community.

Table 8 – Project Cost by Community

Total Project Cost	**$2,331,000 (100%)**
City of Baraboo	$2,010,000 (86.2%)
Village of West Baraboo	$265,000 (11.4%)
Town of Baraboo Sanitary District #1	$38,000 (1.6%)
Devils Lake State Park	$18,000 (0.8%)

The City of Baraboo will likely finance their portion of the project cost with a combination of existing funds from the Equipment Replacement Fund and a Clean Water Fund loan. The new loan will result in an additional annual debt service of approximately $126,400. The new biosolids processing system is also expected to increase the annual operating and maintenance costs by about $25,000. The new debt service and addition operating and maintenance costs will increase the 2016 Sewer Utility Budget by 12%. It will be necessary for the City to increase the sewer user rates to compensate for this project.

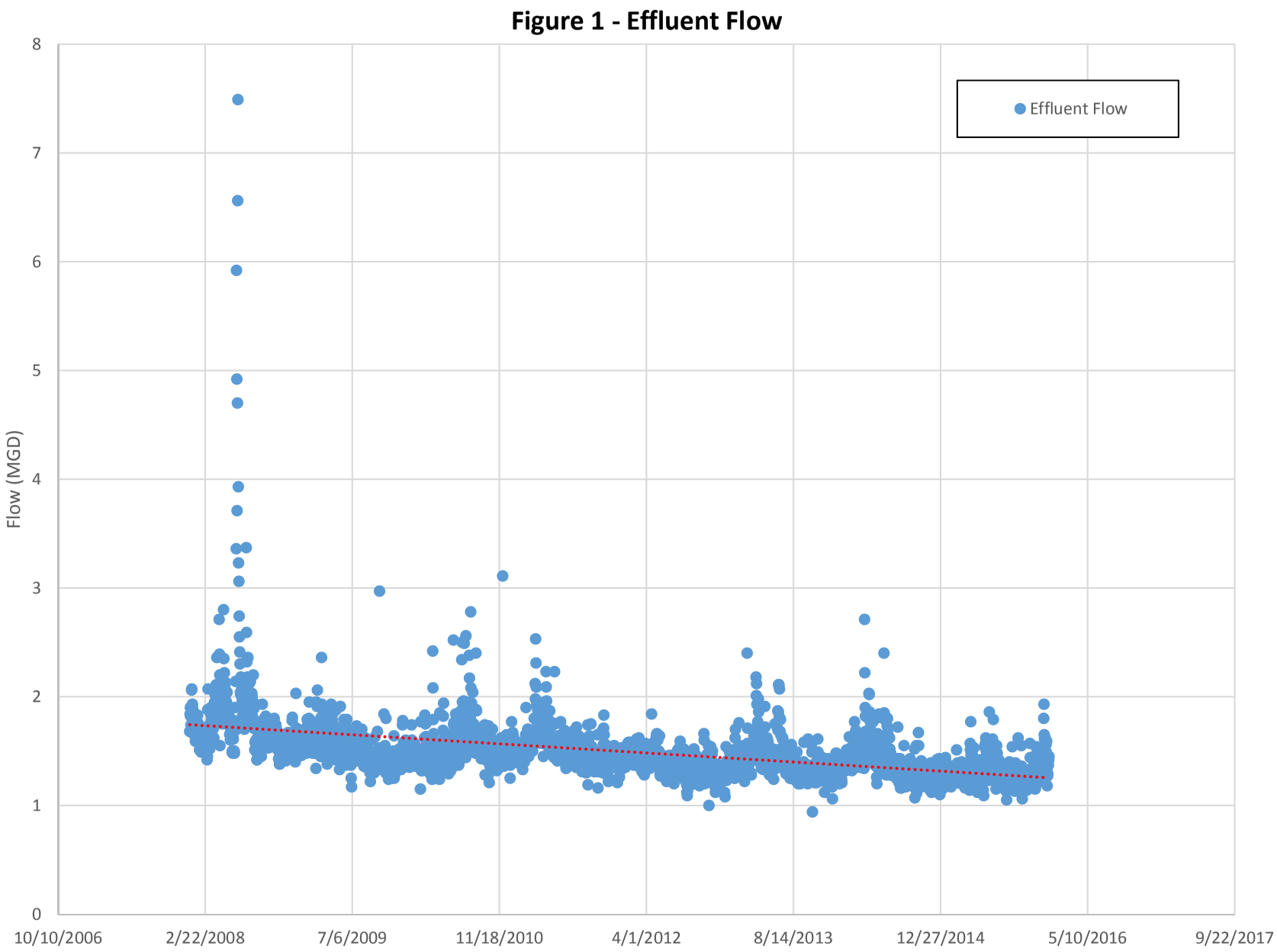


Figure 1 - Effluent Flow
Effluent Flow
Flow (MGD)
0
1
2
3
4
5
6
7
8
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017

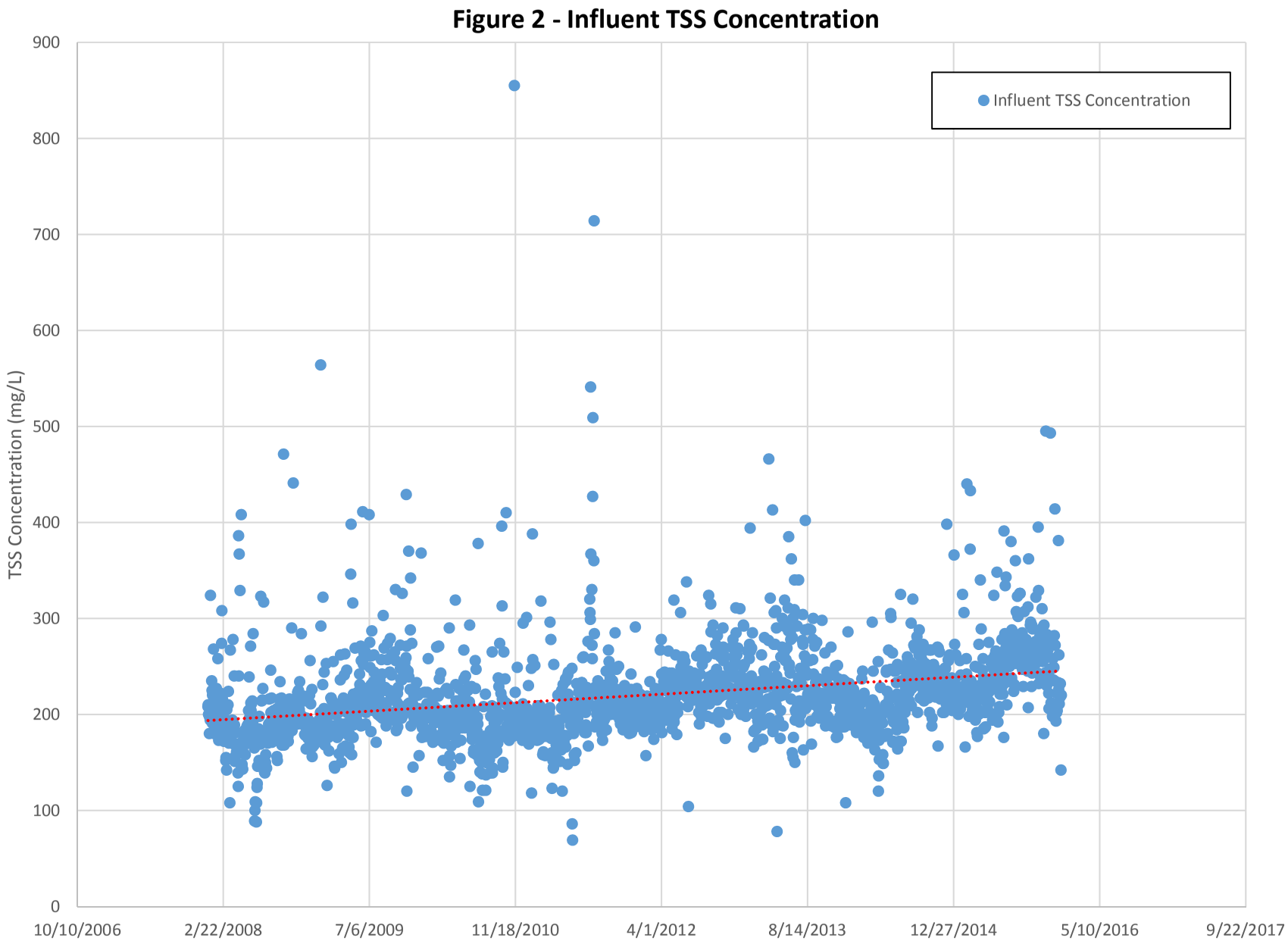


Figure 2 - Influent TSS Concentration
Influent TSS Concentration
TSS Concentration (mg/L)
900
800
700
600
500
400
300
200
100
0
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017

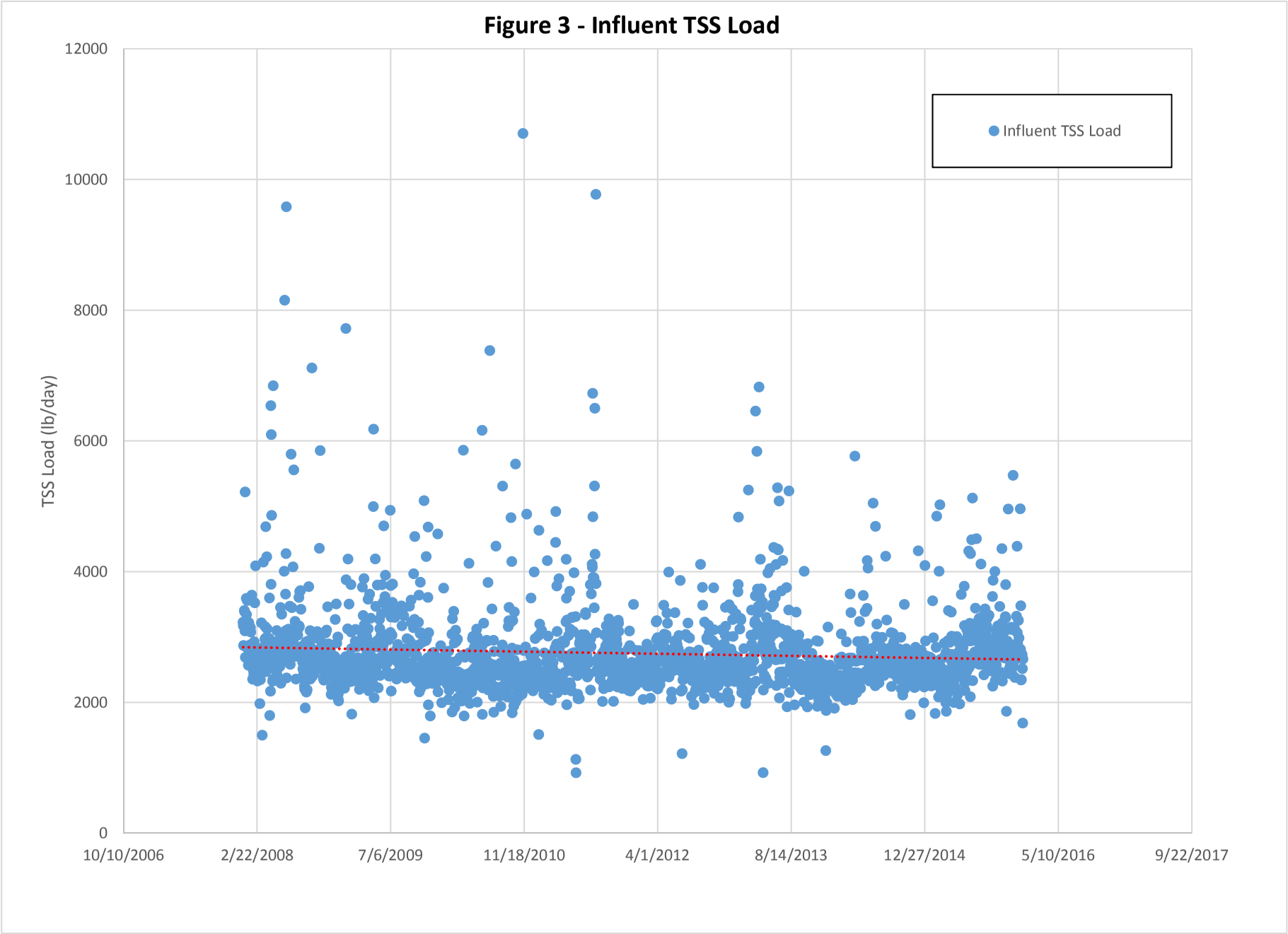


Figure 3 - Influent TSS Load
TSS Load (lb/day)
12000
10000
8000
6000
4000
2000
0
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
Influent TSS Load

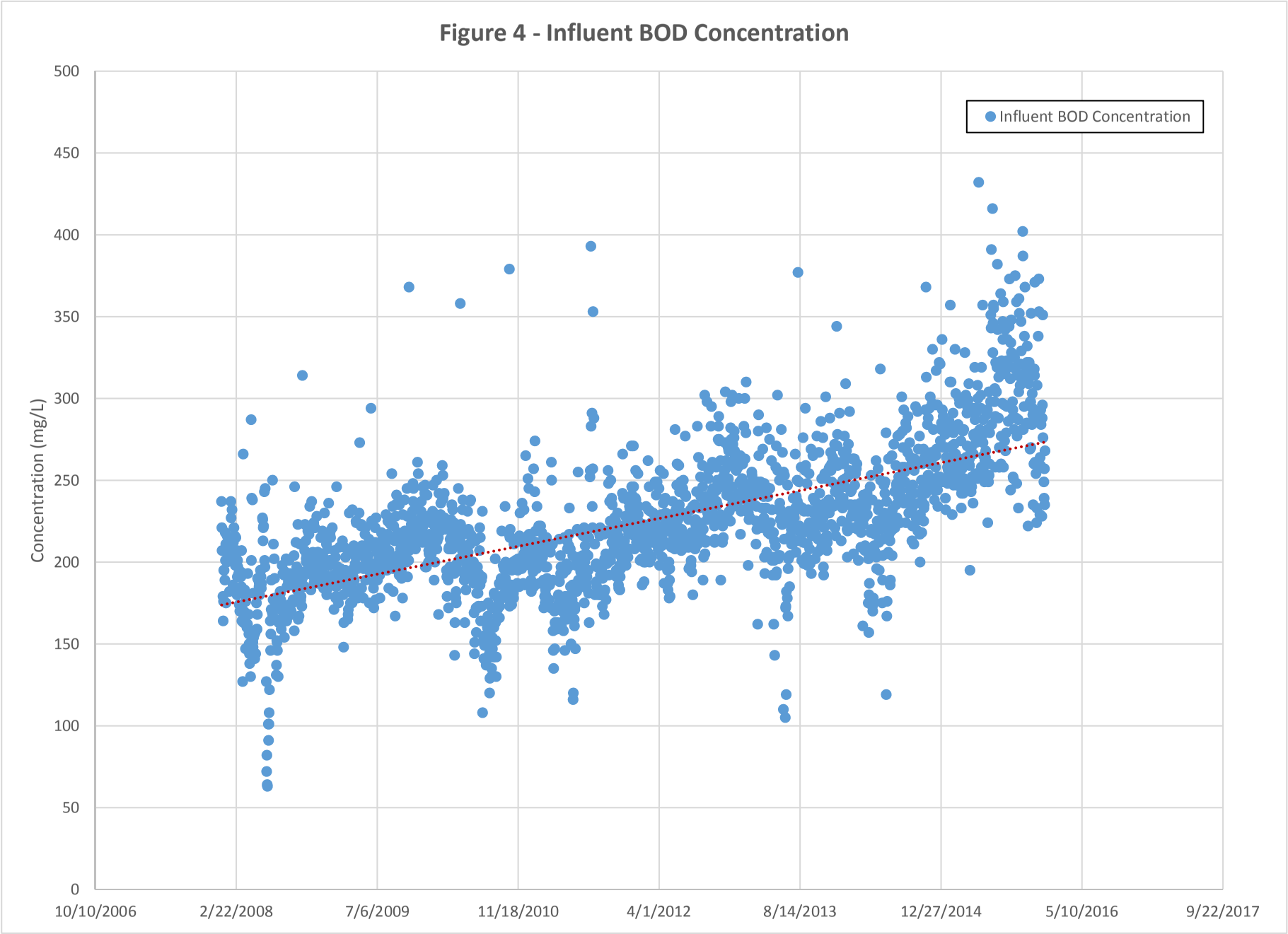


Figure 4 - Influent BOD Concentration
Influent BOD Concentration
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017

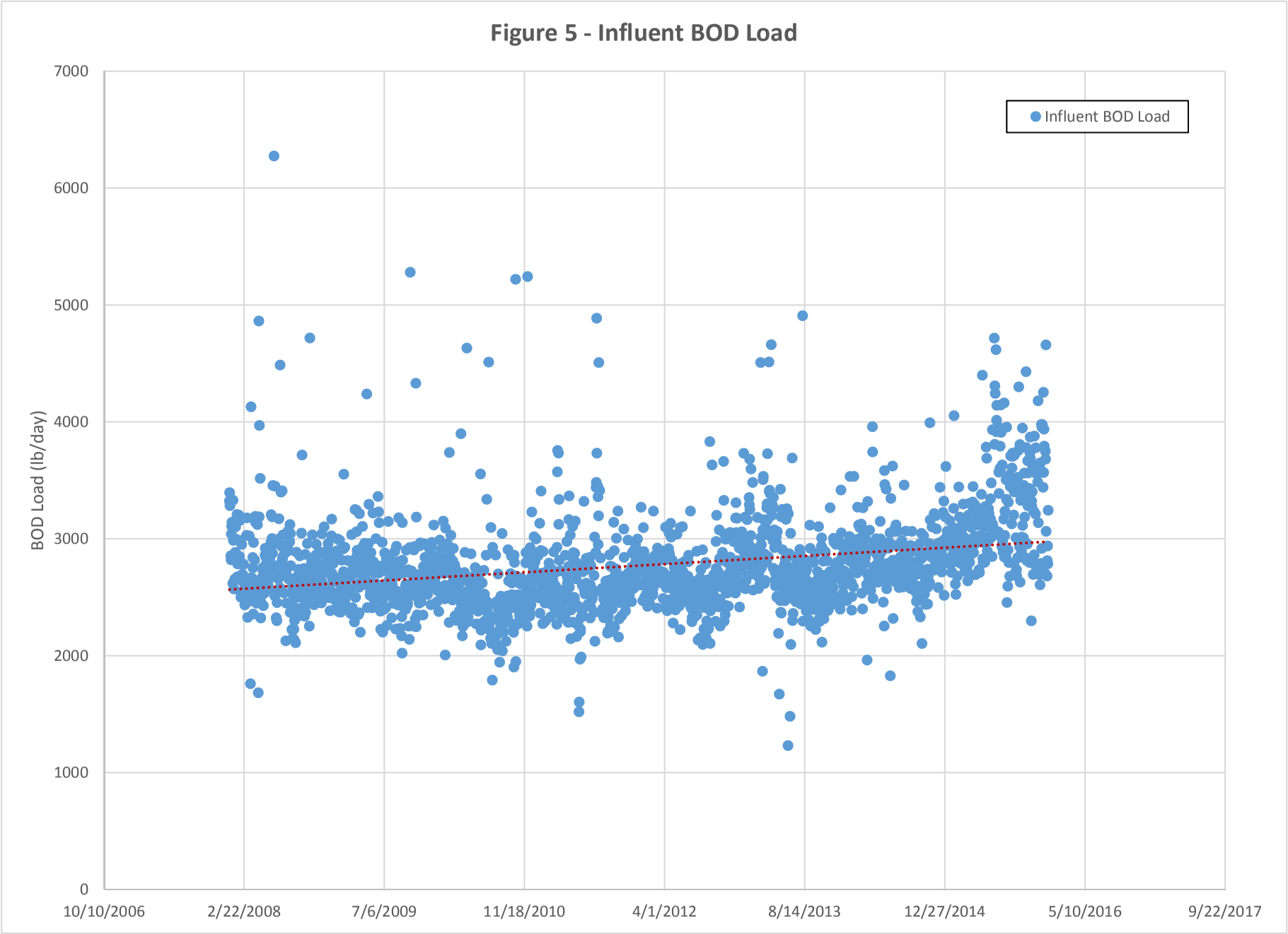


Figure 5 - Influent BOD Load
Influent BOD Load
BOD Load (lb/day)
7000
6000
5000
4000
3000
2000
1000
0
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017

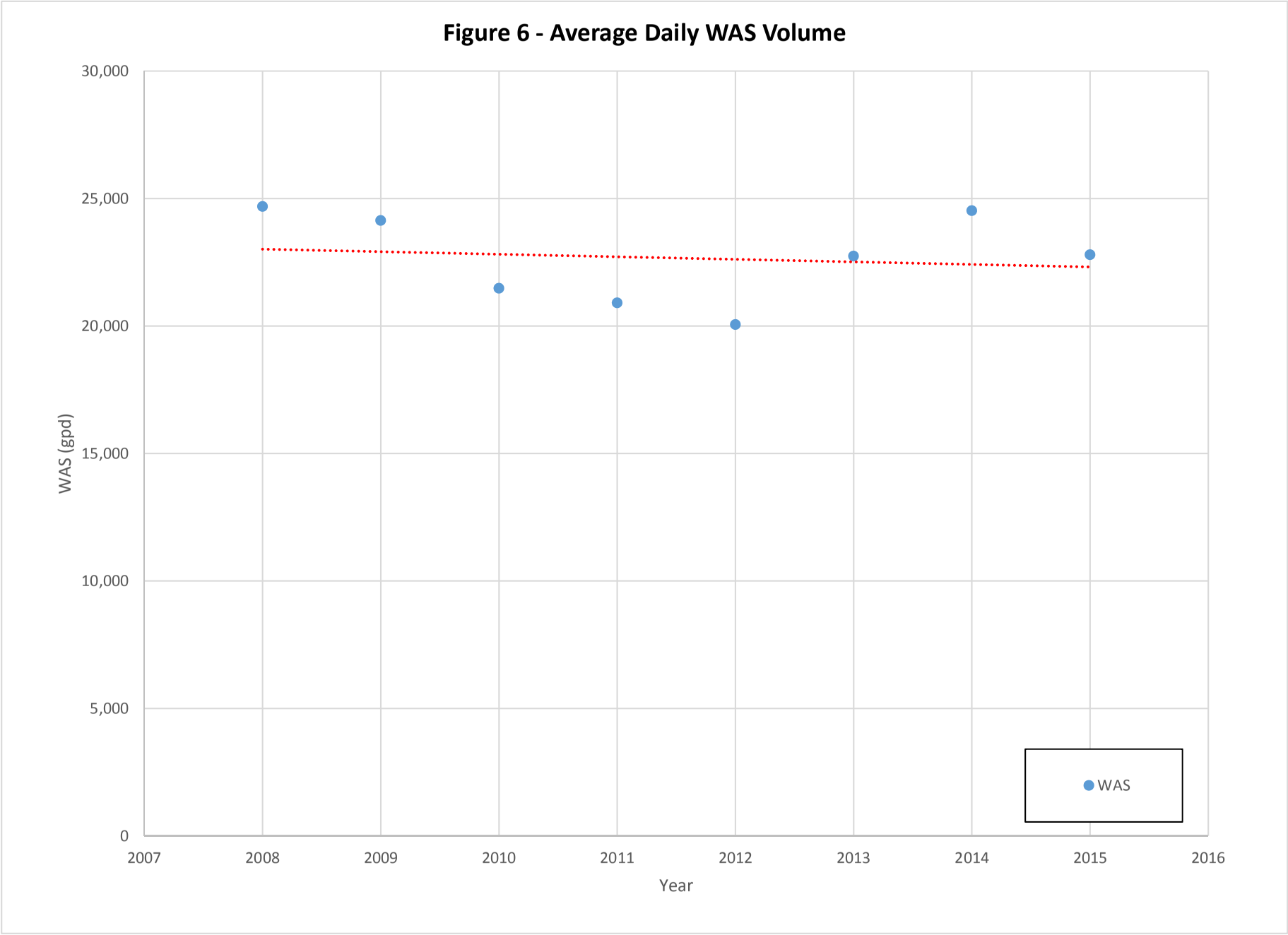


Figure 6 - Average Daily WAS Volume
30,000
25,000
20,000
15,000
10,000
5,000
0
WAS (gpd)
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Year
WAS

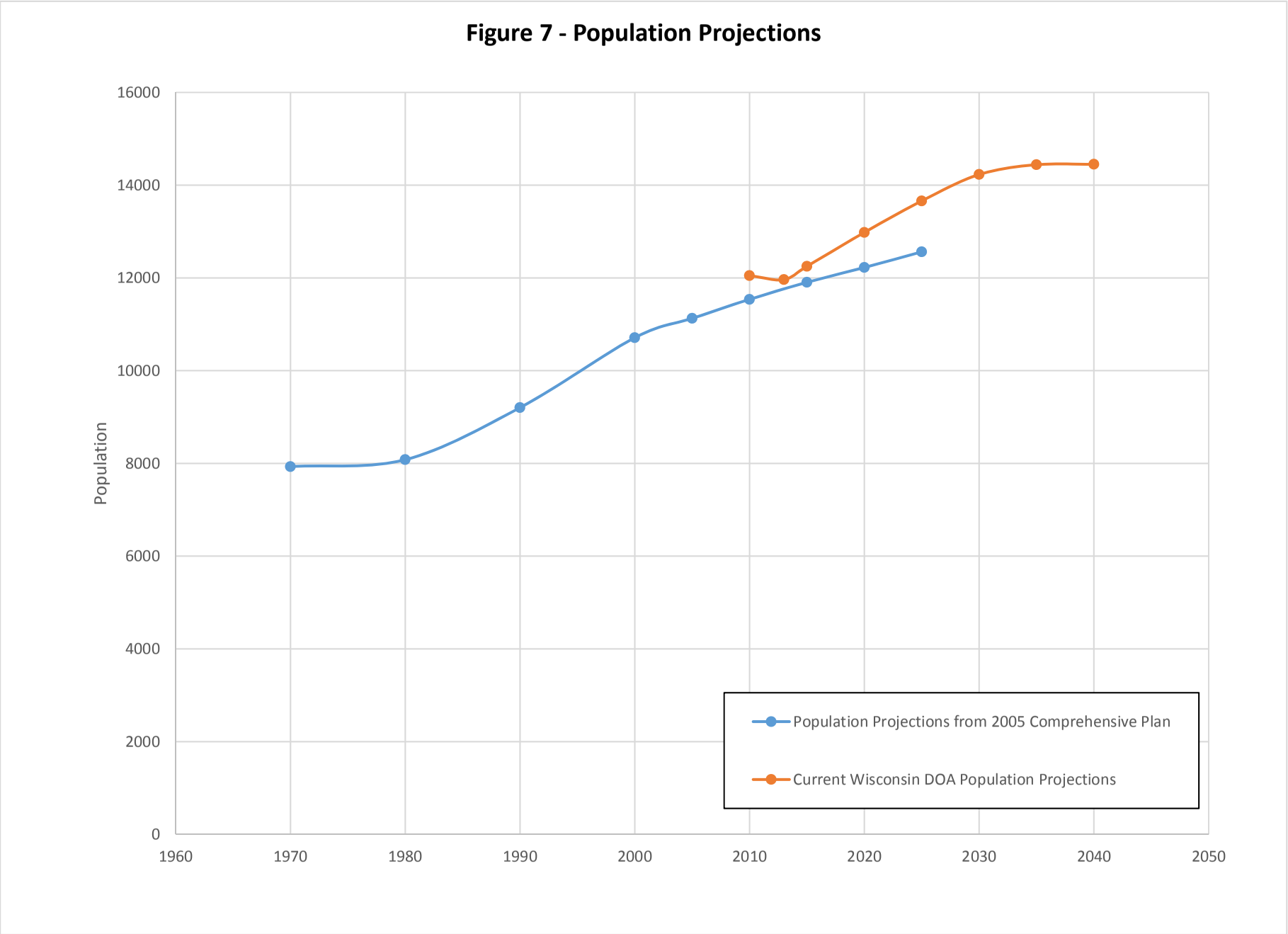
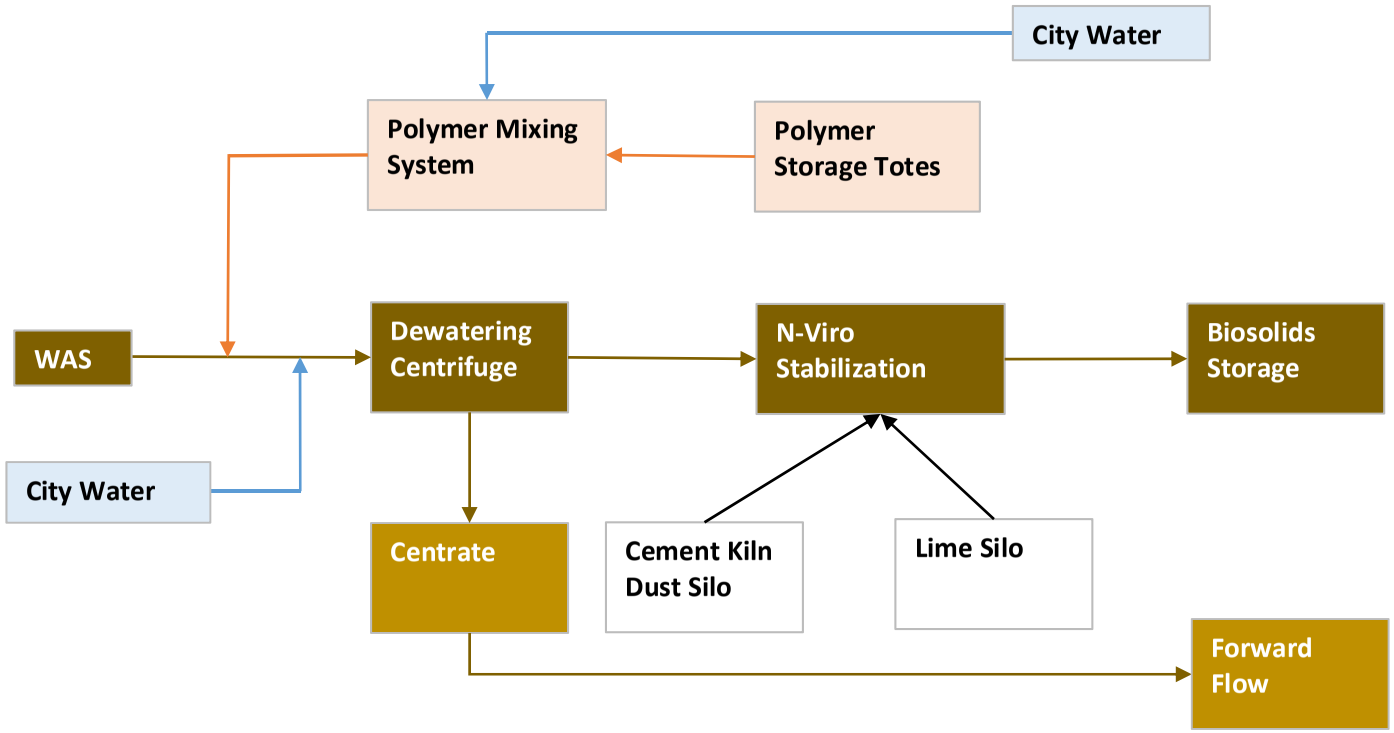


Figure 7 - Population Projections
16000
14000
12000
10000
8000
6000
4000
2000
0
Population
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
Population Projections from 2005 Comprehensive Plan
Current Wisconsin DOA Population Projections

Figure 8 - Biosolids Processing Flow Schematic



Appendix A

Centrisys Dewatering Centrifuge
Pilot Test Report

Prepared For:

The City of Baraboo Wastewater Treatment Plant
Baraboo, WI

By: Josh Gable
Josh.gable@centrisys.us
Date: 8/1/2012

General Information

Installation:	**Baraboo Wastewater Treatment Plant**
Plant Contact:	**Eugene Doro** **608-355-2755**
Centrisys Representative:	**Peter Lynch, LAI Ltd**
Centrisys Personnel:	**Josh Gable, Michael Sargent**
Test Dates:	**7/09 – 7/12/2012**
Centrisys Corporation Model:	**CS18-4**
Job #:	**5160/8017**
Polymer Used:	**Ashland K279FLX, AquaChem 1835**
Material Classification:	**Waste Activated Sludge**

INTRODUCTION:

Pilot testing was completed at the Baraboo Wastewater Treatment Plant the week of August 9th, 2012. The Baraboo Wastewater plant currently operates an oxidation ditch style plant where waste activated sludge is temporarily stored and then dewatered using a Belt Filter Press (BFP) that is nearing its replacement age. Following the BFP, cake is discharged into a hopper where it is mixed with an ash amendment and sometimes lime. The amended biosolids is then stored over the course of the year and applied in Spring and Fall to agricultural land.

Cake storage capacity is currently of a significant concern and the plant has needed to add additional ash to increase dryness of cake to improve the stack-ability of the cake product. Moving forward, Baraboo would like to be able to improve upon the cake in the dewatering process so that they can minimize the ash required as an amendment and to maintain the same or decrease the cake storage foot print.

In addition to these considerations, it is possible that Baraboo may, in the near future, start receiving additional sewage from other municipalities, such increases in flow would also increase the dewatering requirements, necessitating that additional or larger equipment be installed.

PILOT TEST PROCEDURE:

The Centrisys pilot unit was delivered the morning of July 9th and was set up in the afternoon that same day (See Figure 1). Testing began the morning of July 10th. Two polymers were tested Ashland K279FLX as recommended in the Centrisys lab and AquaChem EM1835, the current polymer used by the plant on their BFP. Polymer K279FLX was tested first. On July 11th, polymer EM1835 was tested. In both cases polymer was injected at the suction side of the feed pump to provide adequate mixing and contact time.

Figure 1 - Pilot Testing Trailer Setup

For each polymer, several operating curves were generated. These operating curves show the relationship between the dryness of the cake in terms of Total Solids (% wt./wt.) and a given parameter while holding other parameters constant. The generated operating curves are the subject of the following section: *Observations and Results.* Some samples for centrate were also collected and analyzed however as indicated by the plant staff, centrate was not of large concern and didn't necessitate the lab resources that would have been required to analyze centrate samples for all data points.

Following testing the second polymer, the pilot test unit was packed up and the site was cleaned up as well. Pack-up was completed on the morning of July 12th, following that, the test unit was picked up and shipped off-site.

OBSERVATIONS AND RESULTS:

The following subsections include pictures of cake and centrate representative of the pilot testing overall (see Figures 2 and 3). Following the photos, subsections are dedicated to each type of operating curve that was developed during the testing, this includes: G-Force, Applied Torque, Polymer Dosing, and Hydraulic Loading. In addition to these curves a section discussing the centrate samples that were analyzed has also been included. Additional graphs have also been included in Appendix A. A complete set of the data collected has been included in Appendix B. Additional photos taken while on site can be found in Appendix C.

Lab testing was completed by the Baraboo plant staff. Several feed samples were analyzed for total solids; the concentration remained constant over the course of testing at 1.10% TS%.

Pilot Testing – Cake and Centrate

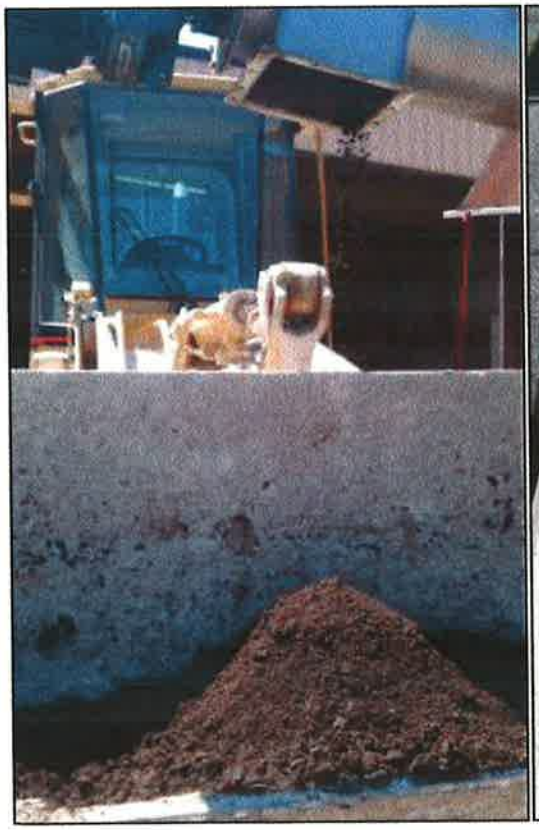
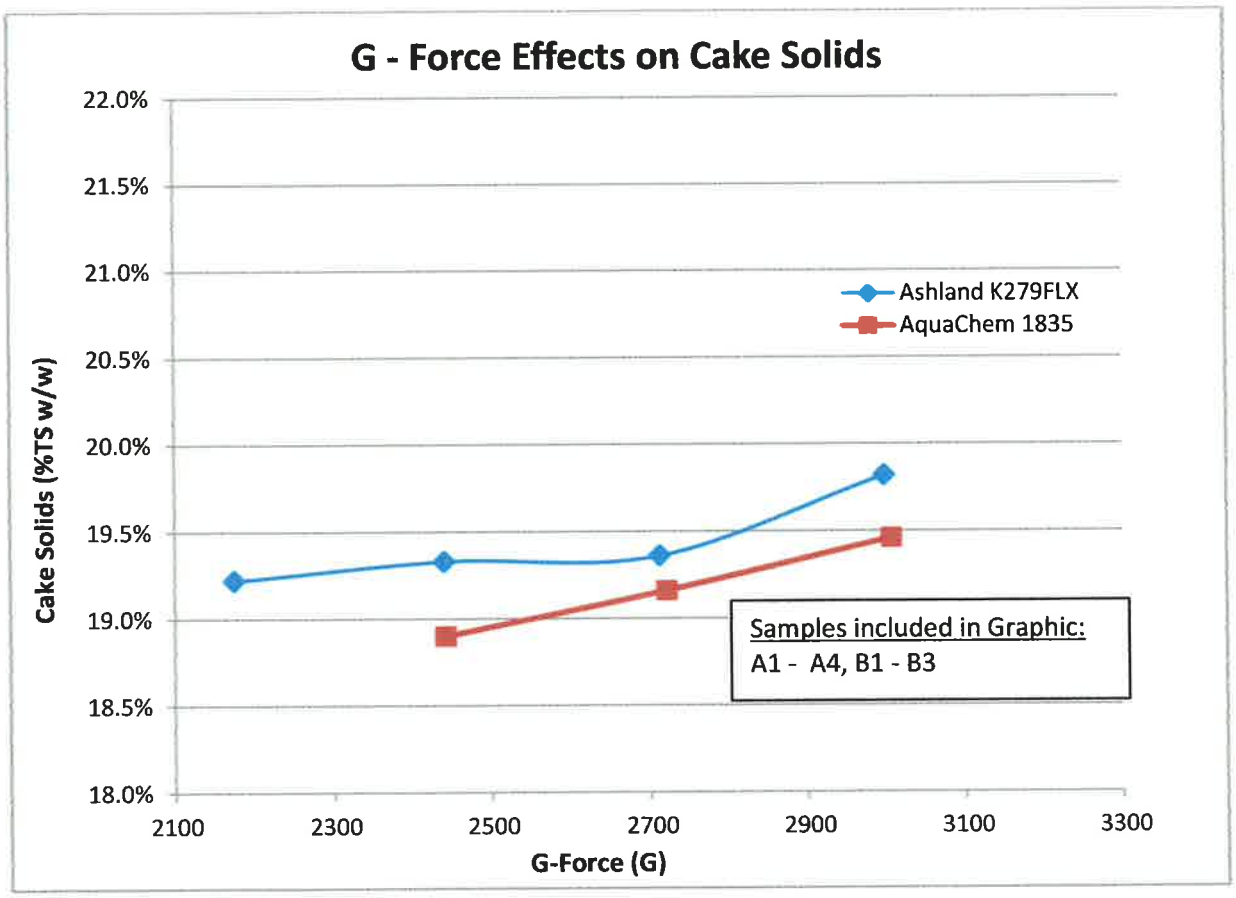


Figure 2 – Cake Produced during Pilot

Figure 3 – Centrate Produced during Pilot

G-Force

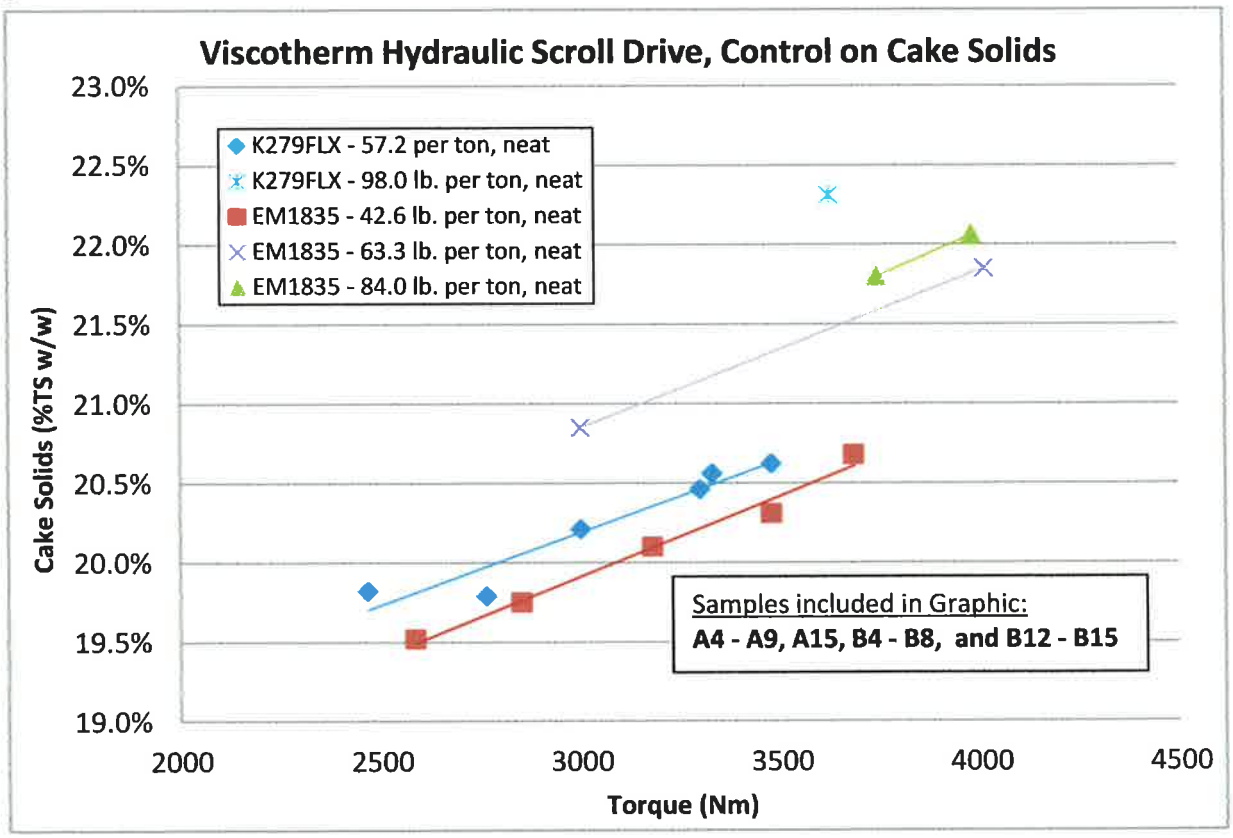
The following chart shows the relationship that was observed during the initial testing between the applied g-force and cake dryness achieved for both polymers. For this testing, the applied torque, throughput, and polymer application rate remained constant.



G-force was tested in the range from 2175 to 3009 G or from 2917 to 3431 rpm. As you can see in the above figure increased bowl speed did, in general correlate to drier cake. The impact was minimized at lower G-Forces from 2175 to 2713 G as was seen specifically with the Ashland K279FLX polymer. The AquaChem 1835 polymer was not tested at a G-Force below 2442 but it did show a slightly more linear relationship between G-Force and cake dryness than did the Ashland K279FLX from 2442 G to 3431 G. Because best results were found running at the highest speed further testing was completed there.

Applied Torque

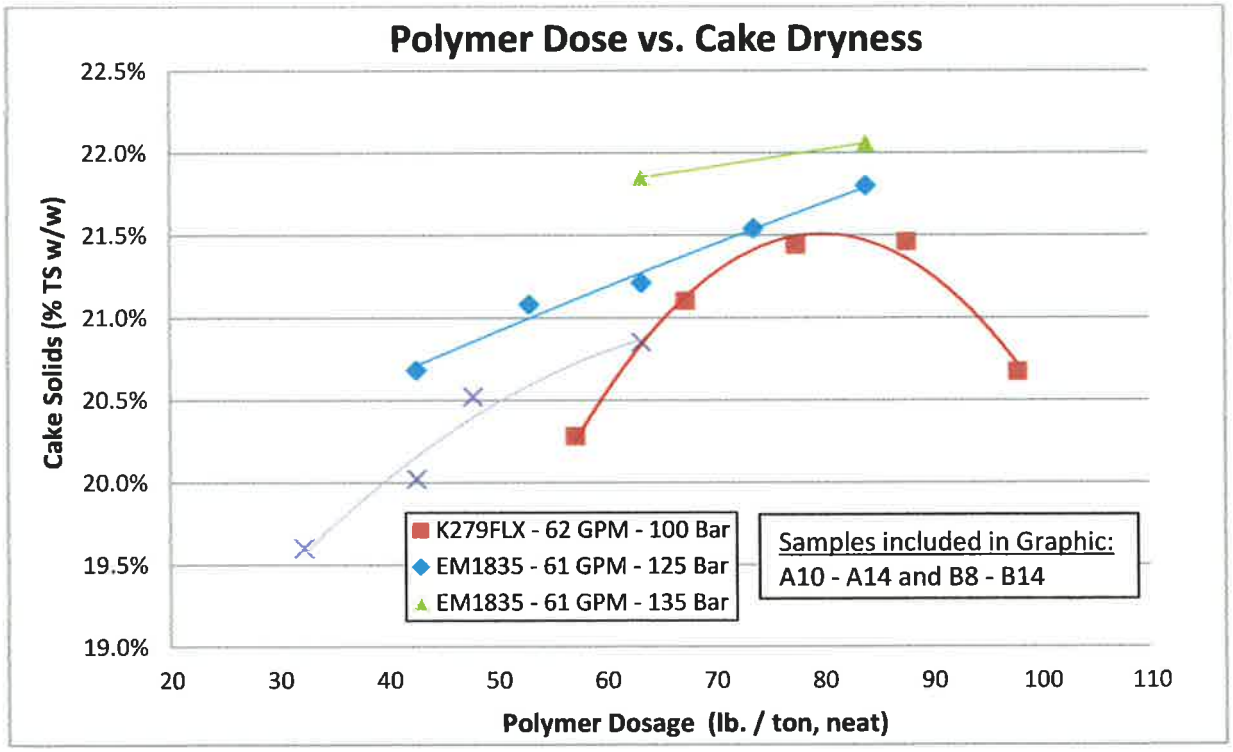
The below chart shows the relationship between applied torque and cake dryness. The Viscotherm hydraulic scroll drive system allows Centrisys centrifuges to apply higher torque than any other scroll drive system per installed horsepower. By controlling the scroll speed via hydraulic valving the torque can easily be adjusted from the scroll control page at the Panelview controller. This is displayed in terms of hydraulic system pressure in units of Bar in the control system. For the scroll drive installed on the CS18-4 pilot unit, 29.7Nm of torque is applied per 1 Bar of hydraulic system pressure (1 Nm = 0.737562149 ft-lb).



Testing for the above graph was completed at torques between 2.4kNm and 4.1kNm. In the above figure, you can see that a very good correlation exists for the sludge between torque applied and the cake dryness. The various shifts for each line are functions the type and dose of polymer used.

Polymer Dose

For both of the two polymers tested, polymer curves were generated showing the relationship between polymer dose and cake dryness. In generating the polymer curves, the polymer application rate was dropped until centrate visually changed significantly for the worse. The polymer rates as shown below as neat, not active, as the active content of the AquaChem 1835 could not be determined. Note that a great polymer curve depicting the overdose point is displayed for the K279FLX. The EM1835 product was tested at a larger variety of torques however the overdose point was not identified.

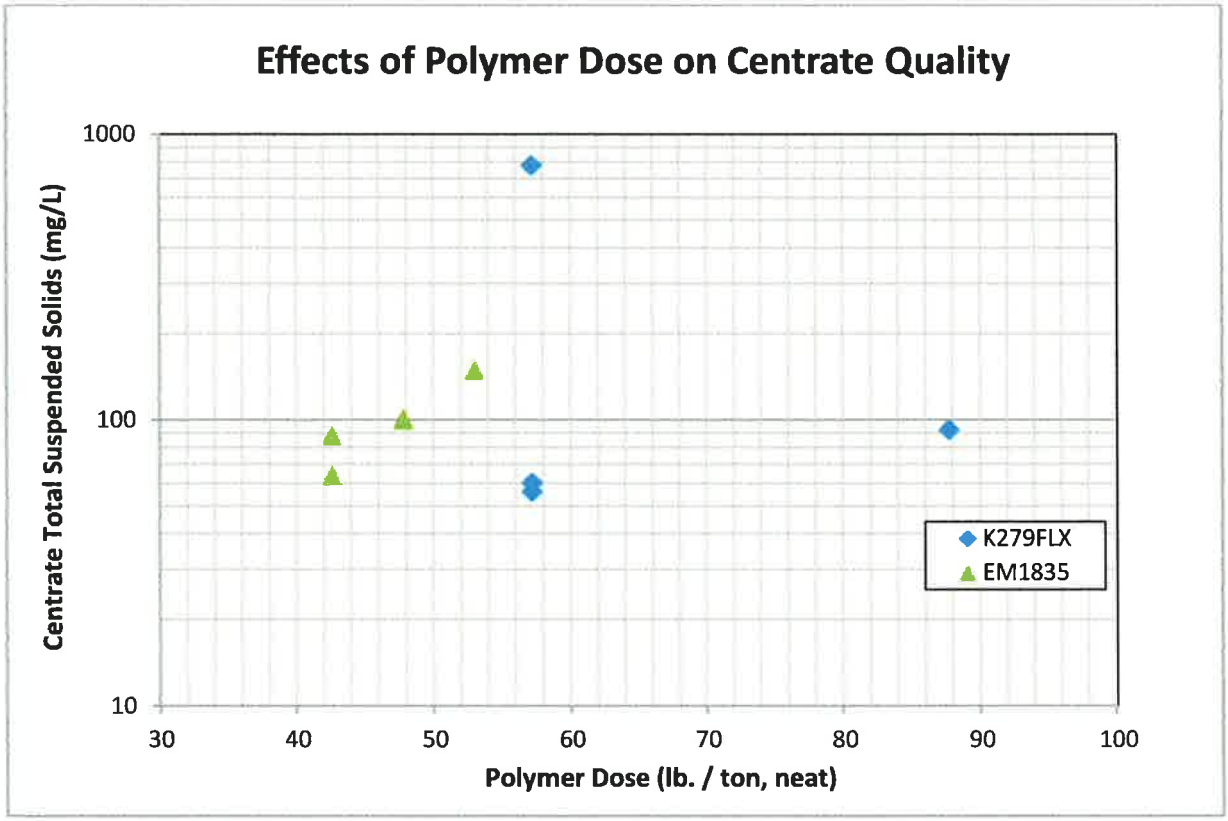


Although not present in this figure, Ashland K279FLX produced the driest cake, achieving the maximum dryness of 22.3% at 98.0 lb. per ton, neat at a higher operating torque (3628 Nm). However, looking at the above figure it can be assumed that an even drier cake could have been achieved had we tested the K279FLX at 75 to 85 lb. per ton, neat and at the higher torque.

For successful dewatering at more conservative polymer application rates the AquaChem 1835 product was the better of the two polymers at the price of its inability to achieve the driest cake. The average dose use for the EM1835 was 51.5 lb. per ton, neat where the average dose for the K279FLX was 68.9 lb. per ton, neat and the average cake dryness for the EM1835 was 20.4% where the average for K279FLX was slightly higher at 20.6%.

Overall Centrate Quality

The below graph shows the effect that the polymer dose had on centrate quality and the recovery of insolubles over the course of the pilot test.

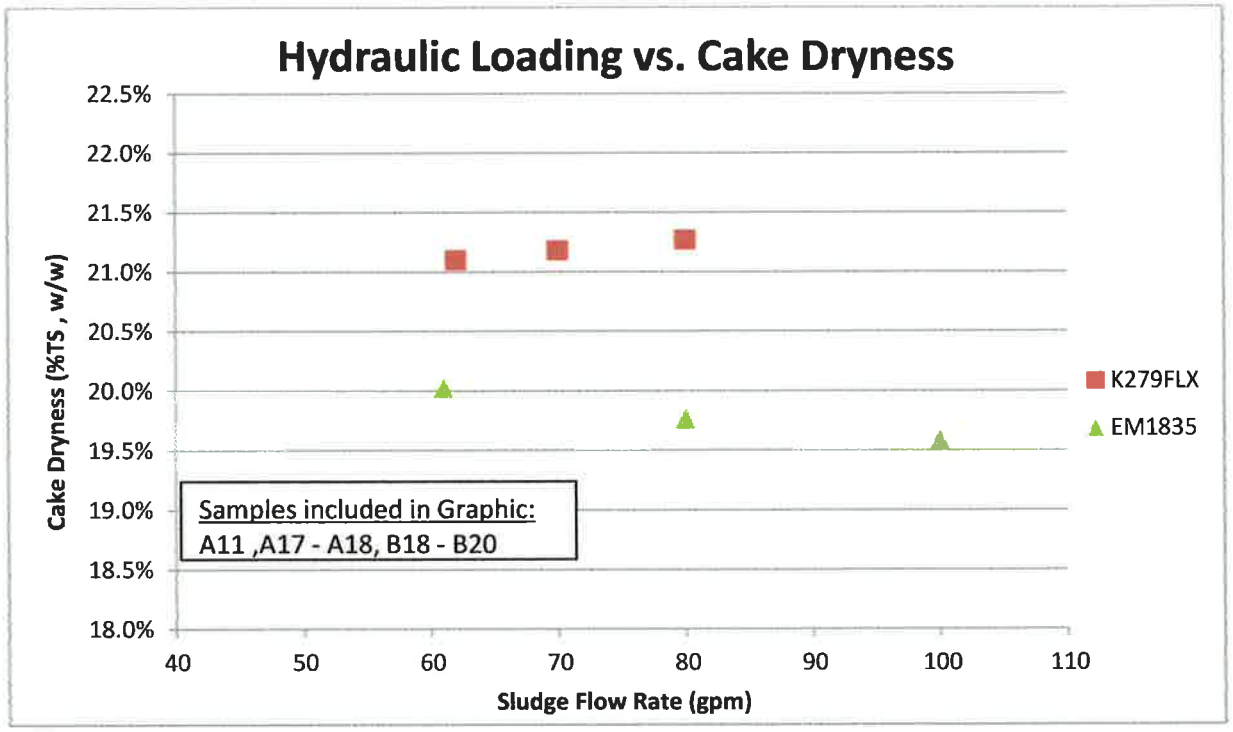


Centrate total suspended solids ranged from 56 to 776 mg/L for the entirety of testing; with an overall average of 173 mg/L and a median of 90 mg/L. The equivalent solids capture rates are: average at 98.5% and median at 99.2%. In general, the two polymers performed similarly in terms of solids recovery however the EM1835 was effective at lower polymer doses than was the K279FLX.

Of all data collected, one data point exists which would be considered an outlier from the rest of the centrate data: sample A9 analyzed at 776 mg/L TSS. The reason for this high value in TSS is because sample A9 was taken at the lowest attempted dose for polymer K279FLX and at the highest applied torque. By running the machine at these settings, the required clarification volume in the centrifuge could not be achieved. By either increasing polymer dose or decreasing torque, the clarification volume requirement would be achieved and as a results much cleaner centrate as well.

Hydraulic Loading

The below graph shows the performance of the centrifuge in terms of cake dryness at various hydraulic loading rates. The polymer dose for each set of data was kept with +/- 5% with a specific target for each set. For the K279FLX set of data the target was 70 lb. per ton, neat and for the EM1835 the target was 42 lb. per ton, neat.



As you can in the above figure the set for polymer K279FLX actually trended towards dryer cake at higher throughputs but was only tested from 60 to 80 gallons per minute. The set of data from EM1835 shows a more typical result, namely that the cake dryness decreased slightly with higher throughputs, with results of 20.0% cake at 60 gpm and 19.6% at 100 gpm. Note also that the data set for EM1835 was created using a much more conservative polymer dose that the K279FLX which explains the large gap in cake dryness between the two sets of data above.

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CONCLUSIONS:

The following has been identified in completing the pilot testing at the Baraboo Wastewater Treatment Plant:

- Centrisys centrifuge systems are capable of achieving a dewatered cake of potting soil consistency. Increased dryness and available surface area for the cake will enable Baraboo to utilize less ash within their biosolids program.
- Cake dryness over the course of the pilot test ranged from 18.9 to 22.3% with an average of 20.5%.
- Of the two polymers tested, Ashland K279FLX performed best in terms of cake dryness, achieving the maximum, at 22.3% and averaging 20.6%.
- AquaChem polymer EM1835 was found to be the better polymer in terms of polymer dose, maintaining cake between 18.9 and 22.1% and at a polymer dose as low as 32.3 lb. per ton, neat.
- Centrate quality was maintained for the entirety of the pilot test with an average capture efficiency of 98.5%.
- Based on an 110 gpm average flow and 8 hour day (7 hours operation and 1 hour of start-up and shutdown), Baraboo should expect the following in terms of water, polymer, and power use:

  <u>Water</u>

  4000 – 6300 gpd

  <u>Polymer</u>

  AquaChem EM1835 @ 20% cake: 8.1 gpd; @ 22% cake: 22.2 gpd

  Ashland K279FLX @ 20% cake: 13.9 gpd; @ 22.5% cake: 23.6 gpd

  <u>Power</u>

  220 – 310 kWh per day

RECCOMMENDATIONS:

Based on the testing and analysis completed, Centrisys Corporation has a high degree of confidence in the use our equipment for this application and that the results generated in pilot testing can be scaled up as based on the required throughput. On the basis of a 110 gpm average flow rate and a maximum design flow of 150 gpm, Centrisys would recommend installation of a CS21-4 unit to replace the existing BFP.

APPENDIX A

Additional Graphs

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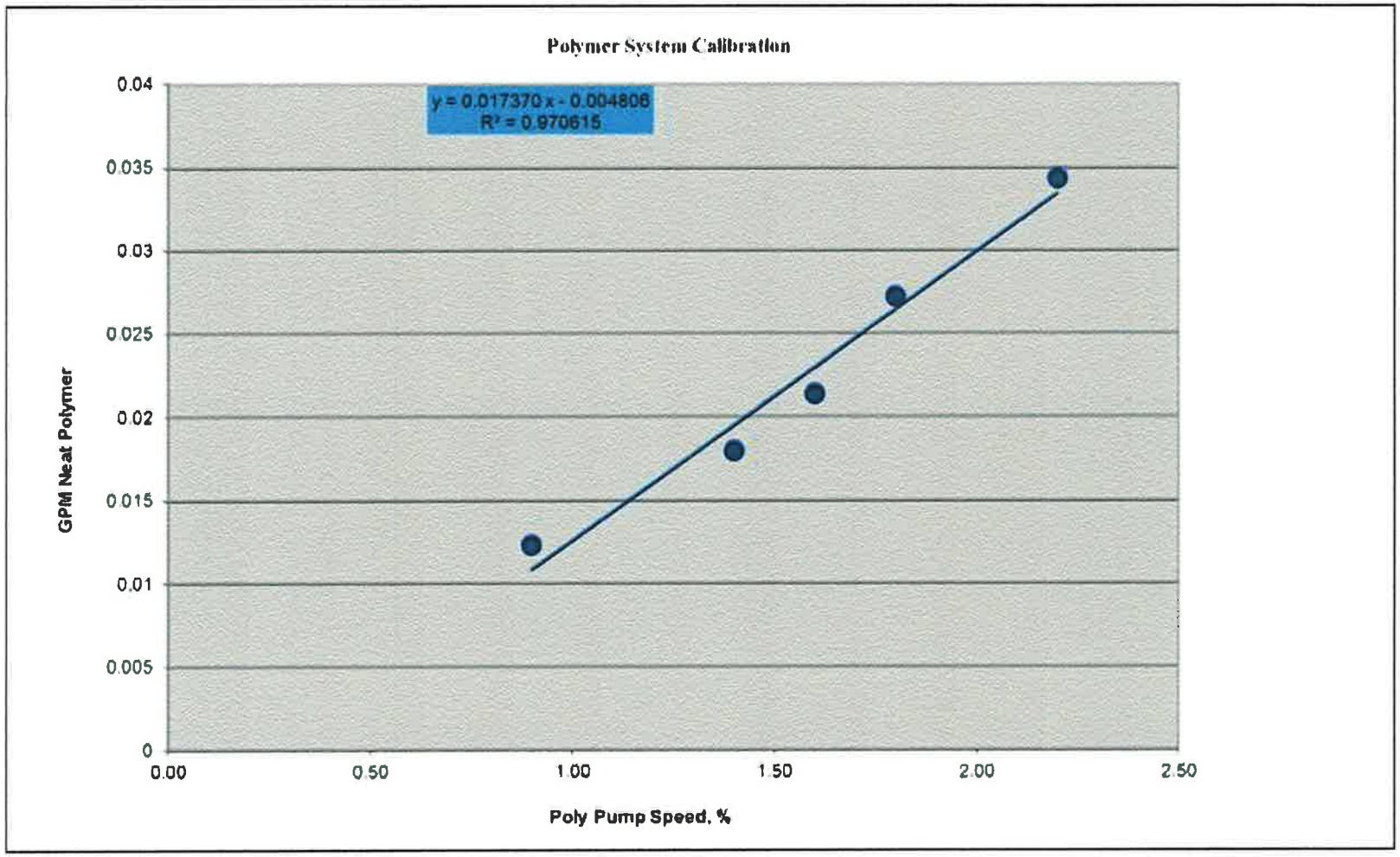
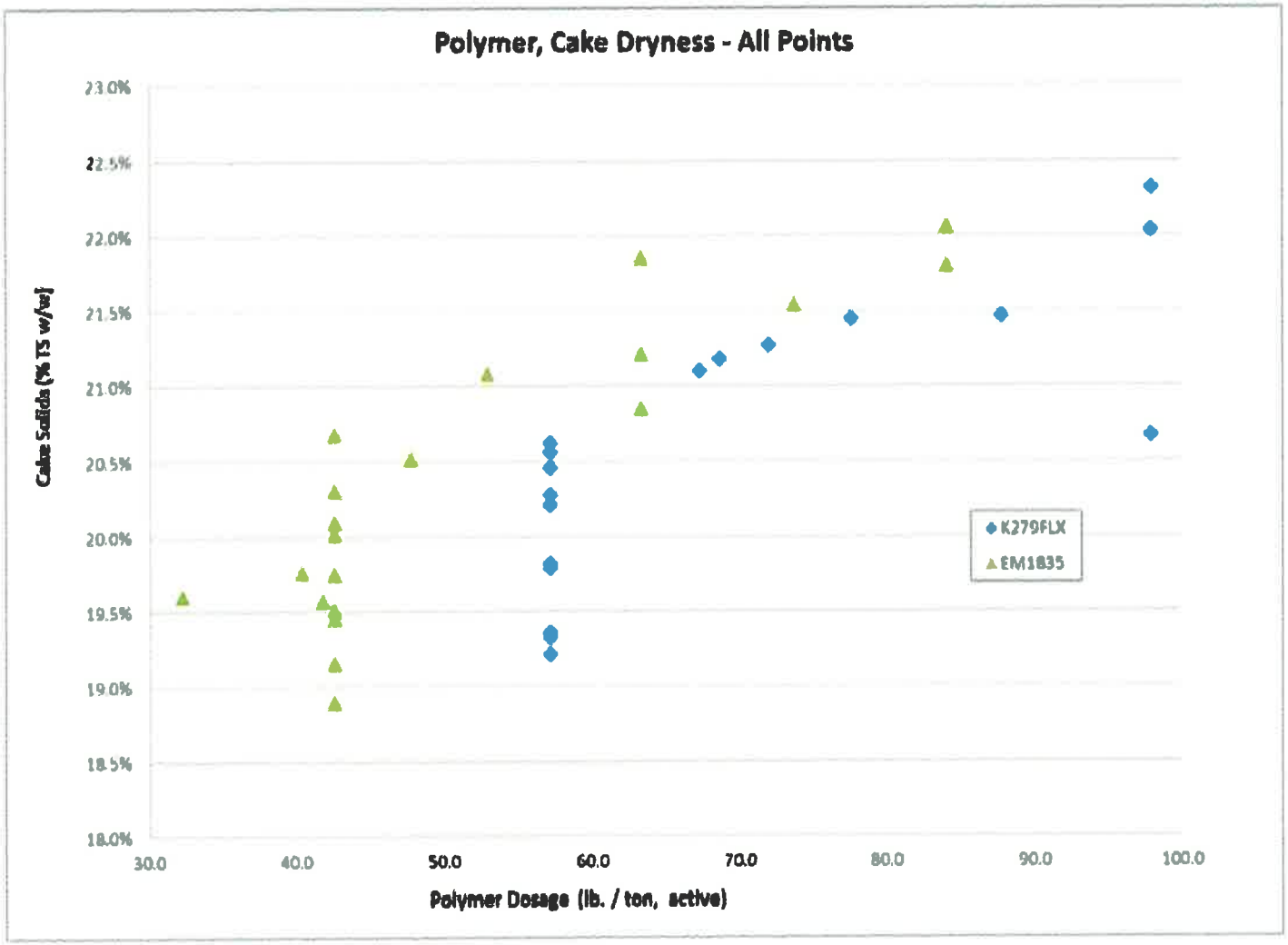
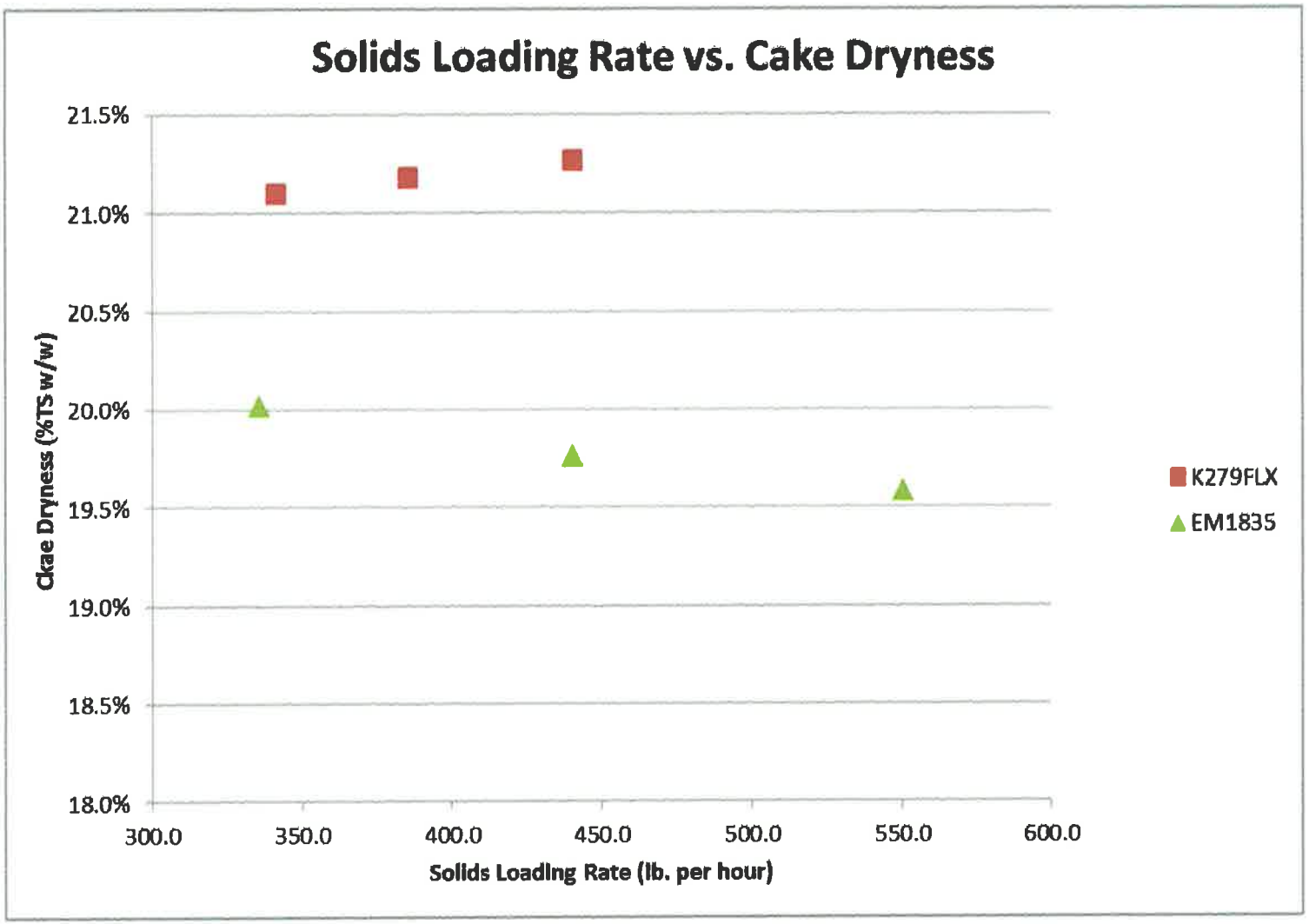
Polymer Calibration



All Cake Samples Taken, vs. Polymer Dose



Solids Loading Rate



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APPENDIX B

Complete Set of Data Collected

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Test Data

Pool Depth	Meter Feed Rate (gpm)	Conditioning					Main Drive		Backdrive				
		Location 0=AM 1=BM	Dial Setting (%)	Polymer Type	Polymer Rate		Bowl Speed (rpm)	Main Drive (amps)	Scroll Speed (rpm)	Torque (bar)	CVC Settings		
					Neat (gpm)	Water (gpm)					ΔN	P1	α
A	69	1	1.4	K279FLX	0.0195	7.0	2917	23.4	1.0	77	0.7	75	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3090	24.6	1.1	79	0.7	75	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3258	26.6	1.3	80	0.7	75	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3425	28.7	1.7	83	0.7	75	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3090	23.7	1.1	93	0.7	90	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3090	23.6	0.9	101	0.7	100	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3091	23.6	0.8	111	0.7	110	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3259	24.9	0.8	112	0.7	110	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3260	24.8	0.9	117	0.7	115	8.0
A	69	1	1.4	K279FLX	0.0195	7.0	3259	26.2	1.0	102	0.7	100	8.0
A	69	1	1.6	K279FLX	0.0230	7.0	3258	25.5	0.8	101	0.7	100	8.0
A	69	1	1.8	K279FLX	0.0265	7.0	3261	24.6	0.9	100	0.7	100	8.0
A	69	1	2.0	K279FLX	0.0299	7.0	3260	24.5	0.9	101	0.7	100	8.0
A	69	1	2.2	K279FLX	0.0334	7.0	3259	24.5	1.3	104	0.7	100	8.0
A	69	1	2.2	K279FLX	0.0334	7.0	3261	23.9	0.8	122	0.8	120	8.0
A	69	1	2.2	K279FLX	0.0334	7.0	3261	24.2	1.0	112	0.7	110	8.0
A	77	1	1.8	K279FLX	0.0265	7.0	3258	25.7	1.0	101	0.9	100	8.0
A	87	1	2.1	K279FLX	0.0317	7.0	3255	27.3	1.2	102	0.7	100	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3091	23.2	1.0	77	0.7	75	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3263	23.7	1.1	78	0.7	75	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3430	25.6	1.2	79	0.7	75	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3429	26.0	1.1	87	0.7	85	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3429	26.1	1.0	96	0.7	95	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3429	25.5	0.9	107	0.7	105	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3430	25.5	0.9	117	0.7	115	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3430	25.4	0.7	124	0.7	125	8.0
A	66	1	1.3	EM1835	0.0178	5.0	3430	25.2	0.9	125	0.7	125	8.0
A	66	1	1.5	EM1835	0.0212	5.0	3430	25.1	0.8	127	0.7	125	8.0
A	66	1	1.7	EM1835	0.0247	5.0	3430	25.1	0.8	126	0.7	125	8.0
A	66	1	1.9	EM1835	0.0282	5.0	3431	24.7	0.8	126	0.7	125	8.0
A	66	1	1.9	EM1835	0.0282	5.0	3431	24.5	0.8	134	0.7	135	8.0
A	66	1	1.5	EM1835	0.0212	5.0	3431	24.6	0.7	135	0.7	135	8.0
A	66	1	1.5	EM1835	0.0212	5.0	3431	24.8	0.9	101	0.7	100	8.0
A	66	1	1.2	EM1835	0.0160	5.0	3430	25.3	1.0	102	0.7	100	8.0
A	66	1	0.9	EM1835	0.0108	5.0	3429	25.2	0.8	102	0.7	100	8.0
A	66	1	1.1	EM1835	0.0143	5.0	3429	25.7	1.0	102	0.7	100	8.0
A	85	1	1.3	EM1835	0.0178	5.0	3423	29.0	1.2	103	1.0	100	8.0
A	105	1	1.6	EM1835	0.0230	5.0	3423	30.0	1.3	104	1.0	100	8.0

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Lab Data

Sample	Date & Time	Centrate	Feed Sludge		Cake	
		TSS mg/L	TS % Solids	VS % Volatile	Lab % TS	VS % Volatile
A1	7/10/12 8:20 AM	56	1.10%		19.22%	
A2	7/10/12 8:40 AM		1.10%		19.33%	
A3	7/10/12 9:10 AM		1.10%		19.36%	
A4	7/10/12 9:30 AM	60	1.10%		19.82%	
A5	7/10/12 10:20 AM		1.10%		19.79%	
A6	7/10/12 10:40 AM		1.10%		20.21%	
A7	7/10/12 11:00 AM		1.10%		20.46%	
A8	7/10/12 11:20 AM		1.10%		20.56%	
A9	7/10/12 11:40 AM	776	1.10%		20.62%	
A10	7/10/12 12:20 PM		1.10%		20.28%	
A11	7/10/12 12:40 PM		1.10%		21.10%	
A12	7/10/12 1:05 PM		1.10%		21.44%	
A13	7/10/12 1:30 PM	92	1.10%		21.46%	
A14	7/10/12 2:00 PM		1.10%		20.67%	
A15	7/10/12 2:20 PM		1.10%		22.31%	
A16	7/10/12 2:40 PM		1.10%		22.03%	
A17	7/10/12 3:05 PM		1.10%		21.18%	
A18	7/10/12 3:25 PM		1.10%		21.27%	
B1	7/11/12 8:45 AM	88	1.10%		18.90%	
B2	7/11/12 9:05 AM		1.10%		19.16%	
B3	7/11/12 9:30 AM		1.10%		19.46%	
B4	7/11/12 9:50 AM		1.10%		19.52%	
B5	7/11/12 10:25 AM	64	1.10%		19.75%	
B6	7/11/12 10:45 AM		1.10%		20.10%	
B7	7/11/12 11:05 AM		1.10%		20.31%	
B8	7/11/12 11:25 AM		1.10%		20.68%	
B9	7/11/12 11:45 AM	148	1.10%		21.08%	
B10	7/11/12 12:05 PM		1.10%		21.21%	
B11	7/11/12 12:30 PM		1.10%		21.54%	
B12	7/11//12 12:50 PM		1.10%		21.80%	
B13	7/11/12 1:10 PM		1.10%		22.06%	
B14	7/11/12 1:40 PM		1.10%		21.85%	
B15	7/11/12 2:00 PM		1.10%		20.85%	
B16	7/11/12 2:20 PM	100	1.10%		20.52%	
B17	7/11/12 2:40 PM		1.10%		19.60%	
B18	7/11/12 3:00 PM		1.10%		20.02%	
B19	7/11/12 3:20 PM		1.10%		19.76%	
B20	7/11/12 3:40 PM		1.10%		19.58%	

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Analysis

Process Parameters							Activity = 46.0		Analysis									
		Feed Sludge		Polymer Flow			Polymer Dosage								Power Use			
Sample	Meter Feed Rate (gpm)	Solids %DS	Sludge Flow (gpm)	Dilution H2O Flow (gpm)	Neat (gpm)	Polymer Conc. (%)	Neat (lb. / dry ton)	Active (lb. / dry ton)	G-Force (Gs)	Torque (Nm)	Solids Processed (lb. / hr)	Cake Solids (% TS)	Centrate TSS (mg/L)	Recovery of Insolubles (% w/w)	Main Drive (kW)	Backdrive (kW)	Total Power Usage (kW)	kW/gpm
A1	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2175	2290	341.3	19.2%	56	99.5%	18.6	8.4	27.00	0.44
A2	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2440	2349	341.3	19.3%			19.6	8.4	28.01	0.45
A3	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2713	2379	341.3	19.4%			21.2	8.4	29.63	0.48
A4	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2998	2468	341.3	19.8%	60	99.5%	22.9	8.5	31.38	0.51
A5	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2440	2765	341.3	19.8%			18.9	8.8	27.67	0.45
A6	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2440	3003	341.3	20.2%			18.8	9.0	27.81	0.45
A7	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2442	3301	341.3	20.5%			18.8	9.3	28.09	0.45
A8	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2715	3330	341.3	20.6%			19.8	9.3	29.16	0.47
A9	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2716	3479	341.3	20.6%	776	93.3%	19.8	9.5	29.22	0.47
A10	69	1.10%	62	7	0.020	0.28%	57.2	26.3	2715	3033	341.3	20.3%			20.9	9.0	29.91	0.48
A11	69	1.10%	62	7	0.023	0.33%	67.4	31.0	2713	3003	341.3	21.1%			20.3	9.0	29.32	0.47
A12	69	1.10%	62	7	0.026	0.38%	77.6	35.7	2718	2974	341.3	21.4%			19.6	9.0	28.58	0.46
A13	69	1.10%	62	7	0.030	0.43%	87.8	40.4	2716	3003	341.3	21.5%	92	99.2%	19.5	9.0	28.53	0.46
A14	69	1.10%	62	7	0.033	0.48%	98.0	45.1	2715	3093	341.3	20.7%			19.5	9.1	28.61	0.46
A15	69	1.10%	62	7	0.033	0.48%	98.0	45.1	2718	3628	341.3	22.3%			19.0	9.6	28.65	0.46
A16	69	1.10%	62	7	0.033	0.48%	98.0	45.1	2718	3330	341.3	22.0%			19.3	9.3	28.60	0.46
A17	77	1.10%	70	7	0.026	0.38%	68.7	31.6	2713	3003	385.3	21.2%			20.5	9.0	29.48	0.42
A18	87	1.10%	80	7	0.032	0.45%	72.0	33.1	2708	3033	440.4	21.3%			21.8	9.0	30.78	0.38
B1	66	1.10%	61	5	0.014	0.29%	42.6	19.6	2442	2290	335.8	18.9%	88	99.2%	18.5	8.4	26.84	0.44
B2	66	1.10%	61	5	0.014	0.29%	42.6	19.6	2721	2319	335.8	19.2%			18.9	8.4	27.27	0.45
B3	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3007	2349	335.8	19.5%			20.4	8.4	28.81	0.47
B4	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3005	2587	335.8	19.5%			20.7	8.6	29.34	0.48
B5	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3005	2855	335.8	19.8%	64	99.5%	20.8	8.9	29.66	0.49
B6	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3005	3182	335.8	20.1%			20.3	9.2	29.49	0.48
B7	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3007	3479	335.8	20.3%			20.3	9.5	29.78	0.49
B8	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3007	3687	335.8	20.7%			20.2	9.7	29.91	0.49
B9	66	1.10%	61	5	0.018	0.36%	53.0	24.4	3007	3717	335.8	21.1%	148	98.7%	20.1	9.7	29.78	0.49
B10	66	1.10%	61	5	0.021	0.42%	63.3	29.1	3007	3776	335.8	21.2%			20.0	9.8	29.76	0.49
B11	66	1.10%	61	5	0.025	0.49%	73.7	33.9	3007	3747	335.8	21.5%			20.0	9.7	29.73	0.49
B12	66	1.10%	61	5	0.028	0.56%	84.0	38.7	3009	3747	335.8	21.8%			19.7	9.7	29.41	0.48
B13	66	1.10%	61	5	0.028	0.56%	84.0	38.7	3009	3985	335.8	22.1%			19.5	10.0	29.50	0.48
B14	66	1.10%	61	5	0.021	0.42%	63.3	29.1	3009	4014	335.8	21.9%			19.6	10.0	29.61	0.49
B15	66	1.10%	61	5	0.021	0.42%	63.3	29.1	3009	3003	335.8	20.9%			19.8	9.0	28.76	0.47
B16	66	1.10%	61	5	0.016	0.32%	47.8	22.0	3007	3033	335.8	20.5%	100	99.1%	20.2	9.0	29.19	0.48
B17	66	1.10%	61	5	0.011	0.22%	32.3	14.8	3005	3033	335.8	19.6%			20.1	9.0	29.11	0.48
B18	66	1.10%	61	5	0.014	0.29%	42.6	19.6	3005	3033	335.8	20.0%			20.5	9.0	29.51	0.48
B19	85	1.10%	80	5	0.018	0.36%	40.4	18.6	2995	3063	440.4	19.8%			23.1	9.1	32.17	0.40
B20	105	1.10%	100	5	0.023	0.46%	41.8	19.2	2995	3093	550.4	19.6%			23.9	9.1	32.99	0.33

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Summary

		Polymer Dosage		G-Force (Gs)	Torque (Nm)	Solids Processed (lb. / hr)	Cake Solids (% TS)	Centrate TSS (mg/L)	Recovery of Insolubles
		Neat (lb. / dry ton)	Active (lb. / dry ton)						
K279FLX	min	57.2	26.3	2175	2290	341	19.2%	56	93.3%
	max	98.0	45.1	2998	3628	440	22.3%	776	99.5%
	avg	68.9	31.7	2640	2970	349	20.6%	246	97.9%
EMI835	min	32.3	14.8	2442	2290	336	18.9%	64	98.7%
	max	84.0	38.7	3009	4014	550	22.1%	148	99.5%
	avg	51.5	23.7	2963	3200	352	20.4%	100	99.1%
All Samples	min	32.3	14.8	2175	2290	336	18.9%	56	93.3%
	max	98.0	45.1	3009	4014	550	22.3%	776	99.5%
	avg	59.7	27.5	2810	3091	351	20.5%	173	98.5%

APPENDIX C

Additional Photos Taken During Pilot Testing

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Lime/Ash mixing unit

Sludge Storage Tank

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Cake Storage Building

Appendix B

Baraboo WWTF Biosolids Upgrade Study
Present Worth Summary
DEWATERING CENTRIFUGE AND N-VIRO STABILIZATION

Capital Costs

Item	Capital Cost	Design Life	Replacement Cost	Salvage Value
Dewatering - Centrifuge				
Structure	$284,000	40	$0	$142,000
Equipment	$705,000	20	$0	$0
Stabilization - N-Viro				
Structure	$42,000	40	$0	$21,000
Equipment	$615,000	20	$0	$0
Subtotal	$1,646,000		$0	$163,000
Contingencies (20%)	$329,000			
Subtotal	$1,975,000			
Engineering (18%)	$356,000			
Total Estimated Capital Cost	**$2,331,000**			

Operation and Maintenance Costs	# of Units	Units	$/units	Annual Cost
Chemical Costs	1	LS	$171,304	$171,000
Maintenance and Repair	1	LS	$7,350	$7,000
Annual Power Cost	1	LS	$18,342	$18,000
Annual O & M Cost				$196,000

20 Year Present Worth	Actual Cost	Present Worth
Initial Capital Cost	$2,331,000	$2,331,000
Replacement Cost (20-year)		$0
Annual O & M Cost	$196,000	$2,577,000
Salvage Value	$163,000	($69,000)
TOTAL ESTIMATE OF PRESENT WORTH		**$4,839,000**

Note: Present Worth estimated using discount rate = 4.375%

Baraboo WWTF Biosolids Upgrade Study
Present Worth Summary
DEWATERING CENTRIFUGE AND BIOSET STABILIZATION

Capital Costs

Item	Capital Cost	Design Life	Replacement Cost	Salvage Value
Dewatering - Centrifuge				
Structure	$284,000	40	$0	$142,000
Equipment	$705,000	20	$0	$0
Stabilization - Bioset				
Structure	$49,000	40	$0	$24,500
Equipment	$1,051,000	20	$0	$0
Subtotal	$2,089,000		$0	$167,000
Contingencies (20%)	$418,000			
Subtotal	$2,507,000			
Engineering (18%)	$451,000			
Total Estimated Capital Cost	**$2,958,000**			

Operation and Maintenance Costs	# of Units	Units	$/units	Annual Cost
Chemical Costs	1	LS	$149,326	$149,000
Maintenance and Repair	1	LS	$7,350	$7,000
Annual Power Cost	1	LS	$19,164	$19,000
Annual O & M Cost				$175,000

20 Year Present Worth	Actual Cost	Present Worth
Initial Capital Cost	$2,958,000	$2,958,000
Replacement Cost (20-year)		$0
Annual O & M Cost	$175,000	$2,301,000
Salvage Value	$167,000	($71,000)
TOTAL ESTIMATE OF PRESENT WORTH		**$5,188,000**

Note: Present Worth estimated using discount rate = 4.375%

Baraboo Police Department
Monthly Activity Report
May 2016

Calls for Service	Current Month	Current Year to Date	Prior Year to Date	Change	Percentage Change
Burglaries	0	12	18	-6	-33.33%
Thefts	35	173	210	-37	-17.62%
Check Welfare Mental	9	60	0	60	#DIV/0!
Mental Commitment	3	19	20	-1	-5.00%
Criminal Damage	7	36	31	5	16.13%
Assist other agencies	103	429	307	122	39.74%
Assists - West Baraboo	5	34	22	12	54.55%
Animal Complaints	37	87	115	-28	-24.35%
Total of all Calls	949	4,253	3,737	516	13.81%
Traffic Crashes					
Total Traffic Crashes	24	110	121	-11	-9.09%
Persons Killed	0	1	0	1	#DIV/0!
Persons Injured	8	28	19	9	47.37%
Pedestrians Injured	0	1	0	1	#DIV/0!
Enforcement Activity					
Adult Notices of Appearance	78	441	402	39	9.70%
Drug Charges	14	73	48	25	52.08%
Traffic Citations	396	2393	1739	654	37.61%
OWI Arrests	6	34	27	7	25.93%
Seatbelt Violations	43	205	158	47	29.75%
Traffic Warnings	177	1092	857	235	27.42%
Juvenile Offenses	21	193	211	-18	-8.53%
Curfew Violations	0	1	1	0	0.00%
Underage Alcohol Citations	6	18	19	-1	-5.26%
Parking Citations	35	1,332	1,450	-118	-8.14%
Fines and Fees					
Court Fines	$2,549.43	$23,377.18	$27,557.10	-$4,179.92	-15.17%
Parking Fines	$2,050.00	$20,737.13	$26,195.50	-$5,458.37	-20.84%
Police Department Fees	$166.45	$504.18	$823.02	-$318.84	-38.74%

POLICE LINE

The Baraboo Police Department Newsletter

June 2016

From the Chief

This month, we have seen the deadliest mass shooting in the history of our country. As we all sat in shock at hearing the number of victims, the narrative has become too common across the news wire. Part of the challenge is looking at such a violent incident and believing that it can happen here.

To this end, the first responders in Sauk County are working diligently to develop plans to respond to on-going violent encounters. Police are ready to respond with the training to save lives by stopping the threat, rendering aid, and getting victims out as timely as we can while still protecting the lives and safety of the rest of the community. We continually train for the worst, which seems to slap us across the face in tragic times like these.

There is a question that is often asked, "What can I do". The answer is simpler in many cases than you may think. The first thing we all as a community need to do is get involved. Getting involved means we will best survive an incident by mitigating it at the start. We do this by helping our friends and neighbors. Our community needs to be strong as our citizens and will be a direct reflection of that. Reporting suspicious activity and speaking up if a person is making threats is a start to us as a community standing up to the increasing violence in our society.

BPD Baseball

The Police Department has sponsored a Parks and Rec baseball team for the last several years. This year, one of the coaches and BPD Officer, Mike Pichler, led the boys of the PD sponsored team to a great season.

Officer Pichler decided that the boys were up to a real challenge and made arrangements for the Police Department All Star Hall of Fame team to take the field for a final showdown of the Rec season. The sun filtered through ominous clouds and the Mayor threw out the ceremonial first pitch.

Coach Pichler watches the action

Soon the crack of the bat and cloud of dust filled Statz Park in a spirited exchange of runs. The boys were able to pull out a 14 – 11 victory, though it should be noted the All Stars were rallying when the game was called on account of Hot Fresh Pizza!

9 – 10 player brings the heat from the mound

Thanks to Coach Pichler and all of the parents of the 9-10 City Rec Baseball BPD team for a great game, though I am pretty sure the Chief cheated at some point….

First baseman tries to push Chief off the bag

To the victor go the spoils, good game boys!

Anniversaries

We celebrate the anniversaries of Officer Nick Defiel, 16 years; Lt. Ryan La Broscian 14 years; Officer Jeff Shimon, 10 years; Officer Jon Connely, 7 years; Officer Amanda Sabol, 6 years.