



"In the Spirit of Town Government"

**TOWN OF BUCHANAN, OUTAGAMIE COUNTY, WI
NOTICE OF THE TOWN BOARD MEETING
TUESDAY, FEBRUARY 23, 2016 AT 7:00 P.M.
BUCHANAN TOWN HALL, N178 COUNTY RD N, APPLETON, WI 54915**

AGENDA

Notice is hereby given that the Buchanan Town Board may take action on any item listed within this agenda.

1. CALL MEETING TO ORDER

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL & VERIFY PUBLIC NOTICE

4. CONSENT AGENDA

- a). Approval of the Minutes of January 19, 2016 Town Board Meeting.
- b). Approval of the Minutes of February 8, 2016 Special Town Board Meeting.
- c). Approval of January 2016 Treasurer Report & Approve Bills.
- d). Approval of Operator's License Applications, With No Applicable Violations per Town Policy.

All items listed under the Consent Agenda are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless a Board member so requests, in which event the item will be removed from the General Order of Business and considered at this point on the agenda.

5. PUBLIC COMMENT FORUM

General public comments will be limited to five minutes in length. Commentators must state name and address for the record. The Board's role is to listen and not discuss/debate comments nor take action on those comments at this time.

6. PRESENTATIONS: NONE

7. ROUTINE REPORTS:

- a). Law Enforcement – Update/Monthly Report on Town Law Enforcement Activities.
- b). Fire, EMS & Emergency Management – Update/Monthly Report on Fire, EMS & Emergency Management.
- c). Town Engineer – Update/Report on Town Engineering Activities:
 - i. A-16 Contract Final Design / Construction Services – Letter of Authorization for Approval/Denial.
 1. Hillside Drive Urbanization Construction & Assessment Estimates.
 - ii. Eisenhower Drive Study.
 - iii. Building Space Needs Study.
- d). Town Administrator – Update/Monthly Report on Administrative Activities.

8. PLAN COMMISSION ITEMS FOR DISCUSSION & POSSIBLE ACTION:

- a). Application for Final Plat (Ruys Ridge): Applicant: Garners Creek Development, LLC; Lot 3 of CSM 7066 Existing Parcel Number 030035903, 4.788 acres.
- b). Development Agreement for Ruys Ridge Subdivision.
- c). Ordinance #2016-02: Repealing & Recreation Section §525-79 Applicability and Procedure (Site Plans).
- d). Ordinance #2016-03 Repealing & Recreating Section §525-86 Conditions and Safeguards (Special Exceptions).

9. UNFINISHED BUSINESS FOR DISCUSSION & POSSIBLE ACTION: NONE

10. NEW BUSINESS FOR DISCUSSION & POSSIBLE ACTION:

- a). Agreement for Assessment Services with Accurate Appraisal, LLC.
- b). Authorization to Purchase Self Contained Breathing Apparatus (SCBAs).
- c). Resolution No. 2016-01 - Resolution Designating Carry Over Funds For 2016 Town Budget.
- d). Determine Future Special Town Board Meeting For Fire & Rescue Services Discussion.

11. CLOSED SESSION (If Necessary):

- a). Closed session pursuant to section 19.85(1)(e) of the Wisconsin State Statutes: Deliberating or negotiating the purchase of public property, investment of public funds, or conducting other specified public business when competitive or bargaining reasons require a closed session. Ruys Ridge Development Agreement.
 - i. Reconvene into Open Session: Town Board Action Following Closed Session.

12. FUTURE AGENDA ITEMS:

Meeting agenda/discussion items and possible action on future Town Board agenda, including specific items for inclusion on or exclusion from a future agenda.

13. ADJOURNMENT

Joel Gregozeski, Administrator/Clerk
Posted: February 16, 2016

Public Notice: Agendas are posted in the following locations: Town Hall bulletin board & Town website: www.townofbuchanan.org. 2015 Wisconsin Act 79 allows the publication of certain legal notices on an Internet site maintained by a municipality. This law allows these types of legal notices to be posted in one physical location in the jurisdiction (instead of three) if also placed on an Internet site maintained by the local government.

Special Accommodations: Requests from persons with disabilities who need assistance to participate in this meeting should be made to the Clerk's Office at (920) 734-8599 with as much advance notice as possible.

Notice of Possible Quorum: A quorum of the Plan Commission, Board of Review, and/or Board of Adjustment may be present at this meeting for the purpose of gathering information and possible discussion on items listed on this agenda. However, unless otherwise noted in this agenda, no official action by the Plan Commission, Board of Review, and/or Board of Adjustment will be taken at this meeting.



"In the Spirit of Town Government"

**TOWN OF BUCHANAN, OUTAGAMIE COUNTY, WI
MINUTES OF THE TOWN BOARD MEETING
TUESDAY, JANUARY 19, 2016 AT 7:00 P.M.
BUCHANAN TOWN HALL, N178 COUNTY RD N, APPLETON, WI 54915**

1. **CALL MEETING TO ORDER** Meeting called to order by Chairperson McAndrews at 7:00 p.m.
2. **PLEDGE OF ALLEGIANCE**– Pledge recited.
3. **ROLL CALL & VERIFY PUBLIC NOTICE** - Public notice verified. Board members present – McAndrews, Lawrence, Reinke, and Kavanaugh. Town officials present – Plan Commission Chairperson Wallenfang, Administrator/Clerk Gregozeski, Treasurer/Deputy Clerk Sieracki, Division Chief Van Schyndel, and Assistant Chief Berg. Other members of the public were also in attendance.
4. **CONSENT AGENDA**
 - a). Approval of the Minutes of December 15, 2015 Town Board Meeting.
 - b). Approval of the Minutes of January 6, 2016 Special Town Board Meeting.
 - c). Approval of December 2015 Treasurer Report & Approve Bills.
 - d). Approval of Operator's License Applications, With No Applicable Violations per Town Policy.

Motion by Kavanaugh/Reinke to approve all items as provided in the consent agenda. Motion carried unanimously by voice vote.

5. **PUBLIC COMMENT FORUM:** The following individuals spoke:
 - Ted Erdmann & Pete Hermes (Hillside Drive): Commented that they would like to see the Town reconstruct portions of Hillside Drive with California curb and gutter. Stated they will be seeking a petition from residents requesting the same and will present the information to the Town Board in February.
6. **PRESENTATIONS:**
 - a). 1-Year Service Recognition to Derek Kumrow and Zach Birkner, Buchanan Fire & Rescue: Chairperson McAndrews recognized Derek Kumrow and Zach Birkner for their 1-year service to Buchanan Fire & Rescue.
7. **ROUTINE REPORTS:**
 - a). Law Enforcement – Update/Quarterly Report on Town Law Enforcement Activities: Lt. Proietti from the Outagamie County Sheriff's Department provided a quarterly report of law enforcement activities in the Town of Buchanan. He noted a significant drug arrest and an arrest related to thirty area thefts and burglaries. Deputy Burke commented on feedback he received from a recent vehicular accident victim who stated she was very thankful for the response and care she received during a car accident at the intersection of Buchanan Road and County Road CE.
 - b). Fire, EMS & Emergency Management – Update/Monthly Report on Fire, EMS & Emergency Management: Division Chief Van Schyndel provided a review of the monthly memorandum as provided to the Board. She noted several accomplishments from 2015 including two successful grants received from Georgia Pacific and We Energies.
 - c). Town Engineer – Update/Quarterly Report on Town Engineering Activities: Town Engineer Majkowski provided a brief overview of the 2016 projects, including annual crack filling, a culvert replacement on Clune Road and paving projects on Mapleridge Drive, Mapleridge Court, Aspen Court, Liberty Lane and Hillside Drive. Majkowski indicated the projects have been designed to 30% completion and will present 60% completion for Town Board consideration in February. Majkowski noted the designs will be based on the Town's approved typical standard.
 - d). Town Administrator – Update/Monthly Report on Administrative Activities: Gregozeski provided an overview of several key capital projects planned for 2016. Gregozeski noted that in addition to the paving projects described by Town Engineer Majkowski, several significant maintenance projects of patching and sealing are planned for Outagamie Road, Clune Road, DeBruin Road, Haen Road and Block Road. Gregozeski also updated the Board on the 2016 election year and changes at the State Government Accountability Board.

8. PLAN COMMISSION ITEMS FOR DISCUSSION & POSSIBLE ACTION: NONE

9. UNFINISHED BUSINESS FOR DISCUSSION & POSSIBLE ACTION: NONE

10. NEW BUSINESS FOR DISCUSSION & POSSIBLE ACTION:

- a). Fire Department Interim Management Proposal to Provide Professional Consulting Services from Fuasgail Resources, LLC. – For Discussion and Possible Action: Gregozeski presented a proposal to provide interim management services for the Buchanan Fire & Rescue department. Gregozeski noted the proposal anticipates 10-15 hours of service for a cost of \$500 per week. Neil Cameron from Fuasgail Resources, LLC was available and answered several questions from the Board. The Board agreed that assistance was needed to help administer the Department during the interim period.

Motion by Lawrence/Hughson to approve the Fire Department Interim Management Proposal to Provide Professional Consulting Services from Fuasgail Resources, LLC. Motion carried unanimously by voice vote.

- b). Fire Chief Retirement and Position/Hiring Review – For Discussion and Possible Action: Gregozeski provided a review of the Fire Chief's job description, administrative responsibilities and possible options for filling the now vacant position. He requested the Town Board schedule a meeting with the Fire & Rescue Department's officers to better gauge their input in the process and to establish communication lines between the governing body and the department. The Board agreed that a meeting would be important. The Board discussed the possibility of hiring a part-time chief over a full-time chief; in addition to consolidating the chief position with a neighboring community. The Board requested staff and consultant review opportunities with neighboring communities and report back to the Board information relating any possible opportunities. The Board also asked Neil Cameron to review the position and provide input from his perspective.

- c). Employee Assistance Program (EAP) Services Agreement Extension with ThedaCare, Inc. – For Discussion and Possible Action: Gregozeski provided a brief overview of the Employee Assistance Program and the proposed contract extension. The Board reviewed and discussed the contract.

Motion by Lawrence/Kavanaugh to approve the Employee Assistance Program (EAP) Services Agreement Extension with ThedaCare, Inc. Motion carried unanimously by voice vote.

- d). Appointment of Town Administrator/Clerk as Interim Emergency Management Director – For Discussion and Possible Action: Gregozeski indicated the Town is required by Statute and Ordinance to name an Emergency Management Director. With the vacant Fire Chief position, that leaves the Administrator/Clerk as the only option.

Motion by Lawrence/Hughson to appoint the Town Administrator/Clerk as interim Emergency Management Director. Motion carried unanimously by voice vote.

- e). Authorization to Purchase Commercial Lawn Mowers from Carstens Ace Hardware – For Discussion and Possible Action: Gregozeski provided an overview of the bids received for the replacement of two large riding mowers. Gregozeski indicated discussions with staff allowed the specifications to be changed thus lowering the overall costs of a single mower. As a result, the Town can reduce the total cost to replace both mowers in a single year.

Motion by Reinke/Lawrence to authorize to purchase two commercial lawn mowers from Carstens Ace Hardware as bid, for an amount up to \$16,808. Motion carried unanimously by voice vote.

- f). Ordinance #2016-01 Repealing and Recreating Ch. 420-7 Carrying Firearms and Concealed Weapons in Town Buildings – For Discussion and Possible Action: McAndrews presented the proposed Ordinance relating to allowing other Town Officials to carry firearms and concealed weapons in Town buildings. He indicated the desire to ensure the safety of staff and other officials. Gregozeski indicated that he would like a formal opinion from the Town's attorney and liability insurance provider before the Town consider taking action on this item. The Board agreed to seek a legal opinion on any risk associated with the possible change to the Town Code.

11. CLOSED SESSION: NONE

12. FUTURE AGENDA ITEMS: Kavanaugh requested estimates from the Town Engineer relating to the California curb option along Hillside Drive.

13. ADJOURNMENT: *Motion by Reinke/Hughson to adjourn at 9:06 p.m. Motion carried unanimously by voice vote.*

Joel Gregozeski, Administrator/Clerk
Dated: January 20, 2016

Motion to approve by: _____ Date: _____ Carried ___ to ___

DRAFT



"In the Spirit of Town Government"

**TOWN OF BUCHANAN, OUTAGAMIE COUNTY, WI
MINUTES OF SPECIAL TOWN BOARD MEETING
MONDAY, FEBRUARY 8, 2016 AT 8:30 P.M.
BUCHANAN TOWN HALL, N178 COUNTY RD N, APPLETON, WI 54915**

1. **CALL MEETING TO ORDER** Meeting called to order at 8:30 p.m.
2. **ROLL CALL & VERIFY PUBLIC NOTICE** - Public notice verified. Board members present – McAndrews, Lawrence, Reinke, and Kavanaugh. Town officials present – Plan Commission Chairperson Wallenfang, Administrator/Clerk Gregozeski, Interim Fire Chief Cameron, Officers of the Buchanan Fire & Rescue Department. Other members of the public were also in attendance.
3. **FIRE DEPARTMENT ORGANIZATIONAL STRUCTURE & STAFFING SERVICE LEVELS**

- a). Joint discussion between the Buchanan Town Board & Buchanan Fire & Rescue Department Officers to review the Fire Department's organizational structure, staffing and service levels:

Gregozeski facilitated discussion between the Town Board and officers of the Fire & Rescue Department. Topics included the following: opening lines of communication, determining fire & rescue levels of services, determining methods for delivering fire & rescue related services and determining proper departmental organizational structure and leadership.

Based on the Discussion, the consensus was to schedule follow-up meetings for the purpose of:

1. Conduct a Fire Department 101 course for the Town Board & general public. The course will be designed to educate the Town Board on fire service operations, standards and mandates.
 2. Continued Strategic Planning for Fire & Rescue Related Services. This should include determining what the desired level of service should be for the Town, including the method of service delivery.
 3. Determine the appropriate staffing and leadership structure to assist in achieving the determined strategic initiatives.
4. **ADJOURNMENT:** Meeting was adjourned at 10:20 p.m.

Joel Gregozeski, Administrator/Clerk
Drafted: February 12, 2016

Motion to approve by: _____ Date: _____ Carried ___ to ___

TOWN BOARD MEETING:

February 23, 2016

AGENDA ITEM #: 4c

ACTION TYPE:

Administrative Action

(For Approval/Denial)



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Treasurer's Report & Approval of Bills**

RECOMMENDED ACTION: This is an administrative action¹ item for Town Board Approval/Denial.

SUMMARY: The attached Treasurer's Report is for the period ending January 31, 2016. Also attached is a list which includes all bills and deposits for the period January 10, 2016 through February 17, 2016. Included is the Administrator/Clerk's working budget summary for the period ending January 31, 2016

POLICY/PLAN REFERENCE(S):

1. Wis. Stats. §64.45 - Disbursements from town treasury.
2. Wis. Stats. §66.0607 - Withdrawal or disbursement from local treasury.
3. Town of Buchanan Budget & Financial Policy, adopted March 2010.

FISCAL IMPACT:

1. As shown on list of bills and deposits for period.

JDG

###

Attachments:

1. January 2016 Treasurer's Report
2. January 10, 2016 through February 17, 2016 Bills & Deposits List
3. Town Budget Summary for period ending January 31, 2016

¹ Administrative actions involve the routine application of adopted rules, policies and standards. Examples include the approval of bills, the awarding of contracts/agreements and the issuance of permits and licenses for permitted uses. Discretion associated with these types of decisions is very limited and is based solely on state statutes, local ordinances and/or policy.



Monthly Report

January 2016

Operating Account The Business Bank	Previous Balance	\$ 6,041,399.32
	Deposits	\$ 2,935,609.18
	Checks	\$ 5,762,567.55
	Interest Credited on 1/31/16	\$ 960.90
	Balance as of 1/31/16	\$ 3,215,401.85
	<i>(Interest Year to Date: \$960.90)</i>	
	Segregated Funds (included in above total)	
	Intersection Improvement Fund	\$ 523,886.00
Fire Apparatus Fund	\$ 76,405.00	
Building Improvement Fund	\$ 21,601.00	
Trail Development Fund	\$ 10,024.00	
Contingency Account The Business Bank	Previous Balance	\$ 246,896.74
	Deposits	
	Withdrawals	\$ -
	Interest Credited on 1/31/16	\$ 170.66
	Balance as of 1/31/16	\$ 247,067.40
	<i>(Interest Year to Date: \$170.66)</i>	
Park Impact Fees The Business Bank	Previous Balance	\$ 12,842.60
	Deposits	\$ -
	Withdrawals	\$ -
	Interest Credited on 1/31/16	\$ 5.10
	Balance as of 1/31/16	\$ 12,847.70
	<i>(Interest Year to Date: \$5.10)</i>	
Fire/EMS Communication The Business Bank	Previous Balance	\$ 3,056.40
	Withdrawals	\$ -
	Interest Credited on 1/31/16	\$ 0.25
	Balance as of 1/31/16	\$ 3,056.65
	<i>(Interest Year to Date: \$.25)</i>	
Fire Department Fundraising The Business Bank	Previous Balance	\$ 28,268.65
	Deposit	\$ -
	Withdrawals	\$ -
	Interest Credited on 1/31/16	\$ 16.84
	Balance as of 1/31/16	\$ 28,285.49
	<i>(Interest Year to Date: \$16.84)</i>	
Road Improvements The Business Bank	Previous Balance	\$ 1,401,176.88
	Deposit	\$ -
	Withdrawals	\$ 10.00
	Interest Credited on 1/31/16	\$ 278.32
	Balance as of 1/31/16	\$ 1,401,445.20
	<i>(Interest Year to Date: \$278.32)</i>	

Loan Balances

Citizens Bank (Van Roy Road/Other Projects)	Balance as of 1/31/16	\$ 175,000.00
<i>(Original Loan Amount - \$1,410,000.00)</i>	<i>(Int. Paid Year to Date:)</i>	
	<i>(Int. Paid Inception to Date: \$242,728.80)</i>	

TOWN OF BUCHANAN
Bills for 2/23/16 Meeting
 January 10 through February 13, 2016

Type	Date	Num	Name	Memo	Paid Amount
11010.0 - Bus Bank-Checking					
Deposit	01/11/2016			Deposit	22,832.02
Deposit	01/11/2016			Deposit	107,955.08
Deposit	01/12/2016			Deposit	3,359.28
Deposit	01/12/2016			Deposit	123,496.14
Deposit	01/14/2016			Deposit	2,485.48
Deposit	01/14/2016			Deposit	86,155.06
Deposit	01/27/2016			Deposit	4,314.04
Deposit	01/19/2016			Deposit	139,713.10
Deposit	01/21/2016			Deposit	352,605.70
Deposit	01/25/2016			Deposit	207,909.77
Deposit	01/25/2016			Deposit	88,722.98
Deposit	01/25/2016			Deposit	79,653.65
Deposit	01/25/2016			Deposit	248,612.57
Deposit	01/26/2016			Deposit	89,235.80
Deposit	01/27/2016			Deposit	186,711.76
Deposit	01/27/2016			Deposit	125,040.84
Deposit	01/28/2016			Deposit	218,072.31
Deposit	01/29/2016			Deposit	101,839.95
Deposit	01/29/2016			Deposit	225,385.80
Deposit	02/01/2016			Deposit	11,485.79
Deposit	01/31/2016			Interest	960.90
Deposit	02/01/2016			Deposit	99,478.51
Deposit	02/01/2016			Deposit	134,976.80
Deposit	02/03/2016			Deposit	120,692.16
Deposit	02/03/2016			Deposit	27,205.26
Deposit	02/03/2016			Deposit	2,792.71
Deposit	02/02/2016			Deposit	29,413.08
Deposit	02/05/2016			Deposit	3,593.87
Deposit	02/09/2016			Deposit	3,078.36
Deposit	02/09/2016			Deposit	543.81
Deposit	02/12/2016			Deposit	796.24
Liability C...	01/29/2016	ACH	Wisconsin Dept. of Revenue	036-0000195431-02	-1,015.13
Liability C...	01/12/2016	ACH	Internal Revenue Service	39-1316254	-1,652.08
Liability C...	01/29/2016	ACH	Department of Employee Trust Funds	69-036-0120-000	-1,421.18
Paycheck	01/15/2016	ACH	SCHROEDER, RICK L		-619.39
Paycheck	01/15/2016	ACH	KAVANAUGH, CHARLES J		-375.18
Paycheck	01/15/2016	ACH	LAWRENCE, KAREN L		-400.18
Paycheck	01/15/2016	ACH	MC ANDREWS, MARK C		-559.20
Paycheck	01/15/2016	ACH	REINKE, DENNIS G		-375.18
Check	01/15/2016	ACH	Paul Hermes	Inspection fees	-1,398.78
Paycheck	01/15/2016	ACH	HUGHSON, JENNIFER S		-400.18
Liability C...	01/21/2016	ACH	Internal Revenue Service	39-1316254	-740.70
Check	01/14/2016	ACH	USPS	Stamps.com postage purchase	-100.00
Paycheck	01/20/2016	ACH	FRANZKE, RICK A		-238.03
Paycheck	01/20/2016	ACH	GIRARD, CHRIS L		-395.23
Paycheck	01/20/2016	ACH	HENNESSEY, PATRICIA A		-579.40
Paycheck	01/20/2016	ACH	KARRELS, JONATHON A		-101.58
Paycheck	01/20/2016	ACH	SIERACKI, CYNTHIA R		-907.38

TOWN OF BUCHANAN
Bills for 2/23/16 Meeting
 January 10 through February 13, 2016

Type	Date	Num	Name	Memo	Paid Amount
Paycheck	01/20/2016	ACH	GREGOZESKI, JOEL D		-2,248.91
Paycheck	01/20/2016	ACH	BERG, DENNIS G		-99.28
Paycheck	01/20/2016	ACH	BIRKNER, ZACHARY G		-34.22
Paycheck	01/20/2016	ACH	CORNING, BRUCE D		-58.63
Paycheck	01/20/2016	ACH	HERTER, BILL J		-52.49
Paycheck	01/20/2016	ACH	HERMANN, KEEGAN A		-35.63
Paycheck	01/20/2016	ACH	HOOYMAN, JEFFREY J		-73.56
Paycheck	01/20/2016	ACH	JAHN, DANIEL W		-112.68
Paycheck	01/20/2016	ACH	JAHN, STEVEN W		-121.17
Paycheck	01/20/2016	ACH	KARNER, BENJAMIN D		-15.75
Paycheck	01/20/2016	ACH	KRUEGER, SAMUEL A		-54.42
Paycheck	01/20/2016	ACH	KUMROW, DEREK A		-41.05
Paycheck	01/20/2016	ACH	LOCKHART, SCOTT G		-37.16
Paycheck	01/20/2016	ACH	MADER, FREDERICK N		-29.32
Paycheck	01/20/2016	ACH	MADER, MATTHEW J		-81.18
Paycheck	01/20/2016	ACH	MENDEL, JR, WILLIAM L		-31.26
Paycheck	01/20/2016	ACH	MUSICH, SCOTT M		-84.76
Paycheck	01/20/2016	ACH	NEWHOUSE, JAMIE J		-79.36
Paycheck	01/20/2016	ACH	REGAL, BRIAN J		-46.78
Paycheck	01/20/2016	ACH	RUSCH, TYLER R		-35.55
Paycheck	01/20/2016	ACH	THYSSEN, NICHOLAS P		-46.77
Paycheck	01/20/2016	ACH	VAN SCHYNDEL, LISA M		-398.66
Paycheck	01/20/2016	ACH	WALSH, JOHN T		-84.40
Paycheck	01/20/2016	ACH	WIEDENBAUER, KENNETH S		-23.39
Liability C...	01/26/2016	ACH	Internal Revenue Service	39-1316254	-1,619.74
Check	01/27/2016	ACH	USPS	Stamps.com postage purchase	-100.00
Paycheck	02/03/2016	ACH	CAMERON, NEAL A		-452.70
Paycheck	02/03/2016	ACH	GIRARD, CHRIS L		-550.15
Paycheck	02/03/2016	ACH	KARRELS, JONATHON A		-92.35
Paycheck	02/03/2016	ACH	KINNARD, STEFFI A.		-58.88
Paycheck	02/03/2016	ACH	SIERACKI, CYNTHIA R		-923.60
Paycheck	02/03/2016	ACH	GREGOZESKI, JOEL D		-2,248.90
Paycheck	02/03/2016	ACH	HENNESSEY, PATRICIA A		-579.42
Paycheck	02/03/2016	ACH	BERG, DENNIS G		-59.56
Paycheck	02/03/2016	ACH	BIRKNER, ZACHARY G		-68.43
Paycheck	02/03/2016	ACH	GARCIA, RAMIRO E		-323.60
Paycheck	02/03/2016	ACH	HERMANN, KEEGAN A		-27.41
Paycheck	02/03/2016	ACH	HERTER, BILL J		-13.13
Paycheck	02/03/2016	ACH	HOMOLA, MICHAEL G		-43.63
Paycheck	02/03/2016	ACH	JAHN, DANIEL W		-49.13
Paycheck	02/03/2016	ACH	JAHN, STEVEN W		-35.05
Paycheck	02/03/2016	ACH	KARNER, BENJAMIN D		-13.13
Paycheck	02/03/2016	ACH	KRUEGER, SAMUEL A		-51.02
Paycheck	02/03/2016	ACH	KUMROW, DEREK A		-29.65
Paycheck	02/03/2016	ACH	LOCKHART, SCOTT G		-63.20
Paycheck	02/03/2016	ACH	MADER, FREDERICK N		-70.37
Paycheck	02/03/2016	ACH	MENDEL, JR, WILLIAM L		-10.24
Paycheck	02/03/2016	ACH	MUSICH, SCOTT M		-61.94
Paycheck	02/03/2016	ACH	NEWHOUSE, JAMIE J		-52.90

TOWN OF BUCHANAN
Bills for 2/23/16 Meeting
January 10 through February 13, 2016

Type	Date	Num	Name	Memo	Paid Amount
Paycheck	02/03/2016	ACH	REECE III, EUGENE R		-99.59
Paycheck	02/03/2016	ACH	REGAL, BRIAN J		-37.42
Paycheck	02/03/2016	ACH	RUSCH, TYLER R		-12.70
Paycheck	02/03/2016	ACH	THYSSEN, NICHOLAS P		-23.39
Paycheck	02/03/2016	ACH	VAN SCHYNDEL, LISA M		-280.36
Paycheck	02/03/2016	ACH	VANDERMOSSE, TAYLOR L		-65.63
Paycheck	02/03/2016	ACH	WALSH, JOHN T		-49.63
Paycheck	02/03/2016	ACH	WIEDENBAUER, KENNETH S		-67.83
Paycheck	02/03/2016	ACH	DIEDRICK, TRAVIS W		-24.24
Paycheck	02/03/2016	ACH	REINKE, DANIEL L		-49.63
Liability C...	02/09/2016	ACH	Internal Revenue Service	39-1316254	-1,706.26
Bill Pmt -...	02/01/2016	ACH	Delta Dental of Wisconsin		-179.46
Check	02/03/2016	ACH	STAMPS.COM	Monthly Stamps.Com fee Feb 2016	-15.99
Check	02/09/2016	ACH	Network Health Plan	Group 100400,	-3,570.94
Check	01/11/2016	34492	Brian Weeks	Tax Overpayment 030 188400	-232.91
Check	01/11/2016	34493	Scott Grady	030121800 tax overpayment	-74.58
Check	01/11/2016	34494	Douglas & Dawn Uitenbroek	VOID: 030052403 tax overpayment	0.00
Check	01/11/2016	34495	Registration Fee Trust	License plate for trailer	-74.50
Bill Pmt -...	01/11/2016	34496	Card Service Center	Visa 2495, 0975 & 0538	-772.96
Bill Pmt -...	01/11/2016	34497	Corporate Network Solutions, Inc.		-5,035.00
Bill Pmt -...	01/11/2016	34498	News Publishing Company Inc.		-300.61
Bill Pmt -...	01/11/2016	34499	Office Depot	Acct. 5163,	-427.17
Bill Pmt -...	01/11/2016	34500	WCMA	Application	-225.00
Check	01/11/2016	34501	Shirlee Wydeven		-180.00
Check	01/14/2016	34502	Wrightstown Area Schools	2015 taxes-1st installment	-40,057.84
Check	01/14/2016	34503	Appleton Area Schools	2015 taxes-1st installment	-5,044.91
Check	01/14/2016	34504	Kaukauna Area Schools	2015 taxes-1st installment	-636,966.65
Check	01/14/2016	34505	Kimberly Area Schools	2015 taxes-1st installment	-2,640,911.63
Check	01/14/2016	34506	Fox Valley Technical College	2015 taxes-1st installment	-386,931.21
Check	01/14/2016	34507	Darboy Joint Sanitary District No 1	2015 taxes-1st installment	-76,474.16
Check	01/14/2016	34508	Outagamie County Treasurer	2015-taxes-1st installment	-1,817,792.81
Bill Pmt -...	01/14/2016	34509	Calumet County Treasurer		-332.80
Bill Pmt -...	01/14/2016	34510	Lowe's		-8.53
Bill Pmt -...	01/14/2016	34511	Tractor Supply Company		-87.90
Bill Pmt -...	01/14/2016	34512	UNUM Life Insurance Company of A...	932511-001	-144.16
Bill Pmt -...	01/14/2016	34513	Verizon		-120.03
Bill Pmt -...	01/14/2016	34514	WE Energies-Street Lights	Acct. 3841-040-796	-1,994.01
Check	01/18/2016	34515	John Burkhardt Jr	Tax Overpayment 030 216100	-697.17
Check	01/18/2016	34516	Steven McQuaid	030144900 tax overpayment	-62.65
Check	01/18/2016	34517	Jonathan & Amanda Zahringer	030202100 tax overpayment	-48.68
Bill Pmt -...	01/18/2016	34518	Accurate Appraisal LLC		-1,260.00
Bill Pmt -...	01/18/2016	34519	Infinity Technology, Inc.	Subscription	-420.00
Bill Pmt -...	01/18/2016	34520	Kaukauna Utilities		-123.15
Bill Pmt -...	01/18/2016	34521	Outagamie County Solid Waste		-12.77
Bill Pmt -...	01/18/2016	34522	Staples Advantage		-87.67
Check	01/25/2016	34523	John Jacobs	Tax Overpayment 030 195400	-136.49
Check	01/25/2016	34524	Douglas Kopitzke	030 036815 tax overpayment	-53.14
Check	01/25/2016	34525	William & Dana Fenili	030244200 tax overpayment	-65.53
Check	01/25/2016	34526	Greg Anderson	030242200 tax overpayment	-55.97

TOWN OF BUCHANAN
Bills for 2/23/16 Meeting
January 10 through February 13, 2016

Type	Date	Num	Name	Memo	Paid Amount
Check	01/25/2016	34527	Michael & Valerie Decoster	030120700 tax overpayment	-55.18
Check	01/25/2016	34528	Connie Seidel	Tax Overpayment 030 187300	-45.41
Bill Pmt -...	01/25/2016	34529	Accent Business Solutions, Inc.		-63.68
Bill Pmt -...	01/25/2016	34530	Advance Disposal-Green Bay-B8		-23,681.14
Bill Pmt -...	01/25/2016	34531	Cintas Corporation #443		-103.09
Bill Pmt -...	01/25/2016	34532	ImageTrend Inc		-1,650.00
Bill Pmt -...	01/25/2016	34533	J. Mauel & Associates		-450.00
Bill Pmt -...	01/25/2016	34534	NEWSC	Membership	-1,000.00
Bill Pmt -...	01/25/2016	34535	NFPA		-175.00
Bill Pmt -...	01/25/2016	34536	Oshkosh Fire & Police Equipment, Inc.		-169.00
Bill Pmt -...	01/25/2016	34537	Outagamie County Highway Dept.		-5,399.57
Bill Pmt -...	01/25/2016	34538	Outagamie County Register of Deeds		-30.00
Bill Pmt -...	01/25/2016	34539	Schenck Business Solutions		-2,465.00
Bill Pmt -...	01/25/2016	34540	Stitch's		-41.25
Bill Pmt -...	01/25/2016	34541	TDS Metrocom		-634.92
Bill Pmt -...	01/25/2016	34542	ThedaCare EAP	VOID:	0.00
Bill Pmt -...	01/25/2016	34543	Van Hoof, Van Hoof & Cornett		-3,737.50
Bill Pmt -...	01/25/2016	34544	Wisconsin Dept. of Justice	G3203	-69.00
Bill Pmt -...	01/25/2016	34545	ThedaCare EAP		-1,140.00
Bill Pmt -...	01/26/2016	34546	Lincoln Benefit Life/AIG American Ge...		-24,000.00
Bill Pmt -...	01/26/2016	34547	VFIS		-820.00
Check	02/01/2016	34548	Michael Fitzgerald	030 228800 tax overpayment	-54.40
Check	02/01/2016	34549	Rosa Verhagen	030 149700 Tax Overpayment	-43.73
Check	02/01/2016	34550	Bradley Colvin	Tax Overpayment 030 177700	-72.02
Check	02/01/2016	34551	Joseph Widowski	Tax Overpayment 030 226700	-57.06
Check	02/01/2016	34552	Joel Justinger	030 152900 tax overpayment	-86.97
Check	02/01/2016	34553	Tammy Spakowicz	030 199800 tax overpayment	-48.68
Check	02/01/2016	34554	Clark & Sara Meyer	030 124100 tax overpayment	-61.52
Check	02/01/2016	34555	Bruce & Linda Dailey	030 120900 tax overpayment	-72.45
Check	02/01/2016	34556	Peter Anderson	030 203200 tax overpayment	-50.58
Check	02/01/2016	34557	JAH, STEVEN W		-37.79
Check	02/01/2016	34558	Village of Wrightstown Fire Dept.	2016 Fire Contract	-4,000.00
Check	02/01/2016	34559	Outagamie County Fire Chiefs Associ...	2016 Assoc. Dues for Town of Buchanan	-25.00
Check	02/01/2016	34560	Hollandtown Fire Department	2016 Fire Contract	-4,000.00
Check	02/01/2016	34561	Wisconsin State Firefighter's Assoc.	2016 Active Membership dues	-95.00
Check	02/01/2016	34562	Andrew Sutton	030 146300 tax overpayment	-59.54
Check	02/01/2016	34563	Todd & Laurie Kriese	030 162600 tax overpayment	-58.60
Check	02/01/2016	34564	Pamela Kunes	Tax Overpayment 030 100700	-48.48
Check	02/01/2016	34565	Cory Diamond	030102000 tax overpayment	-54.28
Bill Pmt -...	02/01/2016	34566	Cellcom Appleton PCS	Acct # 009-09048840	-49.06
Bill Pmt -...	02/01/2016	34567	Eagle Engraving, Inc.		-39.91
Bill Pmt -...	02/01/2016	34568	Martin Security Systems, Inc.		-77.85
Bill Pmt -...	02/01/2016	34569	Outagamie County Treasurer		-1,404.63
Bill Pmt -...	02/01/2016	34570	UNUM Life Insurance Company of A...	932511-001	-144.16
Check	02/08/2016	34571	Paul Zimmerman	Tax Overpayment 030 159900	-57.82
Check	02/08/2016	34572	Kevin Tesch	Tax Overpayment 030 095700	-42.16
Check	02/08/2016	34573	Joseph Vandenberg	Tax Overpayment 030 261300	-2,869.20
Check	02/08/2016	34574	Renee Oskey	030 113400 tax overpayment	-49.18
Check	02/08/2016	34575	Irene Skarban	030 156101 tax overpayment	-24.69

TOWN OF BUCHANAN
Bills for 2/23/16 Meeting
 January 10 through February 13, 2016

Type	Date	Num	Name	Memo	Paid Amount
Check	02/08/2016	34576	Douglas & Dawn Uitenbroek	030052403 tax overpayment	-75.92
Bill Pmt -...	02/08/2016	34577	Appleton City of		-4,635.00
Bill Pmt -...	02/08/2016	34578	Card Service Center	Visa 2495, 0975 & 0538	-285.18
Bill Pmt -...	02/08/2016	34579	Darboy Joint Sanitary District No 1		-116.02
Bill Pmt -...	02/08/2016	34580	Eagle Engraving, Inc.		-14.44
Bill Pmt -...	02/08/2016	34581	Fox Cities Regional Partnership		-3,467.00
Bill Pmt -...	02/08/2016	34582	General Code		-1,003.23
Bill Pmt -...	02/08/2016	34583	News Publishing Company Inc.		-108.33
Bill Pmt -...	02/08/2016	34584	Outagamie County Highway Dept.		-11,740.12
Bill Pmt -...	02/08/2016	34585	Outagamie County Sheriff		-77,429.10
Bill Pmt -...	02/08/2016	34586	Strategic Insights Inc.	16Plan-It-032	-675.00
Bill Pmt -...	02/08/2016	34587	VFIS		-40.00
Bill Pmt -...	02/08/2016	34588	WE Energies		-1,246.60
Total 11010.0 · Bus Bank-Checking					-2,977,330.59
11015.0 · Bus Bank-Contingency Svgs MM					
Deposit	01/27/2016			Interest	170.66
Total 11015.0 · Bus Bank-Contingency Svgs MM					170.66
11020.0 · Bus Bank-Park Impact Fees MM					
Deposit	01/27/2016			Interest	5.10
Deposit	02/05/2016			Deposit	480.00
Total 11020.0 · Bus Bank-Park Impact Fees MM					485.10
11030.0 · Bus Bank-Fire/EMS Comm Equip MM					
Deposit	01/29/2016			Interest	0.25
Total 11030.0 · Bus Bank-Fire/EMS Comm Equip MM					0.25
11045.0 · Bus. Bank-Fire Dept Fundraising					
Deposit	01/31/2016			Interest	16.84
Total 11045.0 · Bus. Bank-Fire Dept Fundraising					16.84
11050.0 · Bus. Bank-Road Improvement					
Check	01/31/2016			Service Charge	-10.00
Deposit	01/31/2016			Interest	278.32
Total 11050.0 · Bus. Bank-Road Improvement					268.32
TOTAL					-2,976,389.42

Town of Buchanan						
Year-To-Date Budget Comparison (Revenues)						
Fiscal Year 2016						
					<i>As of:</i>	<i>1/31/2016</i>
Department	2015 BUDGET	2016 BUDGET	YEAR TO DATE 1/31/2016	(UNDER) OVER BUDGET 2016	PERCENT UNDER/ OVER	
Taxes - 41000						
General Property Taxes	\$1,885,308	\$1,896,025	\$2,835,030	\$ 939,005	150%	
Special Assessments - 42000	\$0	\$12,000	\$0	\$ (12,000)	0%	
Intergovernmental Revenues - 43000	\$282,774	\$281,323	\$28,290	\$ (253,034)	10%	
Licenses & Permits - 44000	\$70,495	\$70,495	\$3,009	\$ (67,486)	4%	
Fines, Forfeitures & Penalties - 45000	\$14,155	\$12,155	\$1,407	\$ (10,748)	12%	
Public Charges for Services - 46000	\$301,480	\$303,740	\$2,851	\$ (300,889)	1%	
Intergovernmental Charges for Services - 47000	\$1,900	\$1,900	\$0	\$ (1,900)	0%	
Miscellaneous Revenue - 48000	\$615,500	\$155,000	\$3,631	\$ (151,369)	2%	
Proceeds Long Term Debt - 49000	\$1,397,000	\$766,651	\$0	\$ (766,651)	0%	
TOTAL - Revenues	\$ 2,683,304	\$ 1,603,264	\$ 2,874,218	\$ 1,270,954	179.27%	

Town of Buchanan						
Year-To-Date Budget Comparison (Expenses)						
Fiscal Year 2016						
					As of:	1/31/2016
					(UNDER)	
Department	2015 BUDGET	2016 BUDGET	YEAR TO DATE 1/31/2016	OVER BUDGET 2015	PERCENT OF BUDGET	
General Government - 51000						
51100	Legislative (Town Board)	\$ 31,930	\$ 32,005	\$ 2,550	\$ (29,455)	8%
51300	Legal Service Fees	\$ 33,000	\$ 30,000	\$ 3,738	\$ (26,263)	12%
51400	General Administration	\$ 250,934	\$ 254,354	\$ 18,497	\$ (235,858)	7%
51500	Financial Administration	\$ 21,500	\$ 21,750	\$ 4,192	\$ (17,558)	19%
51600	General Building, Town Hall	\$ 57,637	\$ 58,402	\$ 2,342	\$ (56,060)	4%
51900	Other General Government	\$ 24,146	\$ 24,146	\$ 1,140	\$ (23,006)	5%
Subtotal - General Government		\$ 419,147	\$ 420,657	\$ 32,458	\$ (388,199)	8%
Public Safety - 52000						
52100	Law Enforcement	\$ 400,002	\$ 405,763	\$ 123	\$ (405,640)	0%
52200	Fire & Rescue	\$ 157,847	\$ 177,803	\$ 29,254	\$ (148,549)	16%
52300	Emergency Management/EMS	\$ 91,720	\$ 35,100	\$ 970	\$ (34,130)	3%
52400	Building Inspection	\$ 12,500	\$ 15,600	\$ 1,399	\$ (14,201)	9%
Subtotal - Public Safety		\$ 662,069	\$ 634,266	\$ 31,746	\$ (602,520)	5%
Public Works - 53000						
53300	Highway & Street Maintenance	\$ 211,400	\$ 221,900	\$ 4,133	\$ (217,767)	2%
53400	Road Related Facilities	\$ 34,068	\$ 41,068	\$ 4,808	\$ (36,260)	12%
53500	Mass Transit	\$ 60,772	\$ 56,745	\$ -	\$ (56,745)	0%
53600	Sanitation	\$ 321,982	\$ 324,372	\$ 23,694	\$ (300,678)	7%
Subtotal - Public Works		\$ 628,222	\$ 644,085	\$ 32,636	\$ (611,449)	5%
Culture, Recreation & Education - 55000						
55200	Parks	\$ 10,500	\$ 13,000	\$ -	\$ (13,000)	0%
55300	Recreation Programs & Events	\$ -	\$ 500	\$ -	\$ (500)	0%
Subtotal - Culture, Recreation & Ed.		\$ 10,500	\$ 13,500	\$ -	\$ (13,500)	0%
Conservation & Development - 56000						
56700	Economic Development	\$ 185	\$ 3,678	\$ -	\$ (3,678)	0%
56900	Planning & Zoning/Erosion/Conservation	\$ 25,520	\$ 26,520	\$ 1,030	\$ (25,490)	4%
Subtotal - Conservation & Development		\$ 25,705	\$ 30,198	\$ 1,030	\$ (29,168)	3%

Department		2015 BUDGET	2016 BUDGET	YEAR TO DATE 1/31/2016	(UNDER) OVER BUDGET 2015	PERCENT OF BUDGET
Other Financing Uses						
	Contingency & Reserves	\$ 70,027	\$ 80,000	\$ -	\$ (80,000)	0%
Subtotal - Other Financing Uses		\$ 70,027	\$ 80,000	\$ -	\$ (80,000)	0%
Debt Service Fund - 58000						
58000	Debt Service	\$ 182,593	\$ 181,388	\$ -	\$ (181,388)	0%
Subtotal - Debt Service Fund		\$ 182,593	\$ 181,388	\$ -	\$ (181,388)	0%
Capital Outlay - 57000						
57190	General Government	\$ 8,500	\$ 59,000	\$ 5,035	\$ (53,965)	9%
57620	Parks & Recreation	\$ 58,500	\$ 57,500	\$ -	\$ (57,500)	0%
57220	Fire & Rescue	\$ 114,500	\$ 213,400	\$ 1,650	\$ (211,750)	1%
57230	EMS - Emergency Management	\$ 4,500	\$ -	\$ -	\$ -	0%
57331	Roads & Public Works	\$ 2,384,350	\$ 1,058,921	\$ -	\$ (1,058,921)	0%
57348	Stormwater & Drainage	\$ -	\$ 106,375	\$ -	\$ (106,375)	0%
Subtotal - Capital Outlay		\$ 2,570,350	\$ 1,495,196	\$ 6,685	\$ (1,488,511)	0%
TOTAL - General Fund Operating, Debt & Capital		\$ 4,568,613	\$ 3,499,290	\$ 104,555	\$ (3,394,735)	2.99%

TOWN BOARD MEETING:

February 23, 2016

AGENDA ITEM #: 4d

ACTION TYPE:

Administrative Action

(For Approval/Denial)



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Operator's License Applications for Approval/Denial**

RECOMMENDED ACTION: This is an administrative action¹ item for Town Board Approval/Denial.

SUMMARY: The attached list of bartender operator's license and agent applications were submitted for Town Board consideration. No applicants listed have any applicable violations per Town policy.

POLICY/PLAN REFERENCE(S):

1. §125.17 Wis. Stats.
2. Town of Buchanan Municipal Code: Chapter §339-24G – Operators.
3. Alcohol License (Operators) Applications Policy, adopted January 2009.

FISCAL IMPACT: NONE

JDG

###

Attachments:

1. **New Applicants for Operator's Licenses & Agents for February 2016**

¹ *Administrative actions involve the routine application of adopted rules, policies and standards. Examples include the approval of bills, the awarding of contracts/agreements and the issuance of permits and licenses for permitted uses. Discretion associated with these types of decisions is very limited and is based solely on state statutes, local ordinances and/or policy.*

FEBRUARY 2016 -- APPLICANTS FOR BARTENDER OPERATOR'S LICENSES:

	<u>NAME & ADDRESS OF APPLICANT</u>	<u>BUSINESS NAME</u>	<u>VIOLATIONS PERTAINING TO LICENSE APPLICATION</u>	<u>NEW OR RENEWAL</u>
2015-165PV	Nataly Solorsano, 340 N. Kensington Dr., #7, Appleton, WI 54915	Buchanan Moto Mart	None	New
2015-166PV	Chance E. McCullom, N9178 Jordan St., Appleton, WI 54915	Festival Foods	None	New
2015-167PV	Michael G. Bush, 991 Derby Ln., Neenah, WI 54956	Festival Foods	None	New
2015-168PV	Courtney A. Schumacher, 102 Green Way Dr., Combined Locks, WI 54113	The Pit Stop	None	New

TOWN BOARD MEETING:

February 23, 2016

AGENDA ITEM #: 7a

ACTION TYPE:

Routine Report

(For Discussion Only)



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Monthly Report on Town Law Enforcement Activities**

RECOMMENDED ACTION: This item is for discussion only.

SUMMARY: Representatives from the Outagamie County Sheriff's Department will present the monthly law enforcement report.

POLICY/PLAN REFERENCE(S):

- Intergovernmental Agreement between Town of Buchanan and Outagamie County Sheriff's Department, adopted June 2010.

FISCAL IMPACT: NONE

JDG

###

Attachments: NONE

TOWN MEETING:

February 23, 2016

AGENDA ITEM #: 7c

ACTION TYPE:

Routine Report

(For Discussion Only)



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Engineer's Report**

RECOMMENDED ACTION: This item is for discussion only.

SUMMARY: Town Engineer, Thad Majkowski (Cedar Corp) will provide a report on the following items for discussion and possible action by the Town Board:

1. A-16 Contract Final Design / Construction Services – Letter of Authorization
 - a. Hillside Drive Project Scope (Urbanization Construction & Assessment Estimates provided)
2. Eisenhower Drive Study
3. Building Space Needs Study

POLICY/PLAN REFERENCE(S):

1. 2016 Agreement for Professional Services Cedar Corp. & Town of Buchanan
2. 2016 Town of Buchanan Fiscal Year Budget

FISCAL IMPACT: Yes, Per Individual Items (See Attached).

JDG

###

Attachments:

1. Letter of Authorization for A-16 Contract Final Design & Construction Services
2. Hillside Drive Estimate for Construction (Urbanization)
3. Hillside Urbanization Concept Design
4. Hillside Drive Preliminary Estimate for Special Assessments
5. Eisenhower Drive Study
6. Building Space Needs Study



engineers | architects | planners | environmental specialists
land surveyors | landscape architects | interior designers

MEMO

1496 Bellevue St., Suite 502
Green Bay, WI 54311-4251
920-491-9081
800-472-7372
FAX 920-491-9020
www.cedarcorp.com

DATE: January 28, 2016
TO: Joel Gregozeski, Town Administrator
FROM: Thad Majkowski, P.E.
REGARDING: 2016 Paving Drainage Final Design to Construction Engineering Services
PROJECT #: 4916-0051

Per the Preliminary Design, PIM and our discussions, the Town of Buchanan has requested Cedar Corporation to provide a final set of plans and specification for the purpose of securing competitive bids for the 2016 Paving Drainage Construction on various roads within the Town as noted below.

The construction areas and work to be completed is as follows:

Maple Ridge Dr Area including the cul de sacs to Buchanan Road

- Pulverize the entire roadway
- Full excavation of the roadway for a portion
- Minor base patching
- Concrete curb & gutter intersections
- Asphalt pavement
- Gravel shoulder
- Minor ditching and culvert replacement
- Driveway replacement based on culverts and property owner requests
- Landscape restoration disturbed areas

Hillside Drive from CTH N to Van Handel Road

- Pulverize the entire roadway
- Full excavation of the roadway
- Asphalt pavement
- Gravel shoulder
- Ditching and culvert replacement
- Driveway replacement based on culverts and property owner requests
- Landscape restoration disturbed areas

Liberty Lane from Hank Drive to Frontier Drive

- Pulverize the entire roadway
- Full excavation of the roadway for a portion
- Minor base patching
- Concrete curb & gutter intersections
- Asphalt pavement
- Gravel shoulder
- No ditching
- Driveway replacement based on culverts and property owner requests
- Landscape restoration disturbed areas

Hickory Park Drive – Drainage from Marion Avenue to 600' east

- Ditching and culvert replacement
- Driveway replacement based on culverts
- Landscape restoration disturbed areas

Hopfensperger Road – Drainage from Pioneer Court to Block Road

- Ditching and culvert replacement
- Driveway replacement based on culverts
- Landscape restoration disturbed areas

Clune Road –Culvert Replacement

- Minor ditching and culvert replacement

Work

- Pulverize the existing asphalt pavement full depth – approximately 4” – 8”.
- Excavation to be determined based on pavement cores completed by the County Highway Department – full excavation or patch of the road section where necessary due to failed pavement.
- Construct 3 ½” asphalt section (22’ wide) for the full length.
- Construct a 2’ gravel shoulder both sides to fit existing conditions.
- Adjust manholes and valves as necessary with the Darboy Sanitary District.
- Ditch grading work to be determined based on cost effective drainage improvement with minimal side slope correction.
- Driveway and cross road culverts to be modeled and replaced if required due to size or condition.
- Driveway aprons to be replaced, maximum to property line, as required by grades and condition.
- Landscape any disturbed lawn areas.
- Replace a culvert and patch the roadway in the rural area.

Cedar proposes to complete the following Services:

Preliminary Design Phase – Completed

Final Design Phase

- Prepare a set of documents including plan/profile sheets for both areas and associated cross section as required for the ditching including a specification.
- Prepare an Advertisement for Bid for the Town to publish in the legal newspaper.
- Secure necessary WDNR permitting for the culvert replacement.

Bidding Phase

- Place bidding documents on BidQuest for potential Contractors to review and submit a bid.
- Answer Contractors questions to clarify the bid documents.
- Assist in the Bid Opening at the Town Office.
- Prepare a Bid Tabulation of the bids received.
- Consult with the Town on the award.
- Prepare the contract documents for award and execution.

Construction Phase

- Provide General Administration of the Contract.
- Construction staking at 50' for the ditch excavation, as required and culvert portions of the Project
- Construction staking at 100' for the centerline of the pavement.
- Provide Resident Engineering Services as required assumed to be as follows:
 - Excavation, base course, ditch/culvert construction – full time
 - Paving construction – part time for prep work, shouldering and final review, full time for paving operations
 - Landscape restoration – part time

We propose to complete the Final Design and Bidding Phase within 90 calendar days of authorization for an estimated hourly cost range of \$18,825 to \$21,850 and to complete the Construction Phase by July 31, 2016 for an estimated hourly cost range of \$53,150 to \$56,900. These costs are based on 60 calendar day period for substantial completion with 14 calendar days for final completion of construction; however, it can range based on the final design characteristics and the Contractor awarded the bid. This construction period is assuming the Contractor will be working in several areas concurrently, although each area will have a schedule to meet. These services as noted above will be completed as agreed upon by the Town Administrator.

The proposed schedule is as follows:

Authorization to Proceed	February 1st
Design Phase	February – April
Bidding Phase	March -April
Bid Opening	April – 2 nd – 3 rd Week
Contract Award	April 26th Town Board Meeting
Construction Phase	May – July

We have enclosed a Letter of Authorization to complete the work requested. Please review and upon approval, execute the authorization and scan back to me and we will proceed on the Final Design Phase. Thank you for the opportunity to provide these services.



Attachment B

Foth Project ID 4916-0051
Addendum No. 1-30
Foth Release Date January 28, 2016

Town of Buchanan

Authorization To Perform Engineering/Consulting Services

Services will be performed in accordance with the Agreement for Professional Services, dated November 15, 2011 and Addendum No. 1 dated November 15, 2011 between Town of Buchanan (Owner) and Cedar Corporation (ENGINEER).

Engineer is hereby authorized to proceed with the project listed below. The engineering/consulting services are to be completed in a timely manner mutually agreeable with the Town and Engineer.

Project: 2016 Paving/Drainage/Culvert Project – Contract “A-16”

Description: Final Design thru Construction Phase to be completed as noted in the Memo dated January 28, 2016 for the Paving, Drainage and Culvert. See attached.

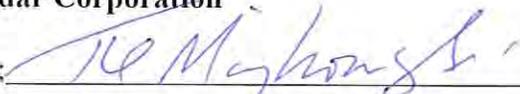
Scope of Work	Method of Compensation	Cost Estimate
<input type="checkbox"/> Miscellaneous Services (1.1)	<input checked="" type="checkbox"/> Per Diem Estimate	\$71,975 - \$78,750
<input checked="" type="checkbox"/> Design (1.2)	<input type="checkbox"/> Lump Sum	_____
<input checked="" type="checkbox"/> Bidding and Contract Award (1.3)	General Engineering	_____
<input type="checkbox"/> General Project Administration (1.4)	Roadway Engineering	_____
<input checked="" type="checkbox"/> Resident Engineering (1.5)	Capital Improvement	_____
<input checked="" type="checkbox"/> Part-Time <input checked="" type="checkbox"/> Full-Time	Planning	_____
<input checked="" type="checkbox"/> Stormwater and Drainage (1.6)	GIS Consultation	_____
<input checked="" type="checkbox"/> Transportation and Highway and Street Maintenance	Planning	_____
<input type="checkbox"/> Planning (1.7)	Meeting Attendance	_____
<input type="checkbox"/> Additional Engineering Services (1.8)	Site Plan Reviews	_____

Special Conditions: Cost not to exceed without Administrator approval.

Timetable: To be completed as noted in the Memo dated January 28, 2016.

Cedar Corporation

**Authorized By
Town of Buchanan**

By: 

By: _____

Title: Director

Title: _____

Date: January 28, 2016

Date: _____



Hillside Drive

Additional Costs for Curb & Gutter with Storm Sewer

Paved in: 1995, PASER:5

2/2/2016

Existing Roadway Conditions:

Pavement Width (avg.):21'

Shoulder Width (Each Side):Minimal-1'

Centerline Length: 900 LF

Ditches: Minimal

Crossroad Culverts: Yes, monitor

Proposed Roadway Improvements: Pulverize and Repave

Pavement Width: 22' (Need to Evaluate width-Collector Street)

Full Roadway Excavation and Reconstruction

24" Curb and Gutter

Storm Sewer

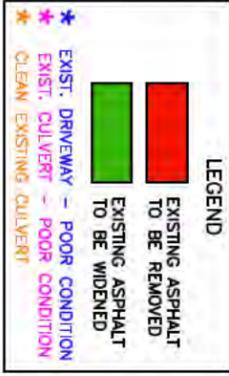
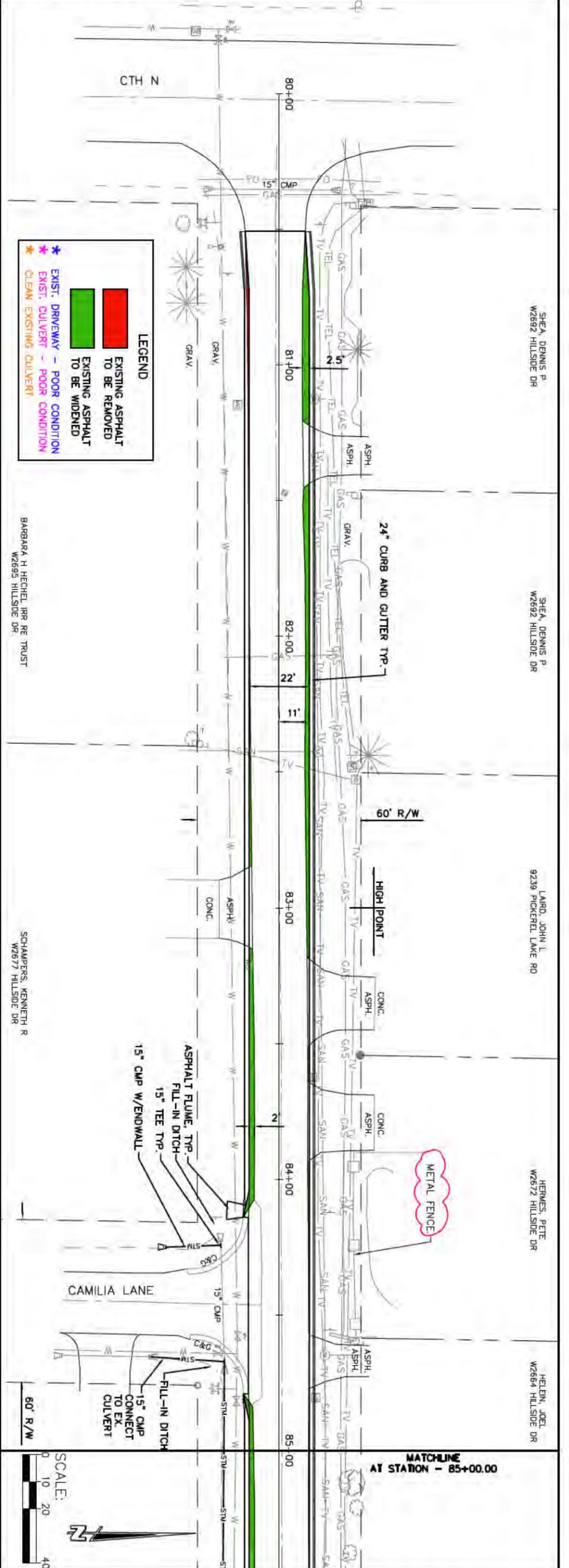
ITEM	QUANTITY		COST	TOTAL
24" CURB AND GUTTER	1505	LF	\$15	\$22,575
FILL IN DITCHES (CAMILIA LN INT. & 150' EAST)	100	CY	\$10	\$1,000
12" RCP CATCH BASIN LEADS	32	LF	\$35	\$1,120
15" CMP STORM SEWER	360	LF	\$40	\$14,400
24" CMP STORM SEWER	50	LF	\$50	\$2,500
STORM MANHOLE	1	EA	\$4,000	\$4,000
CATCH BASIN	2	EA	\$2,000	\$4,000
15" ENDWALL	2	EA	\$300	\$600
24" ENDWALL	1	EA	\$750	\$750
15" TEE	2	EA	\$300	\$600
ASPHALT FLUME AT CAMILIA LN INTERSECTION	1	EA	\$300	\$300
SUBTOTAL CONSTRUCTION				\$51,845
CONTINGENCY 10%				\$5,185
ENGINEERING, ADMIN 15%				\$10,369
TOTAL CONSTRUCTION				\$67,399
TOTAL LOT FRONT FOOTAGE:	1571	LF		
TOTAL COST PER LF OF LOT:	\$42.90	LF		

Notes: 1.) CURB AND GUTTER WITH STORM SEWER MAY REQUIRE LARGER CROSS ROAD CULVERT AT STA. 87+60. REVIEW CULVERT CAPACITY AND REGIONAL STORMWATER.

ESTIMATE OF SPECIAL ASSESSMENTS - HILLSIDE DRIVE (STORMSEWER & CURB/GUTTER)

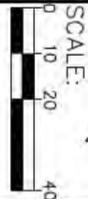
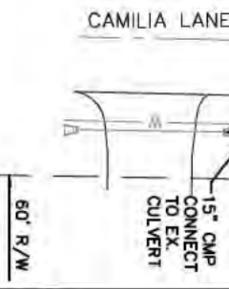
Parcel	Owner Name	Property Address	Cost/LF	Total LF	Total Cost
30058303	SANDRA A VANDERMOSS OR CURRENT RESIDENT	N277 HILLSIDE DR	\$ 42.90	190.00	\$ 8,151.69
30058306	TIMOTHY J ZACHOW OR CURRENT RESIDENT	N257 VAN HANDEL DR	\$ 42.90	189.75	\$ 8,140.96
30089300	WENDY K LODHOLZ OR CURRENT RESIDENT	W2654 HILLSIDE DR	\$ 42.90	104.20	\$ 4,470.56
30089400	JOEL HELEIN OR CURRENT RESIDENT	W2664 HILLSIDE DR	\$ 42.90	104.20	\$ 4,470.56
30089500	LAURIE HERMES OR CURRENT RESIDENT	W2672 HILLSIDE DR	\$ 42.90	104.20	\$ 4,470.56
30089600	DARLENE LAIRD OR CURRENT RESIDENT	W2678 HILLSIDE DR	\$ 42.90	104.20	\$ 4,470.56
30089800/30089700	DENNIS P SHEA OR CURRENT RESIDENT	W2692 HILLSIDE DR	\$ 42.90	208.80	\$ 8,958.27
30089900	BARBARA H HECHEL IRR RE TRUST OR CURRENT RESIDENT	W2695 HILLSIDE DR	\$ 42.90	200.00	\$ 8,580.72
30090600	KENNETH R SCHAMPERS OR CURRENT RESIDENT	W2677 HILLSIDE DR	\$ 42.90	175.59	\$ 7,533.45
30090700	GERALD M HAMMEN OR CURRENT RESIDENT	N264 CAMILIA LA	\$ 42.90	190.00	\$ 8,151.69
Totals:				1571	\$ 67,399.00

As of: Wednesday, February 03, 2016



BARBARA H HECHTEL, IRR RE TRUST
W2695 HILLSIDE DR

SCHAWPERS, KENNETH R
W2677 HILLSIDE DR



760	738.1	738.5	739.2	740.1	740.9	741.4	741.3	740.9	740.3	739.7	739.1	760
755												755
750												750
745												745
740												740
735												735
730												730
725												725
720												720
80+00												85+00

TOWN OF BUCHANAN
2016 PAVING-DRAINAGE IMPROVEMENTS
CONTRACT NO. "A-16"
HILLSIDE DRIVE - CURB W/STORM SEWER ALTERNATIVE

Cedar corporation
engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

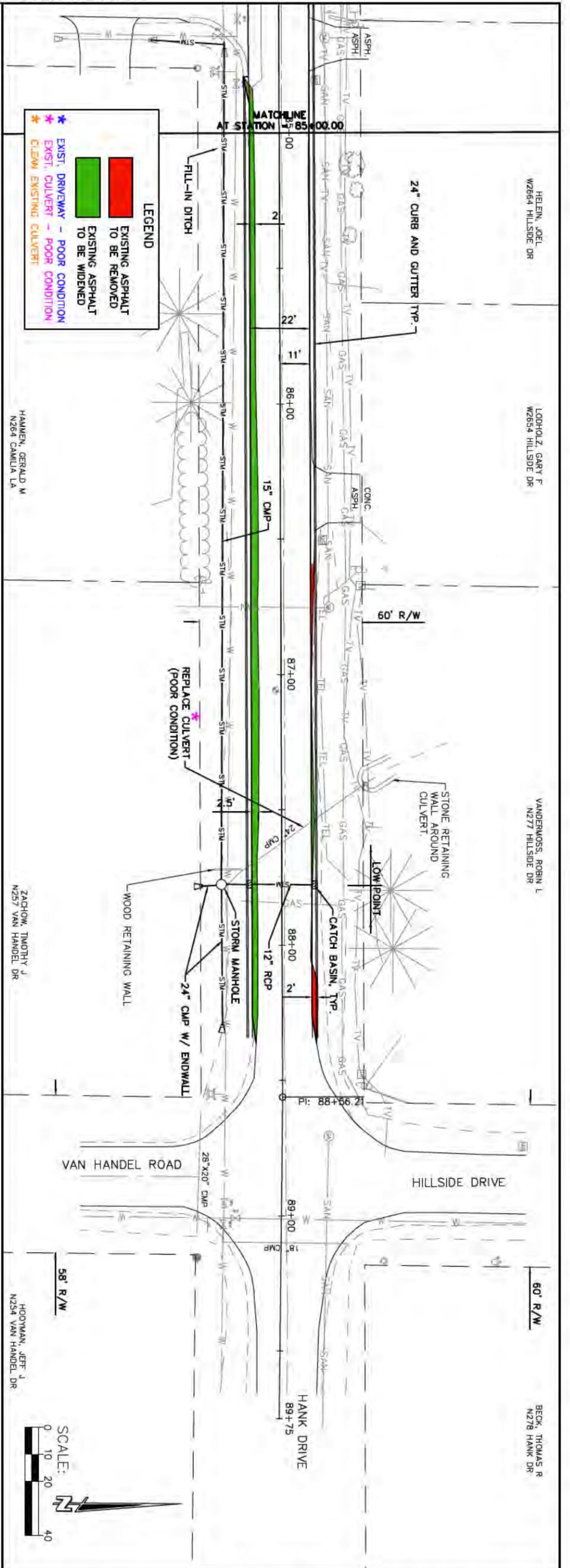
604 Wilson Ave. Suite 142
Menomonee, WI 54751
715-235-9081
www.cedarcorp.com

2820 Walton Commons West
Suite 502
Madison, WI 53718
608-354-0037
FAX 608-249-5824

1496 Bellevue Street
Suite 502
Green Bay, WI 54511
920-491-9081
FAX 920-491-9020

JOB NO.	4916-0051
BOOK NO.	
DRAWN BY	KLU
CHECKED BY	TMM
DATE	12/23/15
REVISIONS	
REFERENCE FILE	
DRAWING FILE	

SHEET NO.	1 OF 2
-----------	--------



85+00	739.1	738.7	738.3	737.4	735.9	734.5	734.2	734.6	735.5	736.2	89+75
	715									715	
	720									720	
	725									725	
	730									730	
	735									735	
	740									740	
	745									745	
	750									750	
	755									755	

EXIST. ELEVATION OVER REFERENCE LINE

EXIST. GROUND OVER REFERENCE LINE

SHEET NO. 2 OF 2	TOWN OF BUCHANAN 2016 PAVING-DRAINAGE IMPROVEMENTS CONTRACT NO. "A-16" HILLSIDE DRIVE - CURB W/STORM SEWER ALTERNATIVE	Cedar Corporation engineers • architects • planners • environmental specialists land surveyors • landscape architects • interior designers	JOB NO. 4916-0051
			BOOK NO.
		604 Wilson Ave. Suite 142 Menomonee, WI 54751 715-235-9081 www.cedarcorp.com	2820 Walton Commons West Suite 502 Madison, WI 53718 608-354-0037 FAX 608-249-5824
			1496 Bellevue Street Suite 502 Green Bay, WI 54511 920-491-9081 FAX 920-491-9020
			DRAWN BY KLU
			CHECKED BY TMM
			DATE 12/23/15
			REVISIONS
			REFERENCE FILE
			DRAWING FILE



**Eisenhower Drive
Stormwater Management
Preliminary Engineering Report**

Town of Buchanan

FEBRUARY 2016

CEDAR CORPORATION
1496 BELLEVUE STREET, SUITE 502
GREEN BAY, WI 54311
920-491-9081
920-491-9020 (Fax)
www.cedarcorp.com
Job Number: B4916-050

TABLE OF CONTENTS

SECTION	PAGE
1 INTRODUCTION/PURPOSE OF REPORT	1
2 SCOPE OF WORK	2
3 REGULATORY INFORMATION.....	3
4 BACKGROUND INFORMATION	4
5 STORMWATER MANAGEMENT OPTIONS	7
5.1 OPTION 1: WATER QUALITY SWALE ON EAST SIDE, TRAIL ON WEST SIDE.....	8
5.2 OPTION 2: WATER QUALITY SWALE ON WEST SIDE, TRAIL ON EAST SIDE.....	9
5.3 OPTION 3: FILL IN DITCHES, STORM SEWER WITH POND	11
6 CONCLUSIONS.....	14
6.1 COST SUMMARY	14
7 RECOMMENDATIONS.....	15
LIST OF APPENDICES.....	16
APPENDIX A: OFFICIAL TOWN OF BUCHANAN MAP AND STANDARDS	17
APPENDIX B: TYPICAL ROAD SECTIONS	18
APPENDIX C: PLAN – PROFILES FOR EACH OPTION.....	19
APPENDIX D: STORM SEWER MODELING	20
APPENDIX E: WINSLAMM MODELING	21
APPENDIX F: STORMWATER POND SIZING/MODELING	22
APPENDIX G: COST ESTIMATES.....	23
APPENDIX H: REGULATIONS AND TECHNICAL STANDARDS.....	24
APPENDIX I: PROPOSED STORMWATER POND LOT EXISTING SITE PLAN INFORMATION	25
APPENDIX J: BIOLIFE PLASMA CENTER- N161 EISENHOWER DR. STORMWATER MANAGEMENT PLAN	26

1 INTRODUCTION/PURPOSE OF REPORT

The Town of Buchanan has requested Cedar Corporation to complete a Preliminary Stormwater Engineering Report for the Urbanization of Eisenhower Drive from CTH KK to Creekview Lane. The Eisenhower Drive Report Area is located in the south-west portion of the Town of Buchanan near State Highway 441. CTH CE (College Avenue) borders the report location area to the north and CTH KK (Calumet Street) to the south.

This report is intended to identify feasible and cost-effective stormwater management alternatives in the Eisenhower Drive area. There are three overall stormwater management options that are evaluated for three report areas on Eisenhower Drive.

This report also evaluates the construction of a pedestrian and bike trail along Eisenhower Drive. The report evaluates the location of the trail on each side of the roadway, along with other factors including the width of trail, separation of the trail from the roadway, and ADA compliance.

The stormwater management alternatives and pedestrian/bike trail options are described in this report and shown on exhibits in the attached Appendices. The most cost effective stormwater management option may be one option for the entire report area or a combination of stormwater treatment options for each of the areas.

Each of the stormwater management options were evaluated in this report and it contains a preliminary cost estimate of each option to aid in determining the most feasible and cost-effective stormwater management and urbanization solution.

2 SCOPE OF WORK

The following items have been completed as part of the scope of work for this project.

- Complete a basic field topographic survey of Eisenhower Drive centerline road, culverts and existing ditch grades to determine the preliminary profiles of the ditches and storm sewer based on the options selected.
- Prepare a plan/profile for each proposed option with swale grades, storm sewer and a centerline profile. The centerline road profile will follow the existing grades. This report will not complete a roadway design except to indicate changes, if necessary, to meet the intent of the report.
- Prepare a typical roadway section for each option.
- Model the storm sewer for preliminary sizing and flows.
- Model the swales to meet the necessary TSS and Phosphorus Removal per WDNR NR 151 Regulations.
- Model the pond option to determine the necessary pond size and Total Suspended Solids/Phosphorus Removal per WDNR NR 151 Regulations. The location of the pond and how it fits on the available parcels is evaluated.
- There was no wetland delineation completed prior to this report. The presence of wetlands could alter proposed improvements and greatly affect the scope of work. A wetland delineation will be required prior to any actual design of any stormwater management facilities or trails.
- There was no geotechnical exploration completed prior to this report. All soil information has been gathered from the WDNR website. Vegetated swale total suspended solids (TSS) and Phosphorus calculations are based off of soil types from the WDNR website. Different soil conditions may change the actual TSS and phosphorus removal rates calculated in the vegetated swale and stormwater management pond. Soil borings are recommended prior to any actual design of any stormwater management facilities.

3 REGULATORY INFORMATION

This report does not cover detailed reviews or provide recommendations of environmental or other regulatory requirements.

Permits and approvals may need to be obtained from the following regulatory agencies during design of the project:

- Wisconsin Department of Natural Resources - WDNR
- Outagamie County Zoning
- East Central Wisconsin Regional Planning Commission
- Garners Creek Stormwater Utility
- Army Corp of Engineers
- Federal Emergency Management Agency – FEMA

4 BACKGROUND INFORMATION

Eisenhower Drive is a 4-lane collector street between the busy arterial streets of CTH CE and CTH KK. The street connects traffic from the county highways to the residential and commercial areas. The Preliminary Stormwater Engineering Report covers approximately 3,400 linear feet of roadway from CTH KK to Creekview Lane.

Eisenhower Drive was last reconstructed in the year 2000 from Creekview Lane to CTH KK. There have been recent improvements completed on Eisenhower Drive in the year 2015 from Van Roy Road to CTH CE. Roundabouts were constructed in each intersection and street improvements were completed with the associated roundabout work.

In response to legislation requiring the treatment of stormwater prior to discharge, a stormwater pond was constructed for the Eisenhower Drive and Emons Lane area. Most of the stormwater in the Eisenhower Drive area ultimately drains to this pond via storm sewer or to Garners Creek to the west of Eisenhower Drive.

As required by the MS4 Permit and the WDNR, an ongoing illicit discharge detection and elimination screening program is being completed by Omni Associates for the Town. This report identifies areas of potential contaminated/polluted water being discharged into the community's drainage system and ultimately being discharged into local waterways.

A Stormwater Management Plan was completed by McMahon in 2008 for the Town's MS4 permit. This plan identifies several potential BMPs and treatment alternatives for the Town to obtain the required 40% TSS removal. Any changes proposed to the existing stormwater facilities will have to take into account BMP and treatment alternatives when analyzing stormwater drainage options.

Bicycle and Pedestrian Accommodations

According to the Town of Buchanan's Official Map (Appendix A), Eisenhower Drive is identified as a roadway to have off-road pedestrian/bike facilities in the future. The Town Board has agreed to implement the Town's Official Map and would prefer that pedestrian/bike facilities be implemented as part of any project. Engineering feasibility will be a consideration and overall cost impact will be evaluated when analyzing proposed construction options. There are several types of bicycle and pedestrian facilities which are summarized below. Some facilities provide accommodations for both bicyclist and pedestrians, while other types may only provide accommodations for one or the other.

4.1 Bicycle Lanes

Bicycle lanes are normally found in urban areas with curbed streets and are intended to separate bicyclist and motorist. Bike lanes are a minimum 4' wide paved area with a preferred width of 5' wide and are located outside of the drive lane but inside of the curb per current

standards. Bike lanes must be located on both sides of the roadway as the bicyclist travel in the same direction as the motorized traffic. Bike lanes typically include signing and pavement markings identifying the bike lane and are typically the preferred bicycle facility. Bike lanes are not considered to be an acceptable facility for pedestrian traffic.

Shared Roadway (Shared Lanes)

Bicyclists and motorists share the roadway without any designation in shared roadway scenarios. In areas where the Annual Daily Traffic (ADT) is 1,500 vehicles or less, it is acceptable that bicyclist can use most or all of the travel lane if posted speeds are low. In higher volume areas (ADT >1,500) additional space is required for safe and convenient passing of bicyclists. Wide lanes provide a minimum of 15' wide paved area travel lane to provide additional space to allow for both motorized and bicycle traffic. Wide lanes are not marked with signs or pavement markings and are not considered to be an acceptable pedestrian facility.

Shared-Use Path (Multi-Use Trail)

Paths are separated from the roadway in the terrace and are intended for two way traffic of both pedestrian and bicyclist. Because its intended use is for pedestrians, the Americans with Disabilities Act (ADA) guidelines must be followed. Shared-Use Paths are typically 10' to allow for two-way traffic. In certain cases, the width can be reduced to 8 feet for a short distance to a physical constraint such as an environmental feature, bridge abutment, utility structure or fence. A Shared-Use Path does not necessarily eliminate the need for on-street accommodations for bicyclists. Placing a Shared-Use Path on one side of the roadway increases the number of pedestrian crossings at midblock and intersections, and decreases the safety of the facility due to visibility. Pavement marking and signing will be required at intersections.

Sidewalk

Sidewalks are intended only for pedestrian use; therefore separate bicycle accommodations are required. Sidewalks are typically 5'-6' and can be located on both or only one side of the roadway. Placing sidewalks on only one side of the roadway increase the number of pedestrian crossings at midblock and decrease the safety of the facility due to visibility. Pavement markings and signing will be required at intersections.

4.2 Methods

Survey data was collected for this project using GPS units off of the Statewide VRS system. This data was collected and downloaded for analysis. Several references were used during this report and are also identified at the end of the report.

References include:

- ◆ Wisconsin Bicycle Facility Design Handbook
- ◆ AASHTO – Guide for the Development of Bicycle Facilities

- ◆ AASHTO – Roadside Design Guide
- ◆ AASHTO – A Policy on the Geometric Design of Roadways and Streets
- ◆ FHWA – Manual on Uniform Traffic Control
- ◆ WisDOT – Facilities Development Manual
- ◆ WisDOT – Wisconsin Manual on Uniform Traffic Control Devices
- ◆ WDNR – NR 151 and NR 216 Regulations for Stormwater Runoff Management and Stormwater Discharge Permits

5 STORMWATER MANAGEMENT OPTIONS

There are three overall stormwater management options that have been evaluated for the urbanization and stormwater management for the Eisenhower Drive Report area from County Highway KK to Creekview Lane.

- Option 1: Urbanize with curb and gutter, water quality swale on east side of roadway, trail on west side of roadway.
- Option 2: Urbanize with curb and gutter, water quality swale on west side of roadway, trail on east side of roadway.
- Option 3: Urbanize with curb and gutter, fill in ditches, add storm sewer and stormwater pond.

A 53-foot back of curb to back of curb typical roadway section is proposed for all three Eisenhower Drive roadway urbanization options. This matches the existing roadway typical section at the Creekview Lane/Eisenhower Drive intersection at the northern end of the report area. The proposed typical roadway section consists of two - 12' lanes and 30" curb and gutter for each side of the proposed roadway.

The existing Eisenhower Drive roadway typical section south of Creekview Lane is currently four - 12' lanes with shoulders and ditches. The proposed improvements would add 30" curb and gutter onto the existing edge of pavement to match the typical section to the north of Creekview Lane. See Appendix B for Typical Roadway Sections for each of the proposed options.

Options 1 and 2 add a proposed 8'-10' pedestrian/bike trail on one side and a water quality swale on other side of the roadway. This option provides treatment of the stormwater in a vegetated water quality swale which will discharge at the existing culvert crossing near Springfield Drive. Option 3 will fill in all ditches and add a pedestrian/bike trail to one side of the roadway. Stormwater will be discharged via catch basins and storm sewer to a stormwater management facility where the stormwater treatment will occur.

Each option has been evaluated for 3 different areas of the Eisenhower Drive Report as described below. See Appendix C for Plan-Profile Exhibits for each option at each of the areas as described below:

- Area A: Area A is approximately 1,300 LF of roadway from County Hwy KK north to the culvert crossing near Springfield Drive. This area includes existing commercial lots. It is assumed that all stormwater from these commercial lots is treated on each individual site or is treated in a regional pond nearby. The proposed Eisenhower Drive stormwater management facilities only account for stormwater from the roadway right-of-way, not from any of the commercial lots.

- Area B: Area B is approximately 700 LF of roadway from the culvert crossing near Springfield Drive to the roadway high point of Eisenhower Drive at Station 20+00. This area is completely developed on the east side of the roadway with residential back lots and the adjacent area next to the west side of the roadway is undeveloped at this time.
- Area C: Area C is approximately 1,400 LF of roadway from the roadway high point of Eisenhower Drive at Station 20+00 north to Creekview Lane/Eisenhower Drive Intersection. This area is completely developed on the east side of the roadway with residential back lots and approximately 50% developed on the west side of the roadway. The stormwater from this area is currently treated by the Springfield Pond Facility to the west via storm sewer at Emons Road. The Springfield Drive pond and storm sewer have sufficient capacity for the existing Eisenhower Drive infrastructure and they are assumed to have capacity for the constructed trail and sidewalk additions to the roadway.

5.1 OPTION 1: WATER QUALITY SWALE ON EAST SIDE, PEDESTRIAN/BIKE TRAIL ON WEST SIDE OF ROADWAY

Option 1 is to construct a water quality swale on the east side, a pedestrian/bike trail on the west side, urbanize the roadway with concrete curb & gutter, and install catch basins that discharge to the swale for stormwater management and conveyance. The water quality swale will be designed to get 40% total suspended solids (TSS) reduction and 30% Phosphorus reduction in accordance with WDNR NR 151 standards for redevelopment and highway reconstruction.

The water quality swale is proposed to have 3:1 side slopes and a 2' wide bottom in accordance with the WDNR Vegetated Infiltration Swale Technical Standard 1005 in Appendix H. The water quality swale will also need to have a minimum 4.5' depth in order to provide a stormwater discharge location for the catch basin in the swale. The catch basins and associated storm sewer are recommended to be constructed a minimum of 4' deep in order to prevent the storm sewer from heaving in the roadway. The catch basins will also be constructed with a sump to provide additional water quality treatment. See Appendix B for typical roadway sections of Option 1.

5.1A -OPTION 1-AREA A

A water quality swale on the east side of the road and a pedestrian/bike trail on the west side is feasible for this area, but it may require additional land or easements to be purchased by the Town for the swale and trail construction

The proposed 10' wide trail will not fit on the west of the roadway near the County Highway KK intersection. See Appendix C for plan-profile exhibits of Option 1. A turn lane exists on Eisenhower Drive which leaves less room for the trail to fit within the 100' existing right-of-way. An easement will have to be obtained or an 8' pedestrian/bike trail with a smaller terrace will need to be considered in order to construct the pedestrian/bike trail here.

The water quality swale may fit in places in Area A, but there may be other areas where temporary grading easements are necessary in order to construct a swale with 3:1 maximum side slopes. An approximate easement width of 10'-15' will be required along the right-of-way on the east side of the roadway in order to grade the swale and match the existing ground elevations.

5.1B -OPTION 1-AREA B

A water quality swale on the east side of the road and a pedestrian/bike trail on the west side of the roadway is feasible for this area, but it may require additional lands or easements to be purchased by the Town in order to construct the swale.

The water quality swale will not fit in the right-of-way on the east side of the roadway in this area due to the existing fence near the existing Right-of-Way. The fence is approximately 10' outside the existing right-of-way. This fence could be moved, land can be purchased, if needed, or easements can be secured from the existing landowners. The swale side slopes may be able to be constructed at a steeper slope to fit the swale closer to the right-of-way. An approximate easement width of 10'-15' may be required along the right-of-way on the east side of the roadway in order to grade the swale and match the existing ground elevations. The exact grading limits of the swale will be reviewed during the design phase.

5.1C -OPTION 1-AREA C

A water quality swale may be constructed, but is not necessary in AREA C, since the area is treated by the existing Springfield Pond to the west of Eisenhower Drive.

Water Quality Swale TSS and Phosphorus Removal Results. See Appendix E for WinSLAMM modeling.

	TSS Load W/O control (lb)	TSS Load W/control (lb)	TSS Removed (lb)	TSS Removed (%)
Total Areas A & B	2872	1602	1270	44.22 %

	P Load W/O control (lb)	P Load W/control (lb)	Phosphorus Removed (lb)	P Removed (%)
Total Areas A & B	4.244	2.667	1.577	37.15 %

Note: Area C TSS and P removal takes place in existing Springfield regional pond.

5.2 OPTION 2: WATER QUALITY SWALE ON WEST SIDE, PEDESTRIAN/BIKE TRAIL ON EAST SIDE OF ROADWAY

Option 2 is to construct a water quality swale on the west side, a pedestrian/bike trail on the east side, urbanize the roadway with concrete curb & gutter and catch basins discharging to the swale for stormwater management and waterway. The water quality swale is design to get 40% TSS reduction and 30% Phosphorus reduction.

5.2A -OPTION 2-AREA A

A water quality swale on the west side of the roadway and a pedestrian/bike trail on the east side of the roadway is feasible, but there will be areas where additional land must be purchased or temporary grading easements are necessary in order to construct a swale with 3:1 maximum side slopes.

The water quality swale may fit in places in Area A, but there may be other areas where temporary grading easements are necessary in order to construct a swale with 3:1 maximum side slopes to match the existing commercial buildings and parking lots in this area. An approximate easement width of 10'-15' may be required along the right-of-way on the west side of the roadway in order to grade the swale and match the existing ground elevations.

5.2B -OPTION 2-AREA B

A water quality swale on the west side of the roadway and a pedestrian/bike trail on the east side of the roadway is feasible in Area B, but there will be areas where additional land must be purchased or temporary grading easements are necessary in order to construct a swale with 3:1 maximum side slopes. An approximate easement width of 10'-15' may be required along the right-of-way on the west side of the roadway in order to grade the swale and match the existing ground elevations. The land on the west side of the roadway is undeveloped, so it is easier to fit the water quality swale to the existing conditions and secure easements or purchase land if necessary.

5.2C -OPTION 2-AREA C

A water quality swale may be constructed, but is not necessary in AREA C, since the area is treated by the existing Springfield Pond to the west of Eisenhower Drive.

Water Quality Swale TSS and Phosphorus Removal Results. See Appendix E for WinSLAMM modeling.

	TSS Load W/O control (lb)	TSS Load W/control (lb)	TSS Removed (lb)	TSS Removed (%)
Total Areas A & B	2872	1602	1270	44.22 %

	P Load W/O control (lb)	P Load W/control (lb)	Phosphorus Removed (lb)	P Removed (%)
Total Areas A & B	4.244	2.667	1.577	37.15 %

Note: Area C TSS and P removal takes place in existing Springfield regional pond.

5.3 OPTION 3: FILL IN DITCHES, STORM SEWER WITH POND, PEDESTRIAN/BIKE TRAIL ON EITHER SIDE OF THE ROADWAY

Option 3 is to fill both side ditches in, construct a pedestrian/bike trail on the east or west side, urbanize the roadway with concrete curb & gutter, construct storm sewer and catch basins discharging to a regional pond facility located on a vacant parcel of land along Springfield Drive which will discharge to the existing waterway Garner's Creek waterway system. The stormwater pond facility is designed to get 40% total suspended solids (TSS) reduction and 30% Phosphorus reduction in accordance with WDNR NR 151 standards for redevelopment and highway reconstruction.

The proposed stormwater pond facilities will treat the stormwater and meet the WDNR NR 151 requirements on an annual average, project-wide basis for TSS and Phosphorus removal. There may be areas that are treated by the stormwater facilities or areas that bypass the facility, but the project area as a whole will meet the TSS and Phosphorus requirements. The stormwater pond will over-compensate for the TSS and phosphorus removal for Area A of the roadway and Area B of the roadway will not be treated by the stormwater pond. Area C will be treated by the existing Springfield Pond to the west of Eisenhower Drive. The DNR has agreed that this is an acceptable practice for the stormwater management facility design.

5.3A -OPTION 3-AREA A

The storm sewer option is feasible for Area A. It will not require purchasing any additional land in the roadway, but additional land must be purchased for the stormwater pond on Springfield Drive. Storm sewer sizing will be completed to accommodate the roadway stormwater discharge. Further evaluation of the commercial parking lot grading scheme will need to be completed during the design phase to verify if any stormwater needs to be accounted for in the design of the stormwater pond.

5.3B -OPTION 3-AREA B

Area B cannot discharge to the proposed stormwater pond south of the existing culverts near Springfield Drive due to the culvert crossing conflict. This is not a feasible option for this area. Area B can be accounted for in the stormwater management calculations for the pond. This area can bypass the pond into the existing culverts while the pond is designed to over-compensate for the bypassed flows from Area B.

5.3C -OPTION 3-AREA C

The new pond option is not necessary in AREA C since the area is treated by the existing Springfield Pond to the west of Eisenhower Drive. This area will be urbanized and there will be storm sewer constructed to tie into the existing storm and discharge to the Springfield Pond. The Springfield Pond is assumed to have capacity for the proposed curb and gutter and trail improvements. Further review of the Springfield Pond will be necessary during the design phase in order to verify that the Area C is accounted for in the Pond design.

TSS Removal

	TSS Load W/O control (lb)	TSS Load W/control (lb)	TSS Removed (lb)	TSS Removed (%)
Area A	1147	116.3	1030.7	89.86 %
Area B (Bypassed)	572.2	572.2	0	0 %
Total	1719.2	688.5	1030.7	59.95 %

Phosphorus Removal

	P Load W/O control (lb)	P Load W/control (lb)	Phosphorus Removed (lb)	P Removed (%)
Area A	2.241	0.9146	1.3264	59.19 %
Area B (Bypassed)	1.104	1.104	0	0 %
Total	3.345	2.0186	1.3264	39.65 %

Note: Area C TSS and P removal takes place in existing Springfield regional pond.

5.4 - ADDITIONAL DESIGN OPTIONS TO BE CONSIDERED

1. The water quality swale is proposed to be constructed per the WDNR Technical Standard 1005. This standard states that the side slopes of the swale are recommended to be constructed at a maximum 3:1 side slope. It may be possible to consult with the DNR in order to propose constructing the swale at a 2:1 or 2.5:1 slope in order to minimize the amount of land that would have to be purchased or require grading easements.
2. The Pedestrian/Bike Trail has been proposed to be constructed at the recommended width of 10 feet. In certain cases, the width can be reduced to 8 feet for a short distance to a physical constraint such as an environmental feature, bridge abutment, utility structure or fence. The width of the terrace separation between the curb and gutter and trail is recommended at a minimum of 5 feet. A physical separation or railing shall be provided if this separation is less than 5 feet. There are also other situations where a railing may need to be provided, depending upon the final design. See Appendix H for Pedestrian/Bike trail separation distances from curb and gutter, steep side slopes and other obstacles.
3. The proposed improvements in this report match the existing typical roadway section at the Creekview Lane/Eisenhower Drive intersection. The proposed typical roadway section or location of the roadway in the right-of-way may be able to be modified to decrease the amount of land that would have to be purchased or require grading easements. For example the centerline of the proposed roadway could be shifted to increase the amount of room available to grade in the water quality swale, but this decreases the amount of room available for grading in the pedestrian/bike path on the opposite side of the road. Additionally, the shifting centerlines will create a roadway that is no longer straight.

4. The proposed stormwater pond location at the northwest corner of Eisenhower Drive and Springfield Drive will need to be evaluated prior to making any decisions regarding the cost effectiveness of the new stormwater pond treatment option. A site plan was submitted to Outagamie County for a variance to construct a building on the site. The outcome of the submittal is unknown at this time. The lot has a value of \$352,900.00 according to the 2015 Outagamie County property records. The site plan and other lot information are attached in Appendix I.
5. There was no wetland delineation completed prior to this report. The presence of wetlands could alter proposed improvements and greatly affect the scope of work. The proposed stormwater pond will need to be located in a portion of the lot that has existing wetlands according to a site plan and stormwater information that has been previously submitted to Outagamie County. This information is in Appendix I. Further investigation into this lot will need to be completed before the stormwater pond option is selected to provide the stormwater management for Eisenhower Drive.
6. There was no geotechnical exploration completed prior to this report. All soil information has been gathered from the WDNR website. Vegetated swale and stormwater pond TSS and Phosphorus calculations are based off of soil types from the WDNR website. Different soil conditions may change the actual TSS and Phosphorus removal rates calculated in the vegetated swale and stormwater management pond.
7. Existing Eisenhower Drive asphalt pavement and base course borings will need to be performed prior to final roadway design. This information will be evaluated in order to determine if full excavation or pulverizing and paving of the roadway can be completed. The method of reconstruction will depend upon whether the existing base course conditions meet the Town of Buchanan standards.
8. The existing Springfield Pond Stormwater facility needs to be reviewed to verify whether or not the proposed Eisenhower Drive improvements will affect the capacity or water quality functions of the facility. WDNR regulations change often and the stormwater facility needs to be reviewed to evaluate whether it is still in compliance with current WDNR regulations.
9. A new Biolife Plasma Center Building was constructed in 2015 on the west side of the roadway at N161 Eisenhower Drive. This site discharges their stormwater to a regional stormwater pond facility in the adjacent lot. The assumption has been made that all the lots in this area discharge to an adjacent regional stormwater facility to meet WDNR water quality and quantity regulations. With that assumption, it means that the only stormwater that needs to be treated or conveyed is the Eisenhower Drive right-of-way area. There is no stormwater discharge from the adjacent lots that needs to be treated or conveyed by the Eisenhower Drive proposed water quality swale or proposed stormwater pond facilities.

6 CONCLUSIONS

In conclusion, there are 3 overall options that were considered for stormwater management for the Eisenhower Drive Report Area. Cedar Corporation has evaluated these options for three separate areas in the report. Preliminary cost estimates have been completed in order to determine the most feasible and cost-effective method for stormwater management and urbanization of Eisenhower Drive. The method of reconstruction will need to be evaluated prior to final roadway design. Existing pavement and base course conditions and thickness will need to be analyzed to determine the proper reconstruction method.

The full excavation and reconstruction method will fully excavate and replace the existing asphalt pavement and base course in the roadway. The new base course and asphalt pavement will be constructed per the Town of Buchanan standards and specifications. The Pulverize and Pave method will only pulverize the existing asphalt and will not excavate the existing base course material. The pulverized asphalt material is then re-graded and compacted. Any additional pulverized asphalt material can be used onsite as additional base course or hauled offsite. New asphalt pavement is then installed over the existing base course/pulverized material to Town of Buchanan standards and specifications. The condition and thickness of the existing base course and asphalt is the most important factor in determining the proper roadway reconstruction method.

6.1 COST SUMMARY

The preliminary cost summary is shown below. Detailed cost estimates are in Appendix G. Both reconstruction options are shown below to provide a range of the construction costs between the reconstruction methods.

	PRELIMINARY CONSTRUCTION ESTIMATE	
OPTION #1	FULL EXCAVATION	PULVERIZE & PAVE
AREA A	\$439,010	\$375,245
AREA B	\$348,173	\$295,783
AREA C	\$583,408	\$486,298
OPTION #2		
AREA A	\$439,010	\$375,245
AREA B	\$348,173	\$295,783
AREA C	\$583,408	\$486,298
OPTION #3		
AREA A	\$544,817	\$375,245
AREA B	\$360,959	\$295,783
AREA C	\$586,918	\$489,418

7 RECOMMENDATIONS

Cedar Corporation recommends that the stormwater management options be brought to the attention of the Town Board for further discussion. Eisenhower Drive is a major thoroughfare in the Town and future maintenance projects in the area should be included in the 5 Year Capital Improvement Plan (CIP). The Town Board will need to decide how it wants to approach these types of projects in the future for urbanization, pedestrian/bike trail construction, and stormwater management.

Based on the design standards and associated costs, Cedar Corporation recommends a combined approach to the three areas in this report as follows:

Area A - Option 1 - Water Quality Swale on East Side, Pedestrian/Bike Trail on West Side of Roadway.

Area B - Option 1 - Water Quality Swale on East Side, Pedestrian/Bike Trail on West Side of Roadway.

Area C - Option 3 - Fill in Ditches, Storm Sewer with Pond, Pedestrian/Bike Trail on Either Side of the Roadway.

RECOMMENDED OPTIONS	Full Excavation	Pulverize and Pave
AREA A - OPTION #1	\$439,010	\$375,245
AREA B - OPTION #1	\$348,173	\$295,783
AREA C - OPTION #3	\$586,918	\$489,418
TOTAL PRELIMINARY CONSTRUCTION ESTIMATE WITH RECOMMENDED OPTIONS:	\$1,374,100	\$1,160,445

Existing Eisenhower Drive asphalt and base course conditions will need to be evaluated prior to final design in order to determine the proper roadway reconstruction method. Please review this report and call our office with any question. Cedar Corporation can present the findings to the Town Board for further discussion and inclusion into the 5 Year CIP.

LIST OF APPENDICES

APPENDIX A: OFFICIAL TOWN OF BUCHANAN MAP AND STANDARDS

APPENDIX B: TYPICAL ROAD SECTIONS

APPENDIX C: PLAN – PROFILES FOR EACH OPTION

APPENDIX D: STORM SEWER MODELING

APPENDIX E: WINSLAMM MODELING

APPENDIX F: STORMWATER POND SIZING/MODELING

APPENDIX G: COST ESTIMATES

APPENDIX H: REGULATIONS AND TECHNICAL STANDARDS

APPENDIX I: PROPOSED STORMWATER POND LOT EXISTING SITE PLAN INFORMATION

APPENDIX J: BIOLIFE PLASMA CENTER- N161 EISENHOWER DR. STORMWATER
MANAGEMENT PLAN

APPENDIX A: OFFICIAL TOWN OF BUCHANAN MAP AND STANDARDS

Clerk's Office
Town of Buchanan
N178 CTH N
Appleton, WI 54915
Date: 1-12-2015

MINIMUM RESIDENTIAL ROAD SPECIFICATIONS

Road Typical Section without curb and gutter - Shall be compliant with Administrative Code Trans 75.

Asphalt Pavement shall have the following width:

24' for residential streets

30' for streets with mapped pedestrian/bike route on road

Cul-de-sacs shall have a 45' radius

Shoulders shall have the following width:

2' aggregate shoulders on all residential roadways

3' (paved or aggregate) shoulders on all collector and arterial roadways

Pavement Section – Asphalt Pavement shall be Type E-1 with a performance grade of PG 58-28.

Total thickness shall be 3 ½": 1 ¾" Binder Course and 1 ¾" Surface Course

Aggregate Base Course – The aggregate base at its base shall extend two feet wider on each side of the road (including shoulder) than the proposed roadway.

Aggregate Shoulders shall be ¾" Dense Graded Base per section 305 of WDOTSS.

Crushed aggregate base course thickness shall be as follows:

6" Breaker Run (3" Minus) per Section 311 of WDOTSS.

6" 1 ¼" Dense Graded Base, per Section 305 of WDOTSS.

12" Total Thickness

MINIMUM COMMERCIAL ROAD SPECIFICATIONS

Road Typical Section – Asphalt Pavement width with or without curb and gutter shall be determined by the Development. Typical sections shall be compliant with Administrative Code Trans 75.

Pavement Section – **ADT less than 5500 Vehicles**

Asphalt Pavement shall be Type E-3 with a performance grade of PG 58-28

Total thickness shall be 4 ½": 2 ½" Binder Course and 2" Surface Course

Pavement Section – **ADT greater than 5500 Vehicles**

Asphalt Pavement shall be Type E-3 with a performance grade of PG 58-28

Total thickness shall be 5 ½": 3 ½" Binder Course and 2" Surface Course

Aggregate Base Course – The aggregate base at its base shall extend two feet wider on each side of the road (including shoulder) than the proposed roadway.

Aggregate Shoulders shall be ¾" Dense Graded Base per section 305 of WDOTSS.

Crushed aggregate base course thickness shall be as follows:

6" Breaker Run (3" Minus) per Section 311 of WDOTSS.

12" 1 ¼" Dense Graded Base, per Section 305 of WDOTSS.

18" Total Thickness

MISCELLANEOUS RESIDENTIAL DESIGN STANDARDS

Road Right-of-Way shall be no less than 66 feet in width

Standard intersection radius on roadways without curb and gutter shall be 25' measured to the edge of pavement. The standard intersection radius on roadways with curb and gutter shall be 20' measured to the back of curb.

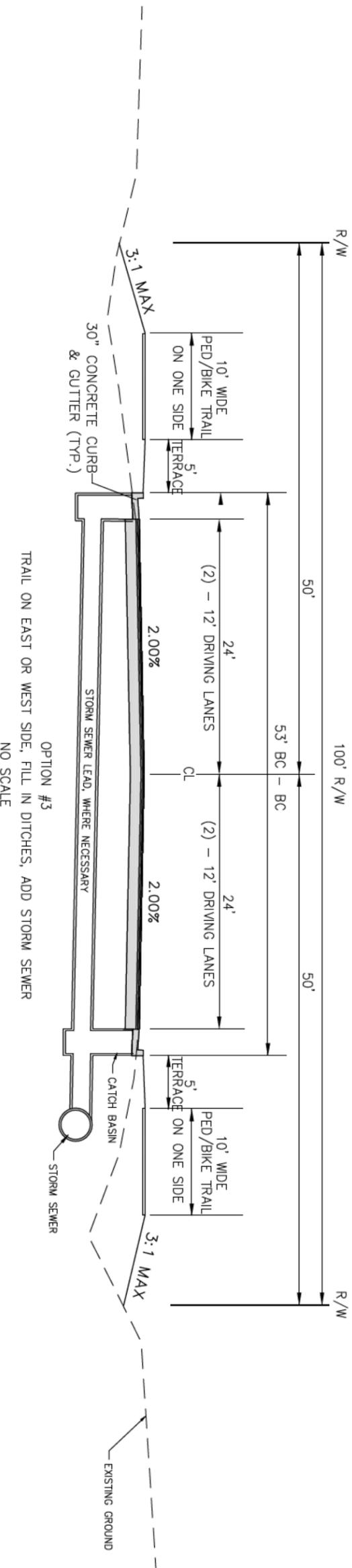
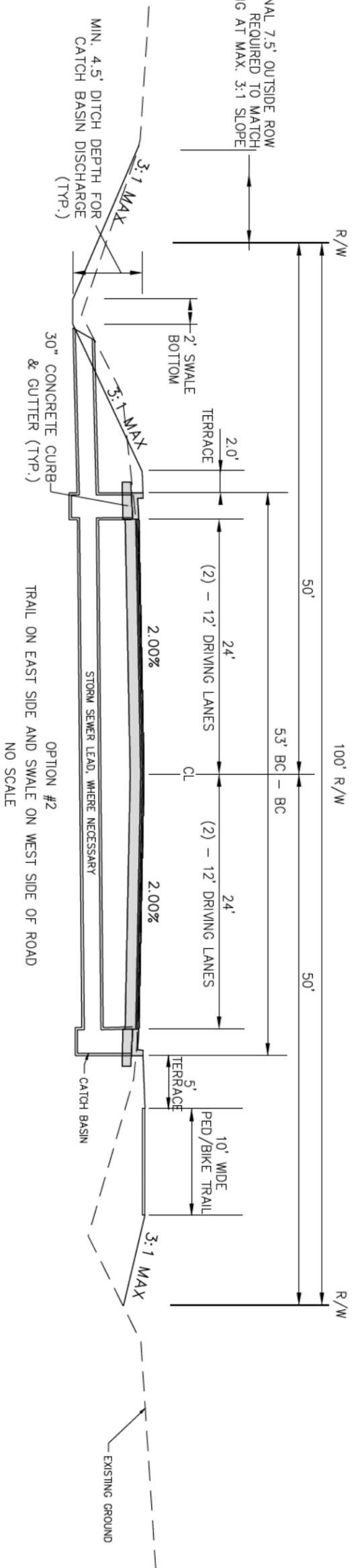
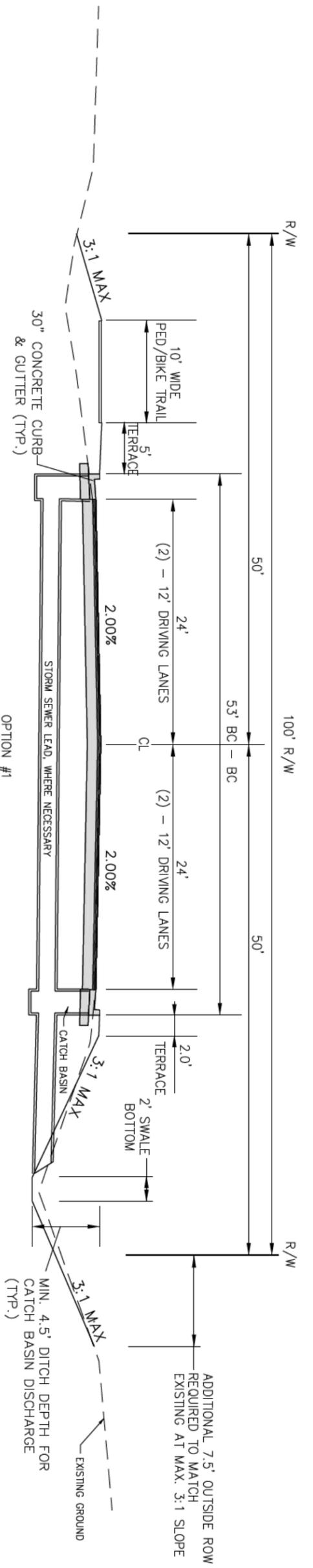
Ditching – One ditch on each side of the road with minimum 2' depth from edge of pavement to ditch centerline. Side slopes shall be at a maximum of 4:1, unless approved by Town Engineer. Longitudinal slope shall be a minimum of 1'/100' or 1.00%

Culverts across road and driveways – Minimum culvert size is 15", unless approved by Town Engineer. Permit must be obtained from Town. Permit application shall contain requested culvert size and supporting calculations. Calculations shall be reviewed by the Town Engineer.

All work shall be done in accordance with the most recent edition of the "Wisconsin Standard Specifications for Highway and Structure Construction".

The developer shall bear all cost including, but not limited to, roadway design, roadway construction, street lighting, street signing and dedication to the Town. The Right-of-Way shall be dedicated through either Certified Survey Map or Plat of Survey in accordance with current law in the State of Wisconsin.

APPENDIX B: TYPICAL ROAD SECTIONS



JOB NO.
BOOK NO.
DRAWN BY
CHECKED BY
DATE
REVISIONS
REFERENCE FILE
DRAWING FILE

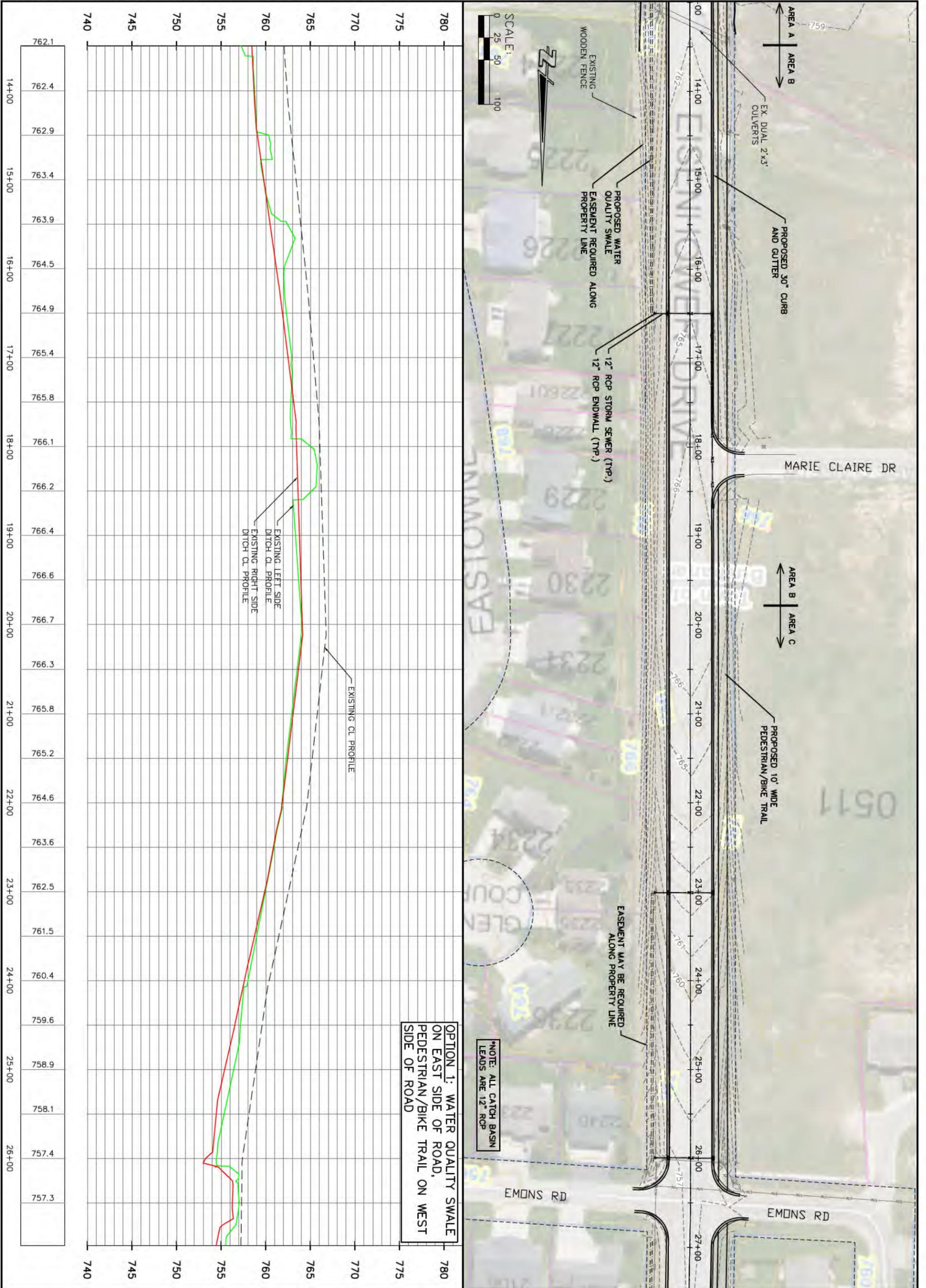
Cedar corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

800-472-7372 604 Wilson Ave. 2820 Walton Commons West 1496 Bellevue Street
 www.cedarcorp.com Menomonee, WI 54751 Suite 142 Suite 502
 715-235-9081 Madison, WI 53718 Green Bay, WI 54311
 608-354-0037 608-491-9081
 FAX 715-235-2727 FAX 608-249-5824 FAX 920-491-9020

TOWN OF BUCHANAN
 STORMWATER MANAGEMENT
 PRELIMINARY ENGINEERING
 EISENHOWER DRIVE - TYPICAL ROADWAY SECTIONS

SHEET NO.
 OF

APPENDIX C: PLAN – PROFILES FOR EACH OPTION



SHEET NO.
2 OF 3

TOWN OF BUCHANAN
 STORMWATER MANAGEMENT
 PRELIMINARY ENGINEERING
 EISENHOWER DRIVE - OPTION 1

Cedar corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

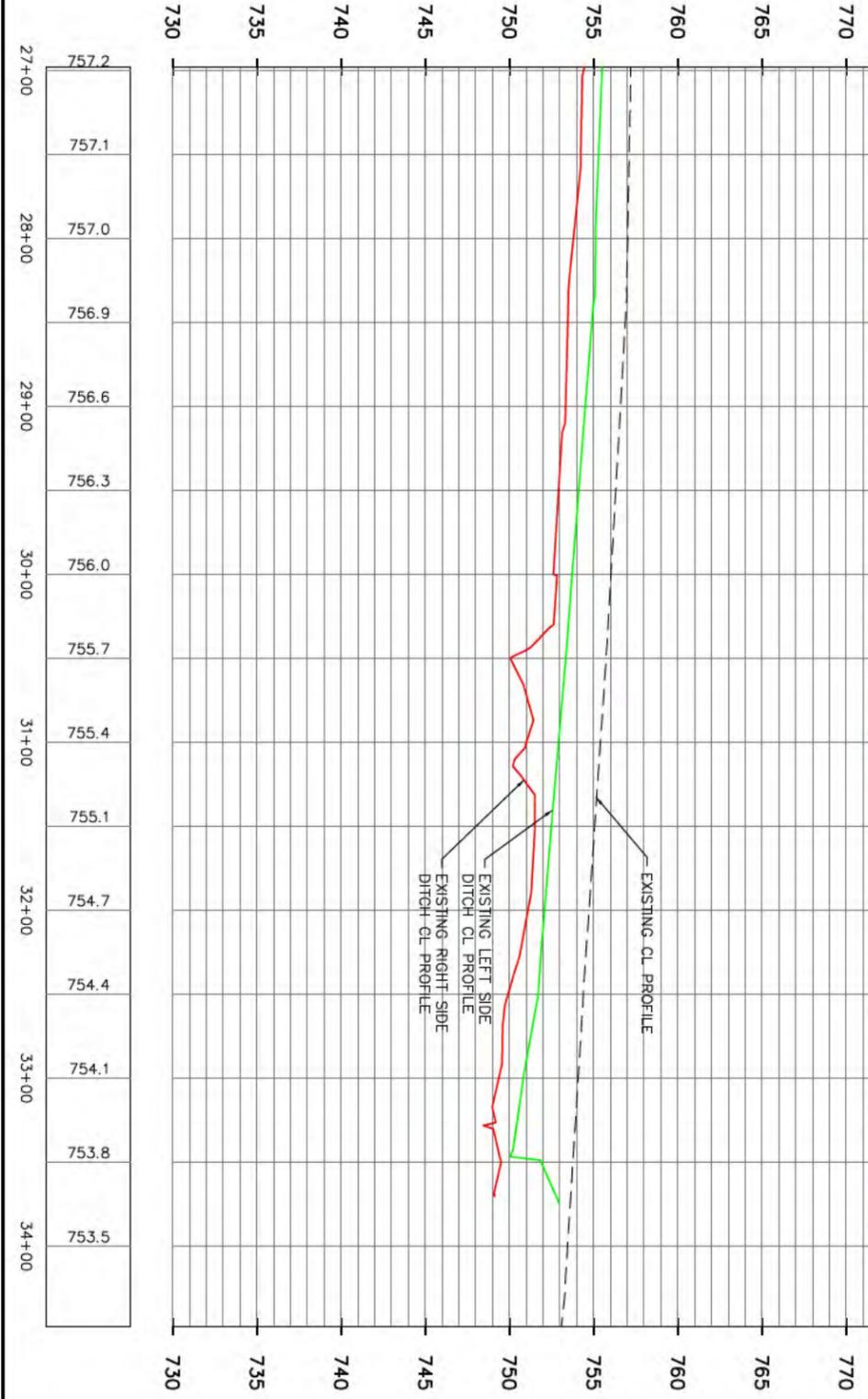
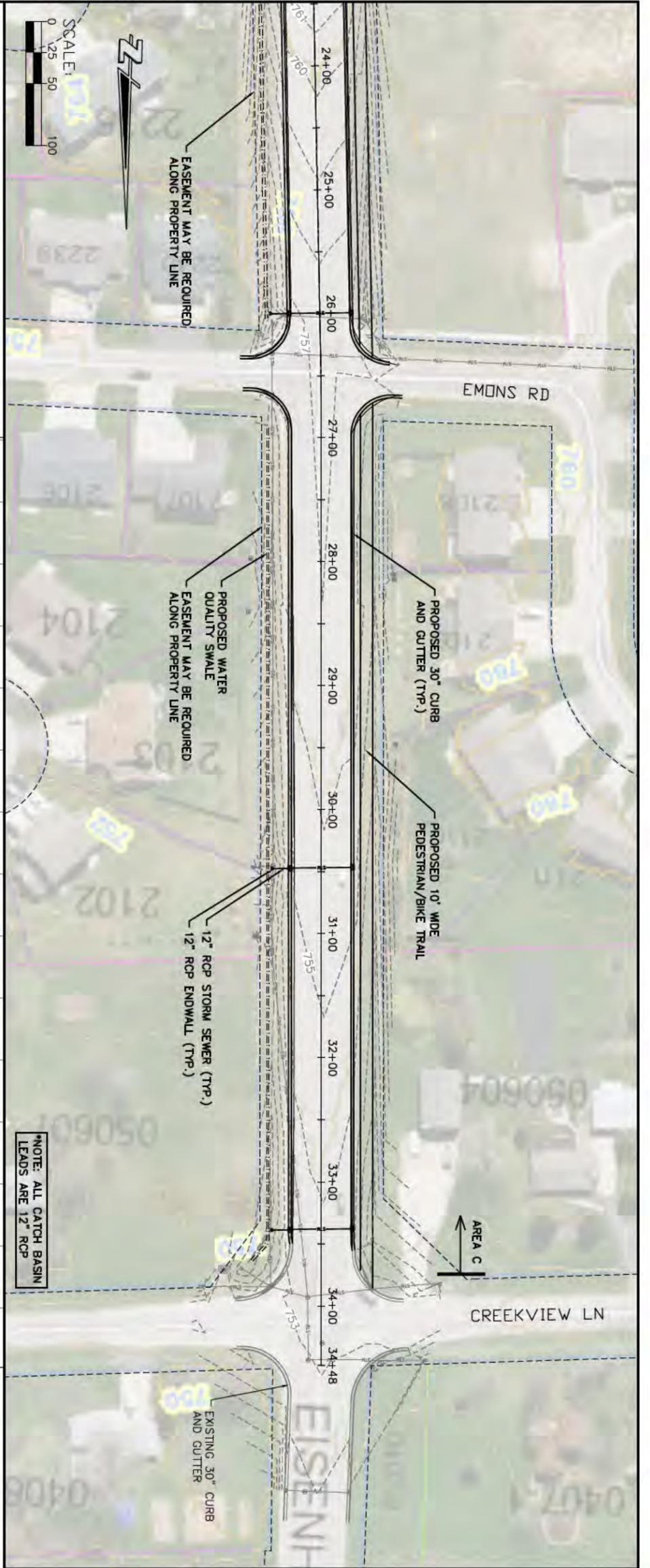
800-472-7372
 www.cedarcorp.com

604 Wilson Ave.
 Menomonia, WI 54751
 715-235-9081
 FAX 715-235-2727

2820 Walton Commons West
 Suite 142
 Madison, WI 53718
 608-354-0037
 FAX 608-249-5824

1496 Bellevue Street
 Suite 502
 Green Bay, WI 54311
 920-491-9081
 FAX 920-491-9020

JOB NO.	
BOOK NO.	
DRAWN BY	
CHECKED BY	
DATE	
REVISIONS	
REFERENCE FILE	
DRAWING FILE	



OPTION 1: WATER QUALITY SWALE ON EAST SIDE OF ROAD, PEDESTRIAN/BIKE TRAIL ON WEST SIDE OF ROAD

JOB NO.
BOOK NO.
DRAWN BY
CHECKED BY
DATE
REVISIONS
REFERENCE FILE
DRAWING FILE

Cedar corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

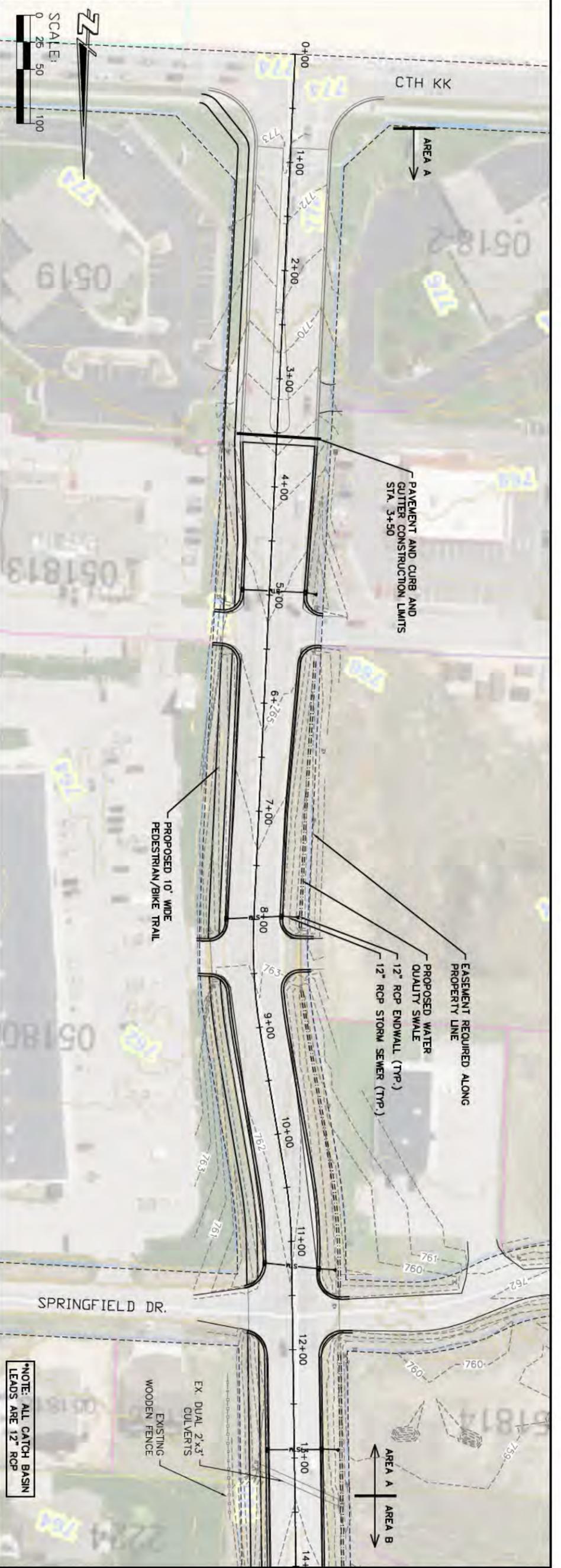
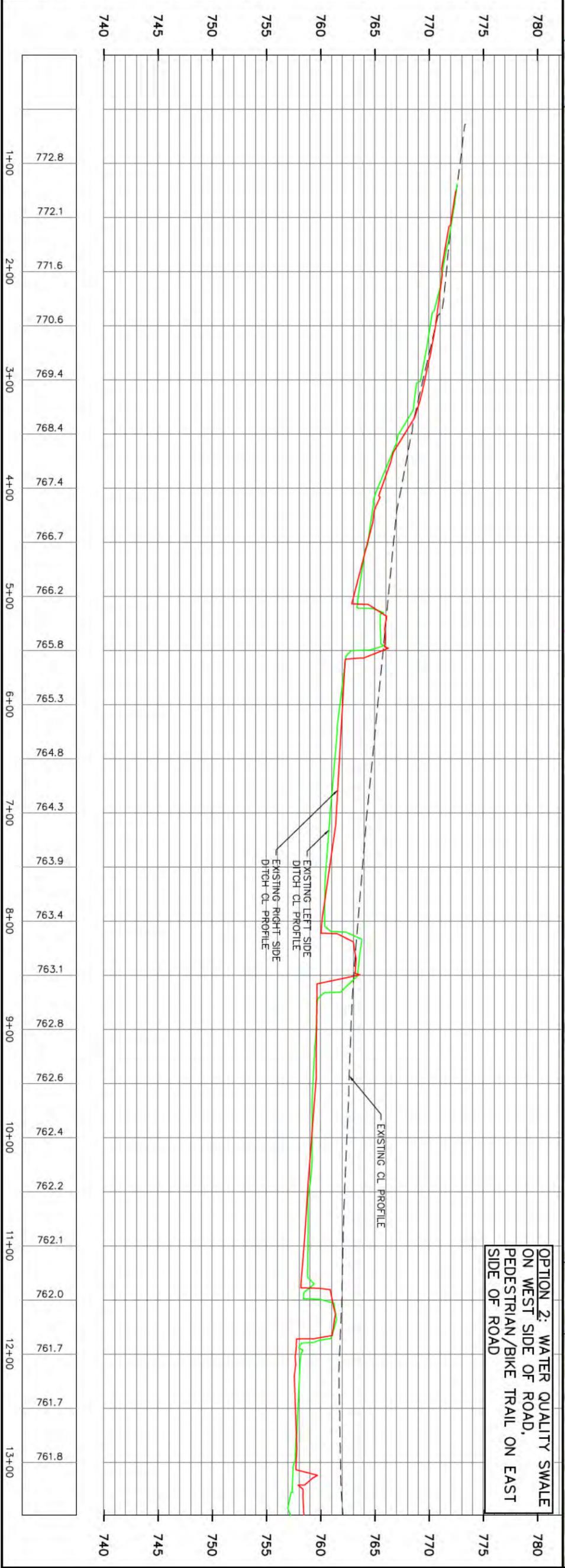
800-472-7372
 www.cedarcorp.com

604 Wilson Ave.
 Menomonee, WI 54751
 715-235-9081
 FAX 715-235-2727

2820 Walton Commons West
 Suite 142
 Madison, WI 53718
 608-354-0037
 FAX 608-249-5824

1496 Bellevue Street
 Suite 502
 Green Bay, WI 54311
 920-491-9081
 FAX 920-491-9020

TOWN OF BUCHANAN
 STORMWATER MANAGEMENT
 PRELIMINARY ENGINEERING
 EISENHOWER DRIVE - OPTION 1



SHEET NO.
1 OF 3

TOWN OF BUCHANAN
STORMWATER MANAGEMENT
PRELIMINARY ENGINEERING
EISENHOWER DRIVE - OPTION 2

Cedar corporation
engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

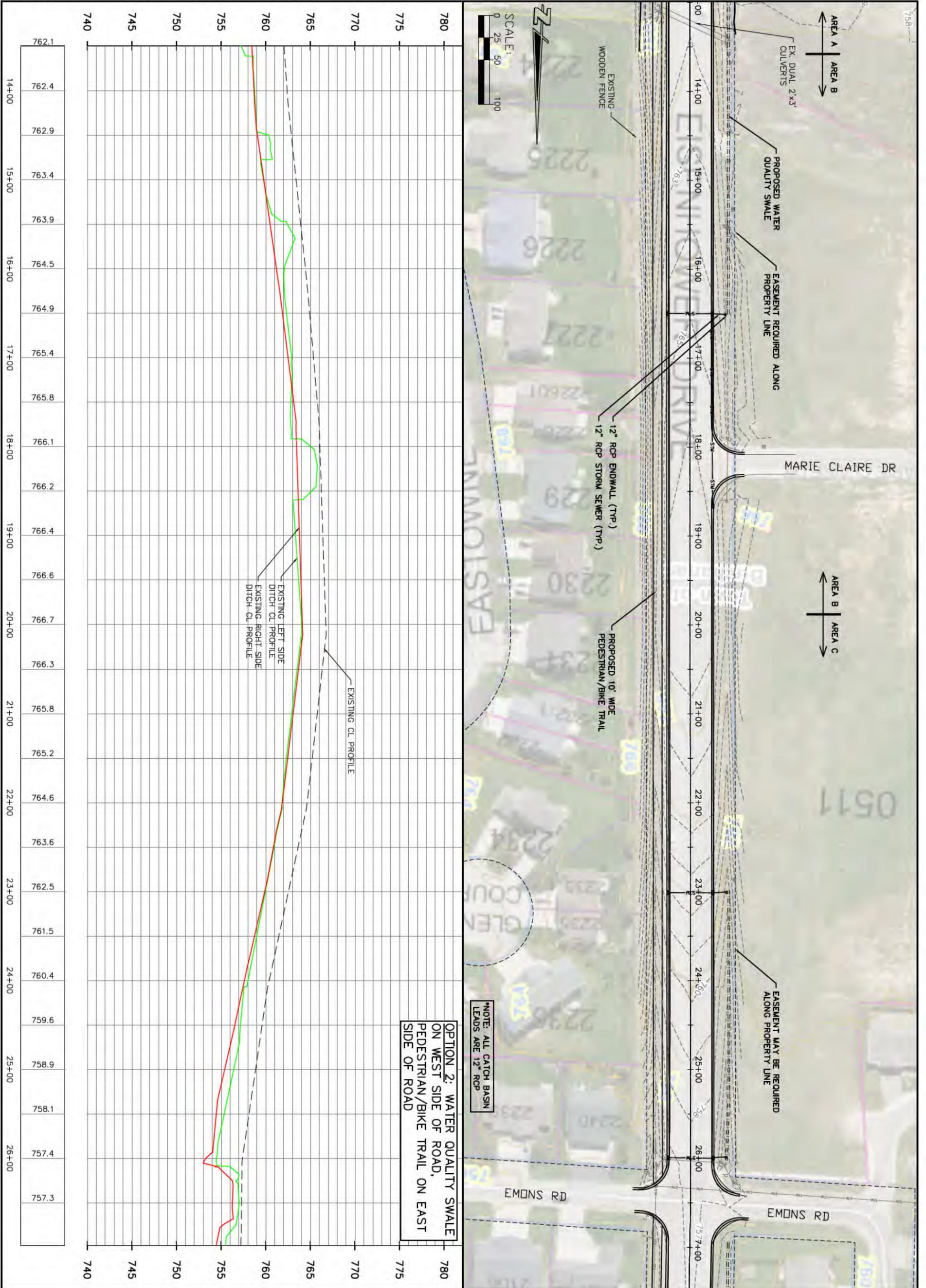
800-472-7372
www.cedarcorp.com

604 Wilson Ave.
Menomonee, WI 54751
715-235-9081
FAX 715-235-2727

2820 Walton Commons West
Suite 142
Madison, WI 53718
608-354-0037
FAX 608-249-5824

1496 Bellevue Street
Suite 502
Green Bay, WI 54311
920-491-9081
FAX 920-491-9020

JOB NO.	
BOOK NO.	
DRAWN BY	
CHECKED BY	
DATE	
REVISIONS	
REFERENCE FILE	
DRAWING FILE	



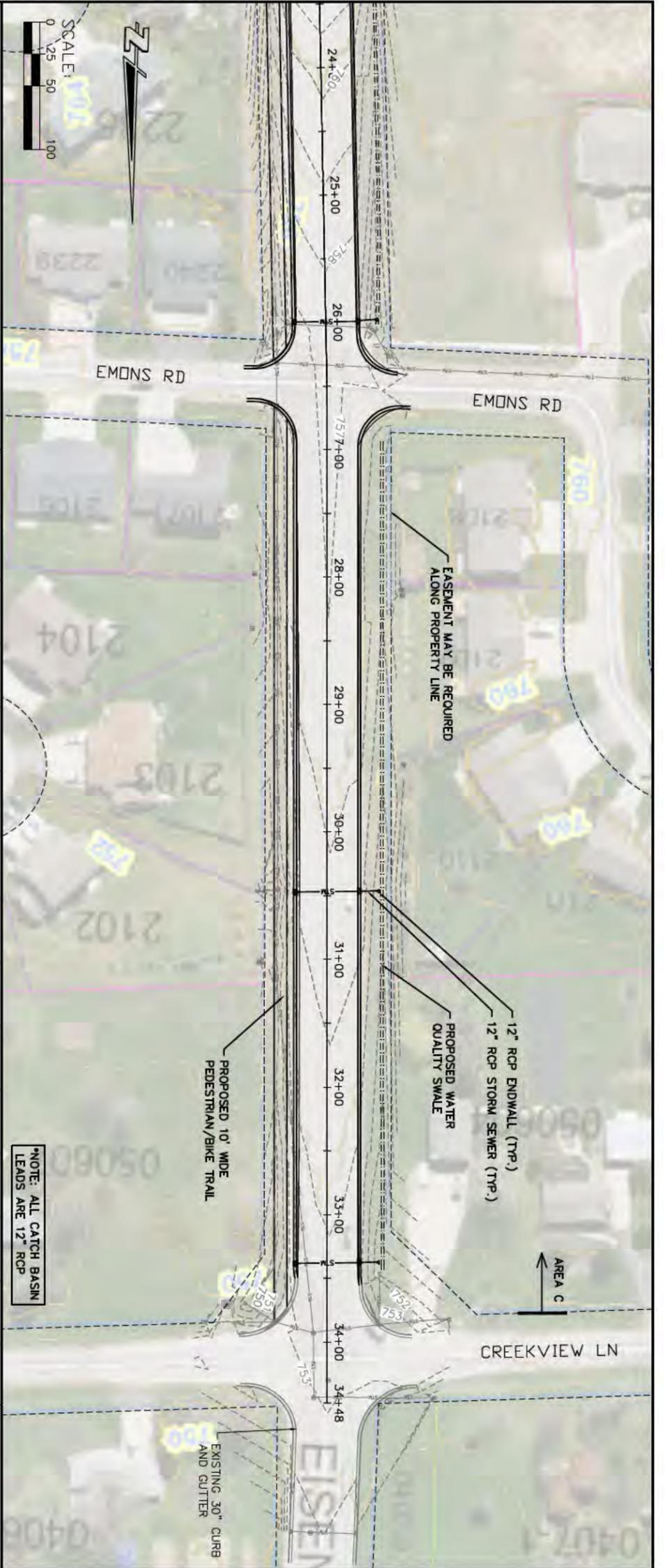
SHEET NO.
2 OF 3

TOWN OF BUCHANAN
STORMWATER MANAGEMENT
PRELIMINARY ENGINEERING
EISENHOWER DRIVE - OPTION 2

Cedar corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

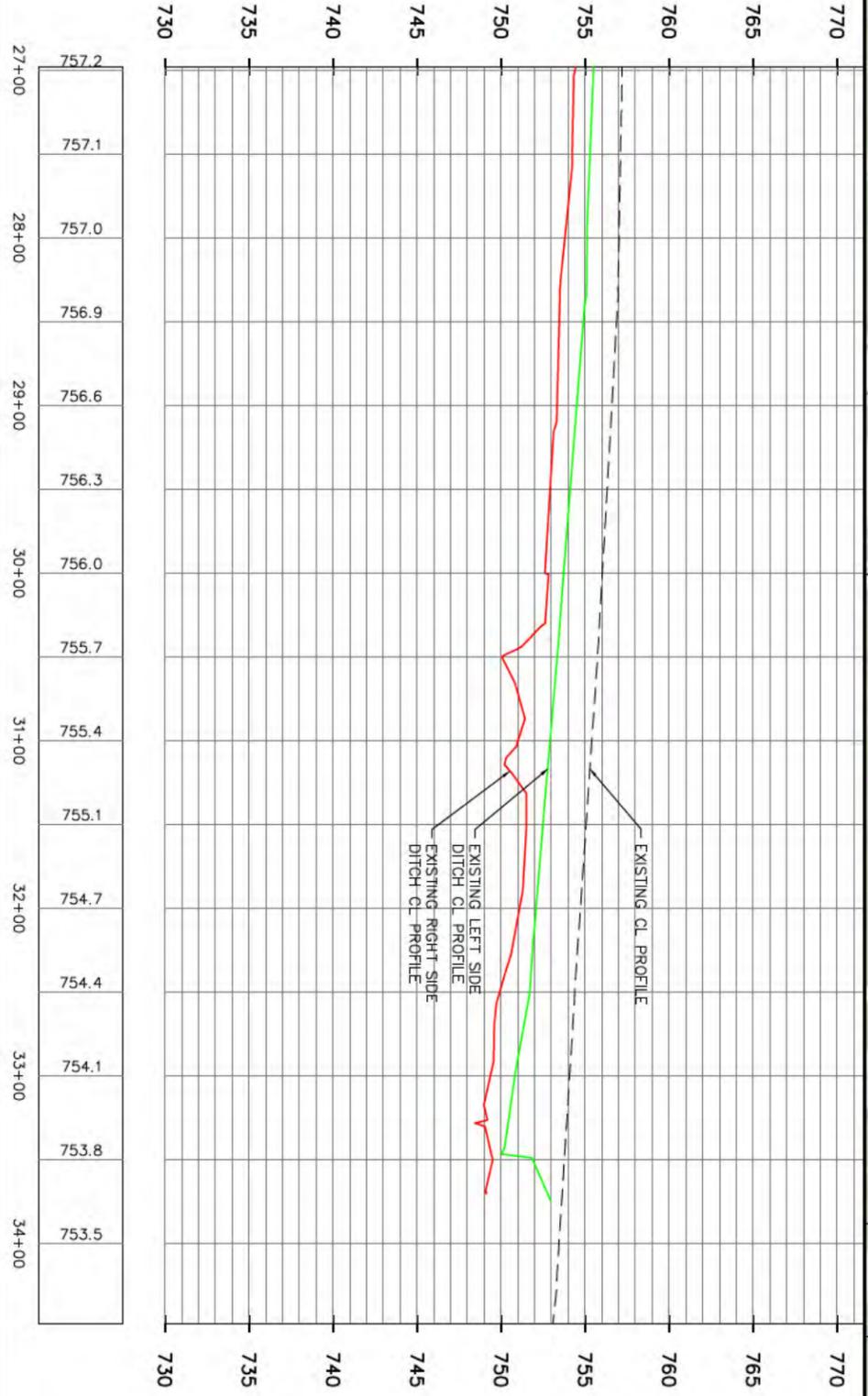
800-472-7372 604 Wilson Ave. 2820 Walton Commons West 1496 Bellevue Street
 www.cedarcorp.com Menomonee, WI 54751 Suite 142 Suite 502 Suite 502
 715-235-9081 715-235-9081 Madison, WI 53718 Green Bay, WI 54311
 608-354-0037 608-354-0037 920-491-9081
 FAX 715-235-2727 FAX 608-249-5824 FAX 920-491-9020

JOB NO.	
BOOK NO.	
DRAWN BY	
CHECKED BY	
DATE	
REVISIONS	
REFERENCE FILE	
DRAWING FILE	



NOTE: ALL CATCH BASIN LEADS ARE 12\"/>

OPTION 2: WATER QUALITY SWALE ON WEST SIDE OF ROAD, PEDESTRIAN/BIKE TRAIL ON EAST SIDE OF ROAD

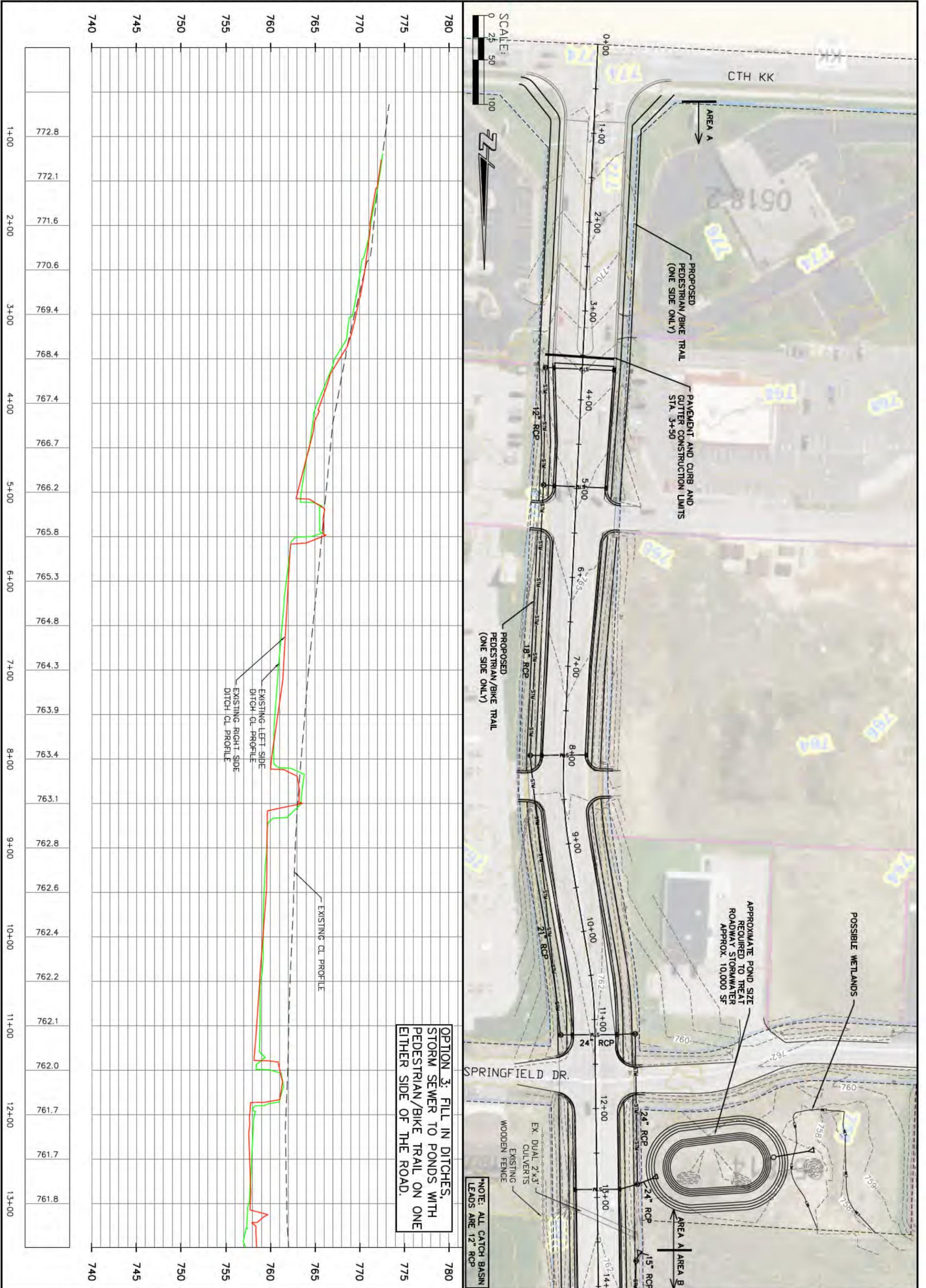


JOB NO.	
BOOK NO.	
DRAWN BY	
CHECKED BY	
DATE	
REVISIONS	
REFERENCE FILE	
DRAWING FILE	

Cedar corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

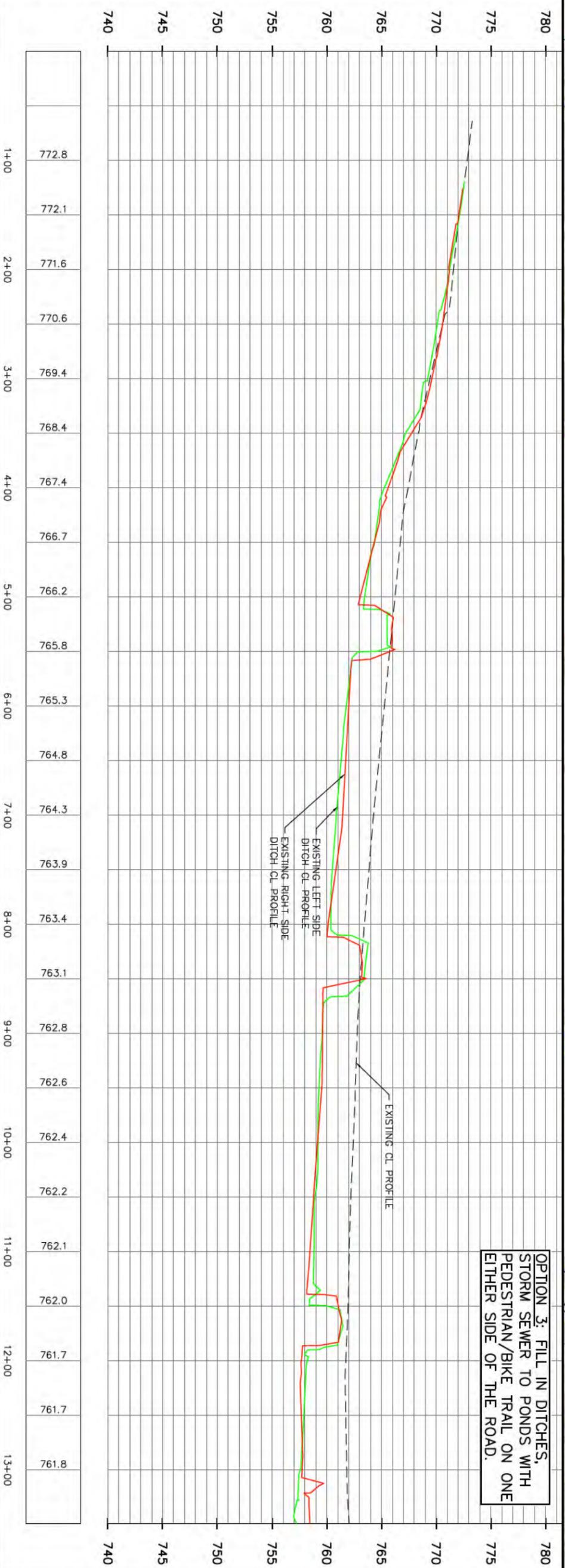
800-472-7372 604 Wilson Ave. 2820 Walton Commons West 1496 Bellevue Street
 www.cedarcorp.com Menomonee, WI 54751 Suite 142 Madison, WI 53718 Suite 502 Green Bay, WI 54311
 715-235-9081 715-235-2727 608-354-0037 608-249-5824 920-491-9081 920-491-9020

TOWN OF BUCHANAN
 STORMWATER MANAGEMENT
 PRELIMINARY ENGINEERING
 EISENHOWER DRIVE – OPTION 2



OPTION 3: FILL IN DITCHES,
STORM SEWER TO PONDS WITH
PEDESTRIAN/BIKE TRAIL ON ONE
EITHER SIDE OF THE ROAD.

NOTE: ALL CATCH BASIN
LEADS ARE 12" RCP



SHEET NO.
1 OF 3

TOWN OF BUCHANAN
STORMWATER MANAGEMENT
PRELIMINARY ENGINEERING
EISENHOWER DRIVE - OPTION 3

Cedar corporation
engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

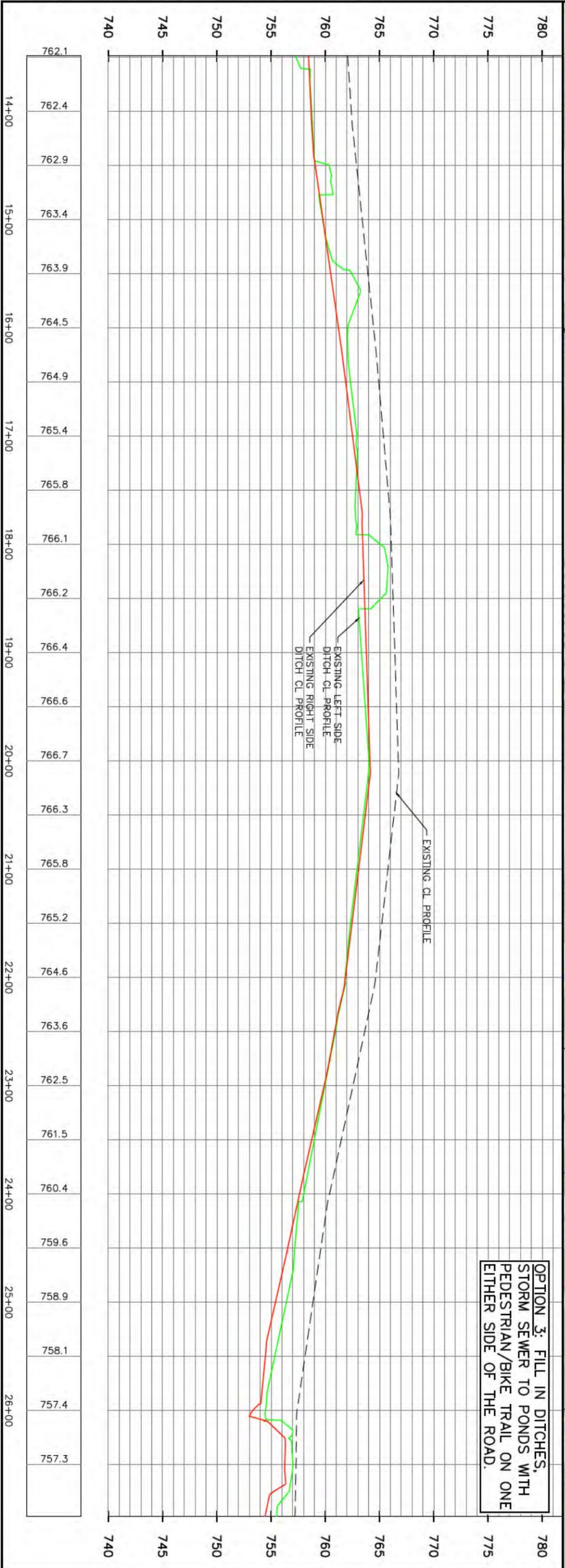
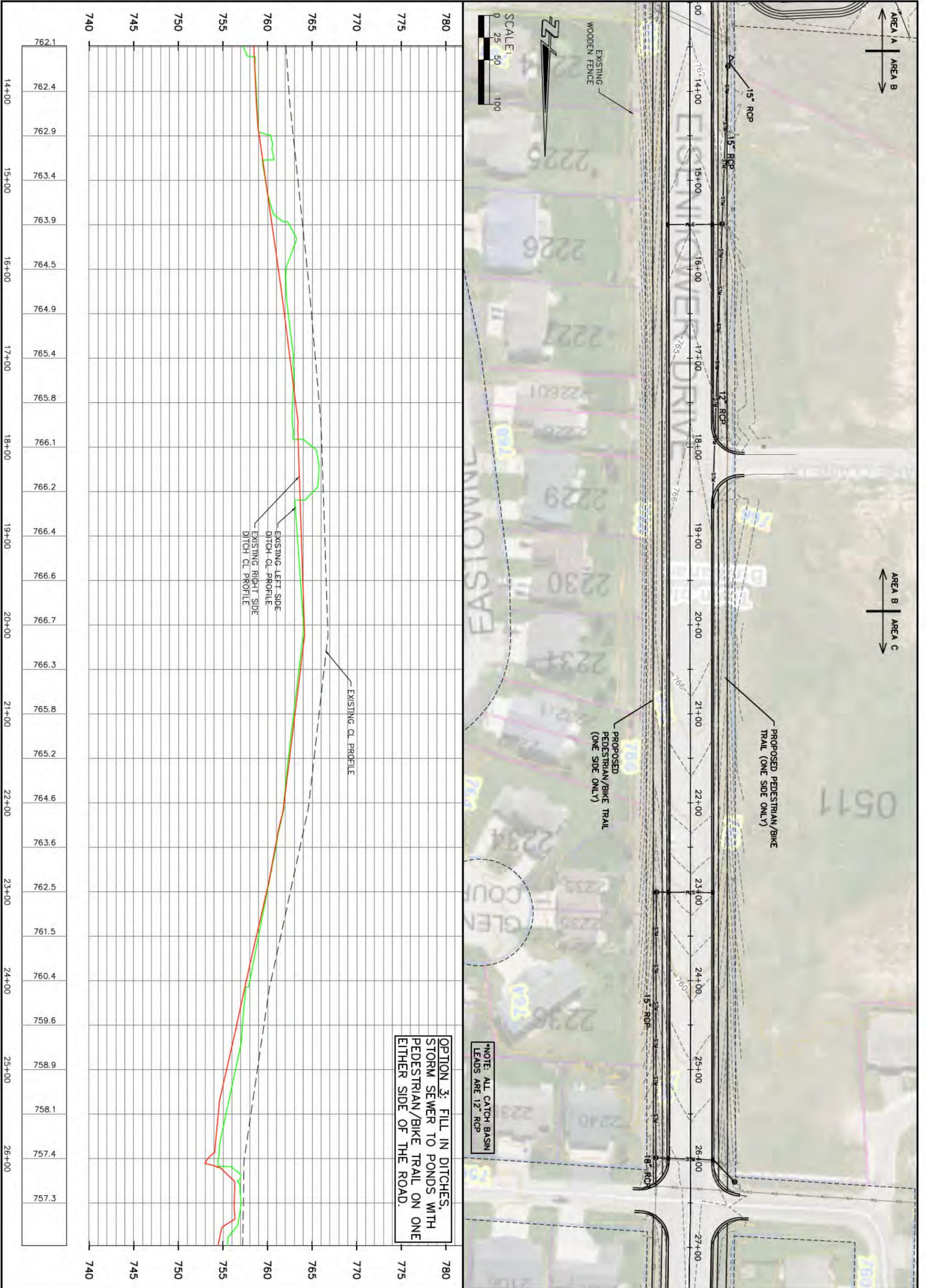
800-472-7372
www.cedarcorp.com

604 Wilson Ave.
Menomonia, WI 54751
715-235-9081
FAX 715-235-2727

2820 Walton Commons West
Suite 142
Madison, WI 53718
608-354-0037
FAX 608-249-5824

1496 Bellevue Street
Suite 502
Green Bay, WI 54311
920-491-9081
FAX 920-491-9020

JOB NO.
BOOK NO.
DRAWN BY
CHECKED BY
DATE
REVISIONS
REFERENCE FILE
DRAWING FILE



OPTION 3: FILL IN DITCHES,
STORM SEWER TO PONDS WITH
PEDESTRIAN/BIKE TRAIL ON ONE
EITHER SIDE OF THE ROAD.

NOTE: ALL CATCH BASIN
LEADS ARE 12" RCP

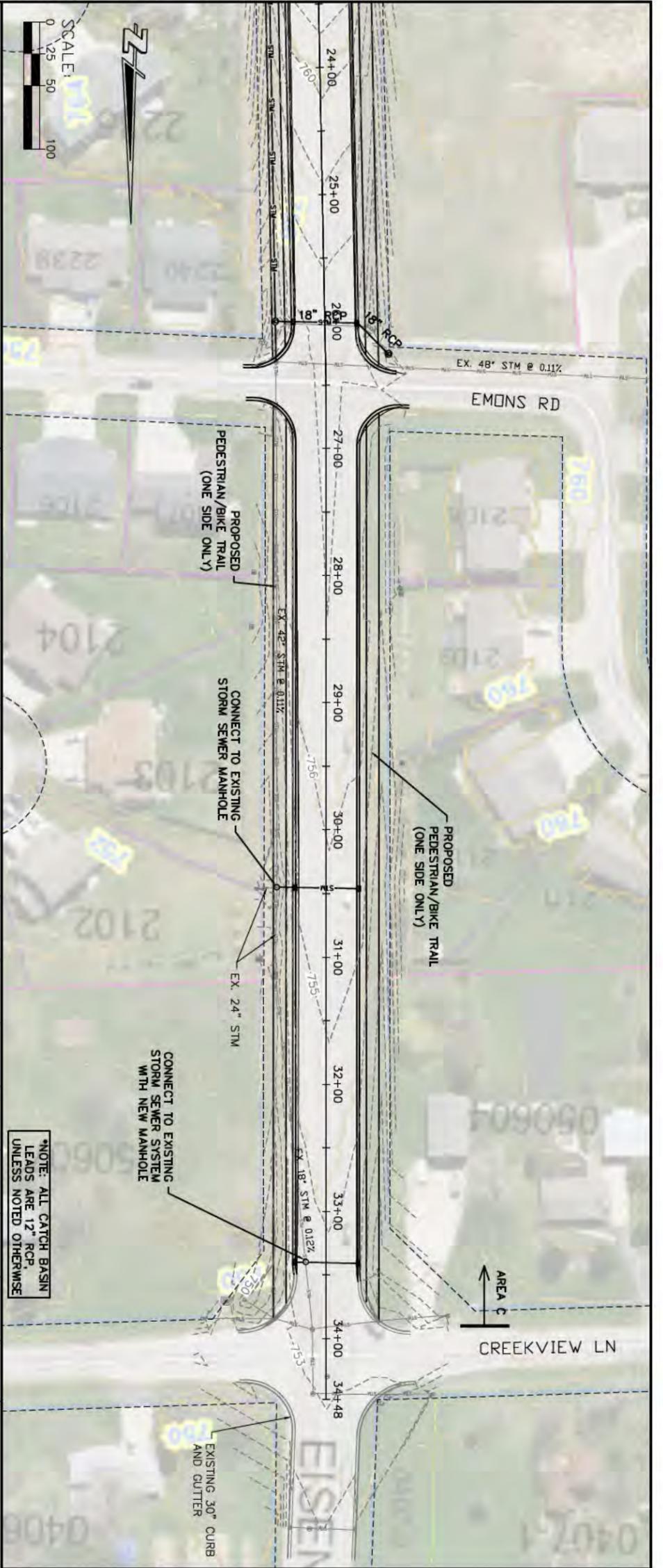
SHEET NO.
2 OF 3

TOWN OF BUCHANAN
STORMWATER MANAGEMENT
PRELIMINARY ENGINEERING
EISENHOWER DRIVE - OPTION 3

Cedar corporation
engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

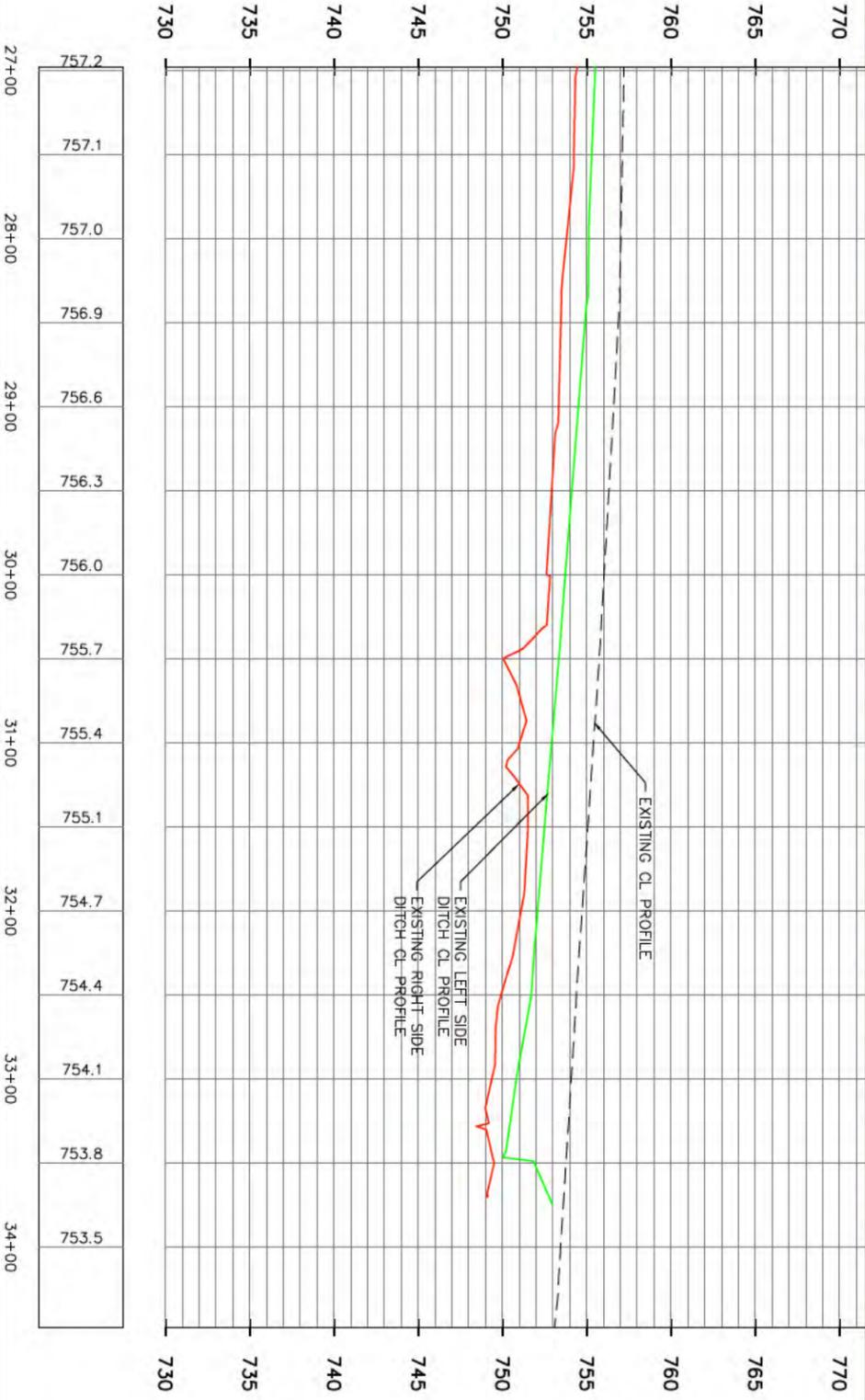
800-472-7372 604 Wilson Ave. 2820 Walton Commons West 1496 Bellevue Street
www.cedarcorp.com Menomonee, WI 54751 Madison, WI 53718 Green Bay, WI 54311
715-235-9081 715-235-2727 608-354-0037 920-491-9081
FAX 715-235-2727 FAX 608-249-5824 FAX 920-491-9020

JOB NO.	
BOOK NO.	
DRAWN BY	
CHECKED BY	
DATE	
REVISIONS	
REFERENCE FILE	
DRAWING FILE	



NOTE: ALL CATCH BASIN LEADS ARE 12" RCP UNLESS NOTED OTHERWISE

OPTION 3: FILL IN DITCHES, STORM SEWER TO PONDS WITH PEDESTRIAN/BIKE TRAIL ON ONE EITHER SIDE OF THE ROAD.



JOB NO.
BOOK NO.
DRAWN BY
CHECKED BY
DATE
REVISIONS
REFERENCE FILE
DRAWING FILE

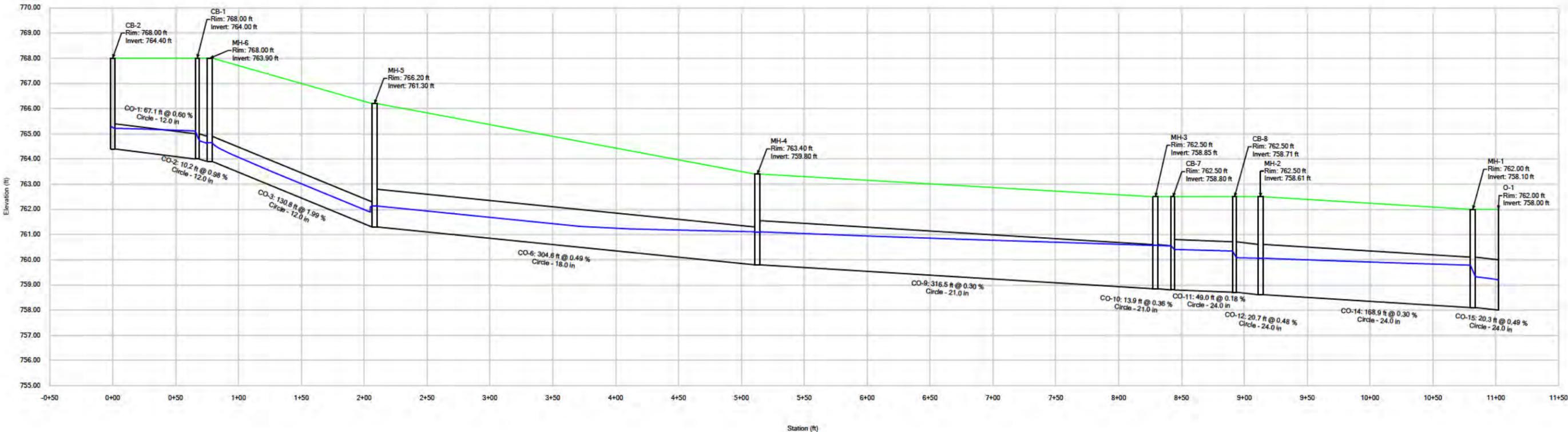
Cedar corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

604 Wilson Ave. Menomonia, WI 54751 715-235-9081 www.cedarcorp.com	2820 Walton Commons West Suite 142 Madison, WI 53718 608-354-0037 FAX 715-235-2727	1496 Bellevue Street Suite 502 Green Bay, WI 54311 920-491-9081 FAX 920-491-9020
---	--	--

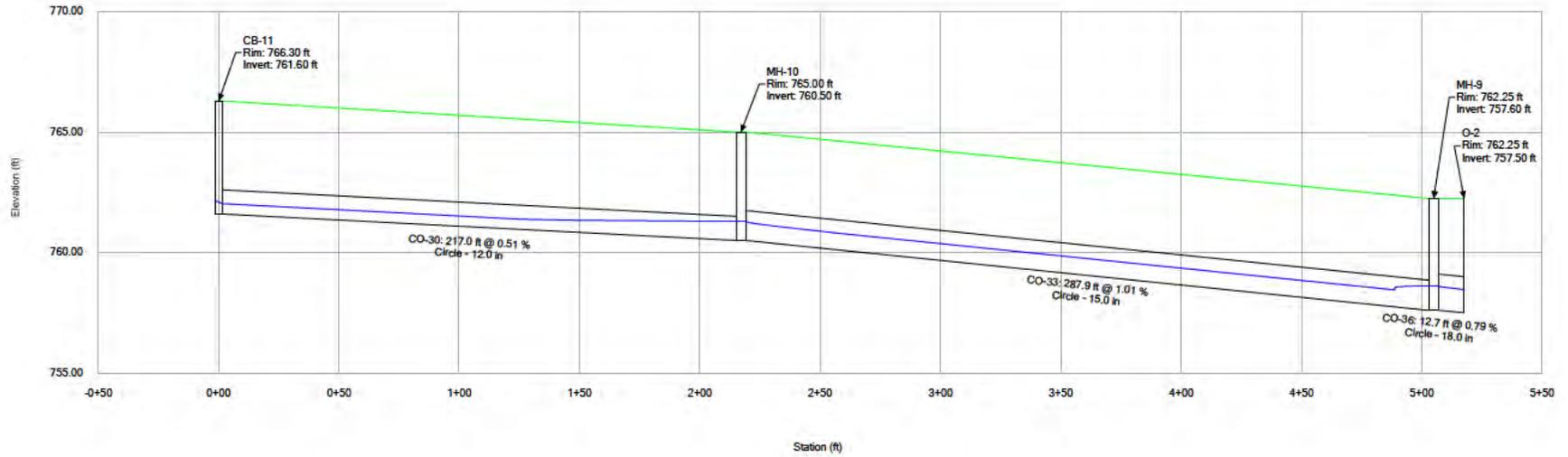
TOWN OF BUCHANAN
 STORMWATER MANAGEMENT
 PRELIMINARY ENGINEERING
 EISENHOWER DRIVE – OPTION 3

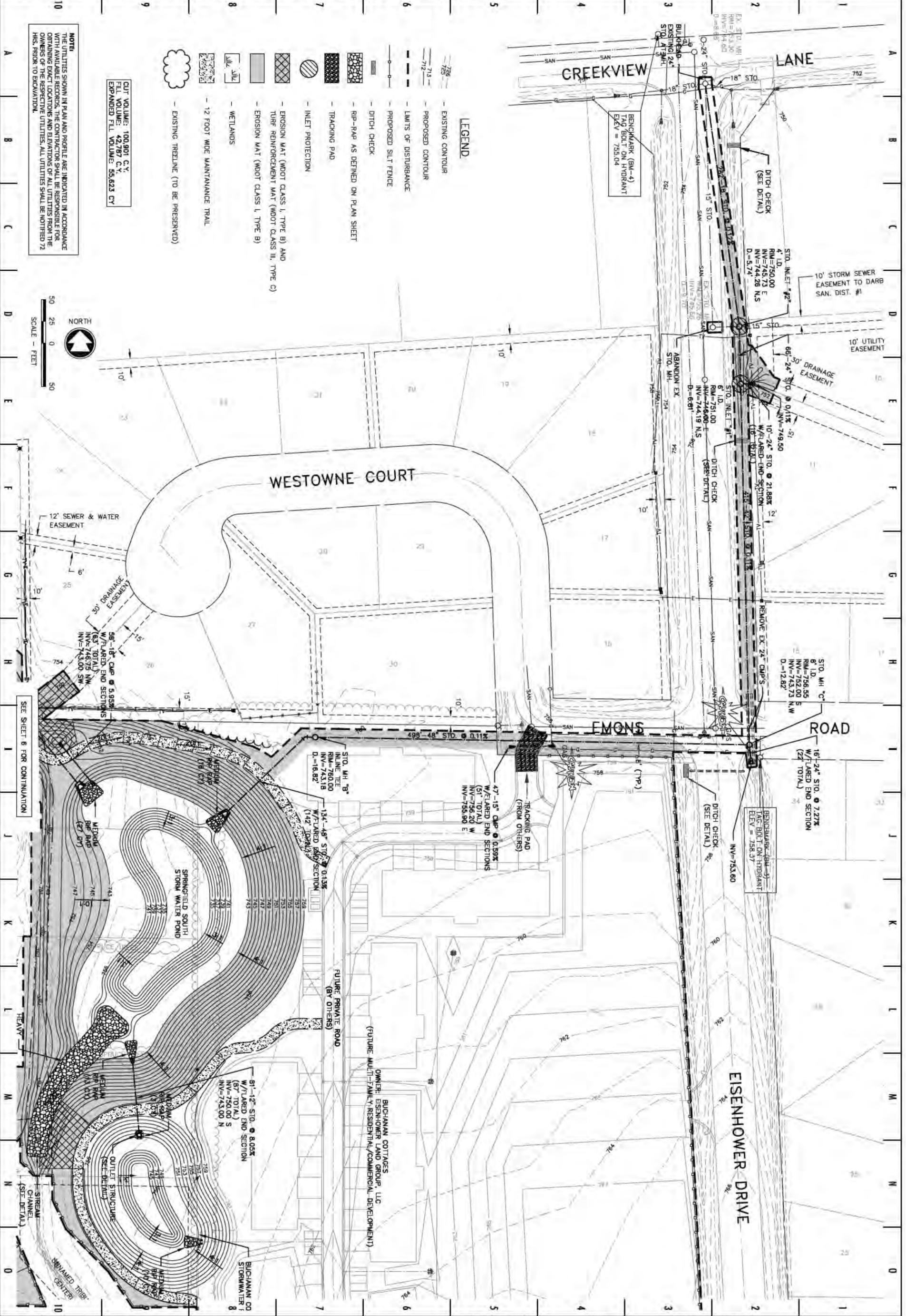
APPENDIX D: STORM SEWER MODELING

EISENHOWER DRIVE 10 YEAR STORM OPTION 3-AREA A



EISENHOWER DRIVE 10 YEAR STORM OPTION 3-AREA B





NOTE
 THE UTILITIES SHOWN IN PLAN AND PROFILE ARE INDICATED IN ACCORDANCE WITH AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITIES SHALL BE NOTIFIED 72 HRS. PRIOR TO EXCAVATION.

CUT VOLUME: 100,801 C.Y.
 FILL VOLUME: 42,787 C.Y.
 EXPANDED FILL VOLUME: 55,823 C.Y.

SCALE - FEET
 50 25 0 50

NORTH

SEE SHEET 6 FOR CONTINUATION

**SPRINGFIELD POND
 GARNERS CREEK STORM WATER UTILITY
 GRADING, EROSION & SEDIMENT CONTROL PLAN - PHASE III**

DESIGNED	PTK
DRAWN	PTK
PROJECT NO.	00035-970839
DATE	JULY, 2008
SHEET NO.	7

NO.	DATE	REVISION

McMahon provides this drawing and data, regardless of form, as instruments of service. All rights including copyrights are retained by McMahon. The client and/or recipient agrees to the fullest extent permitted by law to indemnify and hold McMahon harmless for any reuse of or change made to the original drawing or data without prior written consent by McMahon.

McMAHON
 1445 McMAHON DRIVE, NEENAH, WI 54956
 Mailing: P.O. BOX 1025, NEENAH, WI 54957-1025
 Tel: (920) 751-4200 Fax: (920) 751-4284
 www.mcmgrpx.com

APPENDIX E: WINSLAMM MODELING

SLAMM for windows version 10.1.6
 (C) Copyright Robert Pitt and John Voorhees 2012
 All Rights Reserved

Data file name: I:\Clients-GB\B4916 Buchanan Town of\050 Stormwater Management Preliminary Engineering - Eisenhower Dr\I2000 Design Data and Calcs\stormwater
 calcs\SLAMM\eisenhower with swale controls freeway 2ft swale.mdb

Data file description:
 Rain file name: C:\winslamm Files\Rain Files\wisreg - Green Bay WI 1969.RAN
 Particulate Solids Concentration file name: C:\winslamm Files\WI0.1 WI_AVG01.pscx
 Runoff Coefficient file name: C:\winslamm Files\WI_SL06 Dec06.rsvx
 Residential Street Delivery file name: C:\winslamm Files\WI_Res and Other urban Dec06.std
 Institutional Street Delivery file name: C:\winslamm Files\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\winslamm Files\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\winslamm Files\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\winslamm Files\WI_Res and Other urban Dec06.std
 Freeway Street Delivery file name: C:\winslamm Files\Freeway Dec06.std
 Pollutant Relative Concentration file name: C:\winslamm Files\WI_GEO03.ppdX

Start of winter season: 12/02
 End of winter season: 03/12
 Model Run Start Date: 01/02/69
 Model Run End Date: 12/28/69
 Date of run: 11-09-2015
 Time of run: 3.210
 Total Area Modeled (acres): 3.210
 Years in Model Run: 0.99

Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Solids Reduction
168664	13.87%	272.8	2872	44.22%
145276		176.7	1602	
147293			1625	

Total of all Land Uses without Controls:
 Outfall Total with Controls:
 Annualized Total After Outfall Controls:

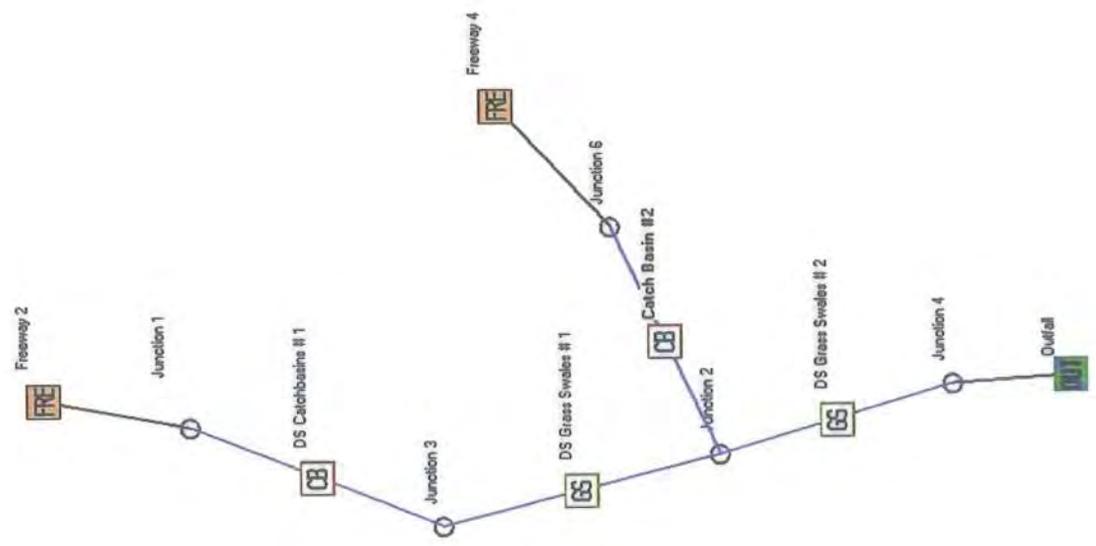
Pollutant	Concentration - No Controls	Concentration - With Controls	Runoff Volume (cu ft)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Solids Reduction	Pollutant Yield With Controls (lbs)	Pollutant Yield No Controls (lbs)	Pol. Yield Units	Percent Reduction
Particulate Solids	272.8	176.7	168664	272.8	2872	44.22%	1602	2872	lbs	44.22%
Total Phosphorus	0.4030	0.2941	145276	176.7	1625		2.667	4.244	lbs	37.15%



Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
Control					
Catch Basin #2					
Freeway Areas					
1	Paved Lane/Shoulder Area 1				
2	Paved Lane/Shoulder Area 2				
3	Paved Lane/Shoulder Area 3				
4	Paved Lane/Shoulder Area 4				
5	Paved Lane/Shoulder Area 5				
6	Paved Lane/Shoulder Area 6				
7	Paved Lane/Shoulder Area 7				
8	Paved Lane/Shoulder Area 8				
9	Paved Lane/Shoulder Area 9				
10	Paved Lane/Shoulder Area 10				
11	High Traffic Urban 1				
12	High Traffic Urban 2				
13	High Traffic Urban 3				
14	High Traffic Urban 4				
15	High Traf. Urban Pervious 1				
16	High Traf. Urban Pervious 2				
17	High Traf. Urban Pervious 3				
18	High Traf. Urban Pervious 4				
	Other Highway Areas				
19	Large Turf Areas 1				
20	Large Turf Areas 2				

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Freeway	Freeway 2	2.060
2	Freeway	Freeway 4	1.150

CP #	Control Practice Type	Control Practice Name or Location
1	Gross Swales	DS Gross Swales # 1
2	Catchbasin Cleaning	DS Catchbasin # 1
3	Gross Swales	DS Gross Swales # 2
4	Catchbasin Cleaning	Catch Basin # 2



eisenhower with swale controls freeway 2ft swale - InputData.txt
 Data file name: I:\Clients-GB\B4916 Buchanan Town of\050 Stormwater Management Preliminary Engineering - Eisenhower
 Dr\12000 Design Data and Calcs\Stormwater calcs\SLAMM\eisenhower with swale controls freeway 2ft swale.mdb
 WinSLAMM Version 10.1.6
 Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Green Bay WI 1969.RAN
 Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
 Runoff coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
 Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
 Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
 Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
 Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
 Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdX
 Cost Data file name:
 Seed for random number generator: -42
 Study period starting date: 01/02/69 Study period ending date: 12/28/69
 Start of Winter Season: 12/02 End of Winter Season: 03/12
 Date: 11-09-2015 Time: 14:20:24
 Site information:

LU# 1 - Freeway: Freeway 2 Total area (ac): 2.060
 11 - High Traffic Urban 1: 1.340 ac. Street Length = 1.2 curb-mi Street Width (assuming two curb-mi per street
 mile) = 18.425 ft
 Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 21 - Large Turf Areas 3: 0.720 ac. Normal Silty

LU# 2 - Freeway: Freeway 4 Total area (ac): 1.150
 11 - High Traffic Urban 1: 0.750 ac. Normal Silty Street Length = 0.09 curb-mi Street Width (assuming two
 curb-mi per street mile) = 137.5 ft
 Default St. Dirt Accum. Annual Winter Load = 2500 lbs
 19 - Large Turf Areas 1: 0.400 ac. Normal Clayey

Control Practice 1: Grass Swale CP# 1 (DS) - DS Grass Swales # 1
 Total drainage area (acres)= 2.060
 Fraction of drainage area served by swales (ac) = 1.00
 Swale density (ft/ac) = 291.26
 Total swale length (ft) = 600
 Average swale length to outlet (ft)= 600
 Typical bottom width (ft) = 2.0
 Typical swale side slope (_H:1V) = 3.0
 Typical longitudinal slope (ft.H/ft.V) = 0.010
 Swale retardance factor: C
 Typical grass height (in) = 8.0
 Swale dynamic infiltration rate (in/hr)= 0.150
 Typical swale depth (ft) for cost analysis (optional) = 0.0
 Particle size distribution file name: Not needed - calculated by program
 Use total swale length instead of swale density for infiltration calculations: True

Control Practice 2: Catchbasin Cleaning CP# 1 (DS) - DS Catchbasins # 1
 1. Fraction of area served by catchbasins = 1.00
 2. Number of catchbasins = 6
 3. Average sump depth below catchbasin outlet invert (feet) = 1.5
 4. Depth of sediment in catchbasin sump at beginning of study period (ft) = 0
 5. Typical outlet pipe diameter (ft) = 1
 6. Typical outlet pipe Mannings n = 0.013
 7. Typical outlet pipe slope (ft/ft) = 0.01
 8. Typical catchbasin sump surface area (square feet) = 6
 9. Total catchbasin depth (feet) = 5.5
 10. Inflow hydrograph peak to average flow ratio = 3.8
 11. Leakage rate through sump bottom (in/hr) = 0
 12. Catchbasin Critical Particle Size File Name: Not needed - calculated by program

Control Practice 3: Grass Swale CP# 2 (DS) - DS Grass Swales # 2
 Total drainage area (acres)= 3.210
 Fraction of drainage area served by swales (ac) = 1.00
 Swale density (ft/ac) = 85.47
 Total swale length (ft) = 500
 Average swale length to outlet (ft)= 500
 Typical bottom width (ft) = 2.0
 Typical swale side slope (_H:1V) = 3.0
 Typical longitudinal slope (ft.H/ft.V) = 0.010
 Swale retardance factor: C
 Typical grass height (in) = 8.0
 Swale dynamic infiltration rate (in/hr)= 0.025
 Typical swale depth (ft) for cost analysis (optional) = 0.0
 Particle size distribution file name: Not needed - calculated by program
 Use total swale length instead of swale density for infiltration calculations: True

Control Practice 4: Catchbasin Cleaning CP# 2 (DS) - Junction 6
 1. Fraction of area served by catchbasins = 1.00
 2. Number of catchbasins = 4
 3. Average sump depth below catchbasin outlet invert (feet) = 1.5
 4. Depth of sediment in catchbasin sump at beginning of study period (ft) = 0
 5. Typical outlet pipe diameter (ft) = 1
 6. Typical outlet pipe Mannings n = 0.013
 7. Typical outlet pipe slope (ft/ft) = 0.01

8. Typical catchbasin sump surface area (square feet) = 6
9. Total catchbasin depth (feet) = 5.5
10. Inflow hydrograph peak to average flow ratio = 3.8
11. Leakage rate through sump bottom (in/hr) = 0
12. Catchbasin Critical Particle Size File Name: Not needed - calculated by program
13. Catchbasin cleaning frequency: Semi-annually

APPENDIX F: STORMWATER POND SIZING/MODELING

SLAMM for windows Version 10.1.6
 (C) Copyright Robert Pitt and John Voorhees 2012
 All Rights Reserved

Data file name: I:\Clients-GB\B4916 Buchanan Town of\050 stormwater Management Preliminary Engineering - Eisenhower Dr\12000 Design Data and Calcs\Stormwater
 calcs\SLAMM\eisnhower with pond freeway only.mdb
 Data file description:
 Rain file name: C:\winslamm Files\Rain Files\WisReg - Green Bay WI 1969.RAN
 Particulate Solids Concentration file name: C:\winslamm Files\VI0.1 WI_AVG01.pscx
 Runoff Coefficient file name: C:\winslamm Files\WI_SL06 Dec06.rsvx
 Residential Street Delivery file name: C:\winslamm Files\WI_Res and Other Urban Dec06.std
 Institutional Street Delivery file name: C:\winslamm Files\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\winslamm Files\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\winslamm Files\WI_Res and Other Urban Dec06.std
 Other Urban Street Delivery file name: C:\winslamm Files\WI_Res and Other Urban Dec06.std
 Freeway Street Delivery file name: C:\winslamm Files\Freeway Dec06.std
 Pollutant Relative Concentration file name: C:\winslamm Files\WI_GEO03.ppd
 Start of Winter Season: 12/02
 End of Winter Season: 03/12
 Model Run Start Date: 01/02/69 Model Run End Date: 12/28/69
 Date of run: 12-01-2015 Time of run: 15:48:50
 Total Area Modeled (acres): 3.100
 years in Model Run: 0.99

Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
162618	0.73%	113.0	1147	89.86%
161432		11.54	116.3	
163674			118.0	

Total of all Land Uses without Controls:
 Outfall Total with Controls:
 Annualized Total After Outfall Controls:

Pollutant	Concentration - No Controls	Concentration - With Controls	Conc. Units mg/L	Pollutant Yield No Controls	Pollutant Yield With Controls	Pol. Yield Units	Percent Reduction
Particulate Solids	113.0	11.54	mg/L	1147	116.3	lbs	89.86 %
Total Phosphorus	0.2208	0.09076	mg/L	2.241	0.9146	lbs	59.19 %

SLAMM for windows Version 10.1.6
 (C) Copyright Robert Pitt and John Voorhees 2012
 All Rights Reserved

Data file name: I:\Clients-GB\B4916 Buchanan Town of\050 Stormwater Management Preliminary Engineering - Eisenhower Dr\12000 Design Data and Calcs\Stormwater
 calcs\SLAMM\eisenhower AREA B no controls.mdb

Data file description:
 Rain file name: C:\winslamm\Files\Rain Files\WisReg - Green Bay WI 1969.RAN
 Particulate Solids Concentration file name: C:\winslamm\Files\WI_SLO6 Dec06.rsvx
 Runoff Coefficient file name: C:\winslamm\Files\WI_SLO6 Dec06.rsvx
 Residential Street Delivery file name: C:\winslamm\Files\WI_Res and Other Urban Dec06.std
 Institutional Street Delivery file name: C:\winslamm\Files\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\winslamm\Files\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\winslamm\Files\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\winslamm\Files\WI_Res and Other Urban Dec06.std
 Freeway Street Delivery file name: C:\winslamm\Files\Freeway Dec06.std
 Pollutant Relative Concentration file name: C:\winslamm\Files\WI_GEO03.ppd

Start of Winter Season: 12/02
 End of Winter Season: 03/12
 Model Run Start Date: 01/02/69 Model Run End Date: 12/28/69
 Date of run: 12-01-2015 Time of run: 15:53:38
 Total Area Modeled (acres): 1.500
 Years in Model Run: 0.99

Runoff Volume (cu ft)	Percent Runoff Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
78879	0.00%	116.2	572.2	0.00%
78879		116.2	572.2	
79975			580.2	

Total of all Land Uses without Controls:
 Outfall Total with Controls:
 Annualized Total After Outfall Controls:

Pollutant	Concentration - No Controls	Concentration With Controls	Conc. Units mg/L	Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction	Pollutant Yield With Controls	Pollutant Yield No Controls	Pol. Yield Units lbs	Percent Reduction %
Particulate Solids	116.2	116.2	mg/L	0.00%	116.2	572.2	0.00%	572.2	572.2	lbs	0.00 %
Total Phosphorus	0.2242	0.2242	mg/L		1.104	580.2		1.104	1.104	lbs	0.00 %

EISENHOWER DRIVE TSS AND PHOSPHORUS REMOVAL CALCULATIONS

WATERSHED	TSS LOAD (LBS) WITHOUT CONTROL	TSS LOAD (LBS) WITH CONTROL	TSS REMOVED (LBS)	TSS REMOVED (%)	P LOAD (LBS) WITHOUT CONTROL	P LOAD WITH CONTROL	P REMOVED (LBS)	P REMOVED (%)
AREA A	1147	116.3	1030.7	89.86%	2.241	0.9146	1.3264	59.19%
AREA B	572.2	572.2	0	0.00%	1.104	1.104	0	0.00%
TOTAL	1719.2	688.5	1030.7	59.95%	3.345	2.0186	1.3264	39.65%

WDNR NR-151 requires 40% TSS removal and 30% Phosphorus removal

APPENDIX G: COST ESTIMATES

TOWN OF BUCHANAN
EISENHOWER DRIVE
SUMMARY OF CONSTRUCTION OPTIONS



1/29/2016
 53' BB CURB & GUTTER W/TRAIL

	PRELIMINARY CONSTRUCTION ESTIMATE	
OPTION #1	FULL EXCAVATION	PULVERIZE AND PAVE
AREA A	\$439,010	\$375,245
AREA B	\$348,173	\$295,783
AREA C	\$583,408	\$486,298
OPTION #2		
AREA A	\$439,010	\$375,245
AREA B	\$348,173	\$295,783
AREA C	\$583,408	\$486,298
OPTION #3		
AREA A (DOES NOT INCLUDE LAND COST)	\$544,817	\$488,852
AREA B	\$360,959	\$308,569
AREA C	\$586,918	\$489,418

RECOMMENDED OPTIONS		
AREA A - OPTION #1	\$439,010	\$375,245
AREA B - OPTION #1	\$348,173	\$295,783
AREA C - OPTION #3	\$586,918	\$489,418
PRELIMINARY CONSTRUCTION ESTIMATE WITH RECOMMENDED OPTIONS:	\$1,374,100	\$1,160,445

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 1 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

SWALE ON EAST SIDE OF ROAD, TRAIL ON WEST SIDE

AREA A - CTH KK TO CULVERT CROSSING

PED/BIKE TRAIL CONSTRUCTION FROM STA. 0+00 TO 13+00

PAVEMENT CONSTRUCTION FROM STA. 3+50 - 13+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

950' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	240	LF	\$45	\$10,800
CATCH BASIN	8	EA	\$1,500	\$12,000
12" ENDWALL	4	EA	\$500	\$2,000
EXCAVATE ROADWAY , AVG 2'	3000	CY	\$10	\$30,000
BASE COURSE ROADWAY, 18"	2750	CY	\$15	\$41,250
ASPHALT ROADWAY, 5.5"	1750	TONS	\$70	\$122,500
FILL MATERIAL UNDER TRAIL SECTION	1000	CY	\$10	\$10,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	170	TONS	\$85	\$14,450
30" CONCRETE CURB & GUTTER	2000	LF	\$20	\$40,000
DITCHING-VEGETATED SWALE	700	LF	\$15	\$10,500
LANDSCAPE RESTORATION	4000	SY	\$4	\$16,000
EROSION MAT	4000	SY	\$3	\$12,000
SAW CUT JOINT	100	LF	\$2	\$200
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$337,700
CONTINGENCY 10%				\$33,770
ENGINEERING, ADMIN				\$67,540
TOTAL CONSTRUCTION				\$439,010

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 1 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

SWALE ON EAST SIDE OF ROAD, TRAIL ON WEST SIDE

AREA B - CULVERT CROSSING TO HIGH POINT - STA 13+00 TO 20+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

700' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	275	LF	\$45	\$12,375
CATCH BASIN	3	EA	\$1,500	\$4,500
12" ENDWALL	1	EA	\$500	\$500
EXCAVATE ROADWAY , AVG 2'	2500	CY	\$10	\$25,000
BASE COURSE ROADWAY, 18"	2050	CY	\$15	\$30,750
ASPHALT ROADWAY, 5.5"	1200	TONS	\$70	\$84,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	350	CY	\$15	\$5,250
ASPHALT TRAIL, 2"	100	TONS	\$85	\$8,500
30" CONCRETE CURB & GUTTER	1400	LF	\$20	\$28,000
DITCHING-VEGETATED SWALE	350	LF	\$15	\$5,250
LANDSCAPE RESTORATION	3000	SY	\$4	\$12,000
EROSION MAT	3000	SY	\$3	\$9,000
SAW CUT JOINT	100	LF	\$2	\$200
GUARD RAIL AT CULVERT CROSSING	1	LS	\$20,000	\$20,000
RAILING FOR PED/BIKE TRAIL	1	LS	\$10,000	\$10,000
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$267,825
CONTINGENCY 10%				\$26,783
ENGINEERING, ADMIN				\$53,565
TOTAL CONSTRUCTION				\$348,173

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 1 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

SWALE ON EAST SIDE OF ROAD, TRAIL ON WEST SIDE

AREA C - HIGH POINT TO CREEKVIEW LN - STA. 20+00 TO 34+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND STORM SEWER

1400' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	300	LF	\$45	\$13,500
CATCH BASIN	10	EA	\$1,500	\$15,000
12" ENDWALL	5	EA	\$500	\$2,500
EXCAVATE ROADWAY , AVG 2'	4500	CY	\$10	\$45,000
BASE COURSE ROADWAY, 18"	4000	CY	\$15	\$60,000
ASPHALT ROADWAY, 5.5"	2300	TONS	\$70	\$161,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	175	TONS	\$85	\$14,875
30" CONCRETE CURB & GUTTER	2900	LF	\$20	\$58,000
DITCHING-VEGETATED SWALE	1000	LF	\$15	\$15,000
LANDSCAPE RESTORATION	6000	SY	\$4	\$24,000
EROSION MAT	6000	SY	\$3	\$18,000
SAW CUT JOINT	200	LF	\$2	\$400
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$448,775
CONTINGENCY 10%				\$44,878
ENGINEERING, ADMIN				\$89,755
TOTAL CONSTRUCTION				\$583,408

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 2 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

SWALE ON WEST SIDE OF ROAD, TRAIL ON EAST SIDE

AREA A - CTH KK TO CULVERT CROSSING

PED/BIKE TRAIL CONSTRUCTION FROM STA. 0+00 TO 13+00

PAVEMENT CONSTRUCTION FROM STA. 3+50 - 13+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

950' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	240	LF	\$45	\$10,800
CATCH BASIN	8	EA	\$1,500	\$12,000
12" ENDWALL	4	EA	\$500	\$2,000
EXCAVATE ROADWAY , AVG 2'	3000	CY	\$10	\$30,000
BASE COURSE ROADWAY, 18"	2750	CY	\$15	\$41,250
ASPHALT ROADWAY, 5.5"	1750	TONS	\$70	\$122,500
FILL MATERIAL UNDER TRAIL SECTION	1000	CY	\$10	\$10,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	170	TONS	\$85	\$14,450
30" CONCRETE CURB & GUTTER	2000	LF	\$20	\$40,000
DITCHING-VEGETATED SWALE	700	LF	\$15	\$10,500
LANDSCAPE RESTORATION	4000	SY	\$4	\$16,000
EROSION MAT	4000	SY	\$3	\$12,000
SAW CUT JOINT	100	LF	\$2	\$200
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$337,700
CONTINGENCY 10%				\$33,770
ENGINEERING, ADMIN				\$67,540
TOTAL CONSTRUCTION				\$439,010

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 2 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

SWALE ON WEST SIDE OF ROAD, TRAIL ON EAST SIDE

AREA B - CULVERT CROSSING TO HIGH POINT - STA 13+00 TO 20+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

700' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	275	LF	\$45	\$12,375
CATCH BASIN	3	EA	\$1,500	\$4,500
12" ENDWALL	1	EA	\$500	\$500
EXCAVATE ROADWAY , AVG 2'	2500	CY	\$10	\$25,000
BASE COURSE ROADWAY, 18"	2050	CY	\$15	\$30,750
ASPHALT ROADWAY, 5.5"	1200	TONS	\$70	\$84,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	350	CY	\$15	\$5,250
ASPHALT TRAIL, 2"	100	TONS	\$85	\$8,500
30" CONCRETE CURB & GUTTER	1400	LF	\$20	\$28,000
DITCHING-VEGETATED SWALE	350	LF	\$15	\$5,250
LANDSCAPE RESTORATION	3000	SY	\$4	\$12,000
EROSION MAT	3000	SY	\$3	\$9,000
SAW CUT JOINT	100	LF	\$2	\$200
GUARD RAIL AT CULVERT CROSSING	1	LS	\$20,000	\$20,000
RAILING FOR PED/BIKE TRAIL	1	LS	\$10,000	\$10,000
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$267,825
CONTINGENCY 10%				\$26,783
ENGINEERING, ADMIN				\$53,565
TOTAL CONSTRUCTION				\$348,173

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 2 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

SWALE ON WEST SIDE OF ROAD, TRAIL ON EAST SIDE

AREA C - HIGH POINT TO CREEKVIEW LN - STA. 20+00 TO 34+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND STORM SEWER

1400' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	300	LF	\$45	\$13,500
CATCH BASIN	10	EA	\$1,500	\$15,000
12" ENDWALL	5	EA	\$500	\$2,500
EXCAVATE ROADWAY , AVG 2'	4500	CY	\$10	\$45,000
BASE COURSE ROADWAY, 18"	4000	CY	\$15	\$60,000
ASPHALT ROADWAY, 5.5"	2300	TONS	\$70	\$161,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	175	TONS	\$85	\$14,875
30" CONCRETE CURB & GUTTER	2900	LF	\$20	\$58,000
DITCHING-VEGETATED SWALE	1000	LF	\$15	\$15,000
LANDSCAPE RESTORATION	6000	SY	\$4	\$24,000
EROSION MAT	6000	SY	\$3	\$18,000
SAW CUT JOINT	200	LF	\$2	\$400
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$448,775
CONTINGENCY 10%				\$44,878
ENGINEERING, ADMIN				\$89,755
TOTAL CONSTRUCTION				\$583,408

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 3 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

FILL IN DITCHES, STORM SEWER TO POND, TRAIL ON ONE SIDE

AREA A - CTH KK TO CULVERT CROSSING

PED/BIKE TRAIL CONSTRUCTION FROM STA. 0+00 TO 13+00

PAVEMENT CONSTRUCTION FROM STA. 3+50 - 13+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

950' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	240	LF	\$45	\$10,800
18" STORM SEWER	305	LF	\$50	\$15,250
21" STORM SEWER	320	LF	\$52	\$16,640
24" STORM SEWER	300	LF	\$55	\$16,500
CATCH BASIN	10	EA	\$1,500	\$15,000
STORM MANHOLE	6	EA	\$3,000	\$18,000
24" ENDWALL	2	EA	\$1,000	\$2,000
POND OUTLET STRUCTURE	1	EA	\$5,000	\$5,000
EXCAVATION, POND	2500	CY	\$8	\$20,000
EXCAVATE ROADWAY , AVG 2'	3000	CY	\$8	\$24,000
BASE COURSE ROADWAY, 18"	2750	CY	\$15	\$41,250
ASPHALT ROADWAY, 5.5"	1750	TONS	\$70	\$122,500
FILL MATERIAL UNDER TRAIL SECTION	1000	CY	\$10	\$10,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	170	TONS	\$85	\$14,450
30" CONCRETE CURB & GUTTER	2000	LF	\$20	\$40,000
LANDSCAPE RESTORATION	4500	SY	\$4	\$18,000
EROSION MAT	4500	SY	\$3	\$13,500
SAW CUT JOINT	100	LF	\$2	\$200
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$419,090
CONTINGENCY 10%				\$41,909
ENGINEERING, ADMIN				\$83,818
TOTAL CONSTRUCTION				\$544,817

NOTE:

LAND FOR THE STORMWATER POND CONSTRUCTION WILL NEED TO BE ACQUIRED

COST OF THE LAND IS NOT INCLUDED IN THIS COST ESTIMATE.

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 3 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

FILL IN DITCHES, STORM SEWER TO POND, TRAIL ON ONE SIDE

AREA B - CULVERT CROSSING TO HIGH POINT - STA 13+00 TO 20+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

700' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	275	LF	\$45	\$12,375
15" STORM SEWER	188	LF	\$47	\$8,836
STORM MANHOLE	2	EA	\$3,000	\$6,000
CATCH BASIN	3	EA	\$1,500	\$4,500
15" ENDWALL	1	EA	\$750	\$750
EXCAVATE ROADWAY , AVG 2'	2500	CY	\$10	\$25,000
BASE COURSE ROADWAY, 18"	2050	CY	\$15	\$30,750
ASPHALT ROADWAY, 5.5"	1200	TONS	\$70	\$84,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	350	CY	\$15	\$5,250
ASPHALT TRAIL, 2"	100	TONS	\$85	\$8,500
30" CONCRETE CURB & GUTTER	1400	LF	\$20	\$28,000
LANDSCAPE RESTORATION	3000	SY	\$4	\$12,000
EROSION MAT	3000	SY	\$3	\$9,000
SAW CUT JOINT	100	LF	\$2	\$200
GUARD RAIL AT CULVERT CROSSING	1	LS	\$20,000	\$20,000
RAILING FOR PED/BIKE TRAIL	1	LS	\$10,000	\$10,000
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$277,661
CONTINGENCY 10%				\$27,766
ENGINEERING, ADMIN				\$55,532
TOTAL CONSTRUCTION				\$360,959

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 3 - URBANIZE/ADD CURB & GUTTER



FULL EXCAVATION

FILL IN DITCHES, STORM SEWER TO POND, TRAIL ON ONE SIDE

AREA C - HIGH POINT TO CREEKVIEW LN - STA. 20+00 TO 34+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND STORM SEWER

1400' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	180	LF	\$45	\$8,100
15" STORM SEWER	300	LF	\$47	\$14,100
18" STORM SEWER	130	LF	\$50	\$6,500
STORM MANHOLE	4	EA	\$3,000	\$12,000
CATCH BASIN	9	EA	\$1,500	\$13,500
EXCAVATE ROADWAY , AVG 2'	4500	CY	\$10	\$45,000
BASE COURSE ROADWAY, 18"	4000	CY	\$15	\$60,000
ASPHALT ROADWAY, 5.5"	2300	TONS	\$70	\$161,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	175	TONS	\$85	\$14,875
30" CONCRETE CURB & GUTTER	2900	LF	\$20	\$58,000
LANDSCAPE RESTORATION	6000	SY	\$4	\$24,000
EROSION MAT	6000	SY	\$3	\$18,000
SAW CUT JOINT	200	LF	\$2	\$400
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$451,475
CONTINGENCY 10%				\$45,148
ENGINEERING, ADMIN				\$90,295
TOTAL CONSTRUCTION				\$586,918

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 1 - URBANIZE/ADD CURB & GUTTER

PULVERIZE AND PAVE

SWALE ON EAST SIDE OF ROAD, TRAIL ON WEST SIDE

AREA A - CTH KK TO CULVERT CROSSING

PED/BIKE TRAIL CONSTRUCTION FROM STA. 0+00 TO 13+00

PAVEMENT CONSTRUCTION FROM STA. 3+50 - 13+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

950' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR



ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	240	LF	\$45	\$10,800
CATCH BASIN	8	EA	\$1,500	\$12,000
12" ENDWALL	4	EA	\$500	\$2,000
EXCAVATE FOR CURB AND GUTTER	2000	LF	\$3	\$6,000
PULVERIZE EX. ASPHALT	5400	SY	\$2	\$10,800
FINE GRADING	5400	SY	\$1	\$5,400
ASPHALT ROADWAY, 5.5"	1750	TONS	\$70	\$122,500
FILL MATERIAL UNDER TRAIL SECTION	1000	CY	\$10	\$10,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	170	TONS	\$85	\$14,450
30" CONCRETE CURB & GUTTER	2000	LF	\$20	\$40,000
DITCHING-VEGETATED SWALE	700	LF	\$15	\$10,500
LANDSCAPE RESTORATION	4000	SY	\$4	\$16,000
EROSION MAT	4000	SY	\$3	\$12,000
SAW CUT JOINT	100	LF	\$2	\$200
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$288,650
CONTINGENCY 10%				\$28,865
ENGINEERING, ADMIN				\$57,730
TOTAL CONSTRUCTION				\$375,245

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.
STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 1 - URBANIZE/ADD CURB & GUTTER

PULVERIZE AND PAVE

SWALE ON EAST SIDE OF ROAD, TRAIL ON WEST SIDE

AREA B - CULVERT CROSSING TO HIGH POINT - STA 13+00 TO 20+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

700' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR



ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	275	LF	\$45	\$12,375
CATCH BASIN	3	EA	\$1,500	\$4,500
12" ENDWALL	1	EA	\$500	\$500
EXCAVATE FOR CURB AND GUTTER	1400	LF	\$3	\$4,200
PULVERIZE EX. ASPHALT	3750	SY	\$2	\$7,500
FINE GRADING	3750	SY	\$1	\$3,750
ASPHALT ROADWAY, 5.5"	1200	TONS	\$70	\$84,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	350	CY	\$15	\$5,250
ASPHALT TRAIL, 2"	100	TONS	\$85	\$8,500
30" CONCRETE CURB & GUTTER	1400	LF	\$20	\$28,000
DITCHING-VEGETATED SWALE	350	LF	\$15	\$5,250
LANDSCAPE RESTORATION	3000	SY	\$4	\$12,000
EROSION MAT	3000	SY	\$3	\$9,000
SAW CUT JOINT	100	LF	\$2	\$200
GUARD RAIL AT CULVERT CROSSING	1	LS	\$20,000	\$20,000
RAILING FOR PED/BIKE TRAIL	1	LS	\$10,000	\$10,000
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$227,525
CONTINGENCY 10%				\$22,753
ENGINEERING, ADMIN				\$45,505
TOTAL CONSTRUCTION				\$295,783

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 1 - URBANIZE/ADD CURB & GUTTER

PULVERIZE AND PAVE

SWALE ON EAST SIDE OF ROAD, TRAIL ON WEST SIDE

AREA C - HIGH POINT TO CREEKVIEW LN - STA. 20+00 TO 34+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND STORM SEWER

1400' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR



ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	300	LF	\$45	\$13,500
CATCH BASIN	10	EA	\$1,500	\$15,000
12" ENDWALL	5	EA	\$500	\$2,500
EXCAVATE FOR CURB AND GUTTER	2900	LF	\$3	\$8,700
PULVERIZE EX. ASPHALT	7200	SY	\$2	\$14,400
FINE GRADING	7200	SY	\$1	\$7,200
ASPHALT ROADWAY, 5.5"	2300	TONS	\$70	\$161,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	175	TONS	\$85	\$14,875
30" CONCRETE CURB & GUTTER	2900	LF	\$20	\$58,000
DITCHING-VEGETATED SWALE	1000	LF	\$15	\$15,000
LANDSCAPE RESTORATION	6000	SY	\$4	\$24,000
EROSION MAT	6000	SY	\$3	\$18,000
SAW CUT JOINT	200	LF	\$2	\$400
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$374,075
CONTINGENCY 10%				\$37,408
ENGINEERING, ADMIN				\$74,815
TOTAL CONSTRUCTION				\$486,298

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 2 - URBANIZE/ADD CURB & GUTTER



PULVERIZE AND PAVE

SWALE ON WEST SIDE OF ROAD, TRAIL ON EAST SIDE

AREA A - CTH KK TO CULVERT CROSSING

PED/BIKE TRAIL CONSTRUCTION FROM STA. 0+00 TO 13+00

PAVEMENT CONSTRUCTION FROM STA. 3+50 - 13+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

950' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	240	LF	\$45	\$10,800
CATCH BASIN	8	EA	\$1,500	\$12,000
12" ENDWALL	4	EA	\$500	\$2,000
EXCAVATE FOR CURB AND GUTTER	2000	LF	\$3	\$6,000
PULVERIZE EX. ASPHALT	5400	SY	\$2	\$10,800
FINE GRADING	5400	SY	\$1	\$5,400
ASPHALT ROADWAY, 5.5"	1750	TONS	\$70	\$122,500
FILL MATERIAL UNDER TRAIL SECTION	1000	CY	\$10	\$10,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	170	TONS	\$85	\$14,450
30" CONCRETE CURB & GUTTER	2000	LF	\$20	\$40,000
DITCHING-VEGETATED SWALE	700	LF	\$15	\$10,500
LANDSCAPE RESTORATION	4000	SY	\$4	\$16,000
EROSION MAT	4000	SY	\$3	\$12,000
SAW CUT JOINT	100	LF	\$2	\$200
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$288,650
CONTINGENCY 10%				\$28,865
ENGINEERING, ADMIN				\$57,730
TOTAL CONSTRUCTION				\$375,245

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 2 - URBANIZE/ADD CURB & GUTTER

PULVERIZE AND PAVE

SWALE ON WEST SIDE OF ROAD, TRAIL ON EAST SIDE

AREA B - CULVERT CROSSING TO HIGH POINT - STA 13+00 TO 20+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

700' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR



ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	275	LF	\$45	\$12,375
CATCH BASIN	3	EA	\$1,500	\$4,500
12" ENDWALL	1	EA	\$500	\$500
EXCAVATE FOR CURB AND GUTTER	1400	LF	\$3	\$4,200
PULVERIZE EX. ASPHALT	3750	SY	\$2	\$7,500
FINE GRADING	3750	SY	\$1	\$3,750
ASPHALT ROADWAY, 5.5"	1200	TONS	\$70	\$84,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	350	CY	\$15	\$5,250
ASPHALT TRAIL, 2"	100	TONS	\$85	\$8,500
30" CONCRETE CURB & GUTTER	1400	LF	\$20	\$28,000
DITCHING-VEGETATED SWALE	350	LF	\$15	\$5,250
LANDSCAPE RESTORATION	3000	SY	\$4	\$12,000
EROSION MAT	3000	SY	\$3	\$9,000
SAW CUT JOINT	100	LF	\$2	\$200
GUARD RAIL AT CULVERT CROSSING	1	LS	\$20,000	\$20,000
RAILING FOR PED/BIKE TRAIL	1	LS	\$10,000	\$10,000
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$227,525
CONTINGENCY 10%				\$22,753
ENGINEERING, ADMIN				\$45,505
TOTAL CONSTRUCTION				\$295,783

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 2 - URBANIZE/ADD CURB & GUTTER



PULVERIZE AND PAVE

SWALE ON WEST SIDE OF ROAD, TRAIL ON EAST SIDE

AREA C - HIGH POINT TO CREEKVIEW LN - STA. 20+00 TO 34+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND STORM SEWER

1400' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	300	LF	\$45	\$13,500
CATCH BASIN	10	EA	\$1,500	\$15,000
12" ENDWALL	5	EA	\$500	\$2,500
EXCAVATE FOR CURB AND GUTTER	2900	LF	\$3	\$8,700
PULVERIZE EX. ASPHALT	7200	SY	\$2	\$14,400
FINE GRADING	7200	SY	\$1	\$7,200
ASPHALT ROADWAY, 5.5"	2300	TONS	\$70	\$161,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	175	TONS	\$85	\$14,875
30" CONCRETE CURB & GUTTER	2900	LF	\$20	\$58,000
DITCHING-VEGETATED SWALE	1000	LF	\$15	\$15,000
LANDSCAPE RESTORATION	6000	SY	\$4	\$24,000
EROSION MAT	6000	SY	\$3	\$18,000
SAW CUT JOINT	200	LF	\$2	\$400
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$374,075
CONTINGENCY 10%				\$37,408
ENGINEERING, ADMIN				\$74,815
TOTAL CONSTRUCTION				\$486,298

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 3 - URBANIZE/ADD CURB & GUTTER



PULVERIZE AND PAVE

FILL IN DITCHES, STORM SEWER TO POND, TRAIL ON ONE SIDE

AREA A - CTH KK TO CULVERT CROSSING

PED/BIKE TRAIL CONSTRUCTION FROM STA. 0+00 TO 13+00

PAVEMENT CONSTRUCTION FROM STA. 3+50 - 13+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

950' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	240	LF	\$45	\$10,800
18" STORM SEWER	305	LF	\$50	\$15,250
21" STORM SEWER	320	LF	\$52	\$16,640
24" STORM SEWER	300	LF	\$55	\$16,500
CATCH BASIN	10	EA	\$1,500	\$15,000
STORM MANHOLE	6	EA	\$3,000	\$18,000
24" ENDWALL	2	EA	\$1,000	\$2,000
POND OUTLET STRUCTURE	1	EA	\$5,000	\$5,000
EXCAVATION, POND	2500	CY	\$8	\$20,000
EXCAVATE FOR CURB AND GUTTER	2000	LF	\$3	\$6,000
PULVERIZE EX. ASPHALT	5400	SY	\$2	\$10,800
FINE GRADING	5400	SY	\$1	\$5,400
ASPHALT ROADWAY, 5.5"	1750	TONS	\$70	\$122,500
FILL MATERIAL UNDER TRAIL SECTION	1000	CY	\$10	\$10,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	170	TONS	\$85	\$14,450
30" CONCRETE CURB & GUTTER	2000	LF	\$20	\$40,000
LANDSCAPE RESTORATION	4500	SY	\$4	\$18,000
EROSION MAT	4500	SY	\$3	\$13,500
SAW CUT JOINT	100	LF	\$2	\$200
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$376,040
CONTINGENCY 10%				\$37,604
ENGINEERING, ADMIN				\$75,208
TOTAL CONSTRUCTION				\$488,852

NOTE:

LAND FOR THE STORMWATER POND CONSTRUCTION WILL NEED TO BE ACQUIRED

COST OF THE LAND IS NOT INCLUDED IN THIS COST ESTIMATE.

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 3 - URBANIZE/ADD CURB & GUTTER

PULVERIZE AND PAVE

FILL IN DITCHES, STORM SEWER TO POND, TRAIL ON ONE SIDE

AREA B - CULVERT CROSSING TO HIGH POINT - STA 13+00 TO 20+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND SWALE

700' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR



ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	275	LF	\$45	\$12,375
15" STORM SEWER	188	LF	\$47	\$8,836
STORM MANHOLE	2	EA	\$3,000	\$6,000
CATCH BASIN	3	EA	\$1,500	\$4,500
15" ENDWALL	1	EA	\$750	\$750
EXCAVATE FOR CURB AND GUTTER	1400	LF	\$3	\$4,200
PULVERIZE EX. ASPHALT	3750	SY	\$2	\$7,500
FINE GRADING	3750	SY	\$1	\$3,750
ASPHALT ROADWAY, 5.5"	1200	TONS	\$70	\$84,000
FILL MATERIAL UNDER TRAIL SECTION	550	CY	\$10	\$5,500
BASE COURSE TRAIL, 12"	350	CY	\$15	\$5,250
ASPHALT TRAIL, 2"	100	TONS	\$85	\$8,500
30" CONCRETE CURB & GUTTER	1400	LF	\$20	\$28,000
LANDSCAPE RESTORATION	3000	SY	\$4	\$12,000
EROSION MAT	3000	SY	\$3	\$9,000
SAW CUT JOINT	100	LF	\$2	\$200
GUARD RAIL AT CULVERT CROSSING	1	LS	\$20,000	\$20,000
RAILING FOR PED/BIKE TRAIL	1	LS	\$10,000	\$10,000
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$237,361
CONTINGENCY 10%				\$23,736
ENGINEERING, ADMIN				\$47,472
TOTAL CONSTRUCTION				\$308,569

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

TOWN OF BUCHANAN

EISENHOWER DRIVE

OPTION 3 - URBANIZE/ADD CURB & GUTTER



PULVERIZE AND PAVE

FILL IN DITCHES, STORM SEWER TO POND, TRAIL ON ONE SIDE

AREA C - HIGH POINT TO CREEKVIEW LN - STA. 20+00 TO 34+00

1/29/2016

53' BB CURB & GUTTER W/TRAIL AND STORM SEWER

1400' LONG, 18" BASE AND 5.5" ASPHALT - COLLECTOR

ITEM	QUANTITY		COST	TOTAL
12" STORM SEWER	180	LF	\$45	\$8,100
15" STORM SEWER	300	LF	\$47	\$14,100
18" STORM SEWER	130	LF	\$50	\$6,500
STORM MANHOLE	4	EA	\$3,000	\$12,000
CATCH BASIN	9	EA	\$1,500	\$13,500
EXCAVATE FOR CURB AND GUTTER	2800	LF	\$3	\$8,400
PULVERIZE EX. ASPHALT	7200	SY	\$2	\$14,400
FINE GRADING	7200	SY	\$1	\$7,200
ASPHALT ROADWAY, 5.5"	2300	TONS	\$70	\$161,000
BASE COURSE TRAIL, 12"	600	CY	\$15	\$9,000
ASPHALT TRAIL, 2"	175	TONS	\$85	\$14,875
30" CONCRETE CURB & GUTTER	2900	LF	\$20	\$58,000
LANDSCAPE RESTORATION	6000	SY	\$4	\$24,000
EROSION MAT	6000	SY	\$3	\$18,000
SAW CUT JOINT	200	LF	\$2	\$400
EROSION CONTROL	1	LS	\$2,000	\$2,000
TRAFFIC CONTROL	1	LS	\$5,000	\$5,000
SUBTOTAL CONSTRUCTION				\$376,475
CONTINGENCY 10%				\$37,648
ENGINEERING, ADMIN				\$75,295
TOTAL CONSTRUCTION				\$489,418

NOTE:

EASEMENTS MAY BE REQUIRED FOR CONSTRUCTION. COSTS ARE NOT INCLUDED.

STORM SEWER SIZED TO CONVEY A 10 YR RAINFALL EVENT.

APPENDIX H: REGULATIONS AND TECHNICAL STANDARDS

Vegetated Infiltration Swale (1005)

Interim Technical Standard

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

Vegetated infiltration swales are stormwater conveyance systems designed to enhance the infiltration runoff. A vegetated infiltration swale can be a natural elongated depression or a constructed channel. A vegetated infiltration swale differs from a conventional drainage channel or ditch in that it is constructed specifically to promote infiltration.



II. Purposes

The primary purpose of this practice is to infiltrate storm water, while limiting groundwater contamination by providing filtering of pollutants. Vegetated swales can also help attenuate peak flows through reducing runoff velocities and volumes.

III. Conditions where Practice Applies

Vegetated infiltration swales are best suited for

- *low- to medium-density residential land uses*¹, and
- Non-residential areas where infiltration of runoff is allowable under Chapter NR 151.

Swales are often placed along roads and in drainage easements in side/back lot lines. Swales are intended to treat relatively flat and small drainage areas with contributory areas less than 5 acres. Swales are not suitable in areas of steep topography or areas with erodible soils without implementation of additional measures to reduce flow velocities and protect against erosion.

This standard does not apply to swales installed to meet the swale treatment option set forth in ss. NR 151.24(10) and Trans 401.106(10).

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable Federal, State, and local laws, rules, regulations, or

permit requirements governing vegetated infiltration swales. This standard does not contain the text of Federal, State, or local laws.

V. Criteria

Vegetated infiltration swales shall be designed to infiltrate runoff and can be a component of a system intended to meet the runoff infiltration requirements of Chapter NR 151. The swale may also be a component of the stormwater conveyance/storage system.

- A. **Site Assessment** - A site assessment shall be conducted and documented meeting the requirements of the WDNR Conservation Practice Standard "Site Evaluation for Stormwater Infiltration" (1002). In addition, the site assessment shall evaluate the alignment of the infiltration swale in relation to ground slopes; drainage patterns; and proximity to buildings.
- B. **Determination of Effective Infiltration Area** – In order to take credit towards the infiltration requirements in NR 151.12(5)(c), the swale must meet the criteria outlined in this standard.

The effective infiltration area is the area that can be counted toward the requirements in NR 151.12(5)(c) and is calculated based on wetted perimeter of the vegetated infiltration swale at a flow depth of 1-inch multiplied by the length of vegetated infiltration swale.

$$\text{Effective Infiltration Area (ft}^2\text{)} = \frac{1}{2} * \text{Wetted Perimeter (ft) at 1-inch depth of flow} * \text{Length of Vegetated Infiltration Swale (ft)}$$

Details on the calculation methodology can be found in Attachment 1.

Vegetated infiltration swales receiving runoff from source areas outlined under NR 151.12(5)(c)(4) cannot be counted toward the effective infiltration area unless the water is effectively pre-treated prior to entering the swale. The area of the

¹ Words in the standard that are shown in italics are described in IX. Definitions. The words are italicized the first time they are used in the text.

pre-treatment device shall not be counted toward the effective infiltration area.

- C. **Pre-treatment** - As with other infiltration devices, vegetated infiltration swales require pretreatment of stormwater to remove sediment from source areas listed in NR 151.12 (5)(c)(4). Pretreatment can be accomplished through the use of practices such as grassed swales, detention basins, and vegetated filter strips.

If a pre-treatment swale is used, the length of pre-treatment shall be calculated based on the following equation with a minimum length of 200 feet:

$$L = v * HRT * 60s/m$$

Where:

L = Swale length in feet

v = Peak flow velocity in fps for 2-year, 24-hour design storm

HRT = Hydraulic residence time in minutes shall be either:

- 5-minutes for infiltration rate greater than or equal to 0.5 inches per hour (sandy loam).
- 8-minutes for infiltration rate less than 0.5 inches per hour (sandy loam).

Infiltration rates shall be determined in accordance with WDNR Conservation Practice Standard Code 1002, "Site Evaluation for Stormwater Infiltration."

If a pre-treatment swale is used, the area of the pre-treatment swale shall not be counted toward the effective infiltration area

- D. **Design Infiltration Rate** - The *design infiltration rate* for swale (K_{swale}) shall be $\frac{1}{2}$ the infiltration rate (K_{static}) determined in accordance with WDNR Conservation Practice Standard Code 1002, "Site Evaluation for Stormwater Infiltration." This is to account for the dynamic nature of a swale in which water is moving through the system rather than the static nature of the infiltration tests where the water is allowed to pond.

$$K_{swale} \text{ (inches/hr.)} = \frac{1}{2} K_{static}$$

- E. **Infiltration Volume Credit** - The volume of water infiltrated and the resulting pollutant reduction must be quantified through the use of an *approved model*.

- F. **Velocity and Depth Criteria** – A maximum velocity is based on providing adequate residence time for infiltration, allowing for a stable swale design, and preventing re-suspension and scour of sediment.

1. Peak flow velocity for the 2-year, 24-hour design storm shall not exceed 1.5 feet per second and have a maximum flow depth of 12-inches. For larger design storms greater than the 2-year, 24-hour, velocities shall be non-erosive.
2. Manning's roughness coefficients, "n", shall be selected consistent with the type of vegetation, mowing height, and depth of flow. Attachment 2 provides guidance on selection of Manning's n values for shallow depth of flows.

When calculating the infiltration volume, if the approved model does not vary Manning's n with the depth of flow, a default value of 0.30 can be used for the Manning's n provided the flow depth does not submerge the vegetation.
3. Ditch checks, if allowed by the regulatory authority, shall be installed as necessary to reduce velocities, extend detention time, or retain a design volume. Refer to Technical Standard 1062 Ditch Checks for design requirements.

If utilizing ditch checks, ensure that the design allows for no standing water within 24 hours after a rainfall / runoff event.

- G. **Swale Geometry Criteria**^a -

1. Swales shall have side slopes no steeper than three horizontal to one vertical (3:1) for trapezoidal channels and 4:1 for triangular shaped swales. Flatter side slopes are recommended to reduce erosion potential and increase infiltration area.
2. The bottom width of the swale is shape dependent but shall be a maximum of 6-feet. If widths greater than 6-feet are needed then length-wise dividers shall be

^a This standard does not set forth criteria for the analysis of site hydrology, system hydraulic analysis for large flows, or channel stability See Reference Section X.

employed such that the maximum width of any given cell is 6-feet.

3. The longitudinal slope of the swale shall be between 1% and 4%.

H. **Vegetation** - Swales shall be planted with native vegetation or seeded with turf grass. A specific planting guide shall be prepared for each project. A companion (cover) crop may be necessary for establishing native vegetation. Depending on location of the swale, vegetation shall be selected that is tolerant of road salt and wetness. A planting medium that can support the selected vegetation shall be installed.

To maintain vegetation, infiltration swales shall be designed to have no standing water within 24 hours after a rainfall / runoff event.

Sod shall not be used. Sod does not establish roots as well as seed and often has muck soils not conducive to infiltration.

I. **Site Layout** - The site layout shall consider features such as location of infiltration swales relative to buildings, water supply wells, lot boundaries, and existing or proposed public rights-of-way.

1. Where a swale accepts runoff from more than one property, it shall be located in a legally established drainage easement granting access for maintenance, or in a public right-of-way.
2. Swales shall not be *hydraulically connected* to foundations or cause negative impacts to structures.
3. Swales shall not be located such that overflow from the swale could cause flooding of existing or proposed buildings during storms with recurrence intervals commensurate with the degree of hazard.

J. **Construction Criteria** - Following excavation, exclude vehicles and heavy equipment from entering the infiltration swale area to prevent compaction. To minimize or mitigate the effects of compaction during construction and to control soil erosion associated with construction:

1. **Compaction Mitigation** – The effects of compaction shall be mitigated using the following methods:

- a. Incorporate soil additives consisting of two inches of *compost* and two inches of topsoil.
- b. The compost shall be incorporated into the existing soil using a chisel plow or rotary device with the capability of reaching to 12 inches below the existing surface.
- c. The compost component shall meet Wisconsin Department of Natural Resources Specifications S100 Compost.

2. A construction erosion control plan shall be prepared. Prior to compaction mitigation and final grading of the infiltration swale, the drainage area to the swale shall have proper erosion controls in place to prevent sediment from entering the swale, and the lot(s) adjacent to the swale shall be stabilized. Any sediment entering the swale during construction shall be removed after the tributary area is stabilized. The infiltration swale itself shall also be stabilized following compaction mitigation and final grading. Stabilize swale prior to receiving runoff. For stabilization design criteria for tributary areas and the swale itself, refer to WDNR Conservation Practice Standards Channel Erosion Mat (1053), Mulching for Construction Sites (1054) and Seeding for Construction Site Erosion Control (1059).

VI. Considerations

These additional factors are set forth to enhance the use of this practice, or to address special cases that may arise in the implementation of the practice.

- A. Swales should be designed to have hydraulic capacities that meet applicable local government or state agency requirements for conveying runoff from large storms, and they should also be designed as part of a *major stormwater management system* as defined in this standard.
- B. The number and length of swales is dictated by the topography and amounts of runoff from the contributing area. For a given depth of flow, the width of a swale depends on the rate and velocity of flow through the swale. Minimum length and width requirements to achieve infiltration and water quality improvements may limit the use of a swale at some sites.
- C. The establishment of deep-rooted vegetation will enhance infiltration.

- D. Swale geometry should attempt to maximize the infiltrative surface but avoid convergence of flows that may result in erosion or gullies.
- E. Excavation hoes, light equipment with turf-type tires, marsh equipment, or wide-track loaders should be used to construct swales.
- F. Public education is recommended to inform local residents of the swale's purpose and to discourage dumping of leaves or parking on the edge of the swale.
- G. This infiltration device is not suitable for treating chlorides. Chloride use on source areas tributary to a swale can be reduced or eliminated by minimizing the amount of compound used, using alternative de-icers or using clean sand.

VII. Plans and Specifications

Plans and specifications shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended use. Plans shall specify the materials, construction processes, locations, size and elevations of all components of the practice to allow for certification of construction upon completion.

VIII. Operation and Maintenance

- A. An operation and maintenance plan for the specific swales shall be prepared. The responsible party shall be identified.
- B. Consider prevention of off-street parking or other activities that may cause rutting or soil compaction in the swale.
- C. Pesticides and fertilizer shall be used in moderation, and only if needed to establish or maintain dense vegetation.
- D. Vegetation shall be mowed or cut such that the proper design height is maintained. To take credit for potential phosphorus removal by the swale, mowed/cut vegetation must be removed as part of routine maintenance.
- E. Sediment shall be removed when infiltration rates are impeded or sediment reaches a height of 2-inches. Minimize serious disturbance of the vegetation and avoid compaction of the soil in the swale during the sediment removal process. After sediment removal, repair any damaged or eroded

areas. Fill any eroded areas with topsoil and reseed.

- F. If during construction or maintenance erosion becomes severe enough to prevent establishment of vegetation, additional erosion control measures shall be taken. Refer to WDNR Conservation Practice Standards 1053, 1054, and 1059 for further guidance.
- G. When maintenance is required the infiltration capacity of the swale shall be restored. Vegetation shall be reestablished following compaction mitigation.
- H. Annual inspections shall be made to detect and remedy nuisance conditions such as mosquitoes, weeds, woody growth and trash dumping.

IX. Definitions

Approved Model (V.E.): A computer model with an infiltration component that adequately accounts for the hydraulic nature of swales and that has been approved by the applicable regulatory authority. Examples include SLAMM, P-8, and RECARGA.

Compost (J.1.): A mixture that consists largely of aerobically decayed organic waste.

Design Infiltration Rate (V.D.): A velocity, based on soil structure and texture, at which precipitation or runoff enters and moves into or through soil. The design rate is used to size an infiltration device or system. Rates are selected to be minimal rates for the different types of soils. Selection of minimal rates will provide a robust design and maximize the longevity of the device.

Effective Infiltration Area (V.B.): The area of the infiltration system that is used to infiltrate runoff. Does not include the area used for pretreatment.

Hydraulically Connected (I.): Two entities are considered to be hydraulically connected if a surface or subsurface link exists between the two exist such that water is transmitted from one entity to the other.

Low -density Residential Land Use (III): Single-family houses on lots with areas of 19,000 square feet or greater.

Major Stormwater Management System (VI.A): The stormwater management facilities that are intended to convey and/or store runoff in excess of the capacity of the minor system. The minor system is designed to

function frequently to prevent nuisance flooding and is sized for a smaller storm than the major system, generally a 10-year storm. The major system is primarily designed to function infrequently to prevent flooding of buildings and ponding of runoff in locations where it could promote harmful infiltration and inflow to sanitary sewers. The major system is generally designed for a 100-year storm. It consists of the components of the minor system, such as overland flow, swales, curbs and gutters, storm sewers, and detention/retention basins, and also includes the entire roadway cross section and associated swales or overland flow paths ultimately discharging to receiving streams.

Medium-density Residential Land Use (III): Single-family houses on lots with areas ranging from 10,900 to 18,999 square feet.

X. References^b

Brach, John, *Protecting Water Quality in Urban Areas: Best Management Practices for Minnesota*, Minnesota Pollution Control Agency, Division of Water Quality, October 1989

Center for Watershed Protection, *Better Site Design: A Handbook for Changing Development Rules in Your Community*, Center for Watershed Protection, Ellicott City, Maryland, August 1998

Claytor, Richard A., and Schueler, Thomas R., *Design of Stormwater Filtering Systems*, Center for Watershed Protection, Silver Spring, Maryland, December 1996.

Horner, Richard R., *Biofiltration Systems for Storm Runoff Water Quality Control*, December 1988

Livingston, Eric H. , "Lessons Learned About Successfully Using Infiltration Practices," Proceedings of National Conference on Tools for Urban Water Management & Protection, Chicago, Illinois, United States Environmental Protection Agency, February 7-10, 2000.

Lowndes, Mary Anne, "Grassed Swales," *The Wisconsin Storm Water Manual: Technical Design*

Guidelines for Storm Water Management Practices, Gary D. Bubenzer, Series Editor, UW-Extension, 2000

Maryland Department of the Environment, Water Management Administration, *2000 Maryland Stormwater Design Manual*, Volumes I and II, 2000.

Minton, Gary R. *Stormwater Treatment Biological, Chemical, and Engineering Principals*, Sheridan Books, Inc. 2005.

Pitt, R. and Voorhees, J. 1996. SLAMM for Windows-Source Loading and Management-Version 8.

Schueler, Thomas R., *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*, Department of Environmental Programs, Metropolitan Washington Council of Governments, July 1987

Schueler, T. R. 1992. Design of Stormwater Wetland Systems. Metropolitan Washington Council of Governments. Washington. D. C.

USDA-Agricultural Research Service, *Stability Design of Grass-Lined Open Channels*, Agriculture Handbook No. 667, September 1987.

USDA-SCS. 1988. National Engineering Field Manual. Natural Resources Conservation Service. Washington, DC.

USDA-SCS, National Engineering Handbook, Section 4 – Hydrology, March 1985.

USDA-Natural Resources Conservation Service, *Grassed Waterway Conservation Practice Standard*, Code 412, June 1993.

Washington State Department of Ecology, *Stormwater Management Manual for the Puget Sound Basin (The Technical Manual)*, Washington State Department of Ecology, February 1992

^b Methods for hydraulic analysis and channel stability are well documented and are; therefore; not included in this standard.. For more background, see open channel hydraulics texts such as Open Channel Hydraulics, Chow, 1988; Open Channel Flow, Henderson, 1966; and Open-Channel Hydraulics, French, 1985.

Attachment 1: Calculation of Effective Infiltration Area Vegetated Infiltration Swales (1005)

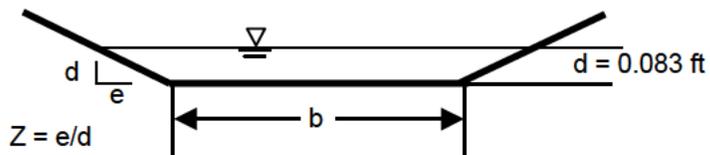
The effective infiltration area as outlined in NR 151 is defined as the area of the infiltration system that is used to infiltrate runoff and does not include the area used for site access, berms, or pretreatment. The area of infiltration is calculated for a swale based on the wetted perimeter of the swale. However, the swale is rarely flowing at capacity under the numerous smaller rainfall events that dominate an average year, so the wetted perimeter at the design capacity of the swale (typically a 2-year or 10-year storm) is not appropriate. The effective infiltration area is determined as follows:

$$\text{Effective Infiltration Area (ft}^2\text{)} = \frac{1}{2} * \text{Wetted Perimeter (ft)} * \text{Length of Vegetated Infiltration Swale (ft)}$$

For the purpose of NR 151, the wetted perimeter will be calculated at a 1-inch (0.083 feet) depth of flow. The 1-inch depth of flow is intended to simulate the water quality volume. The multiplication by $\frac{1}{2}$ is to account for the reduced infiltration rate in swales compared to other practices such as infiltration basins where water is allowed to pond. Wetted perimeter can be calculated as outlined below.

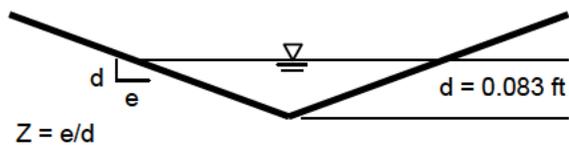
Trapezoidal Channel Cross section:

Wetted Perimeter, p
$p = b + 2d (Z^2 + 1)^{1/2}$



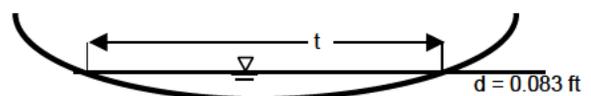
Triangular Channel Cross section:

Wetted Perimeter, p
$p = 2d (Z^2 + 1)^{1/2}$



Parabolic Channel Cross section

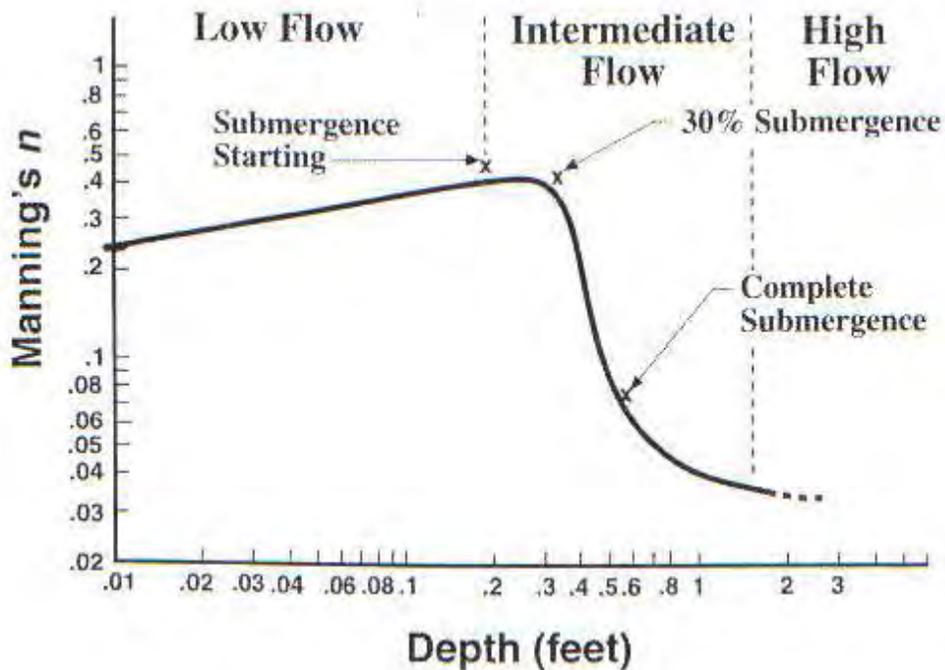
Wetted Perimeter, p	Top Width of flow, t	Cross-sectional Area of flow, a
$p = t + (8 d^2) / (3 t)$	$t = a / (0.67 d)$	$a = 2/3 (t d)$



Attachment 2: Calculation of Manning's n Values Vegetated Infiltration Swales (1005)

Manning's n, the roughness coefficient, varies with the type and height of vegetation and the depth of flow. Typically, vegetation creates a significant flow resistance at lower flows when the grass remains erect and the water surface is below the top of the vegetation. Vegetated infiltration swales are designed to convey runoff from smaller more frequent storm events and thus at lower flow depths than typically encountered using the typical design-storm methodology (i.e. 2-year or 10-year storm). Figure 1 shows a variation of Manning's n with flow depth. Figure 1 assumes dense turf type vegetation mowed to a height of 4-inches. This is consistent with published values that show a Manning's n value of 0.030 for short turf grass under higher flow conditions (Chow, 1959) in which the vegetation is submerged.

Figure 1: Manning's n Under Different Flow Depths



Source: Minton 2005

Research has shown that Manning's n can be related to the product of the flow velocity and the hydraulic radius. This relationship is further dependent again on the type and height of vegetation. Currently, data does not exist for native prairie vegetation.

reduce petroleum within runoff, so that the runoff that enters waters of the state contains no visible petroleum sheen, or to the maximum extent practicable.

Note: A combination of the following BMPs may be used: oil and grease separators, canopies, petroleum spill cleanup materials, or any other structural or non-structural method of preventing or treating petroleum in runoff.

History: CR 09-112: cr. Register December 2010 No. 660, eff. 1-1-11.

NR 151.247 Location. To comply with the standards required under ss. NR 151.242 to 151.244, BMPs may be located on-site or off-site as part of a regional storm water device, practice or system, but shall be installed in accordance with s. NR 151.003.

History: CR 09-112: cr. Register December 2010 No. 660, eff. 1-1-11.

NR 151.248 Timing. The BMPs that are required under ss. NR 151.242 to 151.246 and 151.249 shall be installed before the construction site has undergone final stabilization.

Note: In accordance with subch. V, the department has developed technical standards to help meet the post-construction performance standards. These technical standards are available from the department at (608) 267-7694.

History: CR 09-112: cr. Register December 2010 No. 660, eff. 1-1-11.

NR 151.249 Swale treatment performance standard. (1) **REQUIREMENT.** Except as provided in sub. (2), transportation facilities that use swales for runoff conveyance and pollutant removal are exempt from the requirements of ss. NR 151.242 to 151.244, if the swales are designed to do all of the following or to the maximum extent practicable:

(a) Swales shall be vegetated. However, where appropriate, non-vegetative measures may be employed to prevent erosion or provide for runoff treatment, such as rock riprap stabilization or check dams.

Note: It is preferred that tall and dense vegetation be maintained within the swale due to its greater effectiveness at enhancing runoff pollutant removal.

(b) Swales shall comply with the department technical standard 1005, "Vegetated Infiltration Swale", dated May, 2007, except as otherwise authorized in writing by the department.

Note: In accordance with subch. V, the department has developed technical standards to help meet the post-construction performance standards. These technical standards are available from the department at (608) 267-7694.

(2) **OTHER REQUIREMENTS.** (a) Notwithstanding sub. (1), the department may, consistent with water quality standards, require that other requirements, in addition to swale treatment, be met on a transportation facility with an average daily traffic rate greater than 2,500 and where the initial surface water of the state that the runoff directly enters is any of the following:

1. An outstanding resource water.
2. An exceptional resource water.
3. Waters listed in section 303 (d) of the federal clean water act that are identified as impaired in whole or in part, due to non-point source impacts.
4. Waters where targeted performance standards are developed pursuant to s. NR 151.004.

(b) The transportation facility authority shall contact the department's regional storm water staff or the department's liaison to the department of transportation to determine if additional BMPs beyond a water quality swale are needed under this subsection.

History: CR 09-112: cr. Register December 2010 No. 660, eff. 1-1-11.

NR 151.25 Developed urban area performance standard for transportation facilities. (1) **APPLICABILITY.** This section applies to transportation facilities under the jurisdiction of the department of transportation for maintenance purposes that are located within a municipality regulated under subch. I of ch. NR 216.

Note: Transportation facilities that are not under the jurisdiction of the department of transportation for maintenance purposes are subject to the performance standards in s. NR 151.13.

(2) **REQUIREMENTS.** (a) Except as provided in par. (c), the department of transportation shall develop and implement a storm water management plan in consultation with the department to

control pollutants from transportation facilities described in sub. (1), for runoff from existing transportation facilities that enters waters of the state as compared to no storm water management controls. By design, the plan shall do the following:

1. A 20 percent reduction in total suspended solids or to the maximum extent practicable, beginning not later than a date consistent with the municipality regulated under subch. I of ch. NR 216.

2. A 40 percent reduction in total suspended solids in runoff by March 31, 2013, for transportation facilities within a municipality that received permit coverage under subch. I of ch. NR 216 on or before January 1, 2010.

3. A 40 percent reduction in total suspended solids in runoff within 7 years, for transportation facilities within a municipality receiving permit coverage under subch. I of ch. NR 216 after January 1, 2010.

4. Evidence of meeting the performance standard of this paragraph shall require the use of a model or an equivalent methodology approved by the department. Acceptable models and model versions include SLAMM version 9.2 and P8 version 3.4 or subsequent versions of those models. An earlier version of SLAMM is acceptable if no credit is being taken for street cleaning.

Note: Information on how to access SLAMM and P8 and the relevant parameter files is available from the department's storm water management program at (608) 267-7694.

(b) The department of transportation shall inform and educate appropriate department of transportation staff and any transportation facility maintenance authority contracted by the department of transportation to maintain transportation facilities owned by the department of transportation regarding nutrient, pesticide, salt and other deicing material and vehicle maintenance management activities in order to prevent runoff pollution of waters of the state.

(c) If the department of transportation has determined that it will not achieve a 40 percent reduction in total suspended solids in runoff that enters waters of the state as compared to no controls by the applicable date of par. (a) 2. or 3., then 6 months before the applicable date, the department of transportation shall submit a report to the department describing the control measures that it has implemented and shall submit a long term storm water management plan in accordance with s. NR 151.13 (2) (b) 3. The department shall review the plan in accordance with s. NR 151.13 (2) (b) 4.

(d) To comply with the standards required under this subsection, BMPs may be located on-site or off-site as part of a regional storm water device, practice or system, but shall be installed in accordance with s. NR 151.003.

History: CR 00-027: cr. Register September 2002 No. 561, eff. 10-1-02; CR 09-112: r. and recr. Register December 2010 No. 660, eff. 1-1-11.

NR 151.26 Enforcement. This subchapter shall be enforced as follows:

(1) If a transportation facility that is exempt from prohibitions, permit or approval requirements by s. 30.2022 (1), Stats., does not comply with the performance standards of this subchapter, the department shall initiate the conflict resolution process specified in the cooperative agreement between the department of transportation and the department established under the interdepartmental liaison procedures under s. 30.2022 (2), Stats.

(2) The department shall enforce this subchapter where applicable for transportation facilities not specified in sub. (1) under s. 281.98, Stats.

History: CR 00-027: cr. Register September 2002 No. 561, eff. 10-1-02; corrections in (1) made under s. 13.93 (2m) (b) 7., Stats., Register July 2004 No. 583; CR 09-112: am. (1) Register December 2010 No. 660, eff. 1-1-11.

Subchapter V — Technical Standards Development Process for Non-Agricultural Performance Standards

NR 151.30 Purpose. This subchapter specifies the process for developing and disseminating technical standards to

Chapter 5: Design of Shared Use Paths

studies. However, it is generally assumed that the speed of youth bicyclists is lower than adult bicyclists. Since much of the design criteria in this guide is based on design speed, children will be accommodated to a large extent. When considering criteria unrelated to design speed, engineering judgment should be used when modifying these values for children. Throughout this chapter, several design measures are recommended which are based primarily on pedestrian research. It is presumed that these measures will also benefit bicyclists and other path users, although the research has not been conducted to support this assumption.

5.2.1 Width and Clearance

The usable width and the horizontal clearance for a shared use path are primary design considerations. Figure 5-1 depicts the typical cross section of a shared use path. The appropriate paved width for a shared use path is dependent on the context, volume, and mix of users. The minimum paved width for a two-directional shared use path is 10 ft (3.0 m). Typically, widths range from 10 to 14 ft (3.0 to 4.3 m), with the wider values applicable to areas with high use and/or a wider variety of user groups.

In very rare circumstances, a reduced width of 8 ft (2.4 m) may be used where the following conditions prevail:

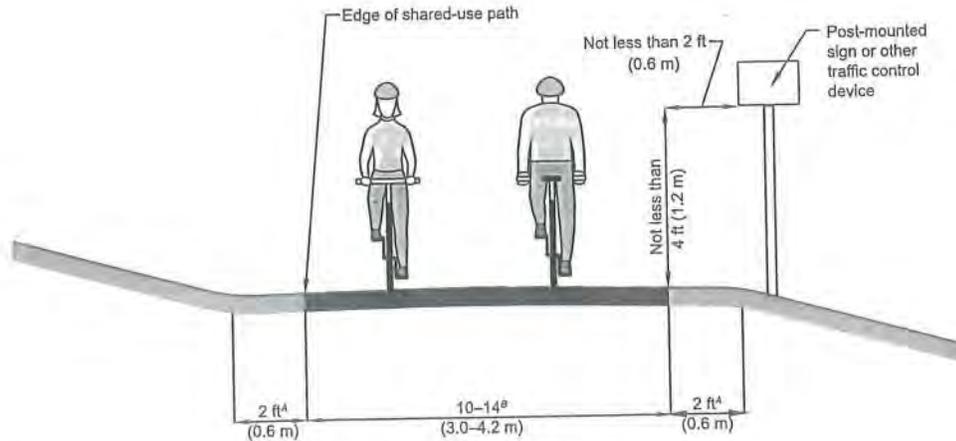
- Bicycle traffic is expected to be low, even on peak days or during peak hours.
- Pedestrian use of the facility is not expected to be more than occasional.
- Horizontal and vertical alignments provide frequent, well-designed passing and resting opportunities.
- The path will not be regularly subjected to maintenance vehicle loading conditions that would cause pavement edge damage.

In addition, a path width of 8 ft (2.4 m) may be used for a short distance due to a physical constraint such as an environmental feature, bridge abutment, utility structure, fence, and such. Warning signs that indicate the pathway narrows (W5-4a), per the MUTCD (7) should be considered at these locations.

A wider path is needed to provide an acceptable level of service on pathways that are frequently used by both pedestrians and wheeled users. The *Shared Use Path Level of Service Calculator* is helpful in determining the appropriate width of a pathway given existing or anticipated user volumes and mixes (9). Wider pathways, 11 to 14 ft (3.4 to 4.2 m) are recommended in locations that are anticipated to serve a high percentage of pedestrians (30 percent or more of the total pathway volume) and high user volumes (more than 300 total users in the peak hour). Eleven foot (3.4 m) wide pathways are needed to enable a bicyclist to pass another path user going the same direction, at the same time a path user is approaching from the opposite direction (see Figure 5-2) (8). Wider paths are also advisable in the following situations:

- Where there is significant use by inline skaters, adult tricycles, children, or other users that need more operating width (see Chapter 3);
- Where the path is used by larger maintenance vehicles;

- On steep grades to provide additional passing area; or
- Through curves to provide more operating space.



Notes:

^A (1V:6H) Maximum slope (typ.)

^B More if necessary to meet anticipated volumes and mix of users, per the *Shared Use Path Level of Service Calculator* (9)

Figure 5-1. Typical Cross Section of Two-Way, Shared Use Path on Independent Right-of-Way

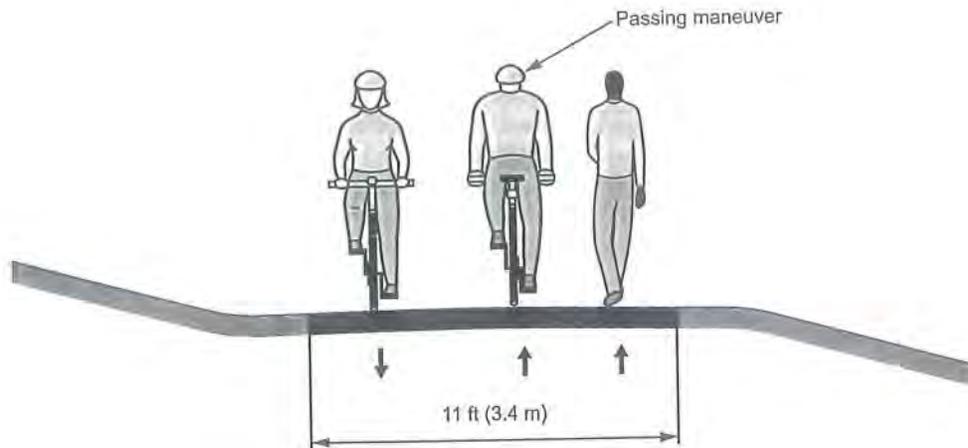


Figure 5-2. Minimum Width Needed to Facilitate Passing on a Shared Use Path

Under most conditions, there is no need to segregate pedestrians and bicyclists on a shared use path, even in areas with high user volumes—they can typically coexist. Path users customarily keep right except to pass. Signs may be used to remind bicyclists to pass on the left and to give an

Chapter 5: Design of Shared Use Paths

audible warning prior to passing other slower users. Part 9 of the MUTCD (7) provides a variety of regulatory signs that can be used for this purpose.

On pathways with heavy peak hour and/or seasonal volumes, or other operational challenges such as sight distance constraints, the use of a centerline stripe on the path can help clarify the direction of travel and organize pathway traffic. A solid yellow centerline stripe may be used to separate two directions of travel where passing is not permitted, and a broken yellow line may be used where passing is permitted. The centerline can either be continuous along the entire length of the path, or may be used only in locations where operational challenges exist. Per the MUTCD, all markings used on bikeways shall be retroreflective.

In areas with extremely heavy pathway volumes, segregation of pedestrians from wheeled users may be appropriate; however, care should be taken that the method of segregation is simple and straightforward. Pedestrians are typically provided with a bi-directional walking lane on one side of the pathway, while bicyclists are provided with directional lanes of travel. This solution should only be used when a minimum path width of 15 ft (4.6 m) is provided, with at least 10 ft (3 m) for two-way wheeled traffic, and at least 5 ft (1.5 m) for pedestrians.

Where this type of segregation is used on a path with a view (e.g., adjacent to a lake or river), the pedestrian lane should be placed on the side of the path with the view. Again, this solution should only be used for pathways with heavy volumes, as pedestrians will often walk in the “bicycle only” portion of a pathway unless it is heavily traveled by bicycles.

Another solution is to provide physically separated pathways for pedestrians and wheeled users. A number of factors should be considered when determining whether to provide separate paths, such as general site conditions (i.e., the width of separation and setting), origins and destinations of different types of path users, and the anticipated level of compliance of users choosing the appropriate path. In some instances, the dual paths may have to come in close proximity or be joined for a distance due to site constraints. As allowed by the MUTCD (7) and described in more detail in Section 5.4.2, mode-specific signs may be used to guide users to their appropriate paths.

Ideally, a graded shoulder area at least 3 to 5 ft (0.9 to 1.5 m) wide with a maximum cross-slope of 1V:6H, which should be recoverable in all weather conditions, should be maintained on each side of the pathway. At a minimum, a 2 ft (0.6 m) graded area with a maximum 1V:6H slope should be provided for clearance from lateral obstructions such as bushes, large rocks, bridge piers, abutments, and poles. The MUTCD requires a minimum 2 ft (0.6 m) clearance to post-mounted signs or other traffic control devices (7). Where “smooth” features such as bicycle railings or fences are introduced with appropriate flaring end treatments (as described below), a lesser clearance (not less than 1 ft [0.3 m]) is acceptable. If adequate clearance cannot be provided between the path and lateral obstructions, then warning signs, object markers, or enhanced conspicuity and reflectorization of the obstruction should be used.

Where a path is adjacent to parallel bodies of water or downward slopes of 1V:3H or steeper, a wider separation should be considered. A 5 ft (1.5 m) separation from the edge of the path pavement to the top of the slope is desirable. Depending on the height of the embankment and condition at the bottom, a physical barrier, such as dense shrubbery, railing, or fencing may be needed. This is an area where engineering judgment should be applied, as the risk for a bicyclist who runs off the path should be compared to the risk posed by the rail. Where a recovery area

Add
this

(i.e., distance between the edge of the path pavement and the top of the slope) is less than 5 ft (1.5 m), physical barriers or rails are recommended in the following situations (see Figure 5-3):

- Slopes 1V:3H or steeper, with a drop of 6 ft (1.8 m) or greater;
- Slopes 1V:3H or steeper, adjacent to a parallel body of water or other substantial obstacle;
- Slopes 1V:2H or steeper, with a drop of 4 ft (1.2 m) or greater; and
- Slopes 1V:1H or steeper, with a drop of 1 ft (0.3 m) or greater.

The barrier or rail should begin prior to, and extend beyond the area of need. The lateral offset of the barrier should be at least 1 ft (0.3 m) from the edge of the path. The ends of the barrier should be flared away from the path edge. Barrier or rail ends that remain within the 2 ft (0.6 m) clear area should be marked with object markers.

Railings that are used to protect users from slopes or to discourage path users from venturing onto a roadway or neighboring property can typically have relatively large openings. A typical design includes two to four horizontal elements with vertical elements spaced fairly widely, but frequently enough to provide the needed structural support and in accordance with applicable building codes. Where there is a high vertical drop or a body of water adjacent to the path where a railing is provided, engineering judgment should be used to determine whether a railing suitable for bridges (as described in Section 5.2.10) should be provided.

Other materials in addition to railings can be used to separate paths from adjacent areas, either due to substantial obstacles or to discourage pathway users from venturing onto adjacent properties. Berms and/or vegetation can serve this function.

It is not desirable to place the pathway in a narrow corridor between two fences for long distances, as this creates personal security issues, prevents users who need help from being seen, prevents path users from leaving the path in an emergency, and impedes emergency response.

The desirable vertical clearance to obstructions is 10 ft (3.0 m). Fixed objects should not be permitted to protrude within the vertical or horizontal clearance of a shared use path. The recommended minimum vertical clearance that can be used in constrained areas is 8 ft (2.4 m). In some situations, vertical clearance greater than 10 ft (3.0 m) may be needed to permit passage of maintenance and emergency vehicles.

Chapter 5: Design of Shared Use Paths

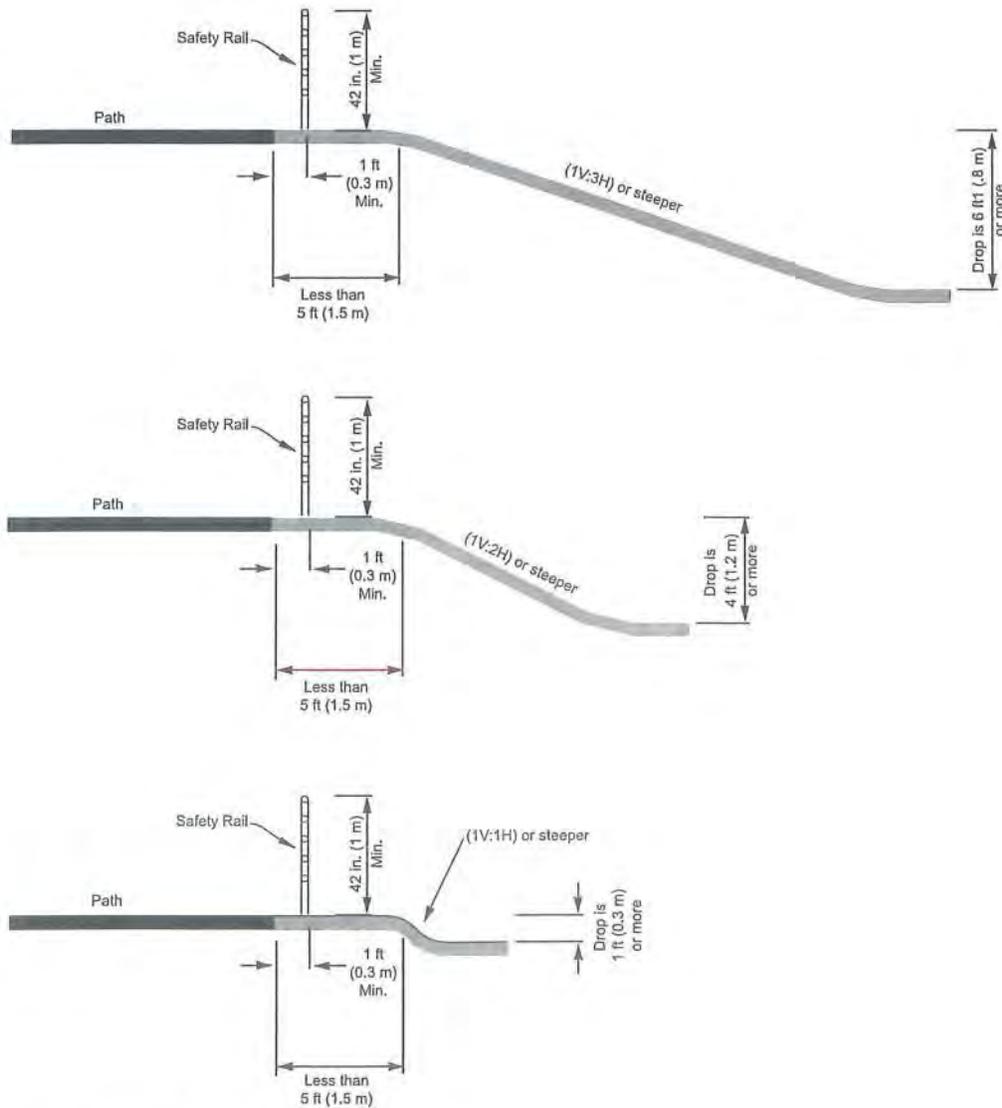


Figure 5-3. Safety Rail Between Path and Adjacent Slope

Chapter 5: Design of Shared Use Paths

In some situations, it may be better to place one-way sidepaths on both sides of the street or highway, directing wheeled users to travel in the same direction as adjacent motor vehicle traffic. Clear directional information is needed if this type of design is used, as well as appropriate intersection design to enable bicyclists to cross to the other side of the roadway. This can reduce some of the concerns associated with two-way sidepaths at driveways and intersections; however, it should be done with the understanding that many bicyclists will ignore the directional indications if they involve additional crossings or otherwise inconvenient travel patterns.

A wide separation should be provided between a two-way sidepath and the adjacent roadway to demonstrate to both the bicyclist and the motorist that the path functions as an independent facility for bicyclists and other users. The minimum recommended distance between a path and the roadway curb (i.e., face of curb) or edge of traveled way (where there is no curb) is 5 ft (1.5 m). Where a paved shoulder is present, the separation distance begins at the outside edge of the shoulder. Thus, a paved shoulder is not included as part of the separation distance. Similarly, a bike lane is not considered part of the separation; however, an unpaved shoulder (e.g., a gravel shoulder) can be considered part of the separation. Where the separation is less than 5 ft (1.5 m), a physical barrier or railing should be provided between the path and the roadway. Such barriers or railings serve both to prevent path users from making undesirable or unintended movements from the path to the roadway and to reinforce the concept that the path is an independent facility. A barrier or railing between a shared use path and adjacent highway should not impair sight distance at intersections, and should be designed to limit the potential for injury to errant motorists and bicyclists. The barrier or railing need not be of size and strength to redirect errant motorists toward the roadway, unless other conditions indicate the need for a crashworthy barrier. Barriers or railings at the outside of a structure or a steep fill embankment that not only define the edge of a sidepath but also prevent bicyclists from falling over the rail to a substantially lower elevation should be a minimum of 42 in. (1.05 m) high. Barriers at other locations that serve only to separate the area for motor vehicles from the sidepath should generally have a minimum height equivalent to the height of a standard guardrail.

When a sidepath is placed along a high-speed highway, a separation greater than 5 ft (1.5 m) is desirable for path user comfort. If greater separation cannot be provided, use of a crashworthy barrier should be considered. Other treatments such as rumble strips can be considered as alternatives to physical barriers or railings, where the separation is less than 5 ft (1.5 m). However, as in the case of rumble strips, an alternative treatment should not negatively impact bicyclists who choose to ride on the roadway rather than the sidepath. Providing separation between a sidepath and the adjacent roadway does not necessarily resolve the operational concerns for sidepaths at intersections and driveways. See Section 5.3.4 for guidance on the design of sidepath intersections.

5.2.3 Shared Use with Mopeds, Motorcycles, Snowmobiles, and Horses

Although in some jurisdictions it may be permitted, it is undesirable to mix mopeds, motorcycles, or all-terrain vehicles with bicyclists and pedestrians on shared use paths. In general, these types of motorized vehicles should not be allowed on shared use paths because of conflicts with slower moving bicyclists and pedestrians. Motorized vehicles also diminish the quiet, relaxing experience most users seek on paths. Motorized wheelchairs are an exception to this rule, and should be permitted to access shared use paths. In cases where mopeds or other similar motorized users are permitted and are expected to use the pathway, providing additional width and improved sight lines may reduce conflicts. Signs that emphasize appropriate user etiquette may also be useful.

APPENDIX I: Proposed Stormwater Pond Lot Existing Site Plan Information

2015 Property Record | Outagamie County, WI

*Assessed values not finalized until after Board of Review
Property information is valid as of 11/5/2015 12:25:00 PM*

<p style="text-align: center;">Owner Address</p> <p>CONCORD 11 LLC 10580 N PORT WASHINGTON RD MEQUON, WI 53092-5537</p>	<p style="text-align: center;">Owner</p> <p>CONCORD 11 LLC</p>																																																			
<p style="text-align: center;">Property Information</p> <p><u>Parcel ID:</u> 030051814</p> <p><u>Document #</u> 1461447</p> <p><u>Tax Districts:</u> SCH D OF KIMBERLY AREA HEART OF THE VALLEY METRO SEWER DIST DARBOY JT SANITARY DISTRICT #1</p>	<p style="text-align: center;">Property Description</p> <p style="text-align: center;"><i>For a complete legal description, see recorded document.</i></p> <p>CSM 5238 LOT 2 (PLATTED OUT OF PRT SE SW SEC32-21-18) 1.07AC M/L</p> <p><u>Municipality:</u> 006-TOWN OF BUCHANAN</p> <p><u>Property Address:</u> COUNTY RD KK</p>																																																			
<p style="text-align: center;">Tax Information</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Installment</u></th> <th style="text-align: right;"><u>Amount</u></th> </tr> </thead> <tbody> <tr><td><u>First:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Second:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Third:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Total Tax Due:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Base Tax:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Special Assessment:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Lottery Credit:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>First Dollar Credit:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Amount Paid:</u> (View payment history info below)</td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Current Balance Due:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Interest:</u></td><td style="text-align: right;">0.00</td></tr> <tr><td><u>Total Due:</u></td><td style="text-align: right;">0.00</td></tr> </tbody> </table>	<u>Installment</u>	<u>Amount</u>	<u>First:</u>	0.00	<u>Second:</u>	0.00	<u>Third:</u>	0.00	<u>Total Tax Due:</u>	0.00	<u>Base Tax:</u>	0.00	<u>Special Assessment:</u>	0.00	<u>Lottery Credit:</u>	0.00	<u>First Dollar Credit:</u>	0.00	<u>Amount Paid:</u> (View payment history info below)	0.00	<u>Current Balance Due:</u>	0.00	<u>Interest:</u>	0.00	<u>Total Due:</u>	0.00	<p style="text-align: center;">Land Valuation</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Code</u></th> <th style="text-align: left;"><u>Acres</u></th> <th style="text-align: left;"><u>Land</u></th> <th style="text-align: left;"><u>Impr.</u></th> <th style="text-align: left;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>2</td> <td style="text-align: center;">1.07</td> <td style="text-align: right;">\$352,900</td> <td style="text-align: right;">\$0</td> <td style="text-align: right;">\$352,900</td> </tr> <tr style="border-top: 1px solid black;"> <td></td> <td style="text-align: center;">1.07</td> <td style="text-align: right;">\$352,900</td> <td style="text-align: right;">\$0</td> <td style="text-align: right;">\$352,900</td> </tr> <tr><td colspan="5"><u>Assessment Ratio:</u> Not Available</td></tr> <tr><td colspan="5"><u>Fair Market Value:</u> Not Applicable</td></tr> </tbody> </table>	<u>Code</u>	<u>Acres</u>	<u>Land</u>	<u>Impr.</u>	<u>Total</u>	2	1.07	\$352,900	\$0	\$352,900		1.07	\$352,900	\$0	\$352,900	<u>Assessment Ratio:</u> Not Available					<u>Fair Market Value:</u> Not Applicable				
<u>Installment</u>	<u>Amount</u>																																																			
<u>First:</u>	0.00																																																			
<u>Second:</u>	0.00																																																			
<u>Third:</u>	0.00																																																			
<u>Total Tax Due:</u>	0.00																																																			
<u>Base Tax:</u>	0.00																																																			
<u>Special Assessment:</u>	0.00																																																			
<u>Lottery Credit:</u>	0.00																																																			
<u>First Dollar Credit:</u>	0.00																																																			
<u>Amount Paid:</u> (View payment history info below)	0.00																																																			
<u>Current Balance Due:</u>	0.00																																																			
<u>Interest:</u>	0.00																																																			
<u>Total Due:</u>	0.00																																																			
<u>Code</u>	<u>Acres</u>	<u>Land</u>	<u>Impr.</u>	<u>Total</u>																																																
2	1.07	\$352,900	\$0	\$352,900																																																
	1.07	\$352,900	\$0	\$352,900																																																
<u>Assessment Ratio:</u> Not Available																																																				
<u>Fair Market Value:</u> Not Applicable																																																				

*No data found for Special Assessment Detail, Delinquent Tax Summary, Payment History in 2015

**OUTAGAMIE COUNTY BOARD OF ADJUSTMENT
DECISION**

PETITION: Concord 11, LLC, petitions for a variance to the terms of Section 16.21(1) of the Outagamie County Shoreland-Wetland Zoning Ordinance which prohibits structures closer than 75 feet to the ordinary high water mark of a navigable stream. The applicant is proposing to construct a parking lot (considered a structure) that will be 35 feet from the ordinary high water mark of a navigable stream.

The property is located in the Southeast ¼ of the Southwest ¼, Section 32, Township 21 North, Range 18 East, Town of Buchanan, Outagamie County. Tax Parcel Number 030 051814.

HEARING: After due notice, a public hearing was held by the Outagamie County Board of Adjustment on October 17, 2008 at 8:30 a.m., in the County Board Room, 2nd Floor, County Administration Building, Appleton, Wisconsin to consider this petition. At said hearing all those who desired to be heard were heard and their testimony was recorded. All testimony has been carefully considered.

FINDINGS OF FACT:

1. Concord 11, LLC is the owner of property located in the Southeast ¼ of the Southwest ¼, Section 32, Township 21 North, Range 18 East, Town of Buchanan, Outagamie County. Tax Parcel Number 030 051814.
2. The applicant's property is located within the General Shoreland District, and the Local Commercial District.
3. The property also has Shoreland wetlands located on it.
4. The applicant is proposing to develop the vacant lot as a Commercial building site.
5. The United States Army Corps of Engineers and the Wisconsin Department of Natural Resources do not support the filling of the wetlands that are located on the property.

DECISION: The Outagamie County Board of Adjustment voted to approve the petition for grant of the Variance:

Alfred Krause-	Yes
Alan Schmidt-	Yes
Marvin Fox-	Yes

REASONS:

The Outagamie County Board of Adjustment determined that the variance should be granted based on the uniqueness of the property. The only possible area for the location of the proposed commercial building and parking lot is at the proposed location that is 35 feet from the stream. The Board determined that filling of wetlands on the property would be much more detrimental to the environment than granting the variance to the setback. The Board also determined that the applicant would not be able to make reasonable use of the property without the variance. The granting of the variance would not be contrary to the public interest.

Motion by Mr. Krause, seconded by Mr. Fox, to adopt the foregoing as the final disposition of this case. MOTION CARRIED MOTION FAILED

**OUTAGAMIE COUNTY BOARD OF
ADJUSTMENT**

Signed: *Alfred Krause*
Chairman

Signed: *Martin J. Fox*
Secretary/Acting Secretary

Dated: October 28, 2008

Filed: October 28, 2008

A party aggrieved by the decision of the Board of Adjustment may appeal to the Circuit Court under Wisconsin Statutes 59.694(10) within thirty (30) days after filing this decision.

Cc: Applicant
Town Clerk
Town Building Inspector
DOT (if applicable)
Highway Commissioner (if applicable)
DNR (if applicable)
Corp of Engineers (if applicable)

ATTENDANCE

Public Hearing for V-5-08 Concord II

DATE 10-19-08

NAME

ADDRESS

Angela Corall

Town of Berthman, N178 Camp Rd N

Mike AIF

W1081 Pearl St. Oneida, WI 54155

Cheryl Schroeder

W1081 Pearl St. Oneida, WI 54155

John R. Pavel, P.E.

Pavel Engineering 1811 Racine, Menasha

Norman Austin

Town of Oneida Char



DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
SIBLEY SQUARE AT MEARS PARK
190 FIFTH STREET EAST, SUITE 401
ST. PAUL MINNESOTA 55101-1638

RECEIVED
AUG 12 2008

REPLY TO
ATTENTION OF

August 8, 2008

Operations
Regulatory (2007-01276-NTD)

Mr. John Davel
Davel Engineering, Inc.
1811 Racine Street
Menasha, Wisconsin 54952

Dear Mr. Davel:

This letter concerns a Concord 11, LLC. permit application to discharge dredged and fill material into wetlands abutting an unnamed tributary to Garner's Creek, which flows to the Fox River, a navigable water of the United States. The project site is in the SE ¼ SE ¼ Sec. 32, T. 21N., R. 18E., Outagamie County; Wisconsin.

As part of our analysis of this project, we must determine whether it complies with the guidelines of Section 404(b)(1) of the Clean Water Act (CWA). These guidelines require that when a project is not "water dependent," that is, it does not need to be located in or near wetlands to serve its basic purpose, it is presumed that there are alternative upland sites available and that the use of the upland sites would be less environmentally-damaging than would be the proposed alteration of the wetland.

The proposed project does not require access to, or proximity to, or siting within a wetland to fulfill its purpose. Therefore, it is incumbent upon Concord 11, LLC. to clearly rebut the presumption that upland sites within the project area are available and would be less environmentally-damaging than the current proposal.

During our initial review of the project, it has come to our attention that there may be sufficient upland on-site located within a seventy-five foot building setback imposed on the property, which would be suitable for development, provided a variance can be obtained from the Outagamie County Board of Appeals.

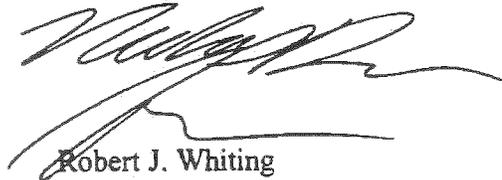
We believe that minor encroachment within the building setback would be less environmentally-damaging than Concord's current proposal, which involves filling wetlands, provided measures are taken to minimize the effects of encroachment on the stream. The Corps therefore, requests that a reasonable attempt be made to obtain a variance for the proposed project.

The Corps has made a preliminary determination that if a variance cannot be obtained, the proposed project would be the least environmentally-damaging practicable alternative. This determination is based on the information provided by Concord in their application materials and our review of the proposed project to date. This determination is subject to change if new information warrants reconsideration.

Each proposal is judged on its own merits. Permits are issued only when projects comply with the guidelines of the CWA, and would provide public or private benefits that equal or outweigh project detriments. Our regulations require us to deny all other applications in order to protect the public interest in maintaining the integrity of the waters of the United States.

If you have any questions, contact Nick Domer in our Green Bay office at (920) 448-2824. In any correspondence or inquiries, please refer to the Regulatory number shown above.

Sincerely,



Robert J. Whiting
Chief, Regulatory Branch

Copy furnished:

Jon Brand, WDNR-Green Bay
Mike Russo, WDNR-Green Bay
Tim Roach, Outagamie County Zoning

RECEIVED
OCT 13 2008

THE POST-CRESCENT

STATE OF WISCONSIN
OUTAGAMIE COUNTY

OUTAGAMIE CO ZONING DEPT
410 S WALNUT ST
APPLETON, WI 54911

JOAN WEST

Being duly sworn, doth depose and say that she is an authorized representative of the Appleton Post Crescent, a newspaper published at Appleton, Wisconsin, and that an advertisement of which the annexed is a true copy, taken from said paper, which was published therein on

Account Number: 1014358

Ad Number: 5411593

Published Date: October 03, 2008

Published Date: October 10, 2008

Total Ad Cost: \$119.29

(Signed) Joan E. West
Advertising Assistant

(Date) 10.10.08

Signed and sworn before me

Sandy Brunser
Notary Public, Outagamie County, Wisconsin

My commission expires 4-8-12

**NOTICE OF
PUBLIC HEARING
TOWN OF
BUCHANAN
OUTAGAMIE
COUNTY
TO WHOM IT MAY
CONCERN:**

The Outagamie County Board of Adjustment will hold a public hearing on October 17, 2008, at 8:30 a.m., at the Outagamie County Administration Building, Second Floor, County Board Room, 410 S. Walnut Street, Appleton, Wisconsin, to consider the petition of Concord 11, LLC, for a Variance to Section 16.21(1) of the Outagamie County Shoreland-Wetland Ordinance.

Section 16.21 BUILDING SETBACKS FROM THE WATER. (1) INLAND LAKES, PONDS, FLOWAGES, MARSHES WETLANDS, RIVERS AND STREAMS. All building and structures, except piers, boat hoists and boathouses which may require lesser setback, shall require a setback of at least 75 feet from all points along the ordinary high watermark, except where otherwise regulated by the floodplain provisions of this chapter or other more restrictive ordinances.

The applicant is proposing to construct a parking lot (considered a structure) that will be 35 feet from the ordinary high watermark of a navigable stream, instead of the required 75 feet.

The property under consideration is located at the North West corner of the intersection of Springfield Drive and Eisenhower Drive; in the Southeast 1/4 of the Southwest 1/4 of Section 21, Township 21 North, Range 18 East, (CSM 5228 Lot 2), Town of Buchanan, Outagamie County Wisconsin.

For particulars, reference is made to documents on file in the Office of Planning and Zoning Administration, 3rd Floor, Administration Building, 410 South Walnut Street, Appleton, Wisconsin. Telephone: (920) 832-5255.

Any interested person may address the Board of Adjustment by letter or appear in person or by agent and be heard.

Dated this 18th day of September, 2008

OUTAGAMIE COUNTY BOARD OF ADJUSTMENT
ALFRED KRAUSE, CHAIRMAN
File No.: V-5-08

OUTAGAMIE CO ZONING DEPT
Re Ad#: 5411593

306 W. Washington St. • P.O. Box 59 • Appleton, Wisconsin 54912
(920) 733-4411 • (800) 236-6397 • Advertising Fax (920) 954-1945

Accommodation Notice
Any person requiring special accommodation who wishes to attend this meeting should call (920) 832-5255 at least 48 hours in advance.

Distribution of Notices

Concord II V-5-08

2nd ✓ By Certified Mail

✓ Concord II ~~LLC~~ LLC ✓

11501 W. Port Washington Rd

Suite 200

Mequon, WI 53092

2nd ✓

Angela Gorall, Clerk ✓ w/copy of Application ✓

Souris Buchanan

2nd ✓

By 1st Class Mail

✓ Mark McAndrews, Chp ✓

Souris Buchanan

(#5)

2nd ✓

Kathleen James, Supr. ✓

Dist #5

2nd ✓

✓ Jon Brand DNR ✓

✓ US Army Corps of Engineers ✓

} w/copy of Application ✓

- BOA

- Adjoining Owners

030

Adjoining Owners V-5-08

- 051814 ✓ Concord II, LLC
- 051800 ✓ JPM Properties LLP ✓
- 0511 ✓ Eisenhower Land Group, LLC ✓
- 2645 ✓ PIHT, LLC ✓
- 2646 ✓ HAI-IV, LLC ✓
- 051808 ✓ Excel Properties, LLC ✓
- 051805 ✓ Kirt & Molly Hoffmann ✓
- 2224 ✓ Catherine Vanwychen ✓
- 2225 ✓ Gregory & Bridget Huenick ✓

2nd mailing

NOTICE OF PUBLIC HEARING

**TOWN OF BUCHANAN
OUTAGAMIE COUNTY**

TO WHOM IT MAY CONCERN:

The Outagamie County Board of Adjustment will hold a public hearing on October 17, 2008, at 8:30 a.m., at the Outagamie County Administration Building, Second Floor, County Board Room, 410 S. Walnut Street, Appleton, Wisconsin, to consider the petition of Concord 11, LLC. for a Variance to Section 16.21(1) of the Outagamie County Shoreland-Wetland Ordinance.

Section 16.21 BUILDING SETBACKS FROM THE WATER. (1) INLAND LAKES, PONDS, FLOWAGES, MARSHES WETLANDS, RIVERS AND STREAMS. All building and structures, except piers, boat hoists and boathouses which may require lesser setback, shall require a setback of at least 75 feet from all points along the ordinary high watermark, except where otherwise regulated by the floodplain provisions of this chapter or other more restrictive ordinances.

The applicant is proposing to construct a parking lot (considered a structure) that will be 35 feet from the ordinary high watermark of a navigable stream instead of the required 75 feet. The property under consideration is located at the North West corner of the intersection of Springfield Drive and Eisenhower Drive; in the Southeast ¼ of the Southwest ¼ of Section 32, Township 21 North, Range 18 East, (CSM 5238 Lot 2), Town of Buchanan, Outagamie County Wisconsin.

For particulars, reference is made to documents on file in the Office of Planning and Zoning Administration, 3rd Floor, Administration Building, 410 South Walnut Street, Appleton, Wisconsin. Telephone: (920) 832-5255.

Any interested person may address the Board of Adjustment by letter or appear in person or by agent and be heard.

Dated this 18th day of September, 2008

**OUTAGAMIE COUNTY BOARD OF ADJUSTMENT
ALFRED KRAUSE, CHAIRMAN**

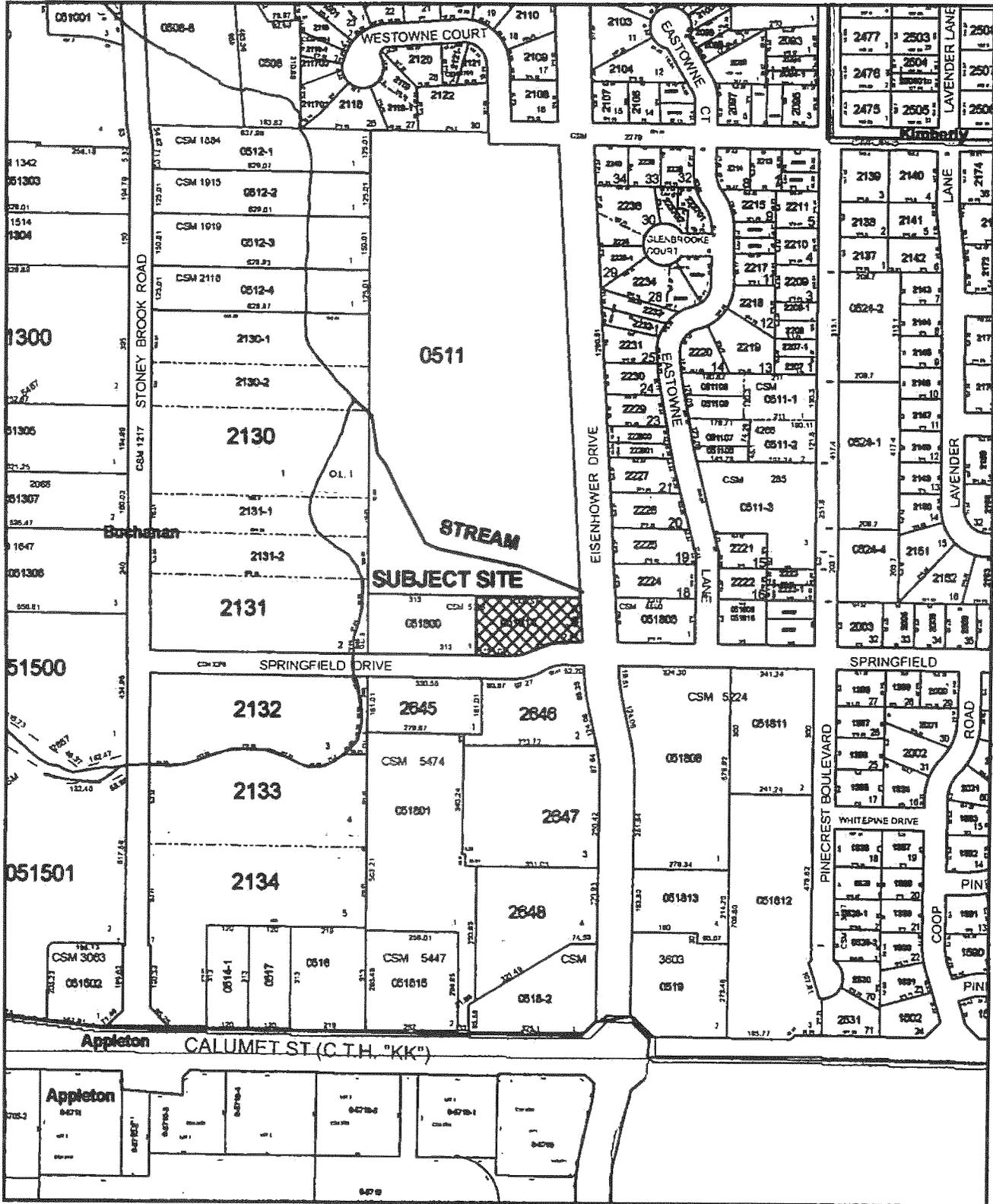
File No.: V-5-08

Published: October 3 and 10, 2008

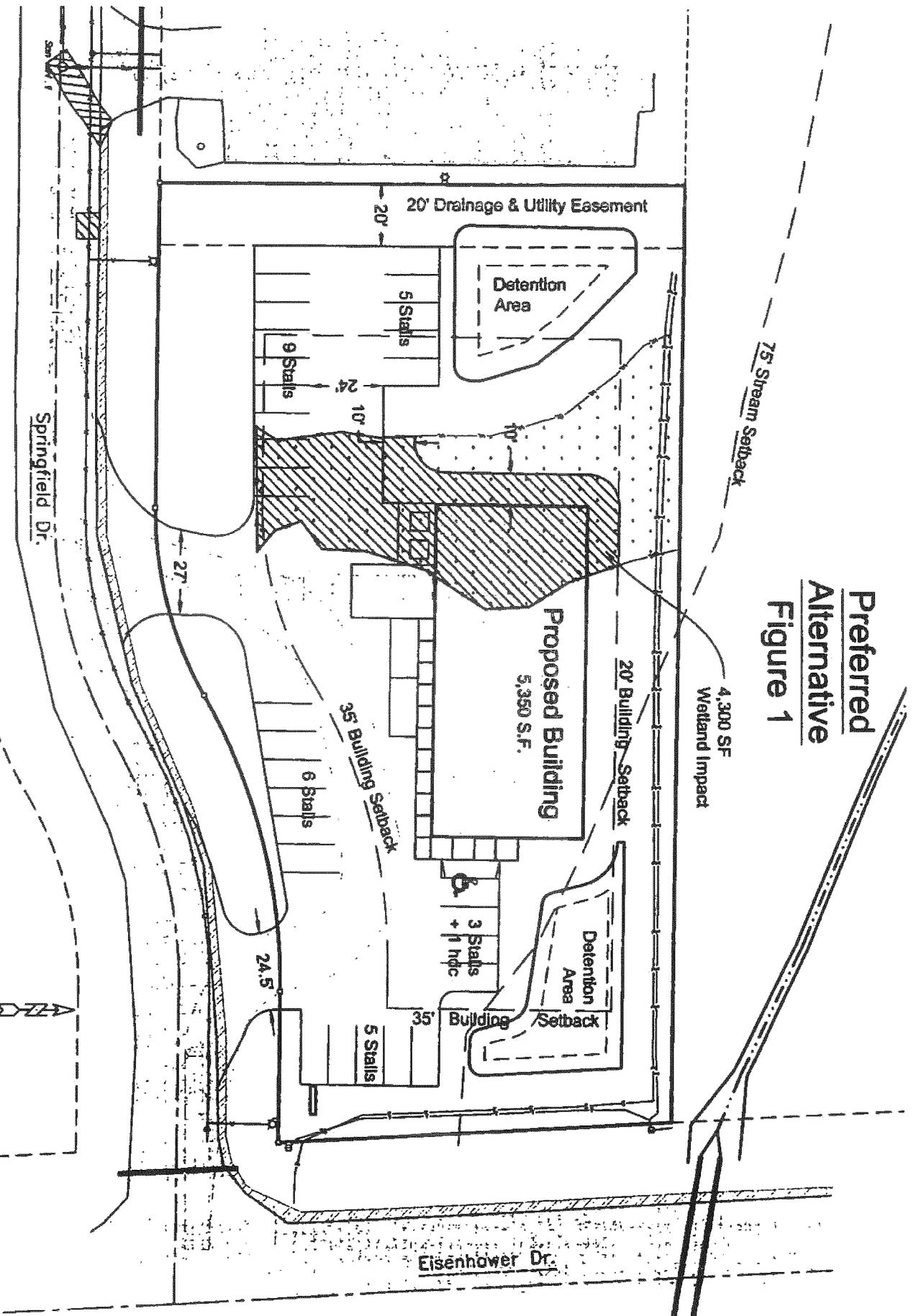
Accommodation Notice

Any person requiring special accommodation who wishes to attend this meeting should call (920) 832-5255 at least 48 hours in advance.

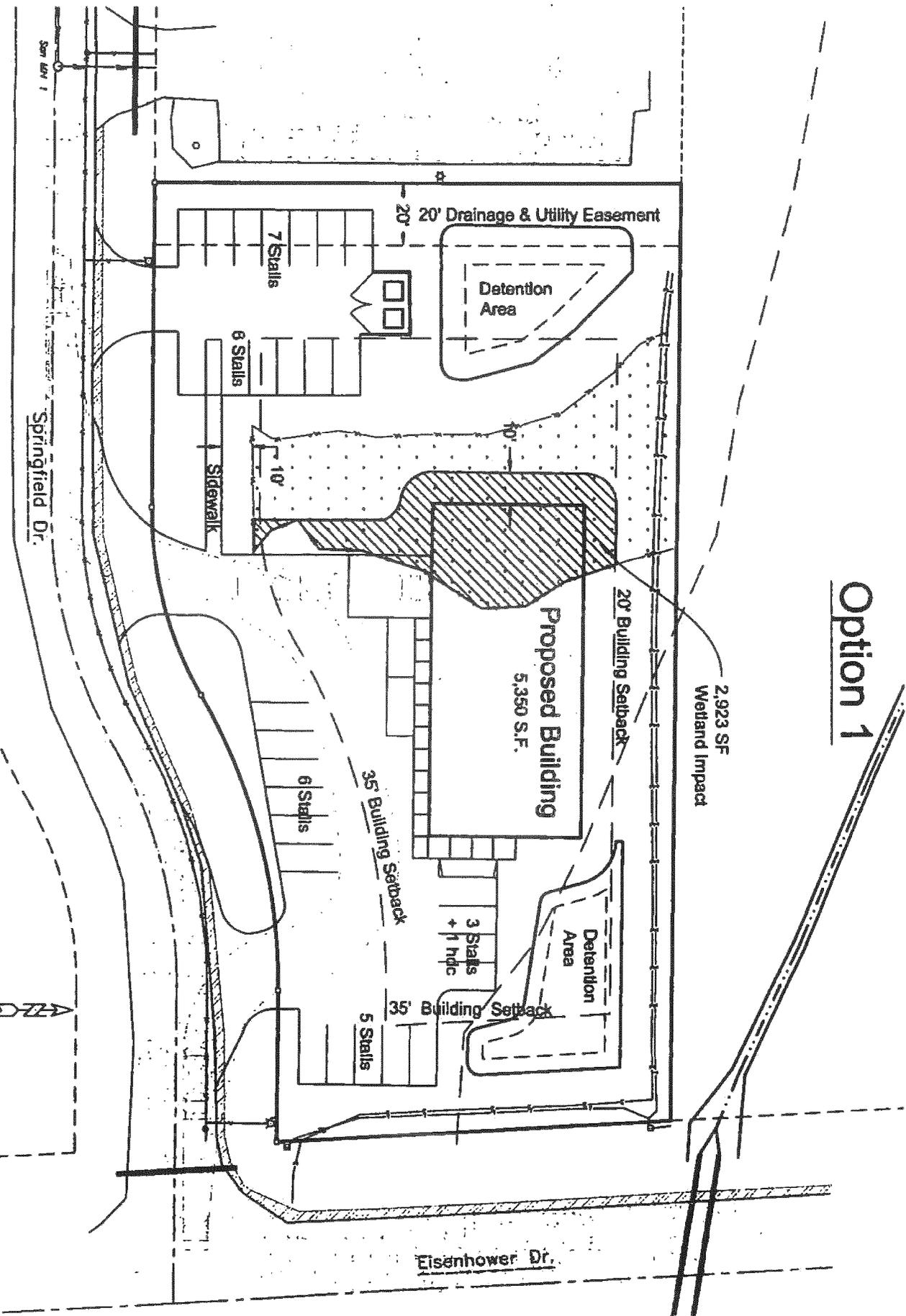
FILE V-5-08



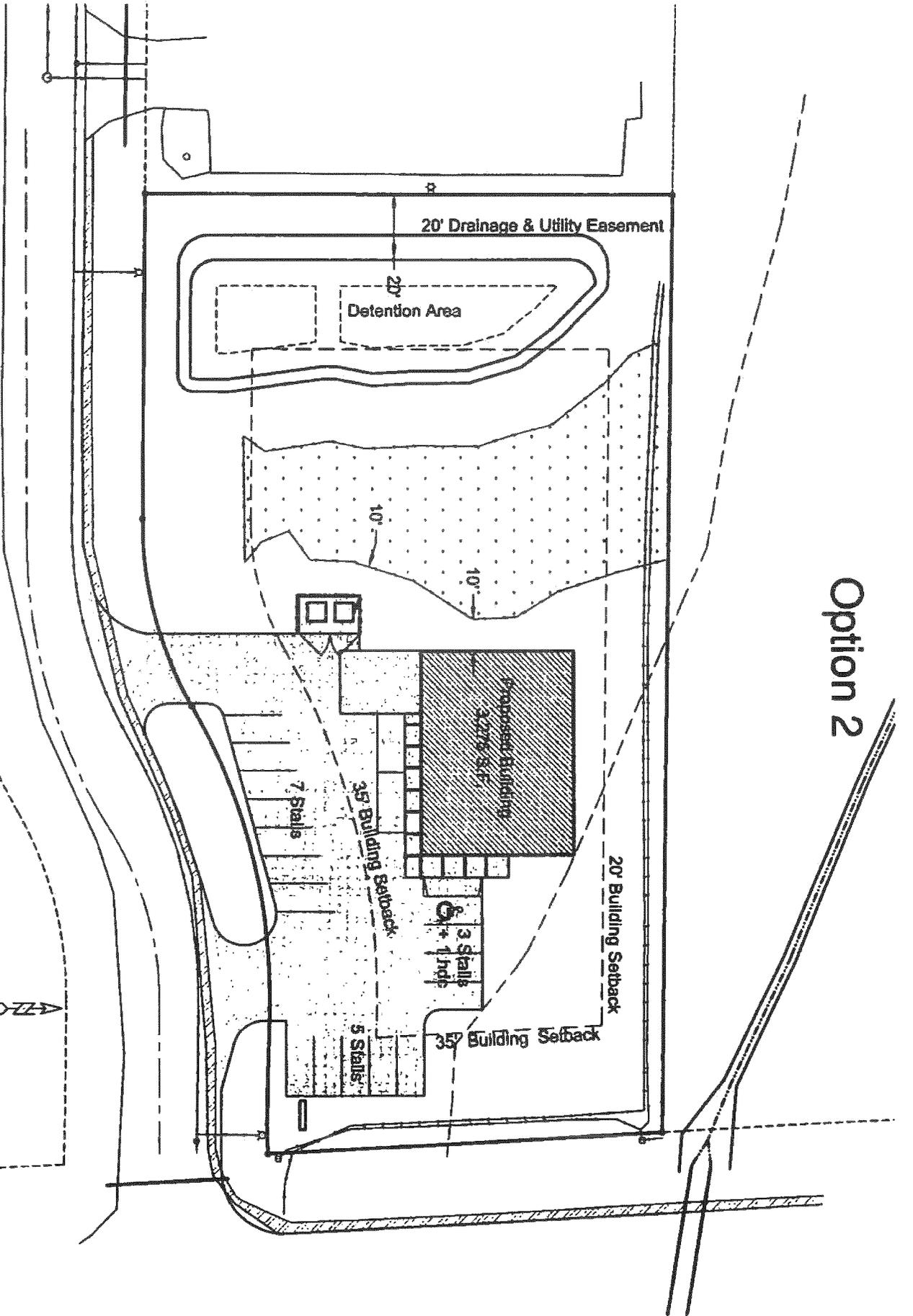
**Preferred
Alternative
Figure 1**



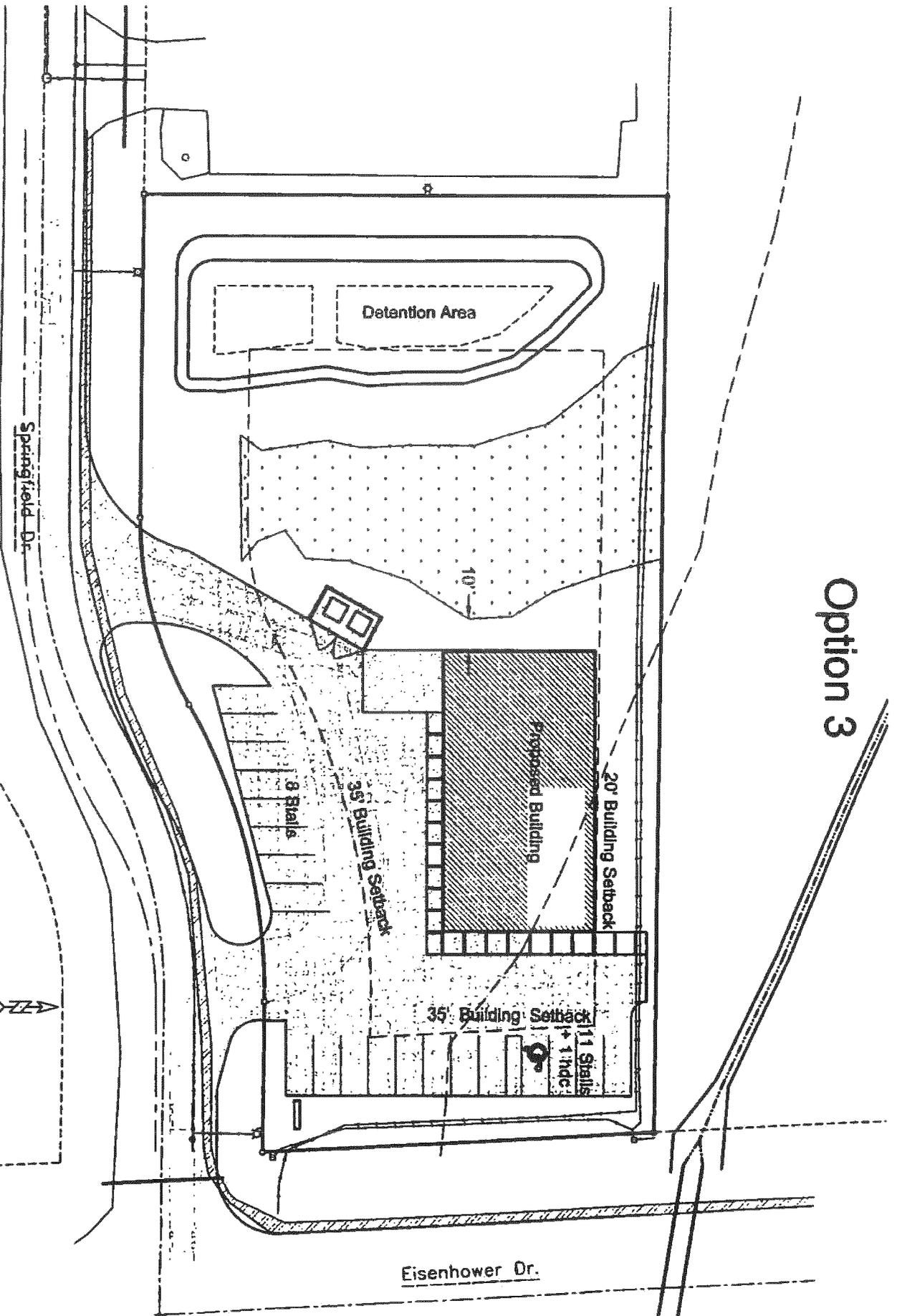
Option 1



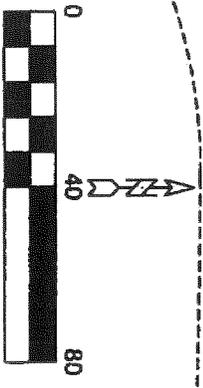
Option 2

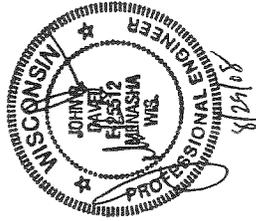


Option 3



3/20/2008 11:37 AM J:\Projects\3256con\dwg\Fenner\20060983A1 7-2-07.dwg Printed by: Katie





SITE DATA:
Area: 1.07 Acres
Topography: Flat
Soils: U-4S
Adjacent Area: 2.201 A.C.
Adjacent Area: 2.201 A.C.

PARKING REQUIREMENTS:
Adjacent Area: 2.201 A.C.
Type: 10 ft x 18 ft

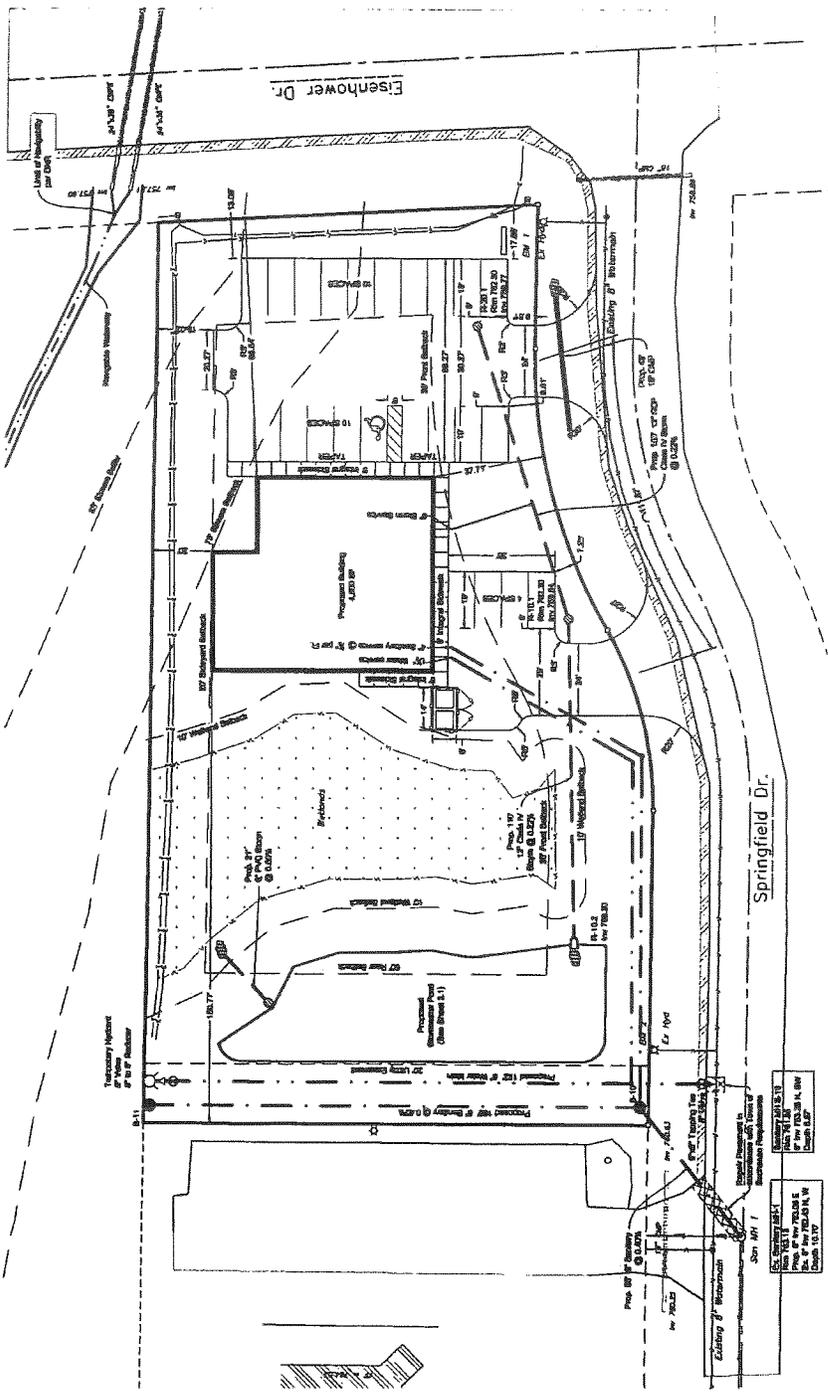
ZONING DISTRICT:
General Commercial (G-1)

SHEET INDEX:

NO.	DESCRIPTION	DATE
1.0	PRELIMINARY SITE & UTILITY PLAN	08/29/08
2.1	CONSTRUCTION DETAILS	08/29/08
3.1	PLAN & PROFILES	08/29/08

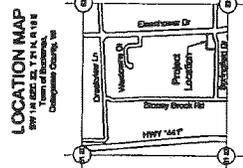
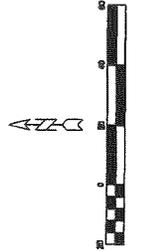
LEGEND:

Symbol	Description
---	Proposed Boundary
---	Proposed Building Footprint
---	Proposed Utility Lines
---	Proposed Storm Sewer
---	Proposed Sanitary Sewer
---	Proposed Water Main
---	Proposed Gas Main
---	Proposed Electric
---	Proposed Other



Owner & Contractor shall be responsible for coordination with the State of Wisconsin Department of Transportation for Right of Way, Easements, and all Board of Supervisors of the Outagamie County, Wis. 1. Contractor shall locate all buried utilities prior to excavation. The plan may not comply or completely show all buried utilities.

The Contractor shall verify all existing and proposed utility lines and all utility lines prior to construction. The Contractor shall verify the location of all utility lines and the depth of all utility lines. All utility lines shall be shown in accordance with the Plan and Utility Information. Utility lines are shown in accordance with the Plan and Utility Information. Utility lines are shown in accordance with the Plan and Utility Information.



1/21/2009 10:25 AM P:\Project\25512\Working\04_25512.dwg Printed by: davel

**APPENDIX J: BIOLIFE PLASMA CENTER- N161 EISENHOWER DR. STORMWATER
MANAGEMENT PLAN**

**STORM WATER and EROSION CONTROL CALCULATIONS
FOR:
BIOLIFE PLASMA CENTER- EISENHOWER
DRIVE
TOWN OF BUCHANAN, WI**

**BASED ON SCS TR-55 METHOD, MANNING'S EQUATION, and SLAMM
February 25, 2015**

Prepared By:
Eric Drazkowski, P.E.
Excel Engineering Inc.
100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800

Table of Contents

- Overview
- Soil Information
- Drainage Calculations
- Runoff Summary
- Water Quality Information
- Storm Sewer Pipe Design
- Infiltration Requirements
- Erosion Control
- Post Construction Operation and Management Plan
- Appendix A: Pre-Developed Area(s)
- Appendix B: Post Developed Area(s)
- Appendix C: Soil Maps & Boring Data
- Appendix D: Storm Pipe Calculations
- Appendix E: SLAMM Input Information
- Appendix F: SCS TR55 Stormwater Management Calculations
- Appendix G: Town Engineer Correspondence

Overview

The proposed project is located on the west side of Eisenhower Drive, bounded by Springfield Drive on the north and CTH 'KK' on the south. The total site acreage is 3.08 acres for Lot 3 of the Calumet Center Subdivision.

The project is a commercial development for plasma donation use. The existing zoning is Local Commercial and the site is considered a permitted use. Portions of the site drain to the west, north, and east. Post development flows to these areas have are below the predevelopment levels. The total area of site disturbance will be 3.07 acres. Half of the total property is a vacant grassed parcel with a portion of gravel.

The project is located in the Concord Town Center and was included in the regional stormwater facilities. However, these facilities were approved prior to TSS requirements and one year storm control. See Appendix G. Because of this, a wet pond has been designed to have the site meet 80% TSS removal requirements and detain the 1 and 2 yr storms to predevelopment levels. This pond discharges to the existing regional pond to be further treated for quantity control. Storm pipes have been designed for the 10yr storm if an overland route is present and the 100yr if one is not. Infiltration is exempt because the site has clayey soils. See soil borings.

The project will require DNR approval. Because the site is disturbing more than one acre a Notice of Intent submittal is required. A grading permit will also be required from the DNR because the pond is located within 500' of a navigable waterway.

Soils:

Existing Soils data: Soil Type: BtB Briggsville silt loam, Hydrologic Rating C
McA Manawa silty clay loam, 0 to 3% slopes D

Drainage Area Information:

Stormwater Ordinance Applicability: Town of Buchanan
24hr Design Storm: 1yr=2.20, 2yr=2.50in, 10yr=3.80in, 100yr=5.3in.
Minimum Time of Concentration: 6 minutes
Average annual rainfall: Green Bay, 1969 (March 29– November 25)
Curve Numbers:
Pre Development; Type C: 89 Gravel, 74-Grass
Post Development; Type D: 98 – Impervious, 80 – Grass, 91- Gravel

Peak Discharge:

Stormwater Requirement: Pre Development 1,2yr vs. Post Development 1,2yr

The proposed development will maintain the existing drainage pattern and drain to the existing wet pond to the southeast. The pond outlet has been reduced in size, 6.5" to 2.5" to detain the added runoff to original predevelopment levels.

Site Runoff Summary:

Runoff Summary Chart (CFS)

Storm	Pre Dev. Runoff West	Pre Dev. Runoff North	Pre Dev. Runoff East	Post Dev. Runoff West	Post Dev. Runoff North	Post Dev. Runoff East
1-yr	1.32	0.10	0.47	0.25	0.09	0.16
2-yr	1.83	0.14	0.67	0.28	0.12	0.22
10yr	4.37	0.33	1.71	1.29	0.29	0.45
100yr	7.79	0.59	3.13	4.63	0.50	0.76

Conclusion

Storm	Pre Development Total	Post Development Total
1yr	1.87	0.46
2yr	2.60	0.56
10yr	6.41	1.49
100 yr	11.50	5.08

The above results show that all predevelopment flows are less than post development flows.

See pond details on sheet C1.6 for all storm elevations and pond information.

Water Quality to provide TSS Removal:

The site will treat 80.45% TSS. SLAMM analysis was completed on the pond and offsite drainage areas.

Result: Reduction in Solids ($826.4 / 161.6 = 0.348$) is 80.45%.

Calculations for the sediment removal can be seen on the attached SLAMM print outs.

Storm Pipe Design: (See attached calculations).

All pipes have been designed using TR-55 for the 10 year storm and Manning's Equation. 100yr Storm when overland route not available, Basins B and C. Proposed culvert in Eisenhower matches existing to the south.

100 year Storm Conveyance

- An overland overflow route is provided to the west. Ponded elevations do not exceed 0.6'. Where they do pipes have been sized for 100yr storm.

Infiltration:

This site will be exempt from having to provide infiltration because least permable soil horizon to 5 feet below the proposed bottom would be clayey soils per NR 151.12(5)(c)(6)(a) and excluded because of high groundwater per NR 151.124(4)(c)(2).

Erosion Control:

The erosion control specifications, construction sequence, site stabilization notes, seeding notes, dewatering notes, and post construction and maintenance plan are all listed on sheets C1.0 and C1.3 of the construction plan set. Chapter 30 and NOI permits from the Department of Natural Resources have been applied for concurrently.

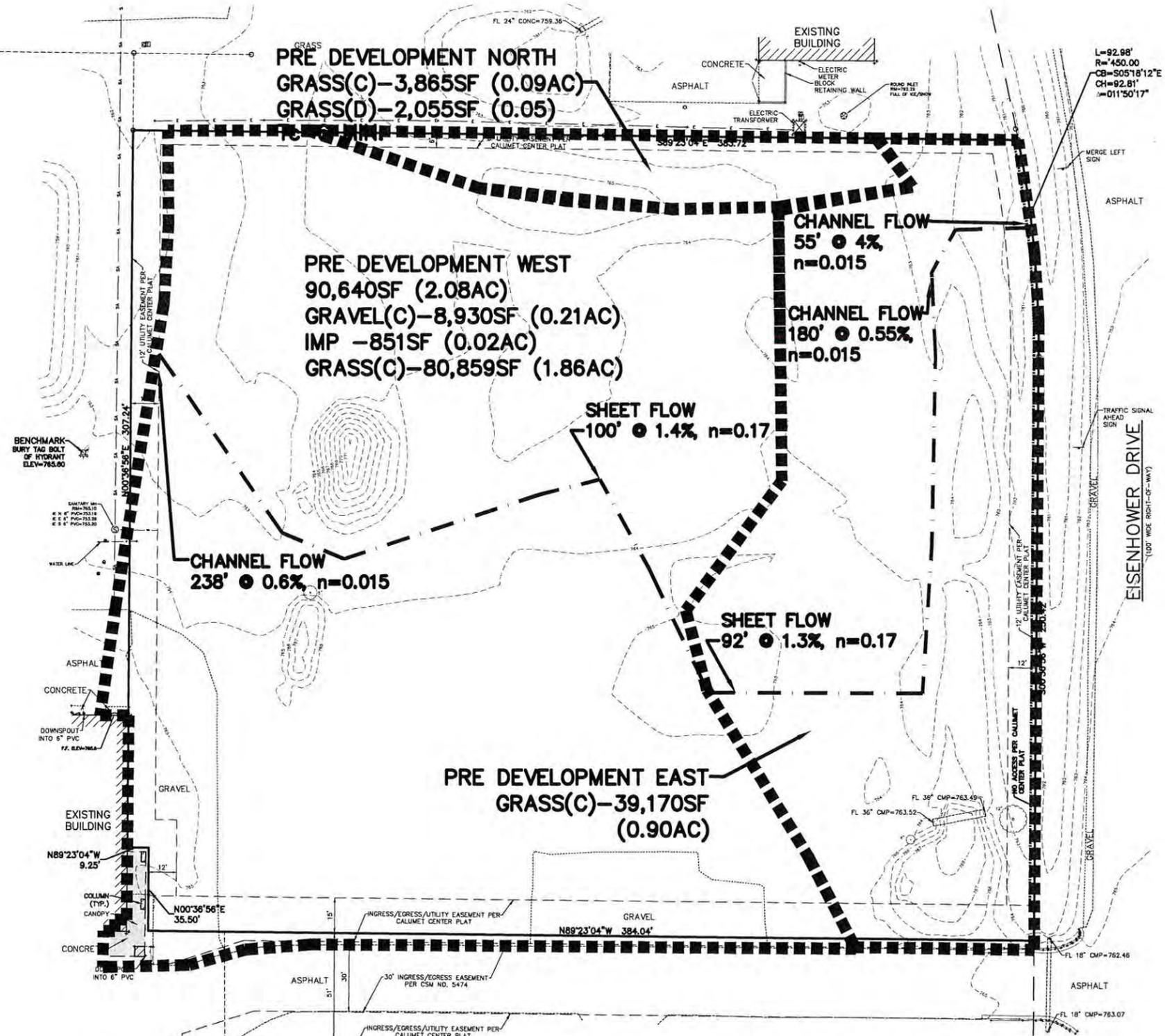
POST CONSTRUCTION OPERATION AND MAINTENANCE PLAN

<p>The owner of the property affected shall inspect and maintain the following stormwater management systems frequently, especially after heavy rainfalls, but at least on an annual basis unless otherwise specified.</p>	
STORMWATER FACILITY	TYPE OF ACTION
1. Lawn and Landscaped Areas	All lawn areas shall be kept clear of any materials that block the flow of stormwater. Rills and small gullies shall immediately be filled and seeded or have sod placed in them. The lawn shall be kept mowed, tree seedlings shall be removed, and litter shall be removed from landscaped areas.
2. Swales	All grassed swales showing signs of erosion, scour, or channelization shall be repaired, reinforced, and revegetated immediately. All swales shall be repaired to the original plan requirements. Mowing shall take place no less than twice per year at a height of no less than three inches. Grasses shall not be allowed to grow to a height that permits branching or bending. Mowing shall only take place when the ground is dry and able to support machinery.
3. Catch Basin/Curb Inlet Grates	The grate openings to these structures must be cleared of any clogging or the blocking of stormwater flow from getting into the stormwater conveyance system of any kind.
4. Catch Basin/Curb Inlet Sumps	Sumps shall visually be inspected every 3 months. Siltation shall be removed and disposed of offsite when the sump depth is within 3" of the outlet pipe invert elevation. The removal of siltation should occur a minimum of once per year.
5. Retention/Detention Basins	Trash racks, standpipes, outlet structures, inlet and outlet pipes, and anti vortex devices shall be kept clear of debris. Non-structurally sound devices shall be replaced. Floating litter and algae shall be removed monthly. All grassed areas, embankments, and flow control devices showing signs of erosion shall be repaired, reinforced, and revegetated immediately to the original plan requirements. Dry basins shall be mowed no less than twice per year at a height of no less than 3 inches. Grasses shall not be allowed to grow to a height that permits branching or bending. Mowing shall only take place when the ground is dry and able to support machinery. Every 5 years, beginning in the summer of 2015, the elevations of the pond bottom shall be surveyed to determine the permanent pool depth and sediment depth in the pond. When silt has accumulated three feet from the original design depth elevation of the pond, the pond shall be cleaned out and restored back to the original design depth of a minimum of 5' from the normal water elevation. Cleaning, removal, and deposit of silt from the detention pond shall be done by means and methods acceptable to the Wisconsin

	Department of Natural Resources.
6. Forebay and Sediment Basin or Trap	Sediment shall be removed once the facility is filled to approximately 50% of its total volume. Bare areas shall be regraded, seeded, or otherwise vegetated to the original plan requirements. The removed sediment shall be placed in an appropriate upland disposal area and stabilized.
7. Record of Maintenance	The operation and maintenance plan shall remain onsite and be available for inspection when requested by the Town or WDNR. When requested, the owner shall make available for inspection all maintenance records to the department or agent for the life of the system.

Appendix A
Pre-Development Area(s):

FL 18" CONC=757.11



PRE DEVELOPMENT NORTH
 GRASS(C)-3,865SF (0.09AC)
 GRASS(D)-2,055SF (0.05)

PRE DEVELOPMENT WEST
 90,640SF (2.08AC)
 GRAVEL(C)-8,930SF (0.21AC)
 IMP -851SF (0.02AC)
 GRASS(C)-80,859SF (1.86AC)

CHANNEL FLOW
 55' @ 4%,
 n=0.015
 CHANNEL FLOW
 180' @ 0.55%,
 n=0.015

SHEET FLOW
 100' @ 1.4%, n=0.17

CHANNEL FLOW
 238' @ 0.6%, n=0.015

SHEET FLOW
 92' @ 1.3%, n=0.17

PRE DEVELOPMENT EAST
 GRASS(C)-39,170SF
 (0.90AC)



PRE DEVELOPMENT DRAINAGE MAP

SCALE: 1"=80'-0" (11"X17")

Appendix B
Post Development Area(s):

TOTAL POST WEST
 123,716SF (2.84AC)
 ROOF-16,692SF (0.38AC)
 PAVE-65,925SF (1.51AC)
 GRASS-31,107SF (0.71AC)
 POND-5,167SF (0.12AC)
 GRAVEL-4,825SF (0.11AC)

SUB BASIN A
 IMP-16,692SF (0.38AC)

SUB BASIN B
 IMP-2,770 SF (0.06AC)

SUB BASIN C
 IMP-7,263 SF (0.17AC)
 PERV(D)-1,500SF (0.03AC)

SUB BASIN D
 IMP-12,100 SF (0.28AC)
 PERV(D)-1,100SF (0.03AC)

SUB BASIN E
 IMP-12,340 SF (0.28AC)
 PERV(D)-925SF (0.02AC)

SUB BASIN F
 IMP-7,570 SF (0.17AC)
 PERV(D)-1,320SF (0.03AC)

SUB BASIN G
 IMP-6,180 SF (0.14AC)
 PERV(D)-3,710SF (0.09AC)

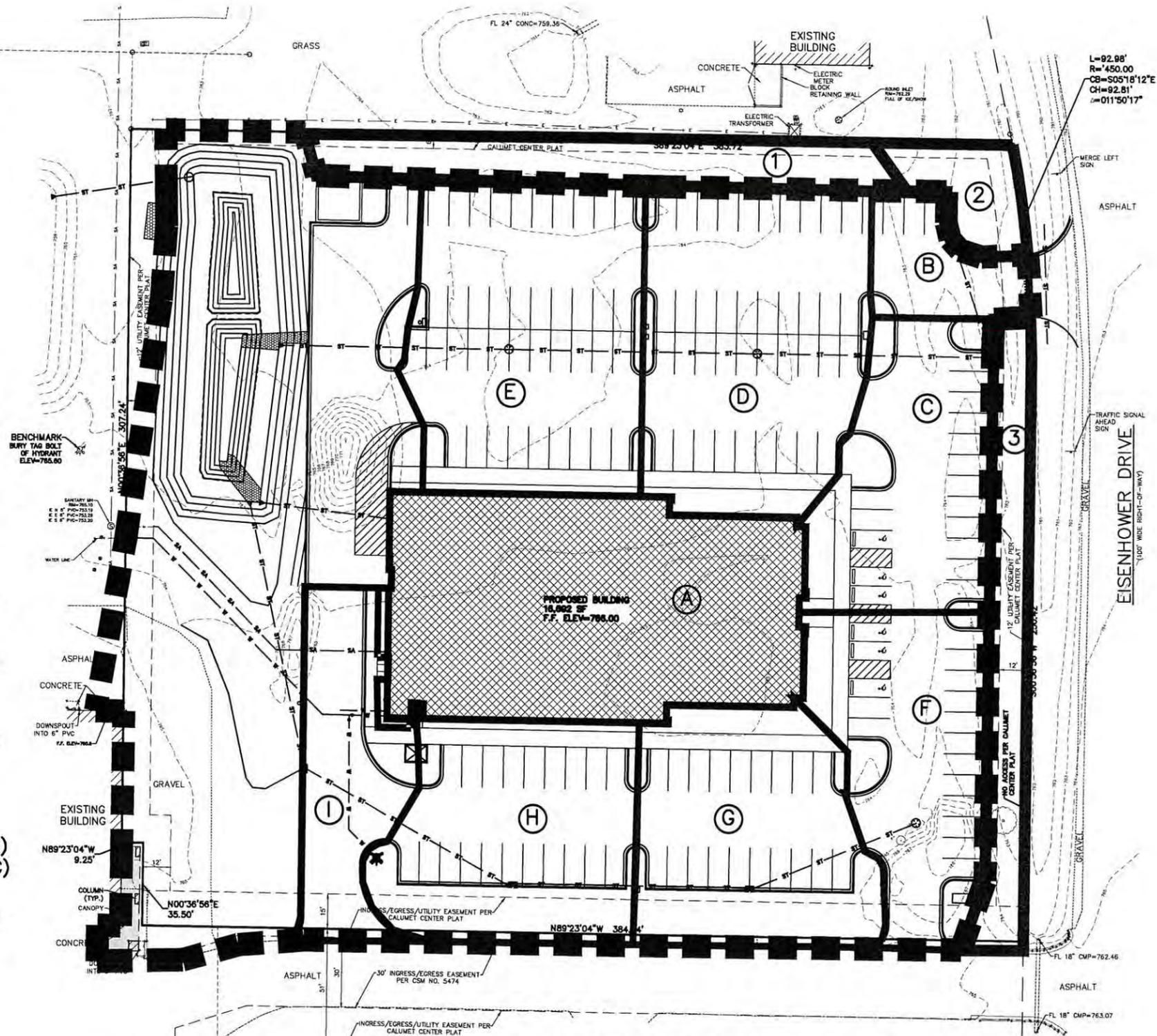
SUB BASIN H
 IMP-6,500 SF (0.15AC)
 PERV(D)-3,525SF (0.08AC)

SUB BASIN I
 IMP-6,020 SF (0.14AC)

OFFSITE 1
 PERV(D)-1,700 SF (0.04AC)
 PERV(C)-3,270 SF (0.08AC)

OFFSITE 2
 PERV(D)-2,030SF (0.05AC)

OFFSITE 3
 PERV(D)-4,710SF (0.11AC)

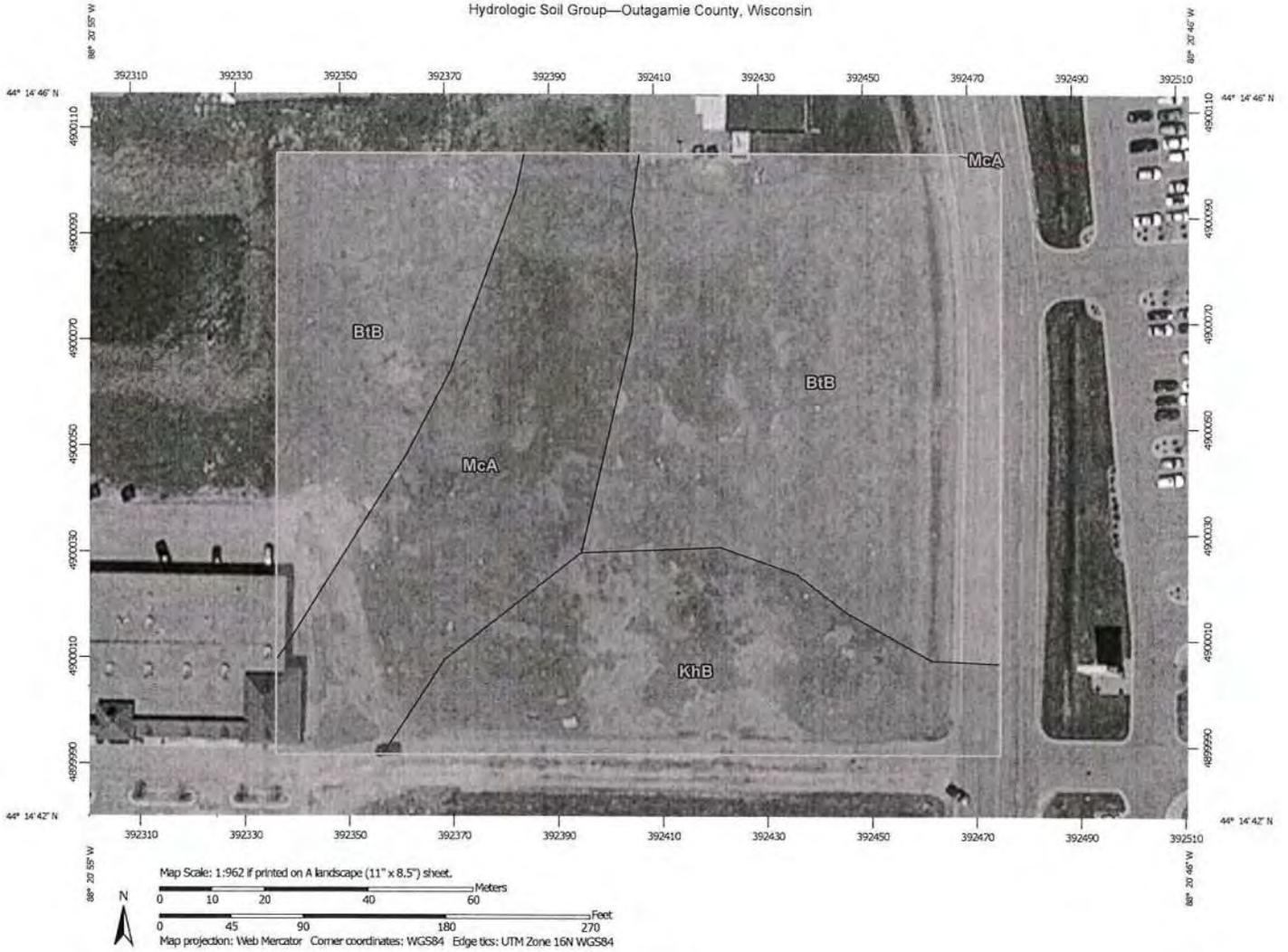


POST DEVELOPMENT DRAINAGE MAP

SCALE: 1"=80'-0" (11"X17")

Appendix C
Soil Maps & Boring Data:

Hydrologic Soil Group—Outagamie County, Wisconsin



<h3 style="text-align: center; margin: 0;">MAP LEGEND</h3> <p>Area of Interest (AOI) Area of Interest (AOI)</p> <p>Soils</p> <p>Soil Rating Polygons</p> <ul style="list-style-type: none"> A A/D B B/D C C/D D Not rated or not available <p>Soil Rating Lines</p> <ul style="list-style-type: none"> A A/D B B/D C C/D D Not rated or not available <p>Soil Rating Points</p> <ul style="list-style-type: none"> A A/D B B/D 	<ul style="list-style-type: none"> C C/D D Not rated or not available <p>Water Features</p> <ul style="list-style-type: none"> Streams and Canals <p>Transportation</p> <ul style="list-style-type: none"> Rails Interstate Highways US Routes Major Roads Local Roads <p>Background</p> <ul style="list-style-type: none"> Aerial Photography
<h3 style="margin: 0;">MAP INFORMATION</h3>	
<p>The soil surveys that comprise your AOI were mapped at 1:15,800.</p>	
<p>Warning: Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p>	
<p>Please rely on the bar scale on each map sheet for map measurements.</p>	
<p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)</p>	
<p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p>	
<p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p>	
<p>Soil Survey Area: Outagamie County, Wisconsin Survey Area Data: Version 7, Sep 19, 2014</p>	
<p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p>	
<p>Date(s) aerial images were photographed: May 4, 2011—Sep 6, 2011</p>	
<p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>	

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Outagamie County, Wisconsin (WI087)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BitB	Briggsville silt loam, 2 to 6 percent slopes	C	2.2	55.5%
KhB	Kewaunee silt loam, 2 to 6 percent slopes	D	0.8	20.9%
McA	Manawa silty clay loam, 0 to 3 percent slopes	D	0.9	23.6%
Totals for Area of Interest			3.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

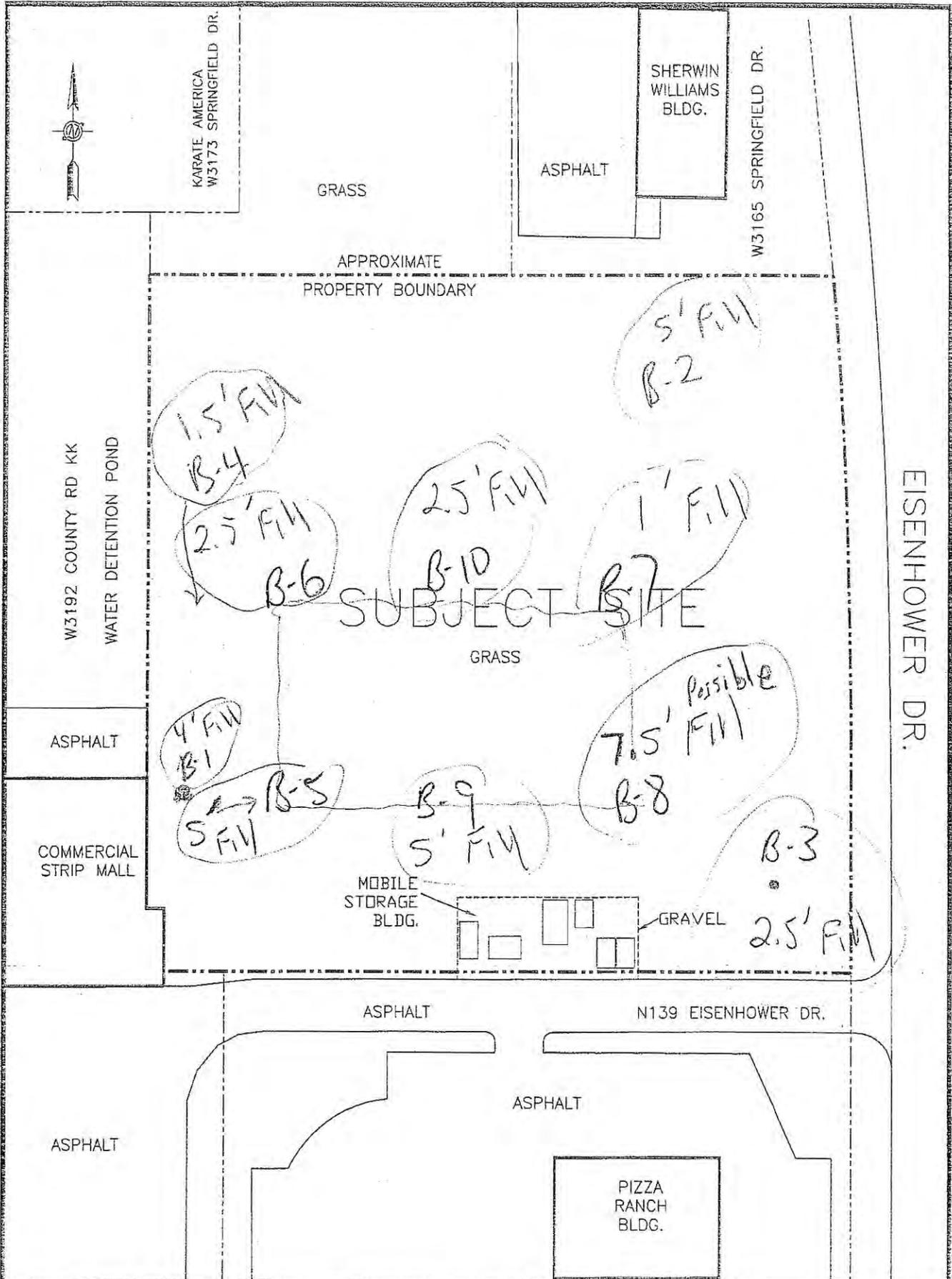
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Information
To Build On

Engineering • Consulting • Testing

Environmental Services

608 N. Stanton St.
Ripon, Wisconsin 54971
(920) 745-2200 PHONE
(920) 745-2222 FAX

FIGURE 2: SITE PLAN MAP

BIOLIFE PLASMA
EISENHOWER DR.
TOWN OF BUCHANAN, WISCONSIN

Scale:

1" = 80'

Date:

January, 2015

Drawn:

kp

Project Number:

0092294

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 99.1	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 98.1	7.5 YR 3/4 Dark brown GRAVELLY SANDY LOAM, 1, sbk, l, ml-moist (FILL)	1-AU	-			9	
2 97.1	7.5 YR 4/4 Brown SILTY CLAY, 1, abk, f, mfi-moist (FILL)						
3 96.1		2-SS	19			10	
4 95.1	7.5 YR 4/4 Brown SANDY CLAY, 1, abk, f, mfi-moist						
5 94.1		3-SS	21			14	
6 93.1	7.5 YR 4/4 Brown SILTY CLAY, 1, abk, f, mvfi-moist						
7 92.1		4-SS	24			12	
8 91.1							
9 90.1		5-SS	27			14	
10 89.1	7.5 YR 5/4 Brown SILTY CLAY LOAM, 1, pl, very thin, mfi-moist						
11 88.1		6-SS	32			13	
12 87.1	7.5 YR 4/3 Brown SILTY CLAY, 1, abk, f, mvfr-moist						
13 86.1		7-SS	7			25	
14 85.1							
15 84.1		8-SS	8			25	
16 83.1	END OF BORING @ 16± FEET						
FIELD OBSERVATIONS: Water Level <small>during drilling</small> : Not encountered Water Level <small>upon completion</small> : Dry Caved at <small>upon completion</small> : 14± feet below existing grade (EL. 85.1±) Delay Time: N/A Water Level <small>observed</small> : N/A Caved at <small>during</small> : N/A		ADDITIONAL COMMENTS:					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 98.6	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 97.6	Brown Silty CLAY, with sand, root matter and trace gravel, moist (FILL)	1-SS	62			23	
2 96.6	Dark brown Silty SAND, with trace gravel, moist (FILL)					8	
3 95.6		2-SS	15	2.3		13	
4 94.6							
5 93.6	Brown Silty CLAY to Clayey SILT, wet	3-SS	5			23	
6 92.6							
7 91.6	Brown SILT, with trace clay, moist	4-SS	29		2.9	20	
8 90.6							
9 89.6	Brown Silty CLAY, moist	5-SS	34	4.5+	5.8	18	
10 88.6							
11 87.6							
12 86.6	END OF BORING @ 11.5± FEET						
13 85.6							
14 84.6							
15 83.6							
16 82.6							
17 81.6							
18 80.6							
19 79.6							
20 78.6							
21 77.6							
22 76.6							

FIELD OBSERVATIONS: Water Level during drilling: 6± feet below ground surface (EL. 92.6±) y Water Level upon completion: Dry y Caved at upon completion: 8± feet below ground surface (EL. 90.6±) ↓ Delay Time: N/A Water Level (delayed): N/A y Caved at (delayed): N/A	ADDITIONAL COMMENTS:
---	-----------------------------

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 99.0	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 98.0	Dark brown to brown Silty CLAY, with sand, trace gravel and root matter, moist (FILL)	1-SS	40			12	
2 97.0							
3 96.0	Brown Silty CLAY, with trace sand and root matter, moist	2-SS	9	0.5		21	
4 95.0							
5 94.0	Brown Silty CLAY, moist						
6 93.0		3-SS	37	4.5+	4.3	18	
7 92.0							
8 91.0		4-SS	38	4.5+	7.0	18	
9 90.0							
10 89.0							
11 88.0		5-SS	34	3.8	3.4	19	
12 87.0	END OF BORING @ 11.5± FEET						
13 86.0							
14 85.0							
15 84.0							
16 83.0							
17 82.0							
18 81.0							
19 80.0							
20 79.0							
21 78.0							
22 77.0							
FIELD OBSERVATIONS: Water Level during drilling: Not encountered ✓ Water Level upon completion: Dry ✓ Caved at upon completion: ± feet below ground surface (EL. ±) ↓ Delay Time: N/A Water Level during despoil: N/A ✓ Caved at despoil: N/A			ADDITIONAL COMMENTS:				

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 98.1	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 97.1	7.5 YR 5/4 Brown SANDY CLAY, with roots (3.vf) 1, sbk, f, mvfr-wet (FILL)	1-SS	42			27	
2 96.1	7.5 YR 3/2 Dark brown SANDY CLAY, 1, sbk, f, mfr-moist (FILL)					12	
3 95.1	7.5 YR 5/4 Brown SILTY CLAY, 1, sbk, f, mfr-moist	2-SS*	22				
4 94.1							
5 93.1	7.5 YR 4/4 Brown SILTY CLAY, 1, sbk, f, mfr-moist	3-SS	81			16	
6 92.1							
7 91.1		4-SS	52			18	
8 90.1							
9 89.1		5-SS	34			19	
10 88.1							
11 87.1		6-SS	28			20	
12 86.1							
13 85.1	7.5 YR 4/3 Brown SILTY CLAY, 1, sbk, f, mvfr-moist	7-SS	15			22	
14 84.1							
15 83.1		8-SS	17			22	
16 82.1							
	END OF BORING @ 16± FEET						
FIELD OBSERVATIONS: Water Level <small>during drilling</small> : Not encountered Water Level <small>upon completion</small> : Dry Caved at <small>upon completion</small> : 15± feet below existing grade (EL. 83.1±) Delay Time: N/A Water Level <small>observed</small> : N/A Caved at <small>observed</small> : N/A		ADDITIONAL COMMENTS: *No sample recovery					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 99.3	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 98.3	Brown Sandy CLAY, with silt, trace gravel, asphalt pieces, root matter and dark brown seams, moist (FILL)	1-SS	42			17	
2 97.3						11	
3 96.3		2-SS	14			10	
4 95.3							
5 94.3	Grayish brown Silty CLAY, with trace root matter, moist	3-SS	14	1.0		20	
6 93.3							
7 92.3	Brown Silty CLAY, moist	4-SS	12	1.8	2.1	26	
8 91.3							
9 90.3		5-SS	8	1.0	1.2	32	
10 89.3							
11 88.3							
12 87.3							
13 86.3							
14 85.3							
15 84.3	(Very moist at 15± feet)	6-SS	10	0.8	0.9	28	
16 83.3							
17 82.3							
18 81.3							
19 80.3							
20 79.3							
21 78.3		7-SS	8	0.8	1.2	25	
22 77.3	END OF BORING @ 21.5± FEET						
FIELD OBSERVATIONS: Water Level during drilling: Not encountered Water Level upon completion: Dry Caved at upon completion: 18± feet below ground surface (EL. 81.3±) Delay Time: N/A Water Level analyzed: N/A Caved at observed: N/A			ADDITIONAL COMMENTS:				

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
	GROUND SURFACE ELEVATION: 99.6						
1 98.6	Dark brown Silty CLAY, with root matter and trace sand, wet (FILL)	1-SS	37			43	
2 97.6	Brown Silty CLAY, with sand and trace gravel, moist (FILL)					13	
3 96.6	Brown Silty CLAY, very moist to wet	2-SS	15			26	
4 95.6							
5 94.6	Brown Silty CLAY, moist	3-SS	43	4.0	3.6	17	
6 93.6							
7 92.6							
8 91.6		4-SS	26	4.5+	7.2	17	
9 90.6							
10 89.6							
11 88.6		5-SS	22	2.0	2.5	15	
12 87.6							
13 86.6							
14 85.6							
15 84.6	(Very moist at 15± feet)						
16 83.6		6-SS	8	0.8	1.2	25	
17 82.6							
18 81.6							
19 80.6							
20 79.6							
21 78.6		7-SS	8	0.8	1.0	25	
22 77.6	END OF BORING @ 21.5± FEET						
FIELD OBSERVATIONS:			ADDITIONAL COMMENTS:				
Water Level <small>during drilling</small> : Not encountered							
Water Level <small>upon completion</small> : Dry							
Caved at <small>upon completion</small> : 17± feet below ground surface (EL. 82.6±)							
Delay Time: N/A							
Water Level <small>delayed</small> : N/A							
Caved at <small>delayed</small> : N/A							

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 99.3	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 98.3	Dark brown to brown Sandy CLAY, with silt and root matter, wet (TOPSOIL FILL)	1-SS	30			32	
2 97.3	Brown Silty CLAY, with trace sand and gravel, moist					17	
3 96.3		2-SS*	13			13	
4 95.3							
5 94.3	Brown Silty CLAY, moist						
6 93.3		3-SS	19	3.5	3.7	19	
7 92.3							
8 91.3		4-SS	26	4.5+	5.8	16	
9 90.3							
10 89.3							
11 88.3		5-SS	27	4.5+	6.6	17	
12 87.3							
13 86.3							
14 85.3							
15 84.3							
16 83.3		6-SS	7	1.0	1.4	26	
17 82.3							
18 81.3							
19 80.3							
20 79.3							
21 78.3		7-SS	5	0.8	1.2	25	
22 77.3	END OF BORING @ 21.5± FEET						
FIELD OBSERVATIONS: Water Level during drilling: Not encountered ✓ Water Level upon completion: Dry ✓ Caved at upon completion: 18± feet below ground surface (EL. 81.3±) ↓ Delay Time: N/A ✓ Water Level during delay: N/A ✓ Caved at during delay: N/A ✓		ADDITIONAL COMMENTS: * Poor sample recovery - pushed a stone					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
Menasha, Wisconsin

Drill Date: January 20, 2015
Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 99.7	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 98.7	Brown Clayey SAND, with silt and root matter, wet (TOPSOIL FILL)	1-SS	42			39	
2 97.7	Brown Silty CLAY, with gravel, trace sand and dark brown seams, moist (FILL)					13	
3 96.7	Brown Silty CLAY, with trace sand and gravel, moist (POSSIBLE FILL)	2-SS	15			13	
4 95.7							
5 94.7	Brown Silty SAND, moist (POSSIBLE FILL)	3-SS	11			13	
6 93.7							
7 92.7							
8 91.7	Brown Silty CLAY, moist	4-SS	37	4.5+	6.2	17	
9 90.7							
10 89.7							
11 88.7		5-SS	31	4.5+	6.2	17	
12 87.7							
13 86.7							
14 85.7							
15 84.7							
16 83.7		6-SS	10	1.3	1.4	24	
17 82.7							
18 81.7							
19 80.7							
20 79.7							
21 78.7		7-SS	7	1.0	1.2	25	
22 77.7	END OF BORING @ 21.5± FEET						
FIELD OBSERVATIONS:			ADDITIONAL COMMENTS:				
Water Level during drilling: Not encountered							
Water Level upon completion: Dry							
Caved at upon completion: 18± feet below ground surface (EL. 81.7±)							
Delay Time: N/A							
Water Level delayed: N/A							
Caved at delayed: N/A							

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 99.9	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 98.9	Brown Silty CLAY, with trace sand, gravel and root matter, moist (FILL)	1-SS	88			11	
2 97.9	Brown Sandy CLAY, with silt, gravel and trace asphalt pieces, moist (FILL)					15	
3 98.9	Brown Silty CLAY, with trace sand, gravel and dark brown seams, moist (FILL)	2-SS	17			10	
4 95.9							
5 94.9	Brown Silty CLAY, with trace sand, moist						
6 93.9		3-SS	18	2.8	2.5	16	
7 92.9							
8 91.9	Brown Silty CLAY, moist	4-SS	30	4.5+	5.0	14	
9 90.9							
10 89.9							
11 88.9		5-SS	37	4.5+	6.6	17	
12 87.9							
13 86.9							
14 85.9							
15 84.9							
16 83.9		6-SS	10	1.3	1.6	23	
17 82.9							
18 81.9							
19 80.9							
20 79.9							
21 78.9		7-SS	12	1.0	1.6	23	
22 77.9	END OF BORING @ 21.5± FEET						

FIELD OBSERVATIONS:

Water Level (during drilling): Not encountered ✓

Water Level (upon completion): Dry ✓

Caved at (upon completion): 20± feet below ground surface (EL. 79.9±) ✓

Delay Time: N/A

Water Level (delayed): N/A ✓

Caved at (delayed): N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Project: Biolife Plasma Center

Project No.: 0094180

Location: Eisenhower Drive
 Menasha, Wisconsin

Drill Date: January 20, 2015
 Drilled By: GW

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 98.7	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 97.7	Dark brown Silty CLAY, with root matter, sand and trace gravel, moist (FILL)	1-SS	45			13	
2 96.7							
3 95.7	Brown Silty CLAY, moist	2-SS	17	2.5	1.6	18	
4 94.7							
5 93.7	Brown Silty CLAY to Clayey SILT, moist	3-SS	17	2.3	2.8	20	
6 92.7							
7 91.7							
8 90.7	Light brown Clayey SILT, moist	4-SS	32	4.0	3.8	21	
9 89.7							
10 88.7	Brown Silty CLAY, moist	5-SS	33	3.8	4.3	16	
11 87.7							
12 86.7							
13 85.7							
14 84.7							
15 83.7							
16 82.7		6-SS	13	1.0	1.2	23	
17 81.7							
18 80.7							
19 79.7							
20 78.7							
21 77.7		7-SS	8	0.5	1.0	25	
22 76.7	END OF BORING @ 21.5± FEET						
FIELD OBSERVATIONS: Water Level during drilling: Not encountered Water Level upon completion: Dry Caved at upon completion: 15± feet below ground surface (EL. 83.7±) Delay Time: N/A Water Level on site: N/A Caved at present: N/A		ADDITIONAL COMMENTS:					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Appendix D
Ditch & Storm Pipe Calculations:

Channel Report

Basin B (100yr)

Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 1.00

Slope (%) = 0.55

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 0.40

Q (cfs) = 0.663

Area (sqft) = 0.22

Velocity (ft/s) = 2.99

Wetted Perim (ft) = 1.19

Crit Depth, Yc (ft) = 0.39

Top Width (ft) = 0.66

EGL (ft) = 0.54

Elev (ft)

Section

2.00

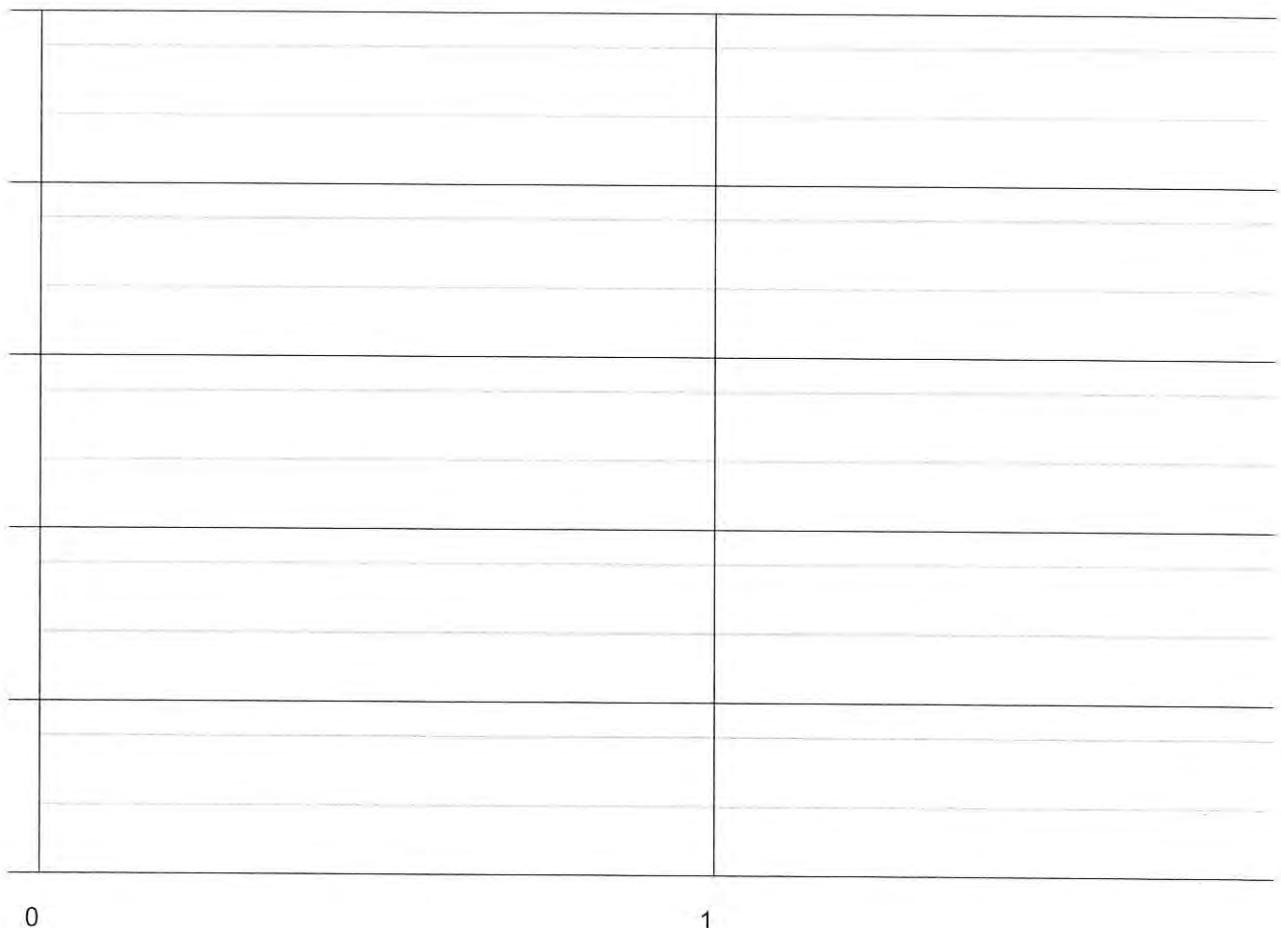
1.75

1.50

1.25

1.00

0.75



Channel Report

Basin B and C (100yr)

Circular

Diameter (ft) = 0.83

Invert Elev (ft) = 1.00

Slope (%) = 0.55

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 0.83

Q (cfs) = 1.741

Area (sqft) = 0.54

Velocity (ft/s) = 3.22

Wetted Perim (ft) = 2.61

Crit Depth, Yc (ft) = 0.60

Top Width (ft) = 0.00

EGL (ft) = 0.99

Elev (ft)

Section

2.00

1.75

1.50

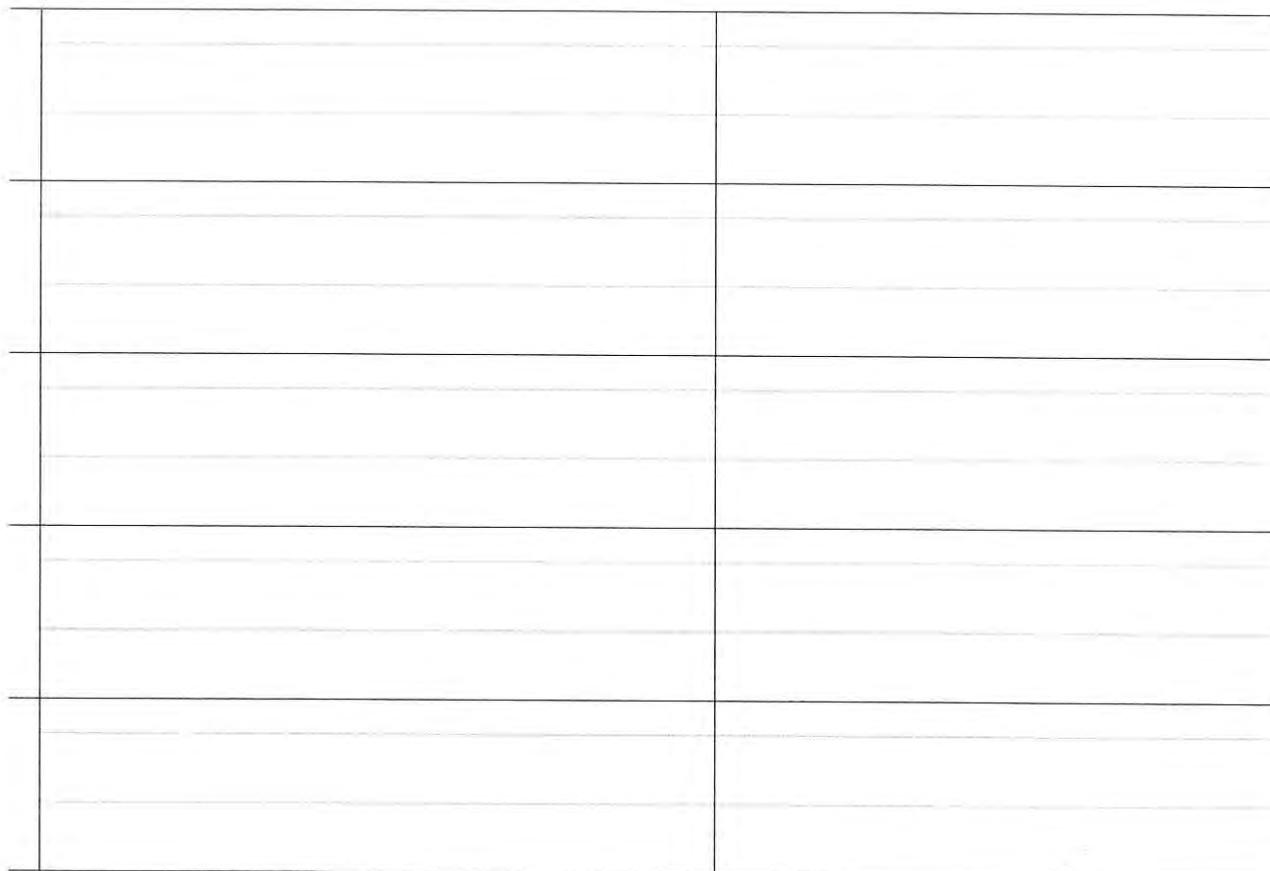
1.25

1.00

0.75

0

1



Channel Report

Basin B and C (100yr) and D (10yr)

Circular

Diameter (ft) = 1.25

Invert Elev (ft) = 1.00

Slope (%) = 0.50

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 1.25

Q (cfs) = 4.946

Area (sqft) = 1.23

Velocity (ft/s) = 4.03

Wetted Perim (ft) = 3.93

Crit Depth, Yc (ft) = 0.91

Top Width (ft) = 0.00

EGL (ft) = 1.50

Elev (ft)

Section

3.00

2.50

2.00

1.50

1.00

0.50

0

1

2

3



Channel Report

Basin B and C (100yr) and D and E(10yr)

Circular

Diameter (ft) = 1.25

Invert Elev (ft) = 1.00

Slope (%) = 0.50

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 1.25

Q (cfs) = 4.946

Area (sqft) = 1.23

Velocity (ft/s) = 4.03

Wetted Perim (ft) = 3.93

Crit Depth, Yc (ft) = 0.91

Top Width (ft) = 0.00

EGL (ft) = 1.50

Elev (ft)

Section

3.00

2.50

2.00

1.50

1.00

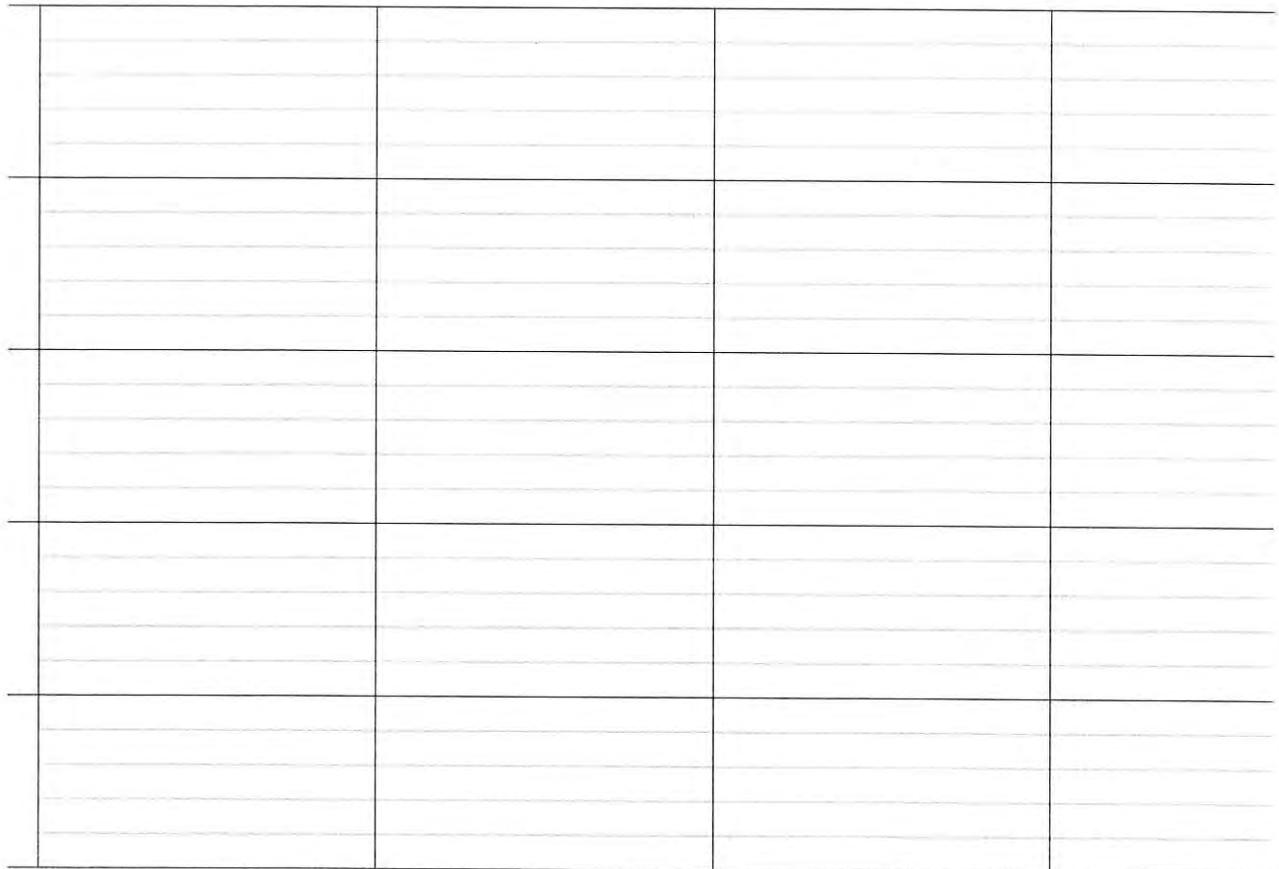
0.50

0

1

2

3



Channel Report

Basin A (100yr)

Circular

Diameter (ft) = 0.83

Invert Elev (ft) = 1.00

Slope (%) = 3.80

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 0.83

Q (cfs) = 4.575

Area (sqft) = 0.54

Velocity (ft/s) = 8.46

Wetted Perim (ft) = 2.61

Crit Depth, Yc (ft) = 0.82

Top Width (ft) = 0.00

EGL (ft) = 1.94

Elev (ft)

Section

2.00

1.75

1.50

1.25

1.00

0.75

0

1

Channel Report

Basin F and G (10yr)

Circular

Diameter (ft) = 1.00

Invert Elev (ft) = 1.00

Slope (%) = 0.50

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 1.00

Q (cfs) = 2.728

Area (sqft) = 0.79

Velocity (ft/s) = 3.47

Wetted Perim (ft) = 3.14

Crit Depth, Yc (ft) = 0.71

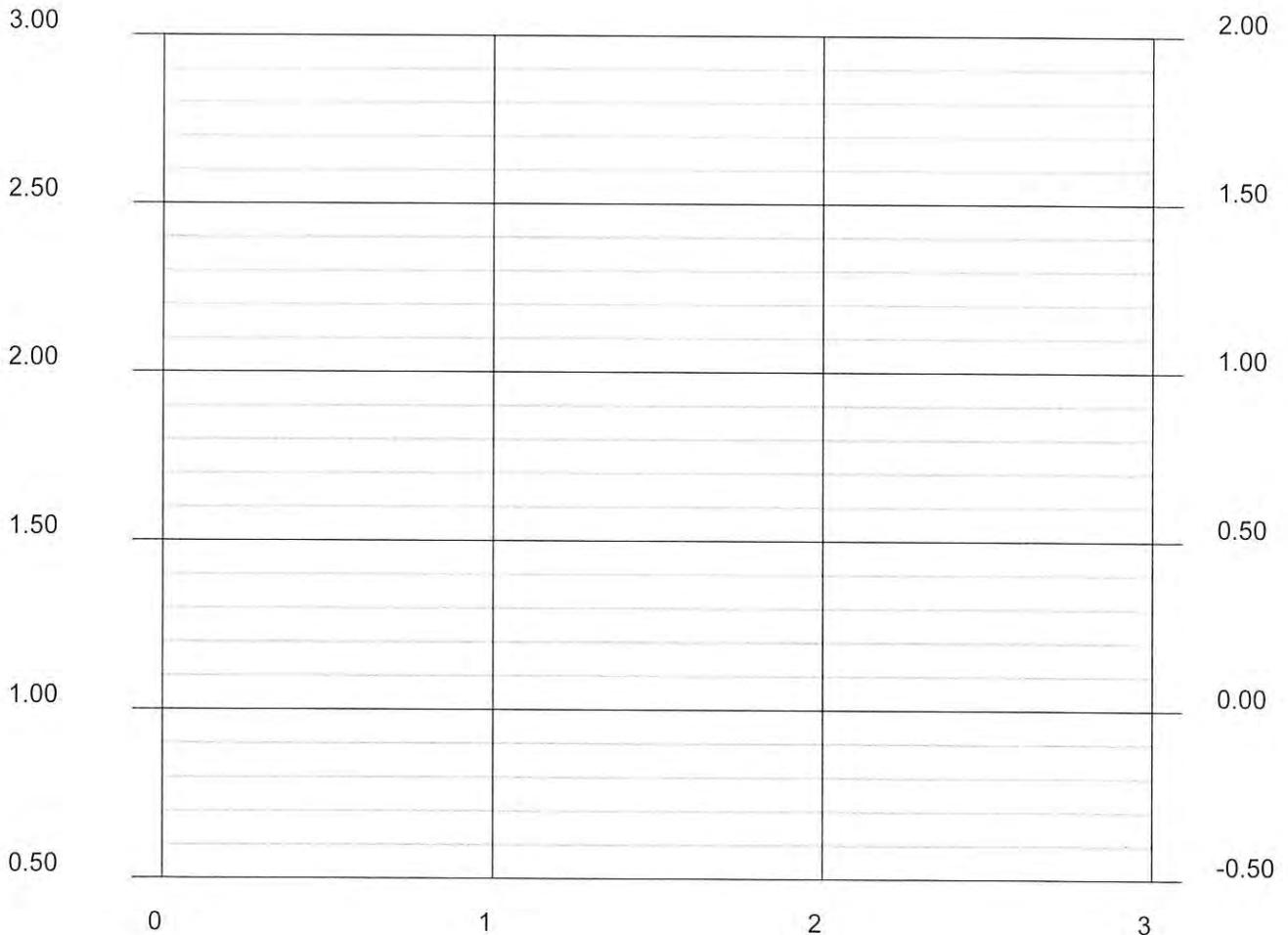
Top Width (ft) = 0.00

EGL (ft) = 1.19

Elev (ft)

Section

Depth (ft)



Channel Report

Basin F, G, and H (10yr)

Circular

Diameter (ft) = 1.00

Invert Elev (ft) = 1.00

Slope (%) = 0.55

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 1.00

Q (cfs) = 2.861

Area (sqft) = 0.79

Velocity (ft/s) = 3.64

Wetted Perim (ft) = 3.14

Crit Depth, Yc (ft) = 0.73

Top Width (ft) = 0.00

EGL (ft) = 1.21

Elev (ft)

Section

Depth (ft)

3.00

2.50

2.00

1.50

1.00

0.50

2.00

1.50

1.00

0.50

0.00

-0.50

0

1

2

3

Channel Report

Basin F, G, H, and I (10yr)

Circular

Diameter (ft) = 1.25

Invert Elev (ft) = 1.00

Slope (%) = 0.50

N-Value = 0.012

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 1.25

Q (cfs) = 4.946

Area (sqft) = 1.23

Velocity (ft/s) = 4.03

Wetted Perim (ft) = 3.93

Crit Depth, Yc (ft) = 0.91

Top Width (ft) = 0.00

EGL (ft) = 1.50

Elev (ft)

Section

3.00

2.50

2.00

1.50

1.00

0.50

0

1

2

3



Appendix E
SLAMM Input Information:

slamm - InputData.txt

Data file name: \\EXCEL-FILE\Data\Job Files\1500590 Build to Suit - Biolife - Town of Buchanan\1500594 Civil\civil calcs\slamm.mdb
winSLAMM Version 10.0.3
Rain file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\wisReg - Green Bay WI 1969.RAN
Particulate Solids Concentration file name:
F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_AVG01.pscx
Runoff Coefficient file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\v10 WI_SL06 Dec06.rsv
Residential Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
Institutional Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name:
F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_GEO02.ppdx
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/02/69 study period ending date: 12/28/69
Start of winter Season: 11/25 End of winter Season: 03/29
Date: 02-24-2015 Time: 14:20:43
Site information:

LU# 1 - Commercial: Total Postdevelopment Total area (ac): 2.830
1 - Roofs 1: 0.380 ac. Flat Connected
13 - Paved Parking 1: 1.510 ac. Connected
45 - Large Landscaped Areas 1: 0.820 ac. Clayey Low Density
70 - Water Body Areas: 0.120 ac.

LU# 2 - Commercial: Offsite Total area (ac): 0.270
45 - Large Landscaped Areas 1: 0.270 ac. Clayey Low Density

Control Practice 1: Wet Detention Pond CP# 1 (DS) - DS Wet Pond # 1

Particle Size Distribution file name:
F:\Programs\civil\winSLAMM\v10.0\Parameter Files\NURP.CPZ
Initial stage elevation (ft): 6
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:
Outlet type: Orifice 1
1. Orifice diameter (ft): 0.25
2. Number of orifices: 1
3. Invert elevation above datum (ft): 6
Outlet type: Orifice 2
1. Orifice diameter (ft): 0.67
2. Number of orifices: 1
3. Invert elevation above datum (ft): 7.65
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 10

slamm - InputData.txt

- 3. Height of weir opening (cfs): 1
 - 4. Height from datum to bottom of weir opening: 8.95
- outlet type: Vertical Stand Pipe
- 1. Stand pipe diameter (ft): 2
 - 2. Stand pipe height above datum (ft): 8.85

Pond stage and surface area

(cfs)	Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow
0.00	0	0.00	0.0000	0.00	
0.00	1	1.00	0.0120	0.00	
0.00	2	2.00	0.0220	0.00	
0.00	3	3.00	0.0340	0.00	
0.00	4	4.00	0.0460	0.00	
0.00	5	5.00	0.0580	0.00	
0.00	6	6.00	0.1190	0.00	
0.00	7	7.00	0.1430	0.00	
0.00	8	8.00	0.1670	0.00	
0.00	9	9.00	0.1960	0.00	
0.00	10	10.00	0.2240	0.00	

slamm - Output Summary.txt

SLAMM for windows Version 10.0.3
 (c) Copyright Robert Pitt and John Voorhees 2012
 All Rights Reserved

Data file name: \\EXCEL-FILE\Data\Job Files\1500590 Build to Suit - Biolife - Town of Buchanan\1500594 Civil\civil calcs\slamm.mdb
 Data file description:
 Rain file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\wisReg - Green Bay WI 1969.RAN
 Particulate Solids Concentration file name:
 F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_AVG01.pscx
 Runoff Coefficient file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\v10 WI_SL06 Dec06.rsv
 Residential Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
 Institutional Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
 Commercial Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
 Industrial Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Com Inst Indust Dec06.std
 Other Urban Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_Res and Other Urban Dec06.std
 Freeway Street Delivery file name: F:\Programs\civil\winSLAMM\v10.0\Parameter Files\Freeway Dec06.std
 Pollutant Relative Concentration file name:
 F:\Programs\civil\winSLAMM\v10.0\Parameter Files\WI_GEO02.ppd
 Start of Winter Season: 11/25 End of Winter Season: 03/29
 Model Run Start Date: 01/02/69 Model Run End Date: 12/28/69
 Date of run: 02-24-2015 Time of run: 14:20:26
 Total Area Modeled (acres): 3.100
 Years in Model Run: 0.99

Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction	Runoff Volume (cu ft)	Percent Particulate Runoff Reduction	Particulate Solids Conc. (mg/L)
Total of all Land Uses without Controls:	826.4	125290	-	105.7
Outfall Total with Controls:	161.6	125451	-0.13%	20.63
Annualized Total After Outfall Controls:	163.8	127193		

Appendix F
SCS TR55
Stormwater Management
Calculations:

- Hydrograph return period recap
- Hydrograph Summary Reports
- Hydrograph Plots
- Hydrograph Tc Worksheets
- Hydrograph Pond reports

Appendix G
Town Engineer Correspondence

Eric Drazkowski

From: Carl Sutter <CSutter@mcmgrp.com>
Sent: Wednesday, January 21, 2015 3:48 PM
To: Eric Drazkowski
Cc: Joel Gregozeski (joelg@townofbuchanan.org); Amy Vander Hyden (vanderhydena@combinedlocks.org); Cindy Rowland
Subject: RE: Lot 3 - Regional Stormwater? (McM No.: B0008-940761)

Eric,

From the Town of Buchanan and Garners Creek Communities Storm Water Utility perspective, this site's storm water management is accommodated by the Concord Town Center storm water management facilities.

However, these facilities were approved and constructed prior to the total suspended solids (TSS) requirement being implemented and the one-year storm peak runoff control being added by the Wisconsin Department of Natural Resources (WDNR). Therefore, you will need to provide TSS reduction of 80% and peak flow control for the one- and two-year storms for this site in order to meet WDNR requirements.

Carl C. Sutter, P.E., C.C.S.
Vice President

McMAHON
ENGINEERS ARCHITECTS

1445 McMahon Drive / P.O. Box 1025
Neenah WI 54956 / 54957-1025
920.751.4200 Office
920.751.4284 Fax
920.858.0817 Cell
csutter@mcmgrp.com

www.mcmgrp.com



From: Eric Drazkowski [<mailto:Eric.D@ExcelEngineer.com>]
Sent: Monday, January 19, 2015 3:11 PM
To: Carl Sutter
Subject: Lot 3 - Regional Stormwater?

Attached is the information requested. Please let me know if the site is covered by any regional stormwater facility. Possibly the one to the west? Ultimately what will the stormwater requirements be for the site.

Thanks much!



engineers | architects | planners | environmental specialists
land surveyors | landscape architects | interior designers

MEMO

1496 Bellevue St., Suite 502
Green Bay, WI 54311-4251
920-491-9081
800-472-7372
FAX 920-491-9020
www.cedarcorp.com

DATE: February 9, 2016

TO: Joel Gregozeski, Administrator, Town of Buchanan

FROM: Thad Majkowski, Cedar Corp
Cory Scheidler, Cedar Corp

REGARDING: Town of Buchanan- Building Needs Study – Final

PROJECT #: B4916-049

Introduction

Cedar Corporation has been retained by the Town of Buchanan to review the potential for an addition to the existing building or a detached storage building with two (2) bays to house Town equipment including a Town maintenance truck, tractor, and miscellaneous equipment, along with one (1) bay to house an ambulance. As part of our evaluation, we reviewed potential site impacts, related site improvements, and site access.

During our initial site visit and kickoff meeting it was brought to our attention that the Town desires to expand and improve the office areas and increase the efficiency of the space. As part of the office area improvements, we evaluated other deficiencies and opportunities to improve the facility while also making the facility more inviting to the community. Our assessment and analysis of the facility and proposed conceptual layout efforts do not include evaluation of the mechanical, plumbing, electrical or potential fire alarm or suppression systems for the facility at this time. Upon completion of the Study, additional review, programming and design efforts will be necessary to determine the usefulness and extent of work related to these building systems.

The original building is a 6,800 square foot pre-engineered metal building that was built in 1991. A 2,805 square foot addition was completed in 2000, along with minor renovations to the existing building. The current 9,605 square foot building contains the Town administration and staff, public works staff and equipment, community room, fire/rescue offices and apparatus bays, and a small office for the police department. The building is situated on a 4.16 acre lot with 50 parking stalls, a 400 square foot utility shed, and a Community Park. The office area of the building is 4,805 square feet and the apparatus bay is 4,800 square feet.

The site is centrally located in the urbanized area on CTH “N” with easy access to CTH “KK” to the south and CTH “CE” to the north. The existing building is serviced with public sanitary sewer and water from the Darboy Sanitary District. The site is adjoining to a local Park – Town Hall Park. The site has a drainage swale running through on the northeast side of the building. In review of the WDNR website, this swale currently does not have an associated floodplain with it. The site has parking to be used for the building functions and the park.

Building Condition

The building appears to be in good condition for its age; however, it does have functional limitations and minor (current) code deficiencies. The current building codes will have varying effects on the building depending on the amount of renovation, addition, and the amount of use change. Assuming that over 50% of the space will be renovated, many of the current code requirements will need to be complied with. The following deficiencies and operational deficiencies were noted on our walkthrough.

- Accessibility/ADA
 - The front reception counter is not accessible.
 - The primary restrooms are not accessible and sufficient space with the current fixture count is not suitable to make them compliant.
 - The shower restroom is not accessible.
 - The kitchen is not accessible.
- Town Staff
 - The front reception space is not as inviting and user friendly as more current facilities.
 - The front counter does not offer good visibility to staff or for staff in the offices.
 - The Town office areas do not offer security for the staff.
 - The Town office area lacks a secondary exit for staff in case of an emergency.
 - There is no bullet resistant glass or other security measures.
 - There are no provisions for a safe or other cash lockup.
 - The Town office areas lack a small meeting room that is accessible to the Town staff.
 - The Town office areas offer limited space for staff and work related task.
 - The front offices do not offer storage space for archives or materials.
 - There is no drop box for bill/payments.
 - The space lacks a secure IT room.
 - The voting and voting equipment storage and preparation area is not well suited for current voting requirements.
 - No space for the public to meet with the building inspector. The inspector office can be separate from the Town staff; however, efficiencies could be gained in a central office function.
 - No office for future part-time inspector.
 - No space for inspector storage and plan storage.
 - The space lacks a defined break room for staff. The current kitchen offers these functions but is shared with the other entities and is not accessible/ADA compliant.
- Public Works Garage
 - The existing garage space is limited.
 - The detached garage to the northeast does not provide adequate storage nor work space for staff during winter months. It is unheated.
 - There is no space for equipment maintenance.
 - The existing space has limited floor drainage.

- **Public Safety Area**
 - Space does not provide a well suited meeting location for the police department.
 - The day room has been converted into an office, and has reduced the necessary space for the fire department.
 - The garage space has limited space for turnout gear.
 - Considerations could be made for future fulltime fire department and rescue staff as the need arises.
 - Configuration of the building currently requires the rescue vehicle to drive around the building for emergency responses.
- **Community Room**
 - The community room is limited in size and is often rented for functions. This limits the Town staff and fire department meeting opportunities and convenience of this space.
 - Sound system is antiquated which is a mix of new and old equipment.
 - The board table is fixed on a raised platform and not useful for other functions. This space is not accessible and limits the use of the space.
 - The space lacks proper voting equipment storage.
 - The kitchen is too small and not accessible.
 - The kitchen should be considered for multiple entities as a community room.
 - The space lacks table and chair storage.
 - The space lacks other user group and Town storage.
- **General**
 - IT storage is not secure and is limited. The police, fire and Town have separate IT systems, to operate more efficiently, these should be one system.
 - No bulletin board or community board space is provided. The overall lobby space is not very inviting.
 - The space does not provide effective climate control for records storage.
 - The flow for residents voting is challenging.
 - The space does not provide a suitable storage space for large items, materials, and supplies for the Town maintenance within the shop.

Options

To remedy these concerns noted and discussed deficiencies, the Town has three options to evaluate. See the Preliminary Drawings in Appendix “A.”

- Option No. 1 – Detached Garage - Replace the small detached building with a larger detached structure that will provide the immediate needs for public works and equipment storage.
- Option No. 2A – Garage North Side and No. 2B – Garage East Side - Complete an addition to the existing building for public works and equipment storage, two locations, north and east sides of the existing building.
*Either of these options can include an optional phase which expands the existing building and/or renovates the office area.
- Option No. 3 – Do nothing.

Option No. 1 – Detached Garage - to provide a detached building will alleviate the public works congestion and provide the necessary work space and storage that is needed. This option may include an addition and/or renovation of the office space; however, the separation of functions will require sewer, water, electrical extensions. The separation of this building and staff and may limit the efficiency of the operations. This option will likely require additional site grading and improvements to gain access to the separated building. This option has several pros and cons.

- Pros
 - Less interruption to the existing building
 - Less concern of building code impact to the existing building
- Cons
 - Utility extension
 - Added site improvements
 - Possible drainage swale impacts
 - Lack of restroom facilities in shop if no utilities are extended.

Option No. 2A – Garage North Side and No. 2B – Garage East Side - to provide a public works storage addition either to the north or east side of the building. For the sake of the conceptual plan and the Study, Cedar has elected to analyze the two options. This option may include an addition and/or renovation to the office space, which will increase the efficiency of staff coordination. It is our preliminary opinion that this option will have less impact on the site and provide the Town with the most suitable option for future growth. This option has pros and cons as follows.

- Pros
 - Potential for fewer site improvements
 - Potential to reduce the possibility of drainage swale impacts
 - Shared employee functions and gained efficiencies.
 - Less building systems and utility cost.
 - More cohesive site and operations.
- Cons
 - Potential cause of added construction to meet code. Renovation to limit building code infringements and bring everything into compliance.
 - Added cost
 - Added interruption of the daily operations
 - Potential fire wall separation of the addition
 - Potential increase in electric and water utility size (to be determined upon preliminary design)

Option No. 3 - maintains the status quo and may limit the operations, efficiency and safety of the Town and the Town staff. While projects of this magnitude are costly, the history of building construction shows that inflation is inevitable. It is Cedar's opinion that the Town should consider a project that will meet the needs of the Town in a fiscally responsible manner.

Optional Phase – Office Addition West Side

The need for improvements within the Town offices and meeting spaces is apparent from our walk through. The improvements to the building will have a direct relation to the operation of the administrative functions of the Town. While we investigated opportunities for improving the facility within the current footprint of the building, we were faced with several challenges. The current administrative functions require added space, and the several of the building and accessibility code requirements will necessitate added renovation. We further understood that the Town desires to maintain the current level of meeting space and with potential improvements to these spaces. We have therefore investigated an addition as the primary option to improve the function and operations of the facility. This option provides an inviting Town Hall/Administrative areas and meeting space while addressing several security and code concerns. As the project progresses, more evaluation and programming will be required to evaluate the needs and requirements of the Town to develop a more detailed plan.

Preliminary Cost Estimates

Base on the options noted above, the Preliminary Cost Estimates are completed utilizing a cost per square foot for similar type buildings and improvements. See the Preliminary Estimates in Appendix “B.” The cost includes a construction cost based on square foot, incidentals, contingency, architectural/engineering and administrative costs. The Preliminary Cost Estimates are as follows:

Option No. 1 – Detached Garage – 2,450 SF	\$ 163,140
Option No. 2A – Garage North Side – 2,000 SF	\$ 274,140
Option No. 2B – Garage East Side – 2,400 SF	\$ 280,692
Optional Phase – Office Addition West Side 4,800 SF Renovation 1,735 SF New	\$ 756,388
Optional Phase – Office Addition West Side and 2B Garage	\$ 989,238

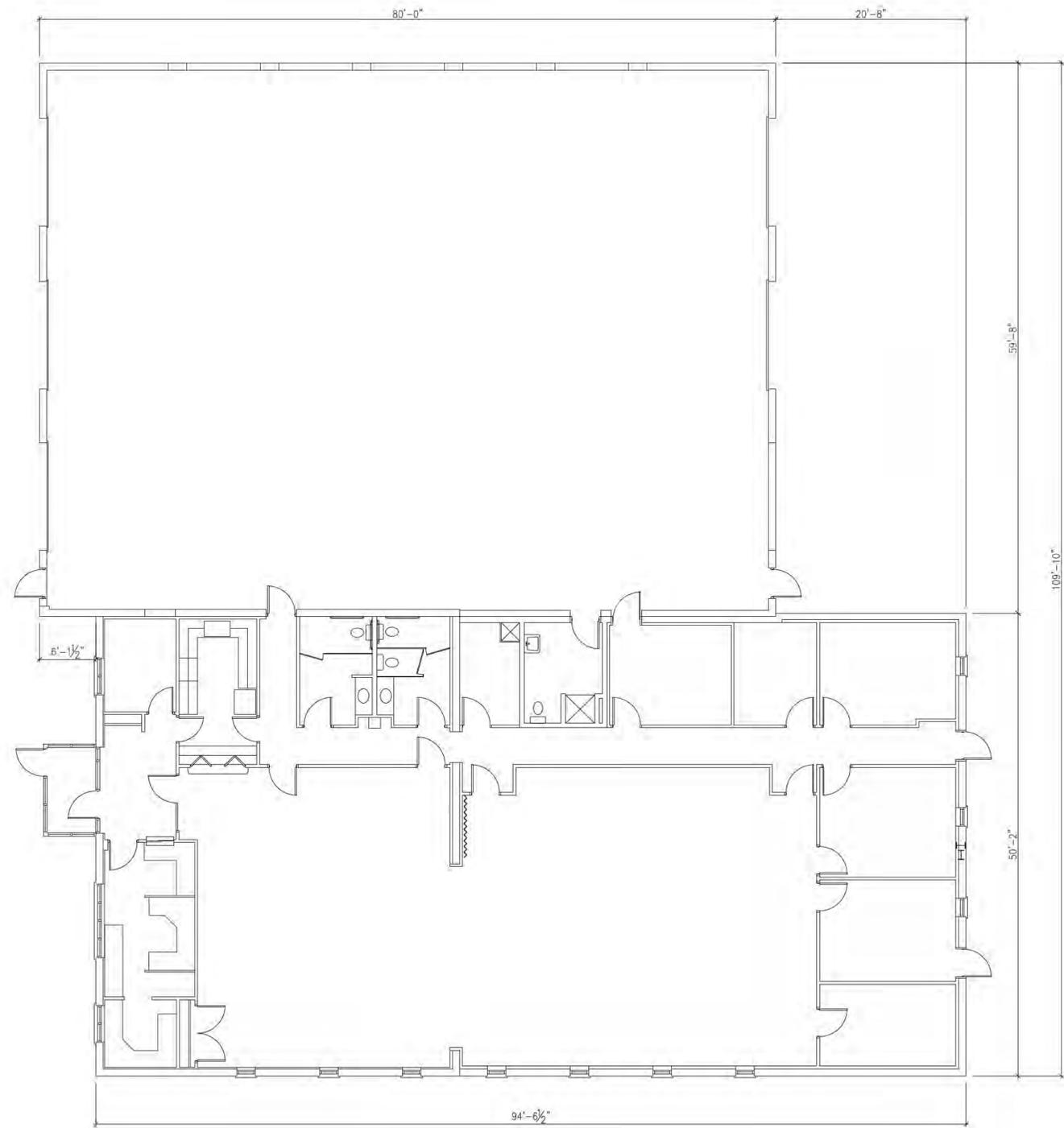
Recommendations

Based on our review of the Towns facility, the site, and potential growth for this area, Cedar recommends the Town move forward with planning for an attached public works portion and consider planning for a Town Hall/Office renovation and expansion. This can be a phased approach and will involve further design discussions; however, the layouts and proposed budgets can formulate the basis for developing a budget.

The next step will be to determine the extent and scope of the project. Once this is determined, Cedar Corporation can assist in the programming and preliminary design. Once the preliminary design is approved, Cedar can assist in the preparation of the plans for either of the phases or options and provide updated estimates for the Board. At the same time, Cedar can assist the Town in holding Public Informational Meetings to inform the residents of the proposed improvements and receive feedback. Once the facility is designed, upon approval of the Town Board, Cedar will advertise for competitive bids on behalf of the Town and assist with awarding a contract for the construction. During the Construction Phase, Cedar can provide varying levels of oversight and administration for the Town and will discuss these options at the appropriate time.

We look forward to working with the Town on this project and are available to attend meetings and answer any questions you may have. As the project progresses, we will discuss the next steps in greater detail and provide a contact for our services.

APPENDIX "A"
PRELIMINARY DRAWINGS



1 FLOOR PLAN
2

NO.	DATE	DESCRIPTION

ARCHITECT/ENGINEER

800-472-7372
www.cedarcorp.com

MENOMONIE • MADISON • GREEN BAY

engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
TOWN OF BUCHANAN
OUTAGAMIE COUNTY, WI

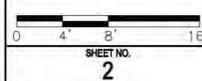
JOB NO.
B4816-049

DRAWN BY: BWR CHECKED BY: CAS

ISSUE DATE
FEBRUARY 2016

SET TYPE
PRELIMINARY

FLOOR PLAN - EXISTING





1
4 SITE PLAN

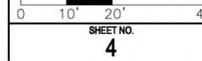
NO.	DATE	DESCRIPTION

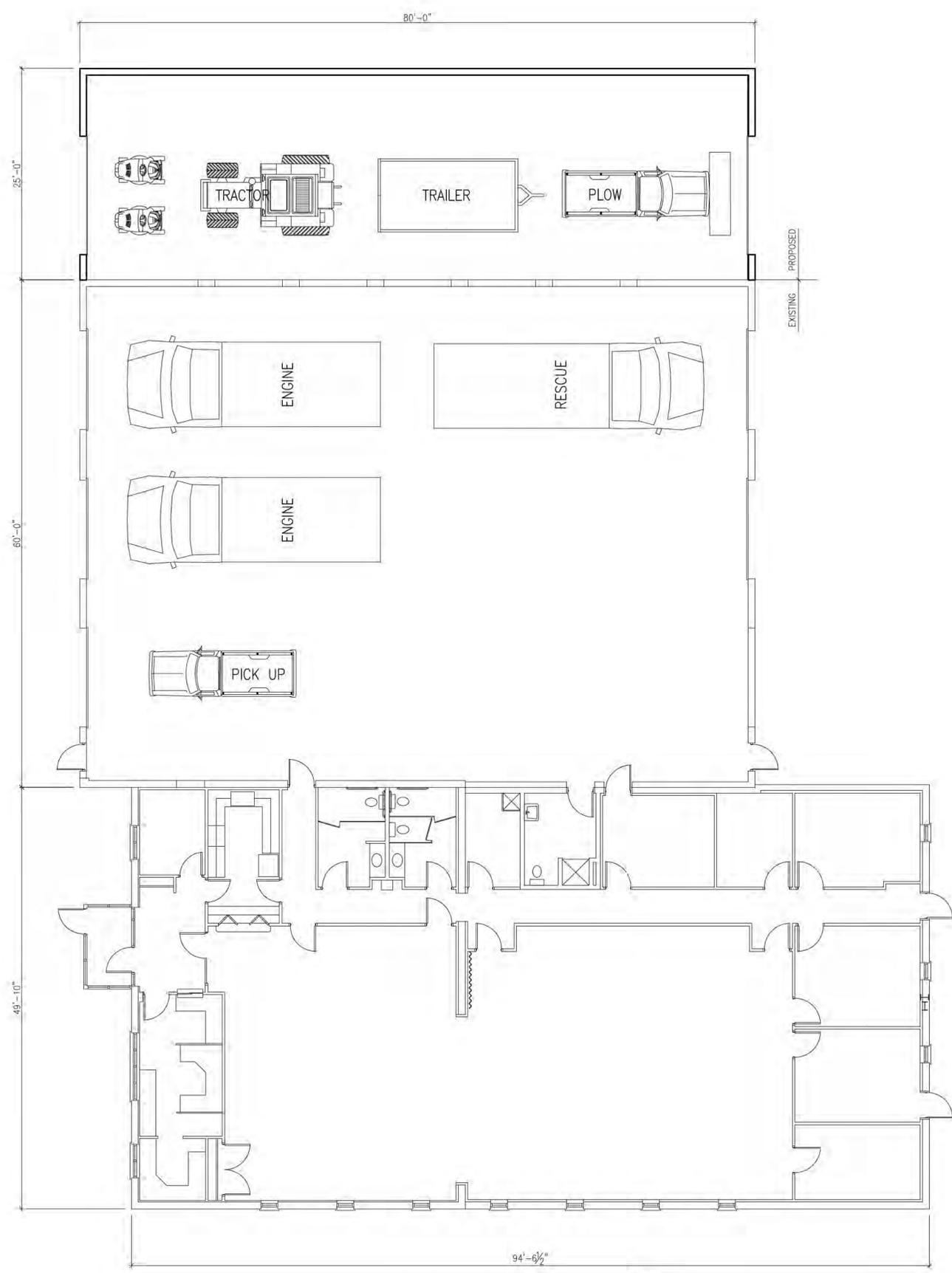
ARCHITECT/ENGINEER:
Cedar
 corporation
 800-472-7372
 www.cedarcorp.com
 MENOMONIE • MADISON • GREEN BAY
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
 TOWN OF BUCHANAN
 OUTAGAMIE COUNTY, WI

JOB NO.
B4916-049
 DRAWN BY: **KIM** CHECKED BY: **CAS**
 ISSUE DATE
FEBRUARY 2016
 SET TYPE
PRELIMINARY
SITE PLAN -
OPTION 2A
GARAGE
NORTH SIDE





1
5 FLOOR PLAN

NO.	DATE	DESCRIPTION

ARCHITECT/ENGINEER

800-472-7372
www.cedarcorp.com
MENOMONIE • MADISON • GREEN BAY

engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
TOWN OF BUCHANAN
OUTAGAMIE COUNTY, WI

JOB NO. B4816-049	
DRAWN BY: KIM	CHECKED BY: CAS
ISSUE DATE FEBRUARY 2016	
SET TYPE PRELIMINARY	
FLOOR PLAN - OPTION 2A GARAGE NORTH SIDE	
0 4' 8' 16' SHEET NO. 5	



1
6 SITE PLAN

BUCHANAN BUILDING NEEDS STUDY

TOWN OF BUCHANAN
OUTAGAMIE COUNTY, WI

JOB NO. B4916-049	
DRAWN BY: KIM	CHECKED BY: CAS
ISSUE DATE FEBRUARY 2016	
SET TYPE PRELIMINARY	
SITE PLAN - OPTION 2B GARAGE EAST SIDE	
SHEET NO. 6	

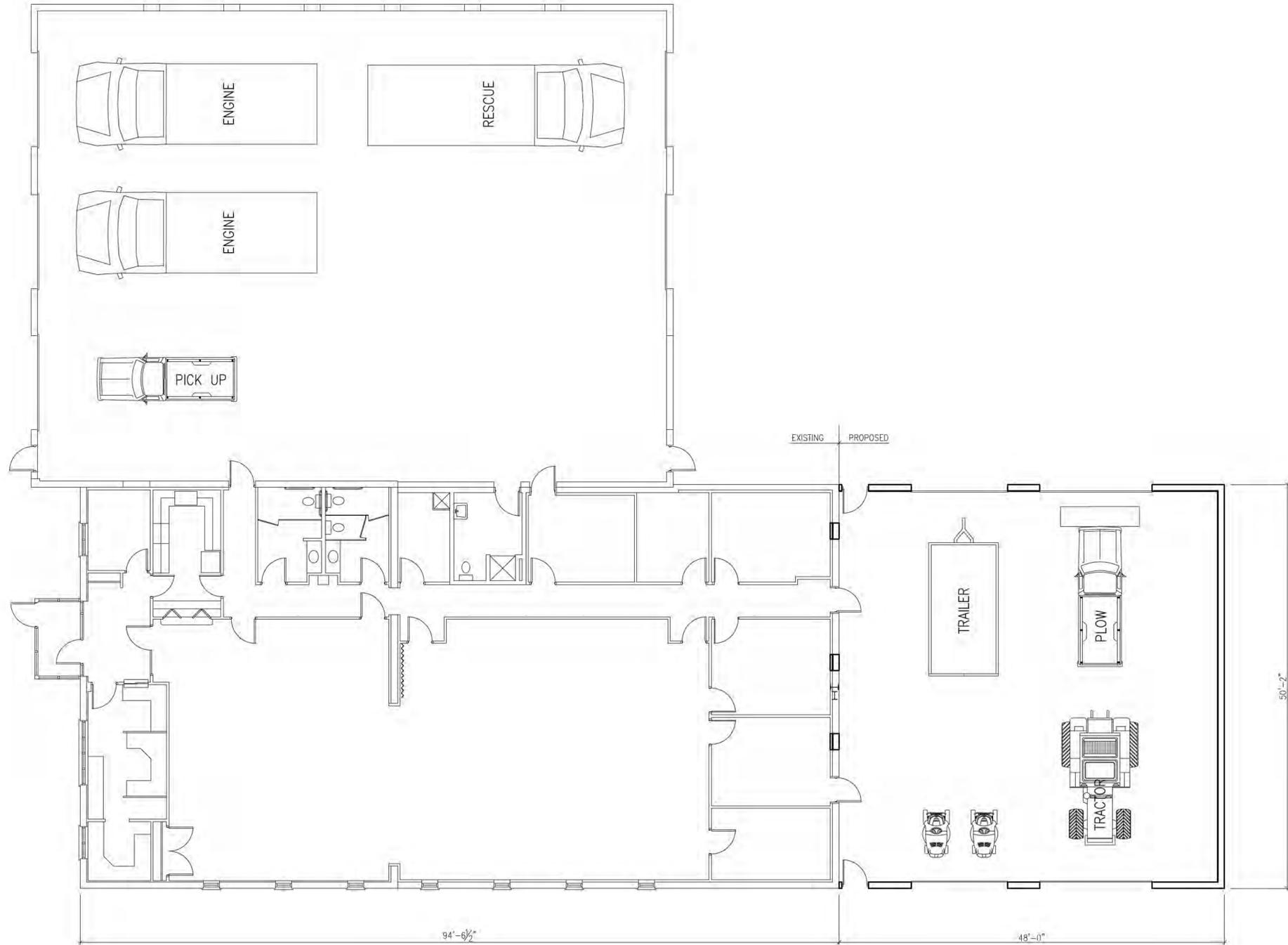
CONSULTANT:

ARCHITECT/ENGINEER:

800-472-7372
www.cedarcorp.com
MENOMONIE • MADISON • GREEN BAY

engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

NO.	DATE	DESCRIPTION



1
7 FLOOR PLAN

NO.	DATE	DESCRIPTION

ARCHITECT/ENGINEER

Cedar
corporation

800-472-7372
www.cedarcorp.com

MENOMONIE • MADISON • GREEN BAY

engineers • architects • planners • environmental specialists
land surveyors • landscape architects • interior designers

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY

TOWN OF BUCHANAN
OUTAGAMIE COUNTY, WI

JOB NO.
B4816-049

DRAWN BY: KIM CHECKED BY: CAS

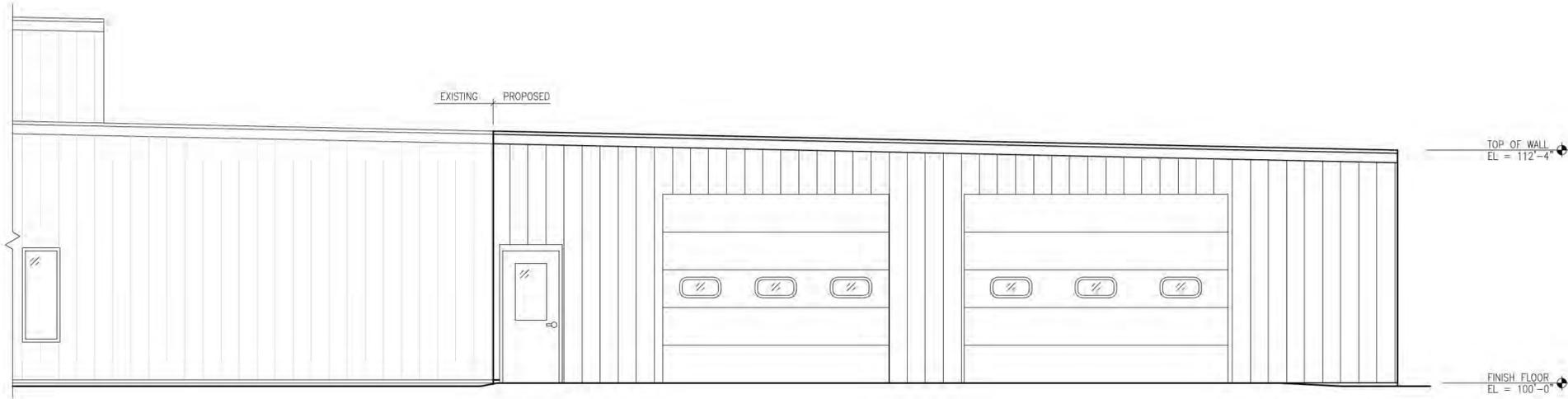
ISSUE DATE
FEBRUARY 2016

SET TYPE
PRELIMINARY

FLOOR PLAN -
OPTION 2B
GARAGE
EAST SIDE

0 4' 8' 16'

SHEET NO.
7



1
8 SOUTH ELEVATION

NO.	DATE	DESCRIPTION

ARCHITECT/ENGINEER:
Cedar corporation
 800-472-7372
 www.cedarcorp.com
 MENOMONIE • MADISON • GREEN BAY
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
 TOWN OF BUCHANAN
 OUTAGAMIE COUNTY, WI

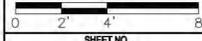
JOB NO.
B4916-049

DRAWN BY: **BWR** CHECKED BY: **CAS**

ISSUE DATE
FEBRUARY 2016

SET TYPE
PRELIMINARY

**EXTERIOR
 ELEVATION
 OPTION 2B**



SHEET NO.
8



1
9 SITE PLAN

NO.	DATE	DESCRIPTION

ARCHITECT/ENGINEER:
Cedar
 corporation
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

800-472-7372
 www.cedarcorp.com
 MENOMONIE • MADISON • GREEN BAY

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
 TOWN OF BUCHANAN
 OUTAGAMIE COUNTY, WI

JOB NO.
 B4916-049

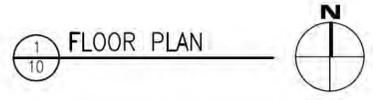
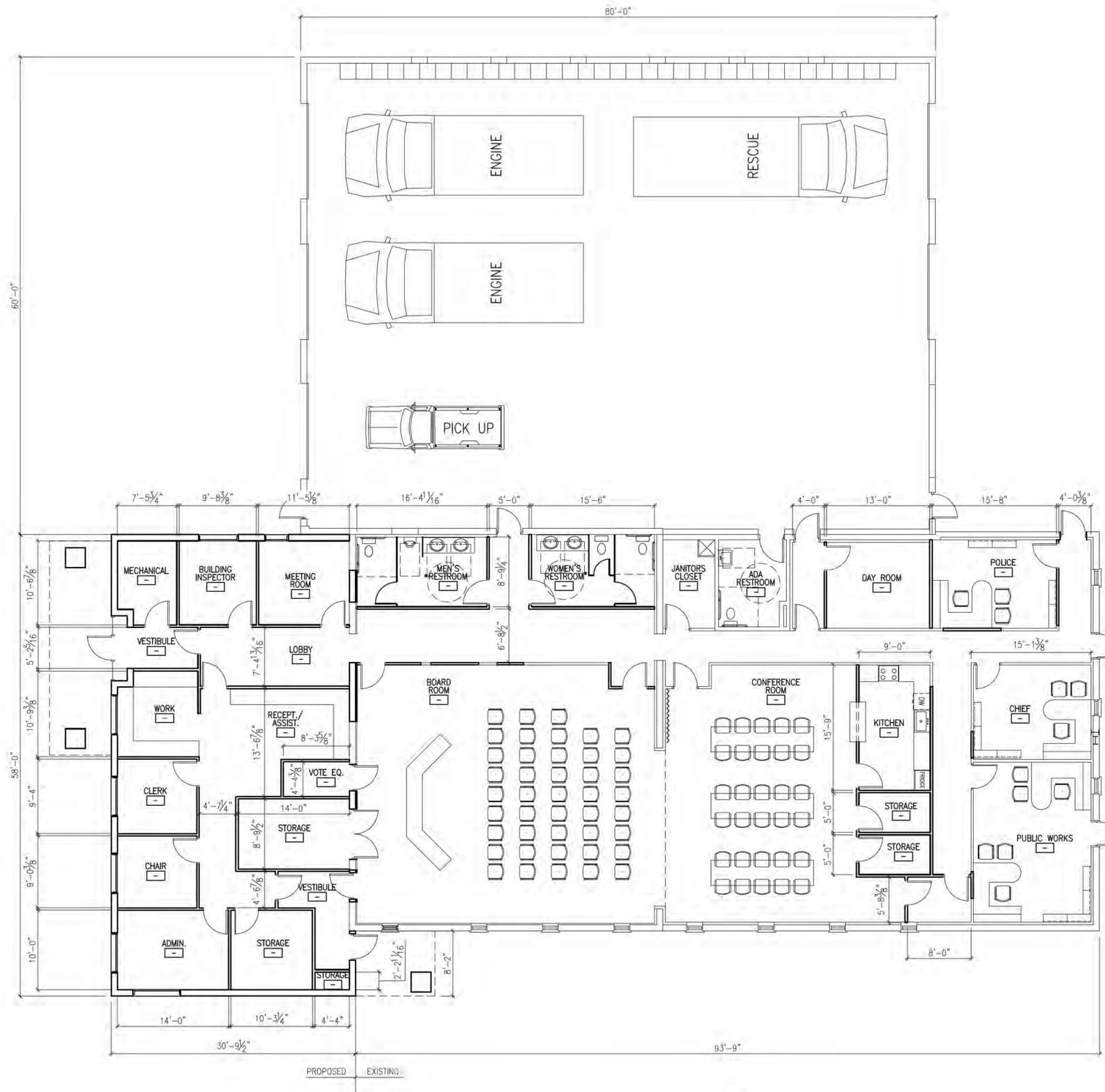
DRAWN BY: KIM CHECKED BY: CAS

ISSUE DATE
 FEBRUARY 2016

SET TYPE
 PRELIMINARY

**SITE PLAN -
 OFFICE ADDITION
 WEST SIDE**

0 10' 20' 40'
 SHEET NO.
 9



1 FLOOR PLAN
10

NO.	DATE	DESCRIPTION

ARCHITECT/ENGINEER
Cedar corporation
 800-472-7372
 www.cedarcorp.com
 MENOMONIE • MADISON • GREEN BAY
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

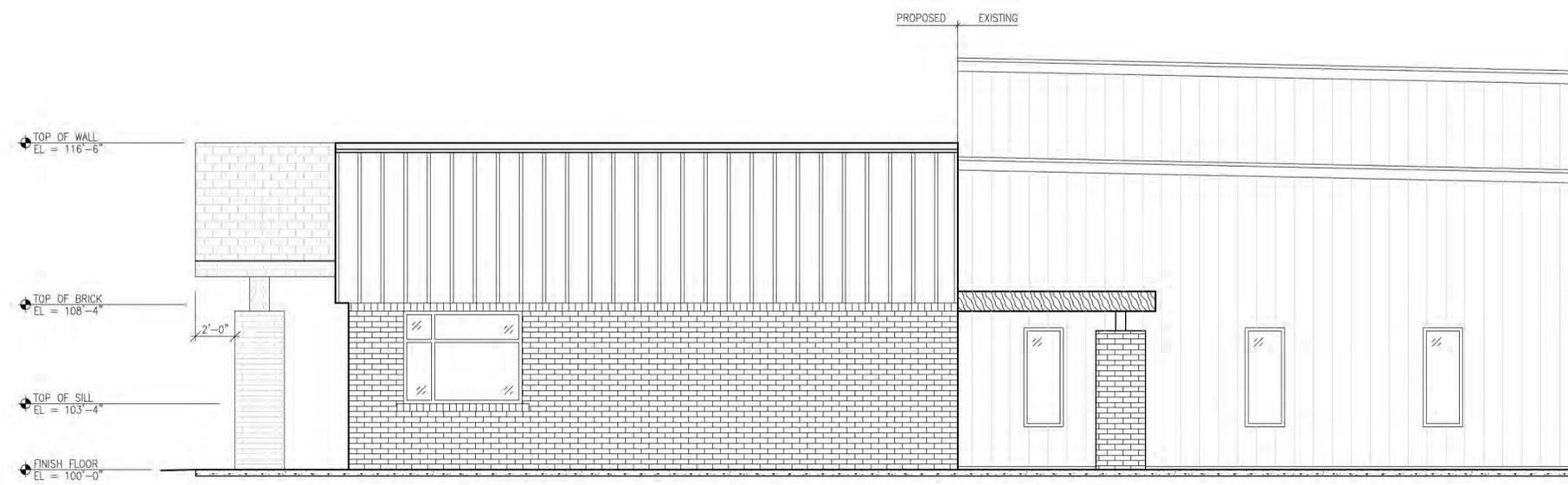
CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
 TOWN OF BUCHANAN
 OUTAGAMIE COUNTY, WI

JOB NO. B4816-049	
DRAWN BY: KIM	CHECKED BY: CAS
ISSUE DATE FEBRUARY 2016	
SET TYPE PRELIMINARY	
FLOOR PLAN - OFFICE ADDITION WEST SIDE	
SHEET NO. 10	



1
11 WEST ELEVATION



2
11 SOUTH ELEVATION

NO.	DATE	DESCRIPTION

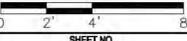
ARCHITECT/ENGINEER: Cedar corporation
 800-472-7372
 www.cedarcorp.com
 MEMONONIE • MADISON • GREEN BAY
 engineers • architects • planners • environmental specialists
 land surveyors • landscape architects • interior designers

CONSULTANT:

BUCHANAN BUILDING NEEDS STUDY
 TOWN OF BUCHANAN
 OUTAGAMIE COUNTY, WI

JOB NO. B4916-049
 DRAWN BY: BWR CHECKED BY: RAL
 ISSUE DATE: FEBRUARY 2016
 SET TYPE: PRELIMINARY

EXTERIOR ELEVATIONS-OFFICE ADDITION



APPENDIX “B”
PRELIMINARY COST ESTIMATES



1496 Bellvue Street, Suite 502
Green Bay, Wisconsin 54751

920-491-9081
800-472-7372
Fax: 920-491-9020
www.cedarcorp.com

SUGGESTED ESTIMATE OF PROBABLE COST
CLIENT: Town of Buchanan
PROJECT: Municipal Building Needs Study
DATE: February 8, 2016
PREPARED BY: Cory Scheidler/Thad Majkowski
CEDAR #: 4916-0049
OPTION 2A - GARAGE ONLY

Construction Estimates are based square
 footage analysis of proposed work based on
 2016 Means Cost as published in 1st quarter,
 recent bid projects and adjusted project
 experience

ITEM	Unit	Quantity	Unit Cost	Cost	Comment
Proposed Garage Bay Addition North side Site Work	Sq Ft	2,000	\$90.00	\$180,000.00	
	L.S.	1	\$45,950.00	\$45,950.00	
SUBTOTAL				\$225,950.00	
Project Contingency	Percentage	15.00%	\$225,950.00	\$33,892.50	
Construction TOTAL COST				\$225,950.00	
MISC					
Final Architectural/Engineering Fees (full service)	percentage	20.00%	\$225,950.00	\$45,190.00	
Dept. of Commerce (State Review Fees)	lump Sum	1.0	\$1,500.00	\$1,500.00	
Asbestos investigation	Allowance	1.0	\$1,500.00	\$1,500.00	
Initial Operating, Furniture & Equipment	percentage	0%	\$225,950.00	\$0.00	
Phone & IT Systems	percentage	3%	\$225,950.00	\$6,778.50	
SUBTOTAL				\$48,190.00	
PROJECT TOTAL COST				\$274,140.00	

Does not include land acquisition or soft costs such as attorney fees

Site contains no hazardous waste.

Spring 2017 construction start.

Assumptions of Materials, equipment, preliminary finish selections and inflation have been made to provide a preliminary cost estimate.

Opinions of probable cost prepared by Cedar Corp. are supplied for general guidance only. Cedar Corp. has no control over competitive bidding or market conditions, thus we cannot guarantee accuracy of such opinions as compared to contract bids or actual costs to the owner.

Opinion of probable cost does not include any donated materials or labor.



1496 Bellvue Street, Suite 502
Green Bay, Wisconsin 54751

920-491-9081
800-472-7372
Fax: 920-491-9020
www.cedarcorp.com

SUGGESTED ESTIMATE OF PROBABLE COST
CLIENT: Town of Buchanan
PROJECT: Municipal Building Needs Study
DATE: February 8, 2016
PREPARED BY: Cory Scheidler/Thad Majkowski
CEDAR #: 4916-0049
OPTION 2B - GARAGE ONLY

Construction Estimates are based square
 footage analysis of proposed work based on
 2016 Means Cost as published in 1st quarter,
 recent bid projects and adjusted project
 experience

ITEM	Unit	Quantity	Unit Cost	Cost	Comment
Proposed Apparatus Bay Addition East side Site Work	Sq Ft	2,400	\$80.00	\$192,000.00	
	L.S.	1	\$39,410.00	\$39,410.00	
SUBTOTAL				\$231,410.00	
Project Contingency	Percentage	15.00%	\$231,410.00	\$34,711.50	
Construction TOTAL COST				\$231,410.00	
MISC					
Final Architectural/Engineering Fees (full service)	percentage	20.00%	\$231,410.00	\$46,282.00	
Dept. of Commerce (State Review Fees)	lump Sum	1.0	\$1,500.00	\$1,500.00	
Asbestos investigation	Allowance	1.0	\$1,500.00	\$1,500.00	
Initial Operating, Furniture & Equipment	percentage	0%	\$231,410.00	\$0.00	
Phone & IT Systems	percentage	3%	\$231,410.00	\$6,942.30	
SUBTOTAL				\$49,282.00	
PROJECT TOTAL COST				\$280,692.00	

Does not include land acquisition or soft costs such as attorney fees

Site contains no hazardous waste.

Spring 2017 construction start.

Assumptions of Materials, equipment, preliminary finish selections and inflation have been made to provide a preliminary cost estimate.

Opinions of probable cost prepared by Cedar Corp. are supplied for general guidance only. Cedar Corp. has no control over competitive bidding or market conditions, thus we cannot guarantee accuracy of such opinions as compared to contract bids or actual costs to the owner.

Opinion of probable cost does not include any donated materials or labor.



1496 Bellvue Street, Suite 502
Green Bay, Wisconsin 54751

920-491-9081
800-472-7372
Fax 920-491-9020
www.cedarcorp.com

SUGGESTED ESTIMATE OF PROBABLE COST
CLIENT: Town of Buchanan
PROJECT: Municipal Building Needs Study
DATE: February 8, 2016
PREPARED BY: Cory Scheidler/Thad Majkowski
CEDAR #: 4916-0049
OPTION OFFICE ADDITION ONLY

Construction Estimates are based square
 footage analysis of proposed work based on
 2016 Means Cost as published in 1st quarter,
 recent bid projects and adjusted project
 experience

ITEM	Unit	Quantity	Unit Cost	Cost	Comment
Existing First Floor Renovation of office space	Sq Ft	4,800	\$65.00	\$312,000.00	
Proposed First Floor Office Addition	Sq Ft	1,735	\$165.00	\$286,275.00	
Site Work - ADDITION ONLY	L.S.	1	\$13,416.00	\$13,416.00	
SUBTOTAL				\$611,691.00	
<i>Project Contingency</i>					
		15.00%	\$91,753.65		
Construction TOTAL COST				\$611,691.00	
MISC					
Final Architectural/Engineering Fees (full service)	percentage	20.00%	\$611,691.00	\$122,338.20	
Dept. of Commerce (State Review Fees)	lump Sum	1.0	\$2,000.00	\$2,000.00	
Asbestos investigation	Allowance	1.0	\$2,000.00	\$2,000.00	
Initial Operating, Furniture & Equipment	percentage	3%	\$611,691.00	\$18,350.73	
Phone & IT Systems	percentage	3%	\$611,691.00	\$18,350.73	
SUBTOTAL				\$144,688.93	
PROJECT TOTAL COST				\$756,379.93	

Does not include land acquisition or soft costs such as attorney fees

Site contains no hazardous waste.

Spring 2017 construction start.

Assumptions of Materials, equipment, preliminary finish selections and inflation have been made to provide a preliminary cost estimate.

Opinions of probable cost prepared by Cedar Corp. are supplied for general guidance only. Cedar Corp. has no control over competitive bidding or market conditions, thus we cannot guarantee accuracy of such opinions as compared to contract bids or actual costs to the owner.

Opinion of probable cost does not include any donated materials or labor.



1496 Bellvue Street, Suite 502
Green Bay, Wisconsin 54751

920-491-9081
800-472-7372
Fax 920-491-9020
www.cedarcorp.com

SUGGESTED ESTIMATE OF PROBABLE COST

CLIENT: Town of Buchanan
PROJECT: Municipal Building Needs Study
DATE: February 8, 2016
PREPARED BY: Cory Scheidler/Thad Majkowski
CEDAR #: 4916-0049

OPTION OFFICE ADDITION AND 2B GARAGE

Construction Estimates are based square
footage analysis of proposed work based on
2016 Means Cost as published in 1st quarter,
recent bid projects and adjusted project
experience

ITEM	Unit	Quantity	Unit Cost	Cost	Comment
Existing First Floor Renovation of office space	Sq Ft	4,800	\$60.00	\$288,000.00	
Proposed First Floor Office Addition	Sq Ft	1,735	\$160.00	\$277,600.00	
Proposed Apparatus Bay Addition East side	Sq Ft	2,400	\$75.00	\$180,000.00	
Site Work	L.S.	1	\$55,000.00	\$55,000.00	
SUBTOTAL				\$800,600.00	
Project Contingency	Percentage	15.00%	\$800,600.00	\$120,090.00	
Construction TOTAL COST				\$800,600.00	
MISC					
Final Architectural/Engineering Fees (full service)	percentage	20.00%	\$800,600.00	\$160,120.00	
Dept. of Commerce (State Review Fees)	lump Sum	1.0	\$2,500.00	\$2,500.00	
Asbestos investigation	Allowance	1.0	\$2,000.00	\$2,000.00	
Initial Operating, Furniture & Equipment	percentage	3%	\$800,600.00	\$24,018.00	
Phone & IT Systems	percentage	3%	\$800,600.00	\$24,018.00	
SUBTOTAL				\$188,638.00	
PROJECT TOTAL COST				\$989,238.00	

Does not include land acquisition or soft costs such as attorney fees

Site contains no hazardous waste.

Spring 2017 construction start.

Assumptions of Materials, equipment, preliminary finish selections and inflation have been made to provide a preliminary cost estimate.

Opinions of probable cost prepared by Cedar Corp. are supplied for general guidance only. Cedar Corp. has no control over competitive bidding or market conditions, thus we cannot guarantee accuracy of such opinions as compared to contract bids or actual costs to the owner.

Opinion of probable cost does not include any donated materials or labor.

TOWN BOARD MEETING:

February 23, 2016

AGENDA ITEM #: 7d

ACTION TYPE:

Routine Report

(For Discussion Only)



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Monthly Report on Town Administrator Activities**

RECOMMENDED ACTION: This item is for discussion only.

SUMMARY: An oral report related to the activities of the Town Administrator's office will be provided to the Town Board.

The report will include the following items:

1. 2016 Key Project Updates.
2. 2016 Election Updates.
3. County Highway ZZ / Haas Road Jurisdictional Transfer & Re-Alignment

POLICY/PLAN REFERENCE(S):

1. Town of Buchanan Municipal Code: Chapter §102-9 B(4) – Office of the Town Administrator – Responsibilities to the Town Board.

FISCAL IMPACT: NONE

JDG

###

Attachments:

- **2016 Key Project Update Spreadsheet.**

2016 Key Projects - Implementation Status

Last Revised: 2/8/2016

Project	Project Open or Closed	Status	Approved Project Estimate/Budget	Project Cost to Date	Completion Date Goal
General Government					
IT Network Server Upgrade	In-Progress	Hardware ordered 12/16/2015; Awaiting installation and conversion.	\$25,000	\$17,488	Mar-16
Computer Replacements (EMS)	Completed	Hardware ordered 12/16/2015; Installed on 1/12/2016	\$3,000	\$1,355	Jan-16
Mobile Fire Inspections	In-Progress	Inspection Client purchases, Hardware (tablet) ordered and received 1/12/2016; awaiting software installation and staff training	\$3,000	\$2,045	Feb-16
Credit Card Transactions & Electronic Receipting	In-Progress	iPad ordered 12/16/15; iPad received on 1/12/2016; awaiting application installation and set-up	\$500	\$390	Jan-16
Planning & Economic Development					
Comprehensive Plan Update	Open	Plan Commission requested Town Board apply for Technical Assistance from ECWRP. Staff contacted ECWRP soliciting proposal for services 1/12/2016	\$25,000		Dec-16
Custom Municipal Banners	In-Progress	Plan Commission Reviewed Designs on 2/8/2016	\$6,000		Mar-16
Building Space Needs Study	In-Progress	Final report to be presented to Town Board on 2/23/2016			Mar-16
Eisenhower Drive Improvement Study	In-Progress	Final report to be presented to Town Board on 2/23/2016	\$8,800		Mar-16
Parks & Recreation					
Large Riding Mower Replacement	In-Progress	Board approved purchase for two mowers in January 2016; Staff ordered new mowers. Used mowers are being prepared for private bid/sale. Overall project cost to be reduced by at least \$2,400 when sale is complete. Staff purchased replacement trailer to haul both mowers simultaneously.	\$20,000	\$20,303	Mar-16
Sport Court Surfacing (Hickory Park & Town Hall)	Open		\$37,500		May-16
Public Safety					
SCBA Replacment	Open	Resolution to carry over funds from 2015 to 2016 to be presented at February Town Board meeting; Staff soliciting quotes/bids to replace SCBAs. Request to purchase to be presented in February 2016	\$104,000		Jul-16
Rescue Support Vehicle Replacement 2373 w/ Cascade	Open		\$200,000		Dec-16
Public Works					
CTH CE/HH/Debruin Road Roundabout	Open		\$260,000		Oct-16
2016 Paving Projects (Mapleridge Dr/Ct, Aspen Ct, Hillside Dr, Liberty Ln)	In-Progress	PrePIM conducted on Jan 19th. Engineer prepared LOA to complete design/bid/construction of Contract A16 for Town Board consideration in February 2016.	\$541,001		Oct-16
2016 Patching & Sealing Projects (Haen Rd, Clune Rd, Outagamie Rd, Debruin Rd & Block Rd)	Open	Staff is soliciting quotes from Outagamie County Highway	\$225,920		Sep-16
2016 Drainage/Ditching (Hopfensperger, Hickory Park)	In-Progress	PrePIM conducted on Jan 19th. Engineer prepared LOA to complete design/bid/construction of Contract A16 for Town Board consideration in February 2016.	\$106,375		Oct-16
2016 Culvert Replacment	Open	Engineer prepared LOA to complete design/bid/construction of Contract A16 for Town Board consideration in February 2016.	\$32,000		Nov-16

Other Notable Purchases/Activities Recently Completed:



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Final Plat – Ruys Ridge**

RECOMMENDED ACTION: This is a quasi-judicial¹ action item for Town approval or denial. The motion to approve or deny must include the explicit reason for such action based on the findings of fact and standards of law; including any interpretations or conditions.

Staff recommends conditional approval of the proposed Final Plat subject to the following conditions:

1. Upon approval and recording of the final plat, the sub-divider shall install all street, utility and other such improvements as required by Town Code. Such improvements must be completed within 12 months of final plat approval or be extended through a Town Board approved Development Agreement.
2. Review and approval by Outagamie County Planning and Zoning departments.

SUMMARY: Applicant: Douglas E. Woelz & David Schmalz of McMahon on behalf of Garners Creek Development, LLC. Ruys Ridge Final Plat, Lot 3 of CSM 7066 Existing Parcel Number 030035903, 4.788 acres for Town approval/denial.

Based on administrative review, it is our interpretation, the proposed application meets the following Town Code requirements for land division and zoning.

- The proposed land division appears compliant with Town Code §460 – Subdivision of Land.
- The proposed land division appears compliant with Wisconsin State Statutes Ch. 236.
- The proposed land division appears compliant with Outagamie County Ordinance.
- The proposed land division appears compliant with the Town's Comprehensive Plan.
- The current zoning district is RSF – Residential Single Family District (§525-24).
 - Proposed Lots meet the minimum dimensions for single family detached dwellings within the Sanitary District.

PLAN COMMISSION RECOMMENDATION: The Plan Commission reviewed and recommended unanimous approval at their February 8, 2016 meeting.

POLICY/PLAN REFERENCE(S):

1. Town of Buchanan Municipal Code: Chapter §460 – Subdivision of Land
2. Wisconsin State Statutes: §236 - Platting Lands And Recording And Vacating Plats
3. Town of Buchanan Municipal Code: Chapter §525 – Zoning
4. Town of Buchanan Comprehensive Plan

###

Attachments:

1. Application for Final Plan – Ruys Ridge

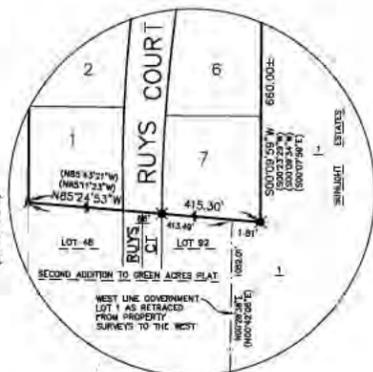
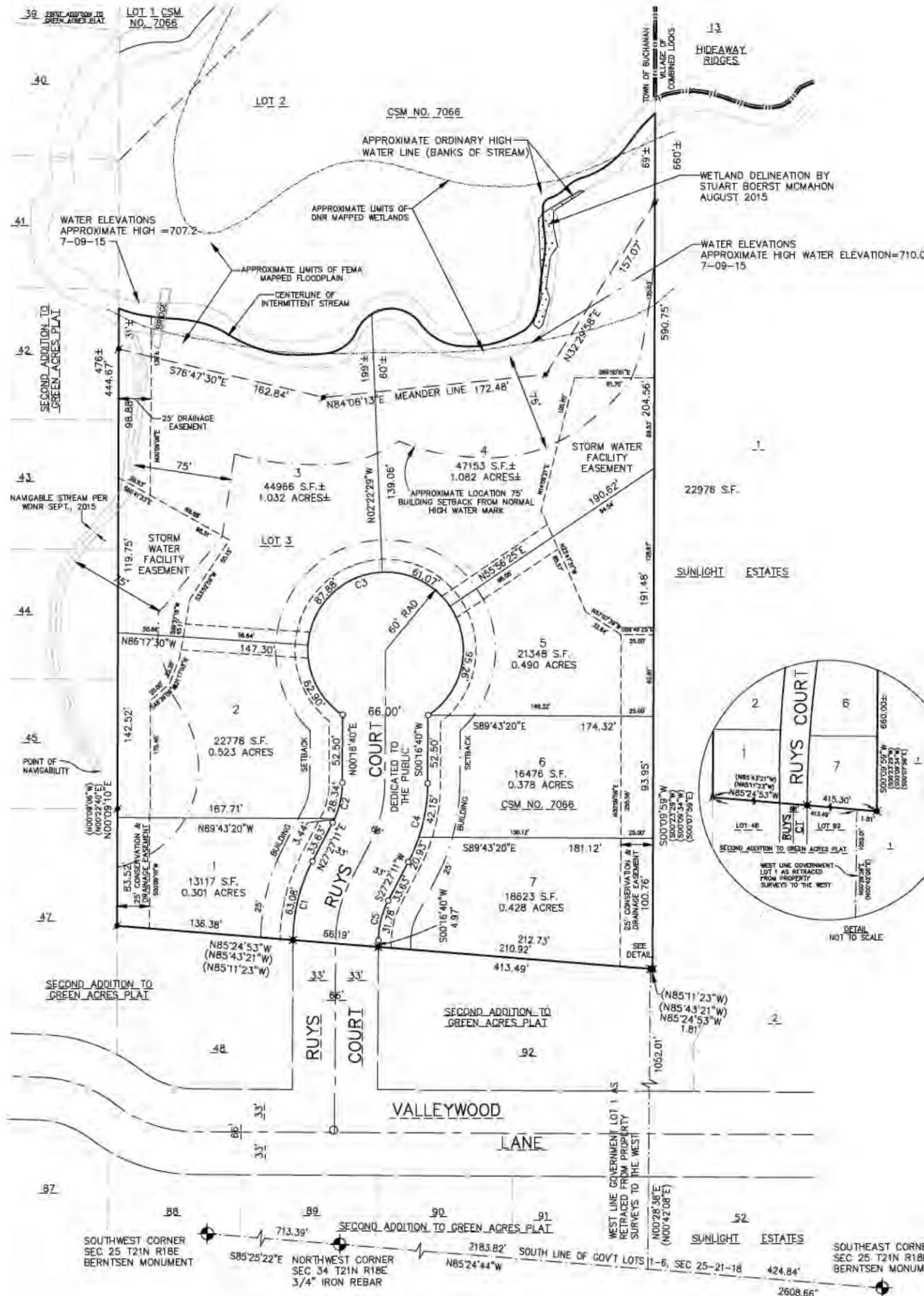
¹ Quasi-judicial actions involve the application of rules, policies and ordinances to the facts of a particular proposal or application. The Board acts in a quasi-judicial manner when it considers special exception permits, site plans, land divisions, variances, license/permit revocations and similar decisions. Quasi-judicial decisions involve the exercise of limited discretion. Discretion of quasi-judicial decision makers is strictly limited by local ordinance and state law. Quasi-judicial decision makers must apply the law as written and may not substitute their judgment for that of the governing body. As with all quasi-judicial actions, Board members should not have conversations or receive correspondence regarding a quasi-judicial matter that is pending before the Board or which may come before the Board except during a noticed meeting or hearing on the matter. Such outside contacts are known as "ex parte communication." Parties are entitled by law to know and examine the source of information used by the Board in its decision-making. Board members should avoid ex-parte communication by suggesting that members of the public present information in an open meeting or public hearing or submit a written comment for distribution at the meeting. Board members should disclose ex parte communication at an open meeting or hearing to make the information part of the record so that it can be considered in decision making.

RUYS RIDGE

ALL OF LOT 3 OF CERTIFIED SURVEY MAP NO. 7066 AS RECORDED IN VOLUME 42 OF CERTIFIED SURVEY MAPS ON PAGE 7066 AS DOCUMENT NO. 2054194, BEING A PART OF GOVERNMENT LOT 2, SECTION 25, TOWNSHIP 21 NORTH, RANGE 18 EAST, TOWN OF BUCHANAN, OUTAGAMIE COUNTY, WISCONSIN



LOCATION MAP
T21N, R18E TOWN OF BUCHANAN
OUTAGAMIE COUNTY, WISCONSIN



CURVE	RADIUS	DELTA ANGLE	ARC LENGTH	CHORD LENGTH	CHORD BEARING	TANGENT BEARING	TANGENT BEARING
C1	133.00'	27°10'31"	63.08'	62.49'	N 13°51'56" E	N 00°16'40" E	N 27°27'11" E
C2	67.00'	27°10'31"	31.78'	31.48'	N 13°51'56" E	N 27°27'11" E	N 00°16'40" E
LOT 1	67.00'	2°56'24"	3.44'	3.44'	S 25°58'59" W		
LOT 2	67.00'	24°14'07"	28.34'	28.13'	N 12°23'44" E		
C3	60.00'	293°15'58"	307.11'	66.00'	N 89°43'20" W	N 56°21'18" W	S 56°54'39" W
LOT 2	60.00'	60°03'48"	62.90'	60.06'	S 26°19'24" E		
LOT 3	60.00'	83°55'01"	87.88'	80.23'	S 45°40'00" W		
LOT 4	60.00'	58°18'54"	61.07'	58.47'	S 63°13'02" E		
LOT 5	60.00'	90°58'14"	95.26'	85.57'	S 11°25'32" W		
C4	133.00'	27°10'31"	63.08'	62.49'	N 13°51'56" E	S 00°16'40" W	S 27°27'11" W
LOT 6	133.00'	18°09'31"	42.15'	41.97'	N 09°21'26" E		
LOT 7	133.00'	9°01'00"	20.93'	20.91'	S 22°56'41" W		
C5	67.00'	27°10'31"	31.78'	31.48'	N 13°51'56" E	S 27°27'11" W	S 00°16'40" W

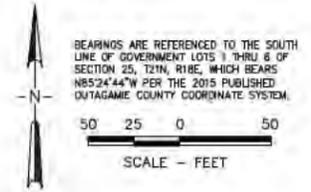
FOR: -GARNERS CREEK DEVELOPMENT, LLC
-C/O CHAD SHEA
-1835 E. EDGEWOOD DRIVE, STE 105-7
-APPLETON, WISCONSIN 54913
-PHONE #920-213-6770

- LEGEND**
- - 1 1/4" x 24" ROUND STEEL REBAR WEIGHING 4.30 LBS./LINEAL FT. SET
 - ✱ - 3/4" REBAR FOUND
 - ✱ - 1 1/4" REBAR FOUND
 - ⊙ - CERTIFIED LAND CORNER OUTAGAMIE COUNTY
 - () - RECORDED BEARING AND/OR DISTANCE
 - S.F. - SQUARE FEET
 - 20' DRAINAGE & STORM WATER MAINTENANCE EASEMENT
 - 10' UTILITY EASEMENT
 - CORPORATE BOUNDARY (VILLAGE OF KIMBERLY)
- ALL OTHER LOT CORNERS STAKED WITH 3/4" x 24" ROUND STEEL REBAR, WEIGHING 1.50 LBS./LIN. FT.



McMAHON
1445 McMAHON DRIVE NEENAH, WI 54956
MAILING P.O. BOX 11235 NEENAH, WI 54957-11235
TEL: (920) 751-4200 FAX: (920) 751-4284
www.mcma.org

DRAFTED BY: MARTY J. ARING



SHEET 1 OF 2

RUYS RIDGE

ALL OF LOT 3 OF CERTIFIED SURVEY MAP NO. 7066 AS RECORDED IN VOLUME 42 OF CERTIFIED SURVEY MAPS ON PAGE 7066 AS DOCUMENT NO. 2054194, BEING A PART OF GOVERNMENT LOT 2, SECTION 25, TOWNSHIP 21 NORTH, RANGE 18 EAST, TOWN OF BUCHANAN, OUTAGAMIE COUNTY, WISCONSIN

SURVEYOR'S CERTIFICATE: I, David M. Schmalz, Registered Land Surveyor, hereby certify the plat of Ruys Ridge, being all of Lot 3 of Certified Survey Map No. 7066 as recorded in Volume 42 of Certified Survey Maps on Page 7066 as Document No. 2054194, being a part of Government Lot 2, Section 25, Township 21 North, Range 18 East, Town of Buchanan, Outagamie County, Wisconsin containing 207,438 Square feet (4.762 Acres) more or less of land.

I further certify that this map is a correct representation of the exterior boundary lines of the land surveyed and the division of that land, and that I have complied with section 236.34 of the Wisconsin Statutes, Town of Buchanan and Outagamie County Subdivision Ordinance in surveying, dividing and mapping the same.



UTILITY EASEMENT PROVISIONS

An easement for electric, natural gas, and communications service is hereby granted by Garners Creek Development LLC, Grantor, to WISCONSIN ELECTRIC POWER COMPANY and WISCONSIN GAS, LLC, Wisconsin corporations doing business as We Energies, AT&T WISCONSIN, A WISCONSIN CORPORATION, and TIME WARNER ENTERTAINMENT COMPANY, LP, Grantees their respective successors and assigns, to construct, install, operate, repair, maintain and replace from time to time, facilities used in connection with overhead and underground transmission and distribution of electricity and electric energy, natural gas, telephone and cable TV facilities for such purposes as the same is now or may hereafter be used, all in, over, under, across, along and upon the property shown within those areas on the plat designated as "Utility Easement Areas" and the property designated on the plat for streets and alleys, whether public or private, together with the right to install service connections upon, across within and beneath the surface of each lot to serve improvements, thereon, or on adjacent lots; also the right to trim or cut down trees, brush and roots as may be reasonably required incident to the rights herein given, and the right to enter upon the subdivided property for all such purposes. The Grantees agree to restore or cause to have restored, the property, as nearly as is reasonably possible, to the condition existing prior to such entry by the Grantees or their agents. This restoration, however, does not apply to the initial installation of said underground and/or above ground electric facilities, natural gas facilities, or telephone and cable TV facilities or to any trees, brush or roots which may be removed at any time pursuant to the rights herein granted. Structures shall not be placed over Grantees' facilities or in, upon or over the property within the lines marked "Utility Easement Areas" without the prior written consent of Grantees. After installation of any such facilities, the grade of the subdivided property shall not be altered by more than four inches without written consent of grantees. The grant of easement shall be binding upon and inure to the benefit of the heirs, successors and assigns of all parties hereto.

NO UTILITY TRANSFORMERS OR PEDESTALS ARE TO BE SET WITHIN 2 FEET OF A LOT CORNER MONUMENT.

NO CONDUCTORS ARE TO BE BURIED WITHIN 1 FOOT OF A LOT CORNER MONUMENT.

NOTES:

THE WDNR SURFACE WATER VIEWER MAP IDENTIFIES WETLAND INDICATOR SOIL TYPES WITHIN THE SUBJECT PROPERTY. DUE TO WETLANDS INDICATOR SOILS, AND/OR WATERWAYS WITHIN THE SUBJECT PROPERTY, COORDINATE WITH WISCONSIN DEPARTMENT OF NATURAL RESOURCES REGARDING POTENTIAL PROTECTIVE AREAS.

THE WETLANDS ARE APPROXIMATE. DUE TO THE LARGE SIZE OF THE LOT SHOULD ANY DEVELOPMENT BE PROPOSED NEAR OR WITHIN THE APPROXIMATE WETLAND AREA. THE ACTUAL WETLAND BOUNDARY SHALL BE PROPERLY DELINEATED BY A CERTIFIED WETLAND DELINEATOR HIRED BY THE AFFECTED LANDOWNER.

THE NAVIGABLE STREAM AS SHOWN IS SUBJECT TO A 75' BUILDING SETBACK FROM THE ORDINARY HIGH WATER MARK. PRIOR TO ANY BUILDING, AN OFFICIAL DETERMINATION OF THE ORDINARY HIGH WATER MARK MUST BE MADE BY AN AUTHORIZED PERSON.

ANY LAND BELOW THE ORDINARY HIGH WATER MARK OF THE NAVIGABLE STREAM, IS SUBJECT TO THE PUBLIC TRUST IN NAVIGABLE WATERS THAT IS ESTABLISHED UNDER ARTICLE IX, SECTION 1 OF THE STATE CONSTITUTION.

THE DESIGN OF STORM WATER FACILITIES SHALL IMPLEMENT THE STATE CONSTRUCTION BEST MANAGEMENT PRACTICES AND SHALL ADDRESS WATER QUALITY AS WELL AS WATER QUANTITY.

OUTAGAMIE COUNTY STORM WATER DETENTION AND DRAINAGE EASEMENT RESTRICTIONS:

1) **PROHIBITED USES AND STRUCTURES.** THE FOLLOWING USES AND STRUCTURES ARE PROHIBITED WITH ALL DRAINAGE EASEMENT: FILLING, GRADING, EXCAVATING, EXCEPT FOR THE CONSTRUCTION AND MAINTENANCE OF DRAINAGE WAYS OR DRAINAGE FACILITIES; THE CULTIVATION OF CROPS, FRUITS OR VEGETABLES; THE DUMPING OF ASHES, WASTE, COMPOST OR ANY OTHER GARDEN, LAWN OR DOMESTIC WASTE; THE STORAGE OF VEHICLES, EQUIPMENT, MATERIALS OR PERSONAL PROPERTY OF ANY KIND; CONSTRUCTING, ERECTING OR MOVING ANY BUILDING OR STRUCTURE, INCLUDING FENCES, WITHIN THE DRAINAGE EASEMENT.

2) **MAINTENANCE OF DRAINAGE IMPROVEMENTS.** MAINTENANCE OF DRAINAGE WAYS AND ASSOCIATED DRAINAGE IMPROVEMENTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNERS OF THE SUBDIVISION PLAT. OUTAGAMIE COUNTY AND THE TOWN OF BUCHANAN RETAIN THE RIGHT TO PERFORM MAINTENANCE OR REPAIRS. THE COST OF THE MAINTENANCE AND REPAIRS SHALL BE EQUALLY ASSESSED AMONG THE PROPERTY OWNERS OF THE SUBDIVISION. THE PURCHASE OF ANY LOT CONSTITUTES A WAIVER OF OBJECTION AND AGREEMENT TO PAY ANY SUCH ASSESSMENT, WHICH SHALL BE PLACED ON THE TAX BILL AS A SPECIAL ASSESSMENT.

3) **MAINTENANCE EASEMENT.** OUTAGAMIE COUNTY AND THE TOWN OF BUCHANAN SHALL HAVE AN UNQUALIFIED RIGHT TO ENTER UPON ANY DRAINAGE EASEMENT FOR INSPECTION AND IF NECESSARY, MAINTENANCE AND REPAIR OF THE DRAINAGE WAYS AND ASSOCIATED DRAINAGE IMPROVEMENTS.

OWNER'S CERTIFICATE OF DEDICATION

Garners Creek Development LLC, as owners, We hereby certify that We caused the land described on this plat to be surveyed, divided, mapped and dedicated as represented on Ruys Ridge. We also certify that this Ruys Ridge is required to be submitted to the following for approval.

Department of Administration
Town of Buchanan
Outagamie County Planning & Zoning Committee

Dated this _____ day of _____, 20____

Chad W. Shea - Managing Member

State of Wisconsin)
_____)ss
_____) County)

Personally appeared before me on the _____ day of _____, 20____, the above named owners to me known to be the persons who executed the foregoing instrument, and acknowledged the same.

Notary Public
_____) County, _____

My commission expires _____

TOWN BOARD APPROVAL

Resolved, that Ruys Ridge in the Town of Buchanan, is hereby approved as surveyed, divided and mapped by the Town Board of the Town of Buchanan, Outagamie County, Wisconsin.

_____) Date
Town Chairperson
Mark McAndrews

_____) Date
Town Clerk
Joel Gregozeski

CERTIFICATE OF TREASURERS

I, being the duly elected, qualified and acting Treasurer, do hereby certify that in accordance with the records in my office there are no un-paid taxes or un-paid special assessments on any of the lands included in Ruys Ridge as of:

_____) Date	_____) Date
Town Treasurer Cynthia Sieracki	County Treasurer Dina Mumford

COUNTY PLANNING COMMISSION APPROVAL

Approved by the Outagamie County Planning and Zoning Committee on the _____ day of _____, 20____.

Dated this _____ day of _____, 20____

Timothy P. Roach - (Zoning Administrator)
Outagamie County Planning and Zoning Committee



TOWN BOARD MEETING:

February 23, 2016

AGENDA ITEM #: 8b & 11a

ACTION TYPE:

Legislative

(For Approval/Denial)



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Ruys Ridge Development Agreement**

RECOMMENDED ACTION: This is a legislative action¹ item for possible Town Board Approval/Denial.

SUMMARY BACKGROUND: The developers of Ruys Ridge are seeking a development agreement between the Town of Buchanan and Garners Creek Development, LLC for the purposes to outline the roles and responsibilities for the development of the public infrastructure within the subdivision.

The developers were asked by staff to provide edits to the agreement. The Developer is requesting the Town provide the completion of the final construction phase, with costs paid through special assessments to the current lot owners. The alternate language is provided in the draft agreement.

The Plan Commission reviewed the request by the Developer and do not recommend. At their February 8, 2016 Plan Commission meeting, the Plan Commission unanimously approved the agreement, requiring the Developer pay for all phases of construction per the standards of Town Code. Town code requires the developer to pay the initial costs for construction of roads; completion of the new roads should be when either occurs first: 70% of lots have been sold or three years from the acceptance of the final plat.

FISCAL IMPACT: NONE AT THIS TIME.

POLICY/PLAN REFERENCE(S):

1. Town of Buchanan Municipal Code §460 Subdivision of Land.
2. Town of Buchanan Municipal Code §456-5J Cost of Roads.

JDG

###

Attachments:

- **Draft Development Agreement – Ruys Ridge**

¹ Legislative actions are those which result in policy making. They generally affect the community as a whole rather than a small area or specific individuals. The adoption, amendment and implementation of plans, budgets, policies, and ordinances are considered legislative actions. Legislative action allows for a great deal of discretion. They are limited only by procedural and constitutional concerns. In many cases, legislative actions require or encourage public participation in helping shape the decision, e.g. public hearings, etc.

DEVELOPMENT AGREEMENT

THIS AGREEMENT, made this ___ day of _____, 2016, between Garners Creek Development, LLC, hereinafter called "Developer", and the Town of Buchanan, a municipal corporation of the State of Wisconsin, located in Outagamie County, hereinafter called "Town".

WHEREAS, Developer desires to develop lands in Buchanan known as Lot 3 of CSM 7066, Parcel No. 030035903, hereinafter called "Land"; and

WHEREAS, in 2015, Developer, submitted and received all necessary approvals, including those from Town and from Outagamie County, for a preliminary plat for a development of the Land known as Ruys Ridge Subdivision; and

WHEREAS, Developer plans to seek approval of a corresponding final plat for Ruys Ridge Subdivision; and

WHEREAS, Developer is the owner of the Land and has authority to engage in such development; and

WHEREAS, Buchanan's approval of the Final Plat was conditioned upon the execution of this Agreement and submittal of all required documents as provided herein; and

WHEREAS, Buchanan seeks to protect the health, safety and general welfare of the community by requiring the completion of various improvements for the lot(s) in Ruys Ridge Subdivision and thereby to limit the harmful effects of substandard subdivisions, including premature subdivision which leaves property undeveloped and unproductive; and

WHEREAS, the Buchanan Subdivision Ordinance requires that provisions be made for the providing of public utilities, as well as erosion control and storm water runoff control; and

WHEREAS, the mutual promises, covenants and obligations contained in this Agreement are authorized by State law and by Buchanan's Subdivision Ordinance; and

WHEREAS, the Town Plan Commission has recommended to the Town Board that the proposed development of the Land be given final approvals for all necessary permits consistent with the site plan attached hereto as Exhibit "B" on the condition that the Developer enter into an agreement with the Town relative to the manner and method by which the Land is to be developed; and

WHEREAS, the Developer agrees to develop the Land as herein described in accordance with this Agreement and in accordance with all of the ordinances and regulations of the Town of Buchanan, Garners Creek Storm Water Utility, Darboy Joint Sanitary District #1, County of Outagamie and State of Wisconsin; and

WHEREAS, the Developer assures the Town that it has no notice or knowledge of any environmental problems (the existence of hazardous or toxic substances) of any sort on the Land. In the event that it acquires the Land, the Developer understands that, (a) it will pay for any costs to remediate any environmental problems encountered during construction of any of the public improvements required by the Town pursuant to this Agreement, and

NOW, THEREFORE, in consideration of the granting of approvals of development of the Land by the Town Board, and provided that the Developer acquires the Land and proceeds with the Development, the Developer does hereby agree to develop the Land as follows:

SECTION I – PUBLIC IMPROVEMENTS.

All improvements shall be in accordance with the Town of Buchanan specifications or as in accordance with the CSM, plat, site plans, specifications and drawings as approved for the development.

A. ROADS, STREETS, SIDEWALKS AND TRAILS The Developer hereby agrees:

1. To furnish, construct, grade and surface all roads, streets, sidewalk and/or trails in the Development, all in accordance with the site plans, specifications and drawings attached hereto as Exhibit "B" as well as any Town required standards. The construction of roads, streets, sidewalks and trails within the development shall be as follows:
 - i. The first construction phase shall be defined as follows: construction and installation of water, sanitary sewer, storm water facilities; and the excavation, laying of road bed, grading and placing of aggregate base course. The first construction phase as described herein shall be completed on or before the ___ day of _____, 20___. The entire cost of the first construction phase shall be paid by the Developer as the work progresses subject to the public improvement guarantee in Section III. Once the Town engineer has certified that the Town of Buchanan standards have been met, the Town Board will review the engineer's certification and take action respectively, to partially accept Ruys Ct. in a graveled state.
 - ii. The second construction phase shall be defined as follows: installation of curb, gutter and binder asphalt layer, street signs, traffic control signs, informational signs and any street lights as required. The second construction phase as described herein shall be completed on or before the 1st day of JULY _____, 2016___. The entire cost of the second construction phase shall be paid by the Developer as work progresses subject to the public improvement guarantee in

Recording Area

Section III. Once the Town engineer has certified that the Town of Buchanan standards have been met, the Town Board will review the engineer's certification and take action respectively, to accept Ruys Ct. in a partially finished state. The Developer shall accept full liability for premature failure (settling, displacement or breakup of the asphalt binder layer before final paving, and repair any problems in a timely manner. The Town Engineer shall inform the Developer when repair is necessary and give the Developer a period of 30 days to complete the repairs. If the repairs are not completed in 30 days, or an agreed upon time, the Town shall have the road repaired and assess the costs to the Developer.

iii. The final construction phase shall be defined as follows: final asphalt layer paving. The final construction phase as described herein shall be completed on or before the ___ day of _____, 2019. The entire cost of the final construction phase shall be paid by the Developer as the work progresses subject to the public improvement guarantee outlined in Section III. Section 460-64 and Section 456-5J of the Buchanan Municipal Code shall supersede any other provisions of this agreement. *[ALTERNATE LANGUAGE]: The final construction phase shall be defined as follows: final asphalt layer paving. The final construction phase as described herein shall be completed three years from the acceptance of the second construction phase. The entire cost of the final construction phase shall be completed by the Town and paid by the current lot owners via special assessment. Section 460-64 and Section 456-5J of the Buchanan Municipal Code shall supersede any other provisions of this agreement.*

Any variation to the proposed schedule of the improvements as set forth in the contract above may be extended where requests are made by the developer for construction during periods within the determination of the Town Administrator and the Town's Engineer, require extension of time periods to assure the Town that the improvements will not suffer from premature degeneration as a result of said construction.

2. Any street lights to be provided in the Development shall be provided by the Developer. Lights are not required to be installed. Energy and maintenance costs for such lights shall be assessed to the Developer and/or property owner's on an annual basis by the Town based on utility billing.

B. CURB AND GUTTER The Developer hereby agrees:

1. To furnish, construct and install curb and gutter in accordance with the above construction schedule, plat, plans, specifications and drawings attached hereto as Exhibit "B" and to complete said installation as set forth in the schedule above.

C. SANITARY SEWER The Developer hereby agrees:

1. To furnish, construct, install and provide a complete sewerage systems throughout the entire subdivision, all in accordance with the above construction schedule, plat plans, specifications and drawings as per the requirements of the Darboy Joint Sanitary District.
2. To install separate sanitary sewer laterals to each lot within the subdivision.
3. The Town Board will not accept the sanitary sewer system until the sanitary sewers have been installed and tested in accordance with Darboy Joint Sanitary District specifications on file with the Department of Natural Resources and the Developer's plan specifications as approved by the Darboy Joint Sanitary District.

D. WATER The Developer hereby agrees:

1. To furnish, construct, install and provide a complete water distribution system throughout the entire subdivision, all in accordance with the above construction schedule, plat, plans, specifications and drawings as per the requirements of the Darboy Joint Sanitary District.
2. To install separate water laterals to each lot within the subdivision.
3. The Town Board will not accept the water distribution system until the water distribution system has been installed and tested in accordance with the Darboy Joint Sanitary District specifications on file with the Department of Natural Resources and Public Service Commission and the Developer's plans and specifications approved by the Darboy Joint Sanitary District.

E. SURFACE WATER DRAINAGE The Developer hereby agrees:

1. To furnish, construct, install and provide adequate facilities for storm and surface water drainage throughout the entire subdivision, all in accordance with the above construction schedule, plat, plans, specifications and drawings approved by the Town Engineer as well as all regulations of the County of Outagamie and, where applicable, the Garners Creek Storm Water Utility and the Town of Buchanan Storm Water regulations.
2. The storm water and surface water drainage improvements shall be installed and tested in accordance with the Town's specifications and the Developer's plans and specifications approved by the Town before a release of the performance guarantee specified by this contract.

F. GRADING The Developer hereby agrees:

1. To complete rough grading and finish grading along all primary drainage swales and ditches in the subdivision all in accordance with plat, plans specifications and drawings approved by the Town Engineer.

G. LANDSCAPING RESTORATION The Developer hereby agrees:

1. To preserve to the maximum extent possible existing trees, shrubbery, vines and grasses not actually lying within public roadways, drainage-ways, building foundations sites, private driveways, solid absorption waste disposal areas, paths and trails by use of sound conservation practices.

2. To remove and lawfully dispose of all destroyed trees, brush, tree trunks, shrubs and other natural growth and all rubbish.
3. To provide topsoil, seed, fertilizer and mulch for primary drainage swales and ditches and seed fertilizer and mulch for terrace areas in order to provide permanent growth of grass.
4. To provide a growth of grass and warranty for washouts or other destruction of the drainage plan structures.

SECTION II – MISCELLANEOUS REQUIREMENTS.

- A. **SURVEY MONUMENTS.** The Developer hereby agrees to properly place and install all survey or other monuments required by statute and ordinance.
- B. **GRADE.** The Developer hereby agrees to furnish to the Town Engineer and/or Town Building Inspector, the final signed plan set showing the finished grade at each lot corner.
- C. **PLANS.** The Developer hereby agrees to furnish to the Town Engineer and/or Town Building Inspector all plans and specifications identified in the Subdivision Control Ordinance of the Town of Buchanan.
- D. **COMPLIANCE WITH ORDINANCES AND STATUTES.** The Developer hereby agrees to comply with the requirements and provisions of all Town and County ordinances and state statutes.
- E. **RECORD DRAWINGS.** The Developer agrees to provide the Town with record drawings of the sanitary sewer, water main and storm sewer improvements showing location of all the appurtenances and features of the systems as required by the standard specifications.
- F. **LOCATIONS FOR LATERALS OR OTHER IMPROVEMENTS** If locates are necessary for any reason prior to final acceptance, the developer shall either provide adequate record drawings to the Town or the developer shall provide the field locates of utilities (such as laterals).
- G. **STORMWATER MAINTENANCE AGREEMENT.** A separate stormwater maintenance agreement as required by Town of Buchanan Municipal Code §504-31 shall be filed and recorded with the County Register of Deeds as a property deed restriction so that it is binding upon all subsequent owners of the land served by the stormwater management practices.
- H. **WAIVER OF SPECIAL ASSESSMENTS.** For all construction phases of the roads and other public improvements described in this Agreement, Developer shall sign a Waiver of Assessments. This Waiver of Assessments is attached hereto, incorporated by reference, and marked as Exhibit “C”.
- I. **TOWN ENGINEER.** All costs directly related to the above requirements that require services of the Town Engineer shall be paid in full by Developer. Estimate of costs of work to be done by the Town Engineer shall be given to Developer prior to work being done. Copies of all invoices received by the Town from the Town Engineer shall be provided to Developer and paid within ten (10) days thereafter.
- J. **SNOW & ICE CONTROL.** Upon the written request of the Developer, the Town shall keep the roads and streets open during winter months by plowing snow prior to final acceptance of said roads and streets. The Town shall not be responsible for reshaping any damage cause by snowplow operations. Snow and ice control operations do not constitute final acceptance.

SECTION III – PUBLIC IMPROVEMENT GUARANTEE.

- A. The Town will not approve a final plat until such improvement is guaranteed as listed in A(1).
 1. The Developer shall provide a cash escrow (as further set forth in Exhibit “D”) or an irrevocable letter of credit for an amount equal to the cost of furnishings, constructing, installing, staking, inspecting and testing the improvement as required by this contract. The amount shall include construction engineering costs and shall be subject to final approval by the Town. (Improvements are described in this contract in Section I – Part, A, B, C, D, E, F & G hereof) The improvements shall be guaranteed prior to the Town approving the final plat.

A detail of the estimated cost shall be attached as Exhibit “E”.
- B. The Developer shall furnish, construct, install, stake, inspect and test the improvement. The improvement shall be dedicated to and accepted by the Town prior to the Town approving release of a public improvement guarantee.
- C. The Developer hereby agrees to guarantee the improvements described in Section I hereof against defects due to faulty materials or workmanship which appear within a period of two years, unless noted above, from the date of acceptance by the Town as herein provided and shall pay for repair of such defects.
- D. The Town shall also require verification that all improvements have been paid for, and upon recording of the final plat, provided that the Developer has filed a sufficient cash escrow or irrevocable letter of credit with the Town to cover the cost of remaining items. Should the Developer fail to complete any items pursuant to the terms of the contract by the date set forth herein, the Town shall have the right through either the cash escrow and irrevocable letter of credit provided by the Developer to complete the said improvement and the Town shall have unrestricted access to the Developer’s land for said purpose.
- E. Further, in the event that during the construction of the improvements specified herein, it is determined by the Town Administrator, or Town’s Engineer, that the Developer and/or its subcontractors installing said improvements have created a situation that is hazardous to the public and requires guarding improvement or repair, the Town may access the Developer’s property for the purpose of making said repairs and any costs associated with the maintenance of roadways, filling of holes, removal of obstructions or other necessary

work may be charged against the cash escrow or irrevocable letter of credit. The Town Administrator shall make an effort to notify the developer of the situation. The Town Administrator and the Engineer in their judgment may determine the necessity of the repairs are urgent in nature and complete those repairs without notice to the Developer.

- F. As improvements required by this Agreement are completed, approved and accepted by the Town, the Developer may request a reduction of the public improvement guarantee based upon a demonstration that there exists no necessity for a guarantee in the full amount as originally required. Reductions in the amount of the public improvement guarantee shall be solely within the discretion of the Town Board and shall be made only upon recommendation by the Town Administrator and Town Engineer.
- G. That the public improvement guarantee provided hereunder shall in all respects require compliance with Town of Buchanan Municipal Code.

SECTION IV – BUILDING PERMITS.

- A. The Town will not allow building permits to be issued to any person in the said subdivision until all improvements required herein have been dedicated to and accepted by the Town. *Issuance of permits may commence upon the dedication and partial acceptance of the roadways after completion of the first construction phase.* The Town will perform no repair or maintenance upon said improvements until full acceptance by the Town.
- B. Building permits may be issued by the Town upon dedication acceptance (including partial acceptance as outlined above), and verification by the Town that the provisions of this Agreement have been complied with.

SECTION V – AMENDMENTS.

The Town Board and Developer by mutual consent may amend this Agreement at any regularly scheduled meeting of the Town Board of the Town of Buchanan.

SECTION VI – INDEMINIFICATION.

The Developer hereby expressly agrees to indemnify and hold harmless the Town and its agents for any and all claims, costs, and liability of every kind and nature, for injury or damage received or sustained by any person or any entity in connection with, or on account of its performance under this agreement. The Developer further agrees to aid and defend the Town or its agents at no cost to the Town or its agents in the event that they are named as a defendant in an action concerning the performance of work pursuant to this agreement, except where such suit is brought by the developer. The Developer is not an agent or employee of the Town.

SECTION VII – TERM.

In the event that Developer does not acquire the Land, for whatever reason, on or before _____, 20__, this Agreement shall be null and void and neither party shall have any rights or obligations in connection herewith. If Developer acquires the Land and proceeds with the Development, this Agreement shall terminate one year after the issuance of a full dedication and acceptance for the Development. Nothing contained in this Agreement shall be interpreted to require the Developer to construct the Development, it being understood by the parties that Developer's obligations hereunder are contingent upon Developer obtaining all necessary sources of funding for the Development.

SECTION VIII – NOTICES.

All notices, demands or other writings in this Development Agreement provided to be given, made or sent or which may be given or made or sent, by either party to the other, shall be deemed to have been fully given or made or sent when made in writing and deposited in the United States mail, certified or registered and postage prepaid and addressed as follows:

TO TOWN:

Town of Buchanan
Attn: Town Administrator/Clerk
N 178 County Road N
Appleton, WI. 54915

TO DEVELOPER:

Garners Creek Development, LLC
Attn: Chad W. Shea
1835 E Edgewood Drive, STE 105-7
Appleton, WI 54913

SECTION IX - APPLICABLE LAW AND VENUE.

This Agreement shall be interpreted and construed in accordance with the laws of the State of Wisconsin. The Circuit Court for Outagamie County and the appellate courts thereafter shall be the exclusive venue for any disputes hereunder, which may be enforced by both injunctive relief and/or actions at law.

SECTION X – WAIVERS.

The failure of Town to insist on strict performance of any of the terms and conditions of this Development Agreement shall be deemed a waiver of the rights or remedies that Town may have regarding that specific instance only and shall not be deemed a waiver of any subsequent breach or default in any terms and conditions.

SECTION XI – BINDING EFFECT.

This development Agreement shall bind and inure to the benefit of the respective successors and assigns of the parties.

SECTION – XII – REMEDIES.

In the event of a breach or a threatened breach by Developer of any of the terms or conditions of this Agreement, Town shall have the right of injunction to restrain Developer and the right to invoke any remedy allowed by law or in equity.

The rights and remedies given to Town in this Agreement are distinct, separate and cumulative and no one of them, whether or not exercised by Town, shall be deemed to be in exclusion of any of the others in this Agreement, by law, or by equity provided.

DRAFT

DEVELOPER

IN WITNESS WHEREOF, the Developer has caused this Agreement to be signed this _____ day of _____, 20__.

GARNERS CREEK DEVELOPMENT, LLC

By: _____
CHAD W. SHEA, MANAGING MEMBER

STATE OF WISCONSIN
COUNTY OF _____

Personally came before me this _____ day of _____, 20__, the above named _____, the _____, and to me known to be the person who executed the foregoing instrument.

Notary Public-State of Wisconsin
My Comm. Exp. _____

TOWN OF BUCHANAN

TOWN OF BUCHANAN
BY: _____
Town Chairperson

Date: _____

BY: _____
Administrator/Clerk

Date: _____

STATE OF WISCONSIN
COUNTY OF _____

Personally came before me this _____ day of _____, 20__, the above named _____ and _____, to me known to be the persons who executed the foregoing instrument.

Notary Public-State of Wisconsin
My Comm. Exp. _____

EXHIBIT "A"
PRELIMINARY PLAT

DRAFT

EXHIBIT "B"

SITE PLAN & CONSTRUCTION SPECIFICATIONS

DRAFT

EXHIBIT "C"

WAIVER OF SPECIAL ASSESSMENT

This Agreement entered into this _____ day of _____, 20____, by and between the Town of Buchanan, a Wisconsin Municipal Corporation, located in Outagamie County, Wisconsin, hereinafter called the "Town" and Garners Creek Development, LLC, the owner of real estate to be known as Ruys Ridge Subdivision, within the Town, hereinafter called the "Owner".

1. The legal description of the subdivision Final Plat or Certified Survey Map properties affected by this Agreement are as set forth in **Exhibit A** attached.

2. Said Owner for himself/herself, or for itself, their heirs, successors and assigns, agrees with the Town that all real estate set forth in **Exhibit A** attached may be assessed by the Town for all street, road, and related public improvements which are not fully completed and paid for by the Owner, if any, including assessments to collect funds due and payable to contractors who perform the work or supplied materials whether or not such contractors were hired directly by the Developer, by the Town, or by some other entity. Such assessment action may only be initiated by the Town in its sole discretion.

3. Town and Owner agree that this document, shall constitute a waiver by the Owner, and its heirs, successors and assigns, authorizing the Town to proceed and accomplish all street, road, and related storm sewer construction and to specially assess the costs to abutting property owners; and, there shall be no requirement for a Preliminary Resolution, Notice of Public Hearing, Public Hearing, or Final Resolution. All such special assessments, by waiver as authorized by 66.0703 (7) (b) Wisconsin Statutes, are deemed correct, and properly imposed pursuant to Wisconsin Law.

4. The Town shall collect said special assessments by cash or installment payments as then determined by the Town.

5. Assessments pursuant to this Agreement may be implemented and enforced only by the Town, in the Town's sole discretion. This Agreement does not create an obligation by the Town to impose special assessments to benefit contractors, sub-contractors, or material suppliers, but the Town reserves the right to do so in its sole discretion. Contractors and sub-contractors may not enforce this Agreement against the Town or future property owners, for either damages or specific performance, as third party beneficiaries.

Dated this _____ day of _____, 20__.

Developer _____,

BY: _____
Authorized Representative/Title

Personally came before me this _____ day of _____, 20__ the above named _____ to me known to be the person who executed the forgoing instrument and acknowledge the same.

Notary Public, State of Wisconsin
My commission expires _____

Dated this _____ day of _____, 20__.

_____, BANK

BY: _____
Authorized Representative/Title

DRAFT

Personally came before me this _____ day of _____,
20____, the above named _____ to me known to be
the person who executed the foregoing instrument and acknowledge
the same.

Notary Public
Outagamie County

My Commission Expires _____

Dated this _____ day of _____, 20__.

TOWN OF BUCHANAN

BY: _____
Town Chairman

BY: _____
Town Clerk

Personally came before me this _____ day of _____,
20____ the above named
AND _____

to me known to be the persons who executed the forgoing instrument
and acknowledge the same.

Notary Public, State of Wisconsin
My commission expires _____

EXHIBIT "D"

ESCROW AGREEMENT

AGREEMENT made this _____ day of _____, 20____, between Garners Creek Development, LLC (hereinafter "Developer"), located at 1835 E. Edgewood Drive, STE 105-7, Appleton, Wisconsin; and _____, located at _____ (hereinafter "Bank" or "Escrow Agent"), and the Town of Buchanan, a Wisconsin Municipal Corporation pursuant to Wisconsin Statute (hereinafter "Town").

WHEREAS, Garners Creek Development, LLC is the Developer of the real estate Project known as Ruys Ridge Subdivision in the Town; and

WHEREAS, Bank is the Developer(s)' lender for the aforementioned project; and

WHEREAS, Town, by agreement, requires that real estate developers provide financial security to guarantee to the Town that subdivision roads and other public improvements will be constructed according to an approved plan, and that such pursuant to the Development Agreement; and

WHEREAS, Bank is desirous of facilitating the continued development of _____ (subdivision).

NOW THEREFORE, for good and valuable consideration mutually exchanged, the parties agree that an escrow account shall be created at Bank and Bank shall act as Escrow Agent subject to the following terms and conditions for the purpose of providing the Town, with the required financial guarantee/security with respect to the building of roads and storm sewer facilities in the Project as follows:

1. **Amount of Escrow.** The term "Escrow Funds" shall mean the cash sum of \$ _____ paid by the Developer to Bank as Escrow Agent, and disbursed from time to time as stated herein.

2. **Terms of Escrow.** The term of this Escrow Agreement will commence on the date of this Agreement, at which time the cash funds must be on deposit, and will terminate on the date evidence of the completion of the road and public improvements for the Project, and full payment for all said work has been made, as determined by the Town, and as verified by receipt of signed lien waivers from all contractors and sub-contractors. Evidence of the completion of the road and sewer work for the Project shall be in the form of a letter signed by the Administrator or Town stating that such road and public improvements is completed.

3. **Investment of Escrow Funds.** Escrow Agent shall invest Escrow Funds in an interest bearing account. Interest earned will be for the benefit of the Developer.

4. **Payments of Escrowed Amount.** Upon presentation of invoices and lien waivers by Developer for work performed by road and sewer contractors or subcontractors, Escrow Agent shall issue payment directly to those contractors or sub-contractors as requested by Developer. Escrow Agent shall submit copies of said invoices, lien waivers, and proof of payment to the Office of the Town Administrator, Town of Buchanan, N178 County Road N, Appleton, Wisconsin, 54915.

5. **Termination Date.** Upon receipt of proof of completion of the aforementioned roads and public improvements and upon satisfactory proof the work has been fully paid for, as specified in paragraph 2 of this Agreement, and upon receipt of signed lien waivers from all contractors and sub-contractors, Escrow Agent shall immediately pay the balance of Escrow Funds to Developer. Upon written demand by Town, such demand to contain a sworn statement that the aforementioned roads and public improvements have not been completed as required, Escrow Agent shall pay balance in account (if any) to Town, which said balance shall be paid, at the sole discretion of the Town, for the construction costs of the roads and other public improvements.

6. **Escrow Agent's Duties and Obligations.** It is agreed that Escrow Agent's duties under this Agreement are only such as are specifically provided, and are purely administrative in nature. Escrow Agent will incur no liability whatever except for willful misconduct or gross negligence so long as the Escrow Agent has acted in good faith. Escrow Agent will be under no responsibility regarding amounts received by it other than faithfully to follow the instructions contained in this Agreement. Escrow Agent will be fully protected in acting in accordance with any written statement delivered to Escrow Agent hereunder and reasonably believed by it to be genuine. Escrow Agent may consult with counsel and will be fully protected if it acts in accordance with such advice.

7. **Indemnification.** Developer covenants to indemnify Escrow Agent for and to hold it harmless against any loss, liability or expense incurred without negligence or bad faith on the part of the Escrow Agent and arising out of or in connection with the acceptance or administration of this Agreement. The rights of the Escrow Agent under this paragraph are cumulative of all other rights which the Escrow Agent may have by law or otherwise.

8. **Confirmation of Deposit.** By signing this Agreement The Bank expressly warrants and represents to the Town of Buchanan the following:

- A. That escrow deposit account no. _____ has been established at the Bank for receipt and disbursement of escrow funds totaling \$_____.
- B. That the cash escrow deposit of \$_____ in collected funds has been placed in escrow account no. _____ at the Bank and is now on deposit in Bank's possession.
- B. That a letter issued to the Town of Buchanan in the form attached to this Escrow Agreement has been forwarded to the Town of Buchanan to the attention of the Town Administrator at N178 County Road N, Appleton, Wisconsin, 54915.

9. **Enforcement/No Third Party Beneficiaries.** This Escrow Agreement is made for the benefit and protection of the Town of Buchanan. There are no third party beneficiaries to this Agreement. Neither contractors, subcontractors, nor material suppliers furnishing labor, material, or services for the roads and/or utilities to be constructed are third party beneficiaries. This Agreement may not be enforced by anyone, other than the Town against the Developer. The Town shall have no obligation or liability hereunder to any contractors, subcontractors, or

material suppliers under any circumstances, and none of the foregoing may make claims for damages or specific performance against the Town.

10. **Shortage of Funds.** The amount of funds on deposit in this escrow account is based upon estimates. If the escrow deposit is less than the amount necessary to pay for installation of all roads and utilities required under the Development Agreement, the Developer is responsible to pay the difference in full. A shortage of funds does not constitute a waiver by either the Town or contractors performing work to full payment. All Town rights to invoke special assessments in the Development Agreement are preserved.

11. **Amendment.** This Agreement may be amended only by written and signed mutual agreement executed by Developer, the Escrow Agent, and Town.

12. **Successors.** This Agreement will be binding on and inure to the benefit of the parties hereto and their respective assigns, heirs, beneficiaries, or successors in interest.

13. **Notice and Communications.** All notices, instruments, and writings or other communications required or permitted to be delivered under this Agreement will be in writing and delivered in person or sent by registered mail, postage prepaid, return receipt requested, addressed to the parties at the addresses specified above.

14. **Governing Law.** This Agreement will be construed and the rights determined in accordance with the laws of the State of Wisconsin.

Dated this _____ day of _____, 20__.

_____, Developer

BY: _____
Authorized Representative/Title

Personally came before me this _____ day of _____, 20__ the above named _____ to me known to be the person who executed the forgoing instrument and acknowledge the same.

Notary Public, State of Wisconsin
My commission expires _____

Dated this _____ day of _____, 20__.

_____, BANK

BY: _____
Authorized Representative/Title

Personally came before me this _____ day of _____,
20__, the above named _____ to me known to be
the person who executed the foregoing instrument and acknowledge
the same.

Notary Public
Outagamie County

My Commission Expires _____

Dated this _____ day of _____, 20__.

TOWN OF BUCHANAN

BY: _____
Town Chairman

BY: _____
Town Clerk

Personally came before me this _____ day of
_____, 20__ the above named
AND _____

to me known to be the persons who executed the forgoing instrument
and acknowledge the same.

Notary Public, State of Wisconsin
My commission expires _____

EXHIBIT "E"
DETAIL OF ESTIMATED COSTS

DRAFT

*"In the Spirit of Town Government"*

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Assessment Services Agreement Extension – Accurate Appraisal, LLC**

RECOMMENDED ACTION: This is a legislative action¹ item for possible Town Board Approval/Denial.

SUMMARY BACKGROUND: Our current agreement with Accurate Appraisal, LLC for assessment services was completed after this year's Board of Review. Therefore, provided is a new agreement extension with Accurate Appraisal for the next three assessment years.

The Town completed an RFP process in 2009 and has been utilizing Accurate Appraisal since that time. A new RFP process is not recommended at this time, but should be considered upon completion of the next agreement when it may be appropriate to conduct a full revaluation of the Town.

The new agreement is essentially identical to our original agreement with Accurate, except for two additions. Item number 18 and number 19 are new to the agreement and reflect new requirements for assessors from the WDOR.

The provided agreement is for three years at a cost of \$12,500 per year. This cost is the same as our last three year agreement. To date, the Town has never been charged any additional fees for services.

FISCAL IMPACT:

Is there a fiscal impact? Yes; \$12,500 per year
 Is it currently budgeted or planned? Yes;
 The Town has budgeted \$12,500 for 2016 (GL #51500.2)

POLICY/PLAN REFERENCE(S):

1. Town of Buchanan Municipal Code §102, Article I Assessor
2. Town of Buchanan Purchasing Policy, Adopted June 2008.

###

Attachments:

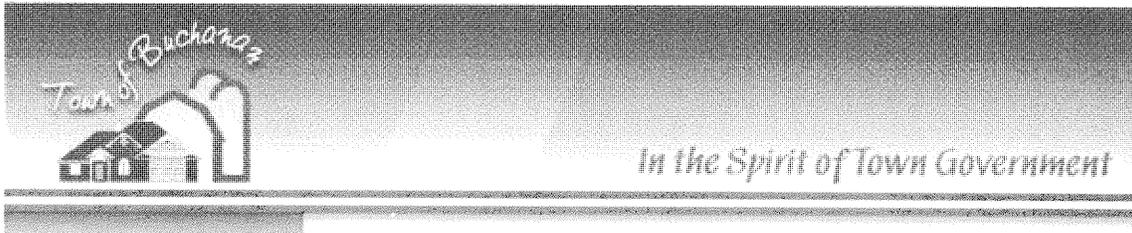
- **Agreement for Assessment Services, Accurate Appraisal, LLC.**

¹ Legislative actions are those which result in policy making. They generally affect the community as a whole rather than a small area or specific individuals. The adoption, amendment and implementation of plans, budgets, policies, and ordinances are considered legislative actions. Legislative action allows for a great deal of discretion. They are limited only by procedural and constitutional concerns. In many cases, legislative actions require or encourage public participation in helping shape the decision, e.g. public hearings, etc.



Agreement for Assessment Services

Prepared for:



By

Accurate Appraisal, LLC.

AGREEMENT FOR MAINTENANCE

Section I

This agreement made this _____ day of _____, 2016 by and between the Town of Buchanan, Outagamie County, State of Wisconsin, party of the first part, hereinafter referred to as "Client",

AND

ACCURATE APPRAISAL LLC., PO BOX 415, MENASHA, WI 54952, party of the second part, hereinafter referred to as "Accurate".

SCOPE OF SERVICES

Accurate shall provide the Client with assessing services by Wisconsin Department of Revenue Certified Personnel for the 2016-2018 assessment years which includes the following:

1. Accurate shall update and maintain 100% real property assessment records for the Client. Said service shall include all assessing services so as to comply with all applicable Wisconsin statutes, codes, rules, and/or regulations, including the assessment of all new construction, remodeling, additions and changes relating to improvements removed for any reason such as fire, demolition, etc. through building permits. Accurate shall reapportion value brought about through property splits.
2. Accurate shall prepare and mail personal property blotters from a list supplied by the Client of the accounts to be assessed. Accurate will analyze returned personal property blotters from the merchants in order to establish the proper assessment.
3. Accurate shall, without additional expense to the Client, be required to attend Open Book and all Board of Review meetings and shall be responsible for defending all assessments. The Open Book meeting shall be conducted as needed. The meetings shall be scheduled by Accurate with the Clerk. The Open Book meetings shall be completed no later than the agreement date specified in Section III of this agreement.

4. Accurate shall enter real estate and personal property assessments in the current assessment roll so that it may be submitted to the Board of Review.
5. Accurate shall retain the right to employ additional certified personnel at Accurate's expense as deemed necessary to complete the assessment roll in a timely manner. Responsibility for the content and accuracy of the assessment roll regardless of the use of other personnel shall, however, rest with Accurate.
6. The Client's responsibilities will be to supply Accurate with adequate office space in or near the Client's Hall. Items to be mailed such as, but not limited to, assessor's final report and personal property blotters will be the responsibility of Accurate.
7. The Client will hold harmless Accurate from third claims and liabilities due to the assessment of property except claims or liabilities, which result from the intentional or negligent acts or omissions of Accurate, its employees, agents and representatives, shall be the responsibility of Accurate.
8. This agreement between the Client and Accurate shall be for the aforementioned assessment year beginning January 1st, 2016 and ending December 31st, 2018. It is expected the work will commence with the mailing of personal property blotters and be completed after the final adjournment of the Board of Review and any necessary follow up questions and/or work because of appeals of Board of Review decisions.
9. Accurate shall submit monthly invoices based upon a percentage complete. The Client reserves the right to retain a 10% holdback pending final completion of all terms and conditions of the contract.
10. Accurate shall provide advice and opinion for assessment matters and will defend values through the appeal process beyond the Open Book and Board of Review.
11. Accurate shall complete its Open Book hearings under this agreement no later than the agreement date, specified in Section III of this agreement, except for delays caused by the Client, county or state. Accurate may request a thirty-day extension to the contract upon written agreement with the Client.

12. Accurate shall maintain full insurance coverage to protect and hold harmless the Client. Limits of liability shall be not be less than the amounts listed below in this contract:

INSURANCE COVERAGE

General Liability

General Aggregate	\$ 4,000,000
Each Occurrence	\$ 2,000,000
Personal & Adv Injury	\$ 2,000,000
Products-Comp/Op Agg	\$ 4,000,000
Fire Damage	\$ 300,000
Medical Expense	\$ 10,000

13. Accurate shall consider the cost approach, market approach, and income approach in the valuation of all land and improvements where applicable.
14. Accurate shall use Computer Assisted Mass Appraisal software to accurately provide the Client with records of the maintenance and revaluation. For both residential and commercial valuation, Prolorem will be utilized following market data, Volume II of the Assessor manual and Marshall & Swift cost tables. The yearly maintenance fee associated with the use of either program will be at no additional cost to the Client. The data will be available to the public on accurateassessor.com; building data and appointment scheduling will also be available at no additional expense to the Client.
15. Photographs of all improved parcels will be taken digitally at no additional expense to the Client.
16. All expenses incurred by Accurate during the contract such as postage, phone calls, etc....., will be at no additional expense to the Client.
17. Accurate will promote understanding of the assessment process with taxpayers and the Client. The Client and Accurate shall work to maintain good public relations throughout the assessment program. Initial informational postcards shall be sent to all property owners at no additional expense to the Client.

Section II

Parcel Totals:

Residential Total = 2,262

Residential Improved = 2,127

Commercial Total = 175

Commercial Improved = 140

Agricultural = 321

Undeveloped = 167

Other Total = 60

Other Improved = 59

Agricultural Forest = 47

Forest = 9

Section III

Agreement for Assessor Services

Provided by Accurate Appraisal LLC.

For

Town of Buchanan, Outagamie County for the assessment years 2016-2018

Dated this _____ day of _____ 2016.

Agreement completion date of June 30th, each year

Fee for services rendered:

Accurate shall be paid the sum of:

2016-2018 Maintenance Assessment Services = \$12,500 per year

Jim Danielson
Member
Accurate Appraisal LLC

Date

Authorized Client Signature

Date



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Ordinance 2016-02**

RECOMMENDED ACTION: This is a legislative action¹ item for possible Approval/Denial.

SUMMARY BACKGROUND: Town Zoning Code Ch. 525 does not currently specify an expiration period for an approved site plan which remains undeveloped. Staff is requesting the Town consider adding language to the Zoning Code which identifies the expiration of undeveloped approved site plans.

Additionally, the Code does not specify inspection and enforcement provisions for approved site plans. Staff recommends adding language allowing for the proper inspection and enforcement of an approved site plan.

Draft Ordinance #2016-02 repeals and recreates Section §525-79, effectively adding the following language:

- C. *Expiration of approved site plan. Unless a written extension request is submitted to and approved by the Plan Commission, an approved site plan shall expire upon either of the following conditions:*
- (1) *A new site plan for the property is submitted to and approved in accordance with subsections A & B of §525-79.*
 - (2) *A building permit has not been issued within one year from the date of site plan approval.*
- D. *Inspection and enforcement. Before issuing a certificate of occupancy and/or zoning certificate for any use not exempted under §525-79 A, the Administrator or his/her designee shall conduct an inspection to determine compliance with the conditions set forth on the approved site plan for the project. A temporary certificate of occupancy may be issued without completion of all elements on the site plan, provided written assurance is given all improvements will be completed when feasible.*

PLAN COMMISSION RECOMMENDATION: The Plan Commission reviewed and recommended unanimous approval at their February 8, 2016 meeting.

¹ *Legislative actions are those which result in policy making. They generally affect the community as a whole rather than a small area or specific individuals. The adoption, amendment and implementation of plans, budgets, policies, and ordinances are considered legislative actions. Legislative action allows for a great deal of discretion. They are limited only by procedural and constitutional concerns. In many cases, legislative actions require or encourage public participation in helping shape the decision, e.g. public hearings, etc.*

JDG

###

Attachments:

- **Draft Ordinance 2016-02 – Repeal and Recreate Section 525-79 Applicability and Procedure (Site Plans).**

TOWN OF BUCHANAN
ORDINANCE NO. 2016-02
Site Plans - § 525-79. Applicability and procedure

The Town Board of the Town of Buchanan does hereby ordain as follows:

Section §525-79. Applicability and procedure of the Code of the Town of Buchanan is hereby repealed and recreated to read:

§ 525-79. Applicability and procedure.

- A. In addition to any other provisions contained in this chapter for site plans, site plans for all new commercial and industrial buildings and for all additions to commercial and industrial buildings in excess of 2,000 square feet shall be approved by the Town Board prior to the issuance of a building permit. Where, by the terms of this chapter, a site plan is required in connection with any use or structure, such site plan shall be submitted coincident with an application for a building permit or special exception, as the case may be. The Administrator shall forthwith circulate the site plan for comment by the Town Plan Commission and any other Town officer who may have a responsibility for or interest in an aspect of the development.
- B. Within 30 days of submittal, the Administrator shall transmit the site plan along with all pertinent comment to the Plan Commission for its consideration. Except as required in connection with a special exception, no public notice and hearing is required for site plan consideration, but such matters shall be handled in public session as part of a previously prepared agenda. All matters relating to site plan consideration shall be a public record. In cases where a site plan is submitted in connection with an application for a special exception, public notice and hearing is required. Site plan approval shall require formal action of the Town Board.
- C. Expiration of approved site plan. Unless a written extension request is submitted to and approved by the Plan Commission, an approved site plan shall expire upon either of the following conditions:
 - (1) A new site plan for the property is submitted to and approved in accordance with subsections A & B of §525-79.
 - (2) A building permit has not been issued within one year from the date of site plan approval.
- D. Inspection and enforcement. Before issuing a certificate of occupancy and/or zoning certificate for any use not exempted under §525-79 A, the Administrator or his/her designee shall conduct an inspection to determine compliance with the conditions set forth on the approved site plan for the project. A temporary certificate of occupancy may be issued without completion of all elements on the site plan, provided written assurance is given all improvements will be completed when feasible.

This Ordinance shall take effect upon passage and publication.

Adopted this _____ day of _____, 2016

TOWN OF BUCHANAN:

Mark McAndrews
Town Chairperson

Attest:

Joel Gregozeski
Town Administrator/Clerk



"In the Spirit of Town Government"

AGENDA MEMORANDUM

To: Honorable Town Chairperson and Town Supervisors
From: Joel Gregozeski, Administrator/Clerk
Date: February 16, 2016
RE: **Ordinance 2016-03**

RECOMMENDED ACTION: This is a legislative action¹ item for possible Approval/Denial.

SUMMARY BACKGROUND: Town Zoning Code Ch. 525 does not currently specify an expiration period for an approved Special Exception which remains undeveloped or has ceased in accordance with the approval. Staff is requesting the Town consider adding language to the Zoning Code which identifies the expiration of undeveloped or ceased Special Exceptions.

Draft Ordinance #2016-03 repeals and recreates Section §525-86, effectively adding the following language:

- A. Expiration of approved special exception. Unless a written extension request is submitted to and approved by the Plan Commission, an approved special exception shall expire upon any of the following conditions:
- (1) A new special exception for the property is submitted to and approved in accordance with Article XIII of Chapter §525.
 - (2) A building permit has not been issued within one year from the date of special exception approval.
 - (3) The special exception use ceased for a period of twelve consecutive months.

PLAN COMMISSION RECOMMENDATION: The Plan Commission reviewed and recommended unanimous approval at their February 8, 2016 meeting.

JDG

###

Attachments:

- **Draft Ordinance 2016-03 – Repeal and Recreate Section 525-86 Conditions and Safeguards (Special Exceptions).**

¹ Legislative actions are those which result in policy making. They generally affect the community as a whole rather than a small area or specific individuals. The adoption, amendment and implementation of plans, budgets, policies, and ordinances are considered legislative actions. Legislative action allows for a great deal of discretion. They are limited only by procedural and constitutional concerns. In many cases, legislative actions require or encourage public participation in helping shape the decision, e.g. public hearings, etc.

TOWN OF BUCHANAN
ORDINANCE NO. 2016-03
Special Exceptions - § 525-86. Conditions and safeguards

The Town Board of the Town of Buchanan does hereby ordain as follows:

Section § 525-86. Conditions and safeguards of the Code of the Town of Buchanan is hereby repealed and recreated to read:

§ 525-86. Conditions and safeguards.

- A. Where by the terms of this chapter certain conditions or requirements are specified for a special exception use or structure, such conditions or requirements must be imposed by the Plan Commission. In addition to the conditions or requirements specified by the terms of this chapter, the Plan Commission may impose appropriate additional conditions or requirements as deemed necessary to ensure the proposed use or structure will serve the objectives of this chapter and promote the public health safety, comfort, convenience and general welfare. Violation of such conditions and requirements, when made part of the terms under which the special exception is granted, shall be deemed a violation of this chapter.
- B. Expiration of approved special exception. Unless a written extension request is submitted to and approved by the Plan Commission, an approved special exception shall expire upon any of the following conditions:
 - (1) A new special exception for the property is submitted to and approved in accordance with Article XIII of Chapter §525.
 - (2) A building permit has not been issued within one year from the date of special exception approval.
 - (3) The special exception use ceased for a period of twelve consecutive months.

This Ordinance shall take effect upon passage and publication.

Adopted this _____ day of _____, 2016

TOWN OF BUCHANAN:

Mark McAndrews
Town Chairperson

Attest:

Joel Gregozeski
Town Administrator/Clerk



"In the Spirit of Town Government"

TOWN OF BUCHANAN FIRE & RESCUE
N178 County Rd N
Appleton, WI 54915-9459

Phone: 920-734-8599
Fax: 920-730-7394
www.townofbuchanan.org

Memorandum

Date: 2/18/2016

To: Town of Buchanan Board

From: Neil Cameron, Interim Fire Chief

Subject: Recommendation to purchase Self Contained Breathing Apparatus (SCBA)

The approved 2016 budget included funds to completely replace SCBA units and associated equipment which have passed their useful service life. The department sought demonstrations and quotes from vendors representing the two leading manufacturers (Scott Safety and MSA) of SCBA's. The firefighters who evaluated the products have recommended purchasing units manufactured by Scott Safety.

The department sought quotes from two vendors of the Scott product to provide 16 complete units with a spare air bottle, approximately 30 face pieces, and a compatible firefighter rescue pack. In addition, a unit price was requested to provide voice amplification units. A decision on the final need and number of voice amplifiers will be determined after the new units are placed in service. This is due to improvements in the voice quality performance of the newer face pieces potentially changing the need for using the amplifiers. Should the department determine voice amplifiers are needed the purchase can be completed within the approved project budget.

The quotes received were:

- 1) Oshkosh Fire and Police Equipment Inc. - \$89,610
- 2) Jefferson Fire and Safety. - \$100,805.35

The department recommends awarding the purchase to Oshkosh Fire and Police Equipment as the lowest responsive quote.

Please feel free to contact me should you have any questions regarding the quote process. A member of the product evaluation team will be available at the Board meeting to address any questions on the selection process.

RESOLUTION NO. 2016-01

**RESOLUTION DESIGNATING CARRY OVER
FUNDS FOR 2016 TOWN BUDGET**

WHEREAS, the Town of Buchanan has approved the 2016 Town Budget, and

WHEREAS, the Town Board desires to carry forward certain 2015 budget appropriations for unfinished projects, underfunded obligations and building designated balances for specific projects, now therefore

BE IT HEREBY RESOLVED, the Town Board of the Town of Buchanan designates the following funds to be carried forward to the 2016 budget year as designated:

<u>Account/Appropriation Name</u>	<u>Amount</u>
Fire & Rescue, Capital Outlay, Breathing Apparatus	\$104,000

Adopted this the ____ day of _____, 2016

Mark McAndrews, Town Chairperson

ATTEST:

Joel Gregozeski, Administrator/Clerk

Motion to Approve Resolution 2016-01 made by: _____/ _____.

Votes:

Title	Name	Aye	Nay	Other
Supervisor I	Lawrence			
Supervisor II	Reinke			
Supervisor III	Kavanaugh			
Supervisor IV	Hughson			
Chairperson	McAndrews			

Posted: _____