VILLAGE OF CALEDONIA UTILITY DISTRICT MEETING AGENDA
Wednesday, May 5, 2021 at 6:00 p.m.
Caledonia Village Hall - 5043 Chester Lane

THIS WILL BE AN IN-PERSON MEETING

1. **Meeting Called to Order**
2. **Roll Call**
3. **Election of Officers**
4. **Approval of Minutes**
   - **a.** Utility District Regular Meeting – April 7, 2021
5. **Citizen Comments**
6. **Communications and Announcements**
   - **a.** Racine Water Utility Agenda & Minutes
   - **b.** Racine Wastewater Utility Agenda & Minutes
   - **c.** Operator Position & Engineering Tech Position
7. **Approval of O&M Bills**
   - **a.** O&M Bills related to the Sewer Utility District
   - **b.** O&M Bills related to the Water Utility District
   - **c.** O&M Bills related to the Storm Water Utility District
8. **Project Updates**
   - **a.** Construction Contract Status
   - **b.** Riverbend Drive Lift Station Safety Site
   - **c.** Riverbend Lift Station & Forcemain Upgrade
   - **d.** Lighthouse Drive Lift Station Upgrade Site
   - **e.** Rio Vista, Shorewood & Stonebridge Utility Improvements
   - **f.** DeBack Industrial Park Phase 3 Improvements
   - **g.** Annual Televising Program – Sanitary Sewer
   - **h.** Water Impact Fee / Sewer Connection Fee Update
   - **i.** EPA Risk & Resilience Assessment and Emergency Response Plan
   - **j.** Hoods Creek Attenuation Basin Expansion
   - **k.** Central Lift Station Safety Site
   - **l.** Central Attenuation Basin
   - **m.** Hoods Creek – Aldebaran Brushing Project
   - **n.** Tanglewood Avenue Storm Sewer Replacement Project
   - **o.** Wind Point West Subdivision Project
   - **p.** GIS Updates
   - **q.** Alcyn Drive
   - **r.** Douglas Avenue OMG Ditch Project
   - **s.** Turtle Creek Restoration
9. **Action Items**
   - **a.** DeBack Farms Pad F – Scannell Properties LLC – Storm Water Management Plan & Utility Plan Conditional Approval
   - **b.** Westview Village Drainage Analysis
   - **c.** EPA Risk & Resilience Assessment – Water Utility
10. **Adjournment**

Village of Caledonia Utility District Meeting
April 7, 2021

1. **Meeting Called to Order** – The Regular Meeting of the Village of Caledonia Utility District was held on Wednesday, April 7, 2021. The meeting was called to order by President Howard Stacey at 6:00 pm.

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2. **Roll Call** – Those present were President Howard Stacey, Commissioners Michael Pirk, Tony Minto, Dave Ruffalo, Mark Brigman, and Trustee Lee Wishau. Commissioner Sullivan was excused. Also present were Utility Manager Robert Lui, and Utility Director Anthony Bunkelman.

3. **Approval of Minutes**
   a. Upon a motion by Minto and seconded by Pirk, the Commission approved the minutes from the Utility District's previous regular meeting held March 3, 2021. A copy of these minutes has been furnished to each Commissioner. **Motion carried.**

4. **Citizen Comments – None.**

5. **Communications and Announcements**
   a. **Racine Water Utility Agenda & Minutes**
   The Commission looked over the February 17th Minutes and the March 16th Agenda for the Racine Water Utility.

   b. **Racine Wastewater Utility Agenda & Minutes**
   The Commission looked over the February 17th Minutes, and the March 16th Agenda for the Racine Wastewater Utility. It was discussed that Mike Gitter of Racine Wastewater gave a presentation on Safety Sites to the Racine Wastewater Utility. At this time, we anticipate being on the April meeting but that is to be determined.

   c. **Operator Position**
   The new Operator started on Wednesday 3/31 and resigned on Thursday 4/1. He indicated that this was not what he anticipated. Will be going back out advertising.

   d. **PWAC – PSC Final Decision**
   The PSC issued the Final Decision, and the new rates are now in place. Will be effective for the second quarter. A copy of the Final Decision is in the packet.

   e. **MS4 2020 Annual Report**
   The MS4 2020 Annual Report was submitted on March 23. A copy of the report is in the packet.

6. **Approval of O&M Bills**
   a. Upon a motion by Wishau and seconded by Brigman, the Commission approved payment of O&M Bills, related to the Sewer Utility District totaling $1,445,842.86. **Motion carried.**
   b. Upon a motion by Minto and seconded by Brigman, the Commission approved payment of O&M Bills, related to the Water Utility District totaling $227,434.69. **Motion carried.**
   c. Upon a motion by Minto and seconded by Wishau, the Commission approved payment of O&M Bills related to the Storm Water Utility District totaling $44,404.04. **Motion carried.**

7. **Project Updates**

a. Construction Contract Status
The current contract statuses were shared with the Commissioners.

b. Riverbend Lift Station Safety Site
Met with Foth on project. Will be scheduling a site visit for a walk through. Working on Facilities Plan. To be completed by July 2021 and submitted to the DNR by September 2021. Preliminary design to be ready by June 2021. Proposed to be bid in January 2022 with Construction February 2022 – September 2022.

c. Riverbend Lift Station & Forcemain Upgrade
Working on Facilities Plan. To be completed by July 2021 and submitted to the DNR by September 2021.

d. Lighthouse Drive Lift Station Upgrade Site
Project completed. Awaiting Final Pay Request. Retainage remains on the contract.

e. Rio Vista Shorewood & Stonebridge Utility Improvements
Sanitary Sewer lining portion has been completed. The testing, grouting, and final televising underway.

f. DeBack Industrial Park Phase 3 Improvements
Special Assessment Information updated. Sent out information to owners today. Class 1 notice prepared, and Public Hearing scheduled for April 27th.

g. Annual Televising Program – Sanitary Sewer
Preparing the 2021 program.

h. Water Impact Fee / Sewer Connection Fee Update
Met with Foth to discuss proposed Fees. Working on various alternatives.

i. EPA Risk & Resilience Assessment and Emergency Response Plan
Met with Foth to review each site that the Utility has for Assessment. Water Plan completed. Began work on Sewer Plan.

j. Hoods Creek Attenuation Basin Expansion
Met with Ray Leffler on use of adjacent property to spread/dispose of excavated material. Discussed with We Energies the need for increasing the gas service for a makeup air unit. Proposed to be bid in August 2021 with Construction September 2021 – August 2022.

k. Central Lift Station Safety Site
Working on facilities plan. To be completed by end of March 2021 and submitted to the DNR by April 2021. Preliminary Design to be ready by March 2021. Proposed to be bid in October 2021 with Construction November 2021 – June 2022.

l. Central Attenuation Basin
Discussed alternatives for basin. Prefer gravity vs. pumped and underground tank vs partially exposed. Will show alternatives in the Facilities Plan. Proposed to be bid in April 2023 with Construction May 2023 – July 2024.

m. Hoods Creek – Aldebaran Brushing Project
Awaiting dry weather. Will re-assess the needs of the Hoods Creek along the Aldebaran Subdivision.

n. Tanglewood Avenue Storm Sewer Replacement Project
Project completed. Awaiting Final Pay Request. Retainage remains on contract.

o. Wind Point West Subdivision Project
Project completed. Awaiting Final Pay Request. Retainage remains on contract.

p. GIS Updates
Hyperlinking of Easement documents and Storm Sewer Projects ongoing. Will be gathering Subdivision Plats and Subdivision Plans as time allows.

q. Alcyn Drive – Drainage Complaint
Waiting for contractor pricing. Then will respond to owners.

r. Douglas Avenue – OMG Ditch Project
Foth proceeding with plans to get out for bidding and construction in 2021.

s. Turtle Creek Restoration
Reached out to Dave Giordano of Root Pike WIN for electronic files from consultant. Will use file when received for creating Easement documents and a Relocation Order.

8. Action Items

a. **Culver's Restaurant Storm Water Management Plan & Site Grading Plan Conditional Approval**

Director Bunkelman gave an overview of the Storm Water Management Plan, the proposed underground storage tank, the sanitary sewer & water laterals, and the grading plan. The plans are ready for conditional approval subject to the conditions outlined in the March 30th memo from Director Bunkelman.

Upon a motion by Brigman and seconded by Pirk, the Commission moved to conditionally approve the Storm Water Management Plan, Site Utility Plan and Site Grading Plan for Tom Haman – Culver's Restaurant at 4542 Douglas Avenue subject to the March 30, 2021 memo from Utility Director Bunkelman. **Motion carried.**

b. **Briarwood of Caledonia, LLC – Development Agreement – Authorization of Signatures**

Upon a motion by Minto and seconded by Brigman, the Commission moved to authorize the President and Secretary of the Caledonia Utility District to execute the Development Agreement for Briarwood of Caledonia. **Motion carried.**

c. **DeBack Farms Phase III Sanitary Sewer Easement – Authorization of Signatures**

Upon a motion by Minto and seconded by Wishau, the Commission moved to authorize the President and Secretary of the Caledonia Utility District to execute the Sanitary Sewer Easement with WisPark LLC for the DeBack Farms Business Park. **Motion carried.**

d. **DeBack Farms Phase III Watermain Easement – Authorization of Signatures**

Upon a motion by Minto and seconded by Pirk, the Commission moved to authorize the President and Secretary of the Caledonia Utility District to execute the Watermain Easement with WisPark LLC for the DeBack Farms Business Park. **Motion carried.**

e. **DeBack Farms Phase III Drain Tile Easement – Authorization of Signatures**

Upon a motion by Minto and seconded by Pirk, the Commission moved to authorize the President and Secretary of the Caledonia Utility District to execute the Drain Tile Easement with WisPark LLC for the DeBack Farms Business Park. **Motion carried.**

f. **DeBack Farms Stormwater Easement – Authorization of Signatures**

Upon a motion by Minto and seconded by Brigman, the Commission moved to authorize the President and Secretary of the Caledonia Utility District to

execute the Stormwater Easement with WisPark LLC for the DeBack Farms Business Park. **Motion carried.**

g. **Consultant Fees Review with possible position creation**
Trustee Wishau explained that he and President Stacey went to meet with Tom Ludwig of Foth. To make this work there would need to be strong communication and specific handout points to make projects continue to be seamless. The Commission discussed projects that this position could do being storm sewer inspection, sanitary mainline inspection, and GIS input. The Commission also wants to make sure that the time spent on projects is tracked and that the cost savings are measurable. Village President Dobbs has requested that a presentation be given on this topic to the Village Board at the next Village Board Meeting.

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9. **Adjournment**
Upon a motion by Brigman and seconded by Minto, the Commission moved to adjourn the regular meeting at 7:30pm. **Motion carried.**

Respectively submitted,
Anthony A. Bunkelman P.E. Utility Director

City of Racine

City Hall
730 Washington Ave.
Racine, WI 53403
www.cityofracine.org

Meeting Minutes - Final

Waterworks Commission

Tuesday, March 16, 2021 | **4:00 PM** | **Virtual**

Roll Call

PRESENT: 8 - Terry McCarthy, Natalia Taft, John Tate II, Stacy Sheppard, Shannon Powell, Matthew Rejc, Cory Mason and Paul Vornholt

0132-21 **Subject:** Approval of Minutes for the February 17, 2021 Meeting

Recommendation: Approve

A motion was made by Mason, seconded by Sheppard, that this file be Approved

0168-21 **Subject:** Bond Refinance Opportunity (Brad Viegut, Baird invited)

Recommendation of the Waterworks Commission on March 16, 2021: Approve and Refer to the Finance and Personnel Committee

Staff Recommendation of the Finance and Personnel Committee on 03-22-2021: To approve.

Fiscal Note: The Racine Water Utility would like to refinance debt from 2012 issue from 4% to .92%, while not extending the remaining 4-yr maturity.

Brad Viegut from R. W. Baird gave a presentation on refinance of 2012 debt. The Interim General Manager recommended approval. Savings are expected to total $242,469.

A motion was made by Mason, seconded by McCarthy, that this file be Referred Finance and Personnel Committee

0162-21 **Subject:** Proposal from AECOM for 2021 Leak Detection Services

Recommendation: Approve

The Interim General Manager explained the scope of services for the second half of the system started in 2020. Detected leaks would then be fixed by the Utilities construction department to reduce utility overall water loss. Cost of the proposal is $63,730.

A motion was made by McCarthy, seconded by Sheppard, that this file be Approved

0099-21

Subject: Proposal from CDM Smith for construction related services for low lift pump project

Recommendation: Approve

The Interim General Manager presented the proposal for construction related services at a cost of $208,733. This includes overall project management to replace 3 pump motors and VFD's conducted over 3 consecutive phases.

A motion was made by McCarthy, seconded by Secretary Taft, that this file be Approved

0163-21

Subject: Developers Agreement for Savannah Grove Subdivision in Mt. Pleasant (Sego Services)

Recommendation of the Waterworks Commission on March 16, 2021: Approve and Refer to the Finance and Personnel Committee.

Recommendation of the Finance and Personnel Committee on 03-22-2021: To approve.

Fiscal Note: No costs incurred by the Utility with the water main being turned over to the Utility as CIAC. The Developer (Sego Services) will pay for all costs associated with the new water main including design and construction related costs.

The Interim General Manager presented the Developers Agreement for Savannah Grove Subdivision in Mt. Pleasant that will service about 35 lots. The Agreement requires the water main to be built to utility specifications with a 2-year warranty, as-built drawings provided to the Utility, and the asset turned over to the Utility for future maintenance.

A motion was made by McCarthy, seconded by Sheppard, that this file be Referred Finance and Personnel Committee

0107-21

Subject: Presentation TID 5 Wisconn Valley Way Water Main (Braun Rd to CTH KR) Construction Review Services

Recommendation: Received and Filed

Mt. Pleasant Project Director, Claude Lois did a presentation on the TID 5 Wisconn Valley Way water main installation

A motion was made by Secretary Taft, seconded by Sheppard, that this file be Received and Filed

0186-21

Subject: Change Order No. 3 on Contract W-20-9, Washington Avenue Water Main Replacement, Globe Contractors, Inc. (Contractor)

Recommendation: Approve

The Interim General Manager submitted Change Order No. 3 on Contract W-20-9 in the amount of $1,332.23, bringing the total contract amount to $2,455,111.68 and

recommend for approval.

A motion was made by McCarthy, seconded by Mason, that this file be Approved

0187-21 **Subject:** Request for Final Payment on Contract W-20-9, Washington Avenue Water Main Replacement, Globe Contractors, Inc.

Recommendation: Defer

The Interim General Manager submitted final pay request on Contract W-20-9. Further recommends that work performed by Globe Contractors, Inc. (Contractor) be accepted and final payment be authorized for a total contract amount of $2,455,111.68. Commissioners would like a more complete report on compliance with Racine Works program before approval of final payment.

A motion was made by Mason, seconded by Sheppard, that this file be Deferred

0189-21 **Subject:** Request for Final Payment on Contract W-19-12, Summit Avenue Elevated Storage Tank Pumping Station, Staab Construction Corporation (Contractor)

Recommendation: Defer

The Interim General Manager submitted final pay request on Contract W-19-12. Further recommends that work performed by Staab Construction Corporation (Contractor) be accepted and final payment be authorized for a total contract amount of $1,188,132.97. Commissioners would like a more complete report on compliance with Racine Works program before approval of final payment.

A motion was made by Mason, seconded by Sheppard, that this file be Deferred

0183-21 **Subject:** Bid Opening Results on Contract W-21-1, Perry Avenue Tank Roof Replacement

Recommendation: Approve

The Interim General Manager submitted the bid results on Contract W-21-1, in the amount of $1,342,278.00 and recommended approval to the lowest responsible bidder, that being Jetco, LTD.

A motion was made by Mason, seconded by Sheppard, that this file be Approved

0145-21 **Subject:** Bid Opening Results on Contract W-21-4, Pavement Restoration

Recommendation: Approve

The Interim General Manager submitted the bid results on Contract W-21-4, in the amount of $306,000.00 and recommended approval to the lowest responsible bidder, that being Conventional Concrete Systems.

A motion was made by McCarthy, seconded by Mason, that this file be Approved

0169-21 **Subject:** Bid Opening Results on Contract W-21-5, North Side Lead Service Replacements

Recommendation: Approve

The Interim General Manager submitted the bid results on Contract W-21-5, in the amount of $394,400.00 and recommended approval to the lowest responsible bidder, that being Earth X. The work involves replacement of the public side lead service only at locations where the private site service has already been replaced. The Commissioners would like pitcher filters offered to the residents where laterals will be disturbed.

A motion was made by Mason, seconded by McCarthy, that this file be Approved

0170-21 **Subject:** Bid Opening Results on Contract W-21-6, South Side Lead Service Replacements

Recommendation: Approve

The Interim General Manager submitted the bid results on Contract W-21-6, in the amount of $409,700 and recommended approval to the lowest responsible bidder, that being Five Star Energy Services, LLC. The work involves replacement of the public side lead service only at locations where the private site service has already been replaced. The Commissioners would like pitcher filters offered to the residents where laterals will be disturbed.

A motion was made by Mason, seconded by Rejc, that this file be Approved

Adjournment

There being no further business, the meeting was adjourned at 5:06 p.m.

City of Racine

City Hall
730 Washington Ave.
Racine, WI 53403
www.cityofracine.org

Meeting Agenda - Final

Waterworks Commission

Tuesday, April 27, 2021 | **4:00 PM** | **Virtual - Zoom**

Roll Call

0223-21 **Subject:** Approval of Minutes for the March 16, 2021 Meeting

Attachments: water minutes 03.16.21

0312-21 **Subject:** Budget Expenditures for March 2021 totaling $1,761,076.33

Attachments: march 2021

0279-21 **Subject:** Acceptance of donation from the non-profit Start Helping our Waterresources (SHOW) to aid consumer protection from lead in water

0306-21 **Subject:** W-21-1 Perry Roof replacement bid nullification

Attachments: nullification
w.21.1 perry ave tank

0234-21 **Subject:** Change Order No. 1 on Contract W-20-10, Perry to Newman 36" Transmission

Attachments: w.20.10 co1
w.20.10 co1.

0256-21 **Subject:** CDM Smith Low Lift Pump VFD Project amendment no. 2 for bid specification revision for valve replacement

Attachments: amendment no.2

0288-21 **Subject:** Proposal from WRTP Big Step for Racine Works Program service contract for Utility

Attachments: proposal

0255-21 **Subject:** Proposal: Ruekert-Mielke construction related services for TID 5 Wisconn Valley Way Water Main (Braun Rd to CTH KR)

Attachments: map (1)
proposal

0263-21 **Subject:** IRS Roofing Services, Inc. proposal for roof inspections

Attachments: water proposal

0189-21 **Subject:** Request for Final Payment on Contract W-19-12, Summit Avenue Elevated Storage Tank Pumping Station, Staab Construction Corporation (Contractor)

Recommendation on March 16, 2021: Defer

Attachments: w.19.12 final pmnt

w.19.12 memo

0187-21 **Subject:** Request for Final Payment on Contract W-20-9, Washington Avenue Water Main Replacement, Globe Contractors, Inc.

Recommendation on March 16, 2021: Defer

Attachments: final pay app w.20.9

w.20.9 final

W-20-9 Globe Racine - Washington Ave Water Main Replacement.docx

0287-21 **Subject:** Permission request for the Interim General Manager to sign the WDOA Water Utility Vendor Agreement form

CLOSED SESSION

It is the intent that the Waterworks Commission convene in closed session pursuant to Wis. Stat. Section 19.85(1)(c) for the purpose of considering employment, promotion, compensation or performance evaluation data of a utility employee.

0225-21 **Subject:** Communication from Interim General Manager regarding compensation for an individual

Adjournment

If you are disabled and have accessibility needs or need information interpreted for you, please contact the office of the General Manager at 262.636.9181 at least 48 hours prior to this meeting.

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Passcode: 329919

City of Racine

City Hall
730 Washington Ave.
Racine, WI 53403
www.cityofracine.org

Meeting Minutes - Final

Wastewater Commission

Tuesday, March 16, 2021 | **4:30 PM** | **City Hall Annex, Room 227**

Roll Call

PRESENT: 12 - Terry McCarthy, Natalia Taft, John Hewitt, Anthony Bunkelman, Robert Lui, Stacy Sheppard, Shannon Powell, Thomas Friedel, Claude Lois, John Tate II, Matthew Rejc and Cory Mason

ABSENT: 2 - Daryl Lynaugh and Jerrold Klinkosh

0074-21 **Subject:** Approval of Minutes for the February 17, 2021 Meeting

Recommendation: Approve

A motion was made by Secretary McCarthy, seconded by Sheppard, that this file be Approved

0133-21 **Subject:** Project Reports:

A) Audit Update
B) Construction Projects
C) Utility Safety Sites

Recommendation: Receive and File

Project Reports given by Staff.

Received and Filed

0164-21 **Subject:** Amendment No. 1 to AECOM Coordination Services related to Facilities Plan

Recommendation: Approve

The Interim General Manager presented Amendment No. 1 to AECOM Coordination Services contract for time and materials that is not to exceed $49,000. The amendment would allow AECOM to coordinate work with other consultants related to plant upgrades, cost of service study, and conveyance system flow modeling.

A motion was made by Hewitt, seconded by Sheppard, that this file be Approved

Adjournment

There being no further business, the meeting was adjourned at 6:00 p.m.

City of Racine

Meeting Agenda - Final

Wastewater Commission

City Hall
730 Washington Ave.
Racine, WI 53403
www.cityofracine.org

Tuesday, April 27, 2021 | **4:30 PM** | **Virtual - Zoom**

Roll Call

0224-21 **Subject:** Approval of Minutes for the March 16, 2021 Meeting

Attachments: ww minutes 3.16.21

0311-21 **Subject:** Budget Expenditures for March 2021 totaling $1,039,688.29

Attachments: march 2021

0235-21 **Subject:** AECOM change order #2, to the consulting services agreement for CNH Site Environmental Review

Attachments: cnh

0281-21 **Subject:** Bid Opening results on Contract A-21, 4th Street and Lake Avenue interceptor replacement

Attachments: a21 recommendation letter

a21 bid opening

0264-21 **Subject:** Proposal from IRS Roofing Services, Inc. for roof inspections

Attachments: wastewater proposal

0286-21 **Subject:** Permission request for the Interim General Manager to sign the WDOA Water Utility Vendor Agreement form

0285-21 **Subject:** Approval of Village of Caledonia TID#5 - 5 Mile Rd sewer extension

Attachments: TID #5 5 Mile Road Sanitary Sewer Extension Request Racine CL

TID 5 100 PERCENT

Adjournment

If you are disabled and have accessibility needs or need information interpreted for you, please contact the office of the General Manager at 262.636.9181 at least 48 hours prior to this meeting.

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Webinar ID: 913 3608 1469
Passcode: 7668309868

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
ACH - SUPERFLEET								
1730	ACH - SUPERFLEET	04/27/2021	FUEL FOR DISTRICT VEHICLES	04/20/2021	147.51	.00		501-00-63200 Fuel, Oil, Fluids
Total ACH - SUPERFLEET:					147.51	.00		
ASCENSION MEDICAL GROUP								
135	ASCENSION MEDICAL GROUP	166505	AUDIOGRAM SCREENING TEST	03/31/2021	15.00	.00		501-00-51100 Testing/Physicals
135	ASCENSION MEDICAL GROUP	166506	DTP DRUG SCREEN AND COMP	03/31/2021	66.50	.00		501-00-51100 Testing/Physicals
135	ASCENSION MEDICAL GROUP	166507	PREPLACEMENT PHYSICAL	03/31/2021	27.50	.00		501-00-51100 Testing/Physicals
Total ASCENSION MEDICAL GROUP:					109.00	.00		
BJELAJAC & KALLENBACH, LLC								
210	BJELAJAC & KALLENBACH, LL	20115-076D-3	MARCH INVOICE FOR REQUES	03/31/2021	205.40	.00		501-00-61100 Attorney Fees
Total BJELAJAC & KALLENBACH, LLC:					205.40	.00		
BUY RIGHT, INC.								
273	BUY RIGHT, INC.	14873-318318	4 MILE RD. L.S. FLOAT CLAMPS	04/09/2021	17.80	.00		501-00-64240 Building Repairs & Maintenance
273	BUY RIGHT, INC.	14873-319822	GMC 1 TON BRAKE PARTS	04/20/2021	231.17	.00		501-00-63300 Vehicle Repairs & Maintenance
Total BUY RIGHT, INC.:					248.97	.00		
CALEDONIA FEED & SUPPLY								
276	CALEDONIA FEED & SUPPLY	53934	GRASS SEED FOR RESTORATI	04/20/2021	74.87	.00		501-00-64240 Building Repairs & Maintenance
Total CALEDONIA FEED & SUPPLY:					74.87	.00		
EARL HEFFEL & SON, INC.								
9173	EARL HEFFEL & SON, INC.	04/26/2021	9735 ROBERT CIRCLE SEWER	04/14/2021	2,743.00	.00		501-00-64240 Building Repairs & Maintenance
Total EARL HEFFEL & SON, INC.:					2,743.00	.00		
EHLERS INVESTMENT PARTNERS								
584	EHLERS INVESTMENT PARTNE	01/31/2021	SHORT TERM INVESTMENT SE	04/12/2021	22.95	.00		501-00-61000 Professional Services
584	EHLERS INVESTMENT PARTNE	02/28/2021	SHORT TERM INVESTMENT SE	04/12/2021	16.37	.00		501-00-61000 Professional Services
Total EHLERS INVESTMENT PARTNERS:					39.32	.00		

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
EYAD M. MUSETEIF								
9170	EYAD M. MUSETEIF	3107 Navajo Tr	UTILITY BILL REFUND	04/20/2021	78.22	.00		501-00-46251 Residential Service
Total EYAD M. MUSETEIF:					78.22	.00		
FOTH INFRASTRUCTURE & ENVIRO, LLC								
666	FOTH INFRASTRUCTURE & EN	72054	RIVERBEND SAFETY SITE	04/26/2021	2,998.76	.00		501-18725-000 CIP-Riverbend Safety Site
666	FOTH INFRASTRUCTURE & EN	72056	SEWER MODELING FOR RACIN	04/26/2021	2,344.50	.00		501-18727-000 CIP-Sewer Modeling
666	FOTH INFRASTRUCTURE & EN	72058	LIGHTHOUSE DR. L.S. UPGRAD	04/26/2021	2,595.50	.00		501-18707-000 CIP-Lighthouse Lift Station
666	FOTH INFRASTRUCTURE & EN	72062	ROI VISTA UTILITY IMPROVEME	04/26/2021	6,664.00	.00		501-18731-000 CIP-Stonebridge Drive
666	FOTH INFRASTRUCTURE & EN	72064	SOUTH LANE SEWER RELAY	04/26/2021	662.00	.00		501-18735-000 CIP-South Lane Sanitary Sewer
666	FOTH INFRASTRUCTURE & EN	72065	HOODS CREEK ATTENUATION	04/26/2021	13,384.10	.00		501-18736-000 CIP-Hoods Creek Attenuation
666	FOTH INFRASTRUCTURE & EN	72067	UTILITY ENGINEERING	04/26/2021	855.75	.00		501-00-61340 Engineering Design Charges
666	FOTH INFRASTRUCTURE & EN	72068	SEWER SYSTEM MODELING	04/26/2021	1,110.00	.00		501-18727-000 CIP-Sewer Modeling
666	FOTH INFRASTRUCTURE & EN	72071	2021 SEWER TELEVISING PRE	04/26/2021	3,100.20	.00		501-18710-000 CIP-Annual Sewer Televisor
666	FOTH INFRASTRUCTURE & EN	72072	GIS MAPPING UPDATES	04/26/2021	2,466.25	.00		501-18704-000 CIP-GIS Mapping
Total FOTH INFRASTRUCTURE & ENVIRO, LLC:					36,181.06	.00		
G & F EXCAVATING								
687	G & F EXCAVATING	34909	HAUL DIRT FROM SHOP TO DU	04/12/2021	799.75	.00		501-00-64240 Building Repairs & Maintenance
687	G & F EXCAVATING	34911	SEWER LATERAL REPAIRS GR	04/13/2021	8,289.00	.00		501-00-64240 Building Repairs & Maintenance
Total G & F EXCAVATING:					9,088.75	.00		
GREAT LAKES TREE SERVICE								
748	GREAT LAKES TREE SERVICE	633	REMOVE 14 DEAD TREES @ O	04/06/2021	4,687.50	.00		501-00-64240 Building Repairs & Maintenance
Total GREAT LAKES TREE SERVICE:					4,687.50	.00		
KORTENDICK HARDWARE								
1096	KORTENDICK HARDWARE	141133	4 MILE RD. L.S. PARTS	04/06/2021	62.14	.00		501-00-64240 Building Repairs & Maintenance
1096	KORTENDICK HARDWARE	141290	FLOW METER BATTERIES	04/14/2021	142.07	.00		501-00-64240 Building Repairs & Maintenance
1096	KORTENDICK HARDWARE	141414	CADDY & 4 MILE L.S. PARTS	04/21/2021	28.03	.00		501-00-64240 Building Repairs & Maintenance
Total KORTENDICK HARDWARE:					232.24	.00		
LIGHTHOUSE COMMUNICATIONS								
1170	LIGHTHOUSE COMMUNICATIO	1080421	1ST QTR 2021 UTILITY BILL MAI	04/08/2021	807.01	.00		501-00-64030 Office Supplies
1170	LIGHTHOUSE COMMUNICATIO	1080421	1ST QTR 2021 UTILITY BILL MAI	04/08/2021	2,648.50	.00		501-00-64040 Postage & Shipping

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
Total LIGHTHOUSE COMMUNICATIONS:					3,455.51	.00		
MAC QUEEN EQUIPMENT								
264	MAC QUEEN EQUIPMENT	P18934	JET RODDER HAND WAND SPR	04/05/2021	173.89	.00		501-00-64240 Building Repairs & Maintenance
Total MAC QUEEN EQUIPMENT:					173.89	.00		
MENARDS RACINE								
1281	MENARDS RACINE	20728	4 MILE ROAD L.S. FLOAT PART	04/07/2021	130.39	.00		501-00-64240 Building Repairs & Maintenance
Total MENARDS RACINE:					130.39	.00		
NETWORK SPECIALIST								
1390	NETWORK SPECIALIST	40716	MAY 2021 SERVER BACKUP	04/12/2021	125.00	.00		501-00-64150 Communication Services
Total NETWORK SPECIALIST:					125.00	.00		
RACINE WATER & WASTEWATER UTILITIES								
1574	RACINE WATER & WASTEWATE	WWINV-08518	1ST QTR. 2021 SEWER TREATM	04/16/2021	526,791.02	.00		501-00-62550 Sewer Treatment Charges
Total RACINE WATER & WASTEWATER UTILITIES:					526,791.02	.00		
RAY HINTZ INC.								
1592	RAY HINTZ INC.	61782	TOP SOIL FOR RESTORATION	04/20/2021	72.00	.00		501-00-64240 Building Repairs & Maintenance
1592	RAY HINTZ INC.	61824	TOP SOIL FOR RESTORATION	04/26/2021	60.00	.00		501-00-64240 Building Repairs & Maintenance
Total RAY HINTZ INC.:					132.00	.00		
REVERE ELECTRIC								
1629	REVERE ELECTRIC	S4376092.001	W.J. L.S. ELECTRIC WIRE	04/01/2021	4.29	.00		501-00-64240 Building Repairs & Maintenance
Total REVERE ELECTRIC:					4.29	.00		
SMARSH, INC.								
1812	SMARSH, INC.	INV00653780	2ND PAYMENT FOR CELL PHON	03/31/2021	381.38	.00		501-00-64320 IT Infrastructure
Total SMARSH, INC.:					381.38	.00		

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
SPECTRUM ENTERPRISE								
1832	SPECTRUM ENTERPRISE	710670101041	INTERNET SERVICE AT DISTRI	04/15/2021	67.49	.00		501-00-64150 Communication Services
	Total SPECTRUM ENTERPRISE:				67.49	.00		
STARNET TECHNOLOGIES								
1855	STARNET TECHNOLOGIES	0091745-IN	SCADA / ALARM, PHONE SERVI	04/07/2021	360.00	.00		501-00-64150 Communication Services
	Total STARNET TECHNOLOGIES:				360.00	.00		
U. S. CELLULAR								
2026	U. S. CELLULAR	0432893933	UTILITY DISTRICT CELL PHONE	04/06/2021	139.70	.00		501-00-64150 Communication Services
2026	U. S. CELLULAR	0433399760	REPEATER AT HOODS CREEK	04/10/2021	3.51	.00		501-00-64150 Communication Services
	Total U. S. CELLULAR:				143.21	.00		
VERIZON WIRELESS								
2068	VERIZON WIRELESS	9876678194	HOODS CREEK BASIN ROUTER	04/12/2021	20.01	.00		501-00-64150 Communication Services
	Total VERIZON WIRELESS:				20.01	.00		
VORPAHL FIRE & SAFETY								
2092	VORPAHL FIRE & SAFETY	215317462	MAIL MONITOR TO UTILITY DIS	04/21/2021	14.35	.00		501-00-64040 Postage & Shipping
	Total VORPAHL FIRE & SAFETY:				14.35	.00		
WANASEK CORP								
2097	WANASEK CORP	11885	10213 CADDY LN. SWR. LATER	04/02/2021	902.50	.00		501-00-64250 Equipment Repairs & Maintenanc
	Total WANASEK CORP:				902.50	.00		
	Grand Totals:				586,536.88	.00		

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title

Dated: _____

Village President: _____

Village Board: _____

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Village Clerk: _____

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
ACH - SUPERFLEET								
1730	ACH - SUPERFLEET	04/27/2021	FUEL FOR DISTRICT VEHICLES	04/20/2021	147.51	.00		500-00-63200 Fuel, Oil, Fluids
Total ACH - SUPERFLEET:					147.51	.00		
ASCENSION MEDICAL GROUP								
135	ASCENSION MEDICAL GROUP	166505	AUDIOGRAM SCREENING TEST	03/31/2021	15.00	.00		500-00-51100 Testing/Physicals
135	ASCENSION MEDICAL GROUP	166506	DTP DRUG SCREEN AND COMP	03/31/2021	66.50	.00		500-00-51100 Testing/Physicals
135	ASCENSION MEDICAL GROUP	166507	PREPLACEMENT PHYSICAL	03/31/2021	27.50	.00		500-00-51100 Testing/Physicals
Total ASCENSION MEDICAL GROUP:					109.00	.00		
BADGER METER INC.								
163	BADGER METER INC.	1429489	O&H / STARBUCKS METERS	04/19/2021	1,381.21	.00		500-18701-107 CIP - Meters
Total BADGER METER INC.:					1,381.21	.00		
BUY RIGHT, INC.								
273	BUY RIGHT, INC.	14873-319822	GMC 1 TON BRAKE PARTS	04/20/2021	231.18	.00		500-00-63300 Vehicle Repairs & Maintenance
Total BUY RIGHT, INC.:					231.18	.00		
CALEDONIA FEED & SUPPLY								
276	CALEDONIA FEED & SUPPLY	53934	GRASS SEED FOR RESTORATI	04/20/2021	224.63	.00		500-00-64240 Building Repairs & Maintenance
Total CALEDONIA FEED & SUPPLY:					224.63	.00		
DEPT OF NATURAL RESOURCES								
510	DEPT OF NATURAL RESOURCE	21694	BLAISE MICHNA WATER CERT.	01/08/2021	70.00	.00		500-00-51300 Education/Training/Conferences
Total DEPT OF NATURAL RESOURCES:					70.00	.00		
EHLERS INVESTMENT PARTNERS								
584	EHLERS INVESTMENT PARTNE	01/31/2021	SHORT TERM INVESTMENT SE	04/12/2021	22.94	.00		500-00-61000 Professional Services
584	EHLERS INVESTMENT PARTNE	02/28/2021	SHORT TERM INVESTMENT SE	04/12/2021	16.37	.00		500-00-61000 Professional Services
Total EHLERS INVESTMENT PARTNERS:					39.31	.00		
EYAD M. MUSETEIF								
9170	EYAD M. MUSETEIF	3107 Navajo Tr	UTILITY BILL REFUND	04/20/2021	78.22	.00		500-00-46251 Residential Service

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
9170	EYAD M. MUSETEIF	3107 Navajo Tr	UTILITY BILL REFUND	04/20/2021	78.22	.00		500-00-46255 Public Fire Protection
Total EYAD M. MUSETEIF:					156.44	.00		
FOTH INFRASTRUCTURE & ENVIRO, LLC								
666	FOTH INFRASTRUCTURE & EN	72018	RISK AND RESILENCE ASSESS	04/23/2021	1,696.50	.00		500-00-61010 EPA Risk Resilience
666	FOTH INFRASTRUCTURE & EN	72066	N. KREMER WATERMAIN RELA	04/26/2021	22,538.72	.00		500-18735-107 CIP - North Kremer Watermain
666	FOTH INFRASTRUCTURE & EN	72067	UTILITY ENGINEERING	04/26/2021	855.75	.00		500-00-61340 Engineering Design Charges
666	FOTH INFRASTRUCTURE & EN	72072	GIS MAPPING UPDATES	04/26/2021	2,466.25	.00		500-18704-107 CIP-GIS Mapping
Total FOTH INFRASTRUCTURE & ENVIRO, LLC:					27,557.22	.00		
G & F EXCAVATING								
687	G & F EXCAVATING	34899	3522 BUCKLEY RD. WATERBRE	04/06/2021	2,018.00	.00		500-00-64240 Building Repairs & Maintenance
687	G & F EXCAVATING	34909	HAUL DIRT FROM SHOP TO DU	04/12/2021	2,399.25	.00		500-00-64240 Building Repairs & Maintenance
687	G & F EXCAVATING	34930	WATERBREAK AND CURBSTOP	04/27/2021	3,662.00	.00		500-00-64240 Building Repairs & Maintenance
Total G & F EXCAVATING:					8,079.25	.00		
GREAT LAKES TREE SERVICE								
748	GREAT LAKES TREE SERVICE	633	REMOVE 14 DEAD TREES @ O	04/06/2021	4,687.50	.00		500-00-64240 Building Repairs & Maintenance
Total GREAT LAKES TREE SERVICE:					4,687.50	.00		
LIGHTHOUSE COMMUNICATIONS								
1170	LIGHTHOUSE COMMUNICATIO	1080421	1ST QTR 2021 UTILITY BILL MAI	04/08/2021	807.01	.00		500-00-64030 Office Supplies
1170	LIGHTHOUSE COMMUNICATIO	1080421	1ST QTR 2021 UTILITY BILL MAI	04/08/2021	2,648.50	.00		500-00-64040 Postage & Shipping
Total LIGHTHOUSE COMMUNICATIONS:					3,455.51	.00		
MAC QUEEN EQUIPMENT								
264	MAC QUEEN EQUIPMENT	P18934	JET RODDER HAND WAND SPR	04/05/2021	57.96	.00		500-00-64240 Building Repairs & Maintenance
Total MAC QUEEN EQUIPMENT:					57.96	.00		
NETWORK SPECIALIST								
1390	NETWORK SPECIALIST	40716	MAY 2021 SERVER BACKUP	04/12/2021	125.00	.00		500-00-64150 Communication Services
Total NETWORK SPECIALIST:					125.00	.00		

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
OAK CREEK WATER UTILITY								
1423	OAK CREEK WATER UTILITY	04/07/2021	1ST. QTR. 2021 WATER PURCH	04/08/2021	6,511.72	.00		500-00-62550 Purchased Water
1423	OAK CREEK WATER UTILITY	04/08/2021	1ST QTR. 2021 WATER PURCHA	04/08/2021	97,359.88	.00		500-00-62550 Purchased Water
1423	OAK CREEK WATER UTILITY	04/08/2021	1ST QTR. 2021 WATER PURCHA	04/08/2021	19,239.37	.00		500-00-64180 Public Fire Protection
1423	OAK CREEK WATER UTILITY	4/8/21	1ST QTR. 2021 WATER PURCHA	04/08/2021	4,864.35	.00		500-00-62550 Purchased Water
1423	OAK CREEK WATER UTILITY	4834	APRIL 2021 WATER SAMPLES	04/07/2021	365.00	.00		500-00-62550 Purchased Water
1423	OAK CREEK WATER UTILITY	4835	CLIFFSIDE PARK SAMPLES	04/13/2021	146.00	.00		500-00-62550 Purchased Water
1423	OAK CREEK WATER UTILITY	4839	APRIL 2021 BAC "T" SAMPLES	04/23/2021	365.00	.00		500-00-62550 Purchased Water
Total OAK CREEK WATER UTILITY:					128,851.32	.00		
PUBLIC SERVICE COMMISSION OF WISCONSIN								
1535	PUBLIC SERVICE COMMISSION	2103-I-00900	2020-21 PWAC REVIEW	04/20/2021	123.52	.00		500-00-61000 Professional Services
Total PUBLIC SERVICE COMMISSION OF WISCONSIN:					123.52	.00		
RACINE WATER & WASTEWATER UTILITIES								
1574	RACINE WATER & WASTEWATE	15506	JAN. FEB. & MAR. 2021 BAC "T"	04/14/2021	1,350.00	.00		500-00-62550 Purchased Water
1574	RACINE WATER & WASTEWATE	2132037	1ST QTR. 2021 WATER PURCHA	04/01/2021	371,399.14	.00		500-00-62550 Purchased Water
1574	RACINE WATER & WASTEWATE	2132037	1ST QTR. 2021 WATER PURCHA	04/01/2021	49,250.00	.00		500-00-64180 Public Fire Protection
Total RACINE WATER & WASTEWATER UTILITIES:					421,999.14	.00		
RAY HINTZ INC.								
1592	RAY HINTZ INC.	61782	TOP SOIL FOR RESTORATION	04/20/2021	216.00	.00		500-00-64240 Building Repairs & Maintenance
1592	RAY HINTZ INC.	61785	TOP SOIL FOR RESTORATION	04/23/2021	288.00	.00		500-00-64240 Building Repairs & Maintenance
1592	RAY HINTZ INC.	61824	TOP SOIL FOR RESTORATION	04/26/2021	180.00	.00		500-00-64240 Building Repairs & Maintenance
Total RAY HINTZ INC.:					684.00	.00		
REESMANS EXCAVATING & GRADING								
1610	REESMANS EXCAVATING & GR	20ECUD1-04	VALVE # 33-75 REPLACEMENT	04/20/2021	2,713.00	.00		500-00-64240 Building Repairs & Maintenance
Total REESMANS EXCAVATING & GRADING:					2,713.00	.00		
SMARSH, INC.								
1812	SMARSH, INC.	INV00653780	2ND PAYMENT FOR CELL PHON	03/31/2021	381.38	.00		500-00-64320 IT Infrastructure
Total SMARSH, INC.:					381.38	.00		

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
SPECTRUM ENTERPRISE								
1832	SPECTRUM ENTERPRISE	710670101041	INTERNET SERVICE AT DISTRI	04/15/2021	67.49	.00		500-00-64150 Communication Services
	Total SPECTRUM ENTERPRISE:				67.49	.00		
STARNET TECHNOLOGIES								
1855	STARNET TECHNOLOGIES	0091745-IN	SCADA / ALARM, PHONE SERVI	04/07/2021	180.00	.00		500-00-64150 Communication Services
	Total STARNET TECHNOLOGIES:				180.00	.00		
TT TECHNOLOGIES, INC.								
9169	TT TECHNOLOGIES, INC.	0221130	NEW CABLE FOR WATER SERV	03/31/2021	182.77	.00		500-00-64240 Building Repairs & Maintenance
	Total TT TECHNOLOGIES, INC.:				182.77	.00		
U. S. CELLULAR								
2026	U. S. CELLULAR	0432893933	UTILITY DISTRICT CELL PHONE	04/06/2021	139.70	.00		500-00-64150 Communication Services
2026	U. S. CELLULAR	0433399760	REPEATER AT HOODS CREEK	04/10/2021	3.51	.00		500-00-64150 Communication Services
	Total U. S. CELLULAR:				143.21	.00		
VERIZON WIRELESS								
2068	VERIZON WIRELESS	9876678194	HOODS CREEK BASIN ROUTER	04/12/2021	20.02	.00		500-00-64150 Communication Services
	Total VERIZON WIRELESS:				20.02	.00		
WISCONSIN RURAL WATER ASSOC								
2185	WISCONSIN RURAL WATER AS	2348	CONTINUING EDUCATION	04/09/2021	350.00	.00		500-00-51300 Education/Training/Conferences
	Total WISCONSIN RURAL WATER ASSOC:				350.00	.00		
	Grand Totals:				602,017.57	.00		

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title

Dated: _____

Village President: _____

Village Board: _____

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Village Clerk: _____

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	Amount Paid	Date Paid	GL Account and Title
FOTH INFRASTRUCTURE & ENVIRO, LLC								
666	FOTH INFRASTRUCTURE & EN	72050	STH 32 STREAM RESTORATION	04/26/2021	6,270.00	.00		502-00-65154 HWY 32 Stream Restoration
666	FOTH INFRASTRUCTURE & EN	72051	WESTVIEW VILLAGE STORMWA	04/26/2021	680.00	.00		502-00-65156 Westview Village Storm
666	FOTH INFRASTRUCTURE & EN	72053	PROFESSIONAL SERVICES TH	04/26/2021	6,718.50	.00		502-00-65152 GIS Update
Total FOTH INFRASTRUCTURE & ENVIRO, LLC:					13,668.50	.00		
ROOT PIKE WIN								
1697	ROOT PIKE WIN	111-208	2021 SWCWN STAFF TIME, PRG	12/23/2020	4,051.00	.00		502-00-62102 MS4 - PUBLIC EDUCATION
Total ROOT PIKE WIN:					4,051.00	.00		
STARNET TECHNOLOGIES								
1855	STARNET TECHNOLOGIES	0091745-IN	SCADA / ALARM, PHONE SERVI	04/07/2021	60.00	.00		502-00-64150 Communication Services
Total STARNET TECHNOLOGIES:					60.00	.00		
Grand Totals:					17,779.50	.00		

Dated: _____

Village President: _____

Village Board: _____

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Village Clerk: _____

STH 32 Utility Improvements DOT

Sewer & Water

Contractor	**Payne and Dolan Inc.**		
Original Contract	**$**	**266,043.63**	
Change Order	$	-	0.0%
Current Contract	**$**	**266,043.63**	
Pay Request	$	3.12	12/11/2018
Pay Request	$	2,645.08	8/1/2019
Pay Request	$	7,396.43	10/3/2019
Pay Request	$	92,497.63	12/4/2019
Pay Request	$	80,448.04	12/2/2019
Pay Request	$	64,166.90	1/2/2020
Pay Request	$	1,014.86	3/2/2020
Pay Request	$	1,655.72	4/1/2020
Pay Request	$	405.27	6/1/2020
Pay Request	$	1,500.29	9/2/2020
Pay Request	$	268.21	12/1/2020
Remaining on Contract (Including Retainage)	$	14,042.08	5.3%
Engineering / Construction Services DOT 12/11/2018	**$**	**39,906.54**	
Pay Request #1 Engineering Only	$	868.07	6/4/2019
Pay Request #2 Engineering Only	$	2,685.06	8/1/2019
Pay Request #3 Engineering Only	$	2,766.76	9/4/2019
Remaining on Contract (Including Retainage)	$	33,586.65	84.2%
Foth Engineering/Review (7/23/2019 - 6/3/2020)	$	61,034.29	
Total Project Cost	**$**	**366,984.46**	
Revised 2019 CIP	$	350,000.00	

DeBack Industrial Park Phase 3 Improvements

Sewer & Water

Contractor		Globe Contractors Inc.	
Original Contract	**$**	**5,492,315.00**	
Change Order #1 (3/15/2019)	$	5,200.78	0.09%
Change Order #2 (5/7/2019)	$	31,676.00	0.58%
Change Order #3 (12/2/2020)	$	8,642.92	0.16%
Change Order #4 (12/2/2020)	$	(54,347.35)	-0.99%
Total All Change Orders	$	(8,827.65)	-0.16%
Current Contract	**$**	**5,483,487.35**	
Pay Request #1	$	2,714,903.07	1/4/2019
Retainage	$	142,889.64	
Pay Request #2	$	989,536.31	1/31/2019
Retainage	$	(5,581.76)	
Pay Request #3	$	1,170,751.00	3/6/2019
Pay Request #4	$	66,125.77	3/15/2019
Pay Request #5	$	37,649.69	4/19/2019
Pay Request #6	$	58,276.21	5/30/2019
Pay Request #7	$	288,046.74	9/26/2019
Pay Request #8	$	158,198.56	10/27/2020
Remaining on Contract (Including Retainage)	$	0.00	0.0%
Engineering / Construction Services (12/22/2016 - 4/27/2021)	**$**	**640,053.93**	
Total Project Cost	**$**	**6,169,245.71**	
Oversizing Only (Utility District)			
Water	$	104,890.20	
Sewer	$	1,247,791.01	
Revised 2019 CIP	$	1,352,681.21	

Lighthouse Drive Lift Station

Sewer

Contractor	**QSP Utility**		
Original Contract	**$**	**191,786.00**	
Change Order #1 (12/2/2020)	$	(15,000.00)	-7.82%
Current Contract	**$**	**176,786.00**	
Pay Request #1	$	51,021.65	5/21/2020
Retainage	$	2,685.35	
Pay Request #2	$	43,700.00	6/24/2020
Retainage	$	2,300.00	
Pay Request #3	$	73,225.05	10/27/2020
Retainage	$	3,853.95	
Remaining on Contract (Including Retainage)	$	8,839.30	5%
Owner Direct Purchase LW Allen	**$**	**61,700.00**	
Owner Direct Purchase Starnet	**$**	**159,850.00**	
Explosion Proof Light	**$**	**1,148.50**	
We Energies Gas & Electric	**$**	**11,586.75**	
Wind Point Permits	**$**	**738.00**	
Test Holes - Soils	**$**	**450.00**	
Legal	**$**	**687.00**	
Generator Connect	**$**	**3,177.09**	
Can Metal Review	**$**	**185.81**	
Various Parts		959.62	
Design Engineering (12/22/2016 - 3/29/2020)	**$**	**84,134.72**	
Construction Services (4/2020 to 12/17/2020)	**$**	**38,292.32**	
Total Project Cost	**$**	**538,736.19**	
Revised Budget 2020 Sewer	$	600,000.00	
Revised 2020 CIP	$	600,000.00	

Wind Dale / Wind Point West

Storm, Sewer, Water

Contractor		**Reesman's**	
Original Contract	**$**	**1,566,307.81**	
Change Order #1	$	53,691.00	3.43%
Change Order #2	$	100,491.30	6.42%
Change Order #3 (12/2/2020)	$	17,583.99	1.12%
Total All Change Orders	$	171,766.29	10.97%
Current Contract	**$**	**1,738,074.10**	
Pay Request #1	$	244,585.87	6/25/2020
Retainage	$	12,872.94	
Pay Request #2	$	439,987.88	7/28/2020
Retainage	$	23,157.26	
Pay Request #3	$	647,894.85	8/27/2020
Retainage	$	5,544.55	
Pay Request #4	$	282,041.76	9/22/2020
Pay Request #5	$	66,258.75	10/27/2020
Remaining on Contract (Including Retainage)	$	57,304.99	3%
Design Engineering (1/26/2018 - 6/3/2020)	**$**	**180,563.58**	
Construction Services (6/3/2020 to 12/17/2020)	**$**	**92,804.68**	
Total Project Cost	**$**	**2,011,442.36**	
Budget 2020 Sewer	$	-	
Budget 2020 Storm	$	1,026,500.00	
Revised 2020 CIP Sewer	$	140,000.00	
Revised 2020 CIP Storm	$	1,650,000.00	

Rio Vista Shorewood Stonebridge

Water, Sewer

Contractor	**PTS Contractors Inc**		
Original Contract	**$**	**930,020.00**	
Change Order	$	-	
Current Contract	**$**	**930,020.00**	
Pay Request #1	$	263,005.60	8/27/2020
Retainage	$	13,842.40	
Pay Request #2	$	293,947.87	10/27/2020
Retainage	$	9,408.10	
Pay Request #3	$	159,983.25	3/30/2021
Remaining on Contract (Including Retainage)	$	213,083.28	23%
Design Engineering (4/18/2019 - 7/30/2020)	**$**	**104,864.01**	
Construction Services (7/30/2020 to 12/17/2020)	**$**	**72,655.08**	
Total Project Cost	**$**	**1,107,539.09**	
Budget 2020 Sewer	$	265,000.00	
Budget 2020 Water	$	1,626,000.00	
Revised 2020 CIP Sewer	$	385,000.00	
Revised 2020 CIP Water	$	825,000.00	

CALEDONIA UTILITY DISTRICT
SEWER & WATER PROJECTS
PROJECT SUMMARY WORKSHEET

Riverbend Drive Lift Station Safety Site

- Met with Foth on Project. Will be scheduling a site visit for a walk through. Working on Facilities Plan. To be completed by July 2021 and submitted to the DNR by September 2021. Preliminary Design to be ready by June 2021. Proposed to be bid in January 2022 with Construction February 2022 – September 2022.

Riverbend Drive Lift Station & Forcemain Upgrade

- Working on Facilities Plan. To be completed by July 2021 and submitted to the DNR by September 2021.

Lighthouse Drive Lift Station Upgrade Site

- Project Completed. Awaiting Final Pay Request. Retainage remains on contract.

Rio Vista Shorewood & Stonebridge Utility Improvements

- Project near completion. Inspected manholes that have been grouted and have minor repairs to be done.

DeBack Industrial Park Phase 3 Improvements

- Public Hearing held April 27. Village Board tabled the item for further review. Working on alternatives.

Annual Televising Program – Sanitary Sewer

- Preparing the 2021 televising program.

Water Impact Fee / Sewer Connection Fee Update

- Working on various alternatives.

EPA Risk & Resilience Assessment and Emergency Response Plan

- Water RRA completed and on agenda this evening to be submitted. Began work on Sewer plan.

Hoods Creek Attenuation Basin Expansion

- Ray Leffler working on locations for excavated material. Discussed with We Energies the need for increasing the gas service for a makeup air unit. Proposed to be bid in August 2021 with Construction September 2021 – August 2022.

Central Lift Station Safety Site

- Met with Foth to discuss Facilities Plan. Preparing to send to the DNR soon. Preliminary Design being worked on. Proposed to be bid in October 2021 with Construction November 2021 – June 2022.

Central Attenuation Basin

- Met with Foth to discuss progress. Proposed to be bid in April 2023 with Construction May 2023 – July 2024.

CALEDONIA UTILITY DISTRICT
STORM WATER PROJECTS
PROJECT SUMMARY WORKSHEET

Hoods Creek – Aldebaran Brushing Project

- Walked Hoods Creek along the Aldebaran Subdivision with Trapper. Received call that there were beavers along Creek. Did not see evidence of active beavers but there are 3 areas with log jams. Will be working with contractor to have removed.

Tanglewood Avenue Storm Sewer Project

- Project Completed. Awaiting Final Pay Request. Retainage remains on contract.

Wind Point West Subdivision Project

- Project Completed. Awaiting Final Pay Request. Retainage remains on contract.

GIS Updates

- Hyperlinking of Easement documents and Storm Sewer Projects ongoing. Will be gathering Subdivision Plats and Subdivision Plans as time allows.

Alcyn Drive –Drainage Complaint

- Waiting for contractor pricing. Then will respond to owners.

Douglas Avenue – OMG Ditch Project

- Foth proceeding with plans to get out for bidding and construction in 2021.

Turtle Creek Restoration

- Reached out to Dave Giordano of Root Pike WIN for electronic files from consultant. Will use files when received for creating Easement documents and a Relocation Order.

MEMORANDUM

DATE: **Tuesday, April 27, 2021**

TO: **Caledonia Utility District**

FROM: **Anthony A. Bunkelman P.E.**
Utility Director

RE: **DeBack Farms Pad F – Scannell Properties LLC – Storm Water Management Plan & Utility Plan Conditional Approval**

BACKGROUND INFORMATION

Todd G. Mueller P.E. of Pinnacle Engineering Group has prepared a Storm Water Management Plan Update Memo and a Site Utility Plan for DeBack Farms Pad F for Scannell Properties LLC. Pad F in DeBack Farms is located on the North side of Adams Road immediately East of Carol Road. More specifically 12574 Adams Road. The project involves the construction of a +- 323,146 square foot distribution center for General Mills.

The Storm Water Management Plan for DeBack Farms was approved in 2016. The DeBack Farms Business Park falls under Stream Protection Storm Water Regulations. Stream Protection Storm Water Regulations are that the 100 yr. post development peak runoff must be reduced to or below the 2 yr. predevelopment peak runoff. The site must also achieve a minimum of 80% Total Suspended Solids removal.

The Storm Water Management Plan Update Memo for Pad F indicates that some of the Original Storm Water Basins will be draining to different storm water ponds than what was approved. This change was mostly due to the change in building orientation from East to West to North to South. The Caledonia Utility District has reviewed the updated HydroCAD model and has determined that the proposed changes will still meet the Village Ordinance for overall discharge to the South and West. Also due to these changes it has been agreed that each building that is proposed going forward on Pad F will require an updated Storm Water Management Plan Memo to determine that the Village Ordinance is still met.

The Storm Water Management Plan Update Memo that was submitted on April 21st shows conformance with the Ordinance and the review letter dated April 22nd indicates that the Storm Water Management Plan is hereby approved for Phase 1.

The Site Utility Plan for Pad F indicates that a Sanitary Sewer Lateral with a sanitary sewer sampling manhole will be installed for the Building. The Sanitary Sewer plans have been reviewed and are hereby approved subject to the submittal of a SEWRPC 208 letter for the private lateral.

The Site Utility Plan for Pad F also indicates that a Watermain will be extended from DeBack Lane to service the new building for General Mills. A portion of the Watermain that is being extended will be dedicated to the Utility as an Asset. This public portion of the watermain is in

the same location as a previously laid out watermain to loop service within the DeBack Farms Business Park. A portion of the watermain being installed is also considered private watermain to service the new building. All of the watermain (both Public and Private) have been reviewed and are hereby approved subject to the submittal of a DNR Watermain Extension approval letter.

The Site Utility Plan for Pad F also includes Private Storm Sewer that will be discharged to the existing Storm Water Basins within the DeBack Farms Business Park. This storm sewer has been appropriately sized and has been conditionally approved subject to some minor changes and additional information being supplied.

As with all of the Utilities there will be Construction Inspection required to ensure that the Utilities are installed according to the Caledonia Utility District Standards. Foth Infrastructure and Environment LLC has been contacted to perform the construction inspection of the public portion of the Watermain, the Sanitary Sewer from the existing Sanitary Sewer manhole to the proposed sampling manhole, and the Storm Sewer runs that directly discharge to the Storm Water Basins. Those Construction Inspection costs will be charged directly to Scannell Properties LLC as part of the development of Pad F.

Included in this packet is the summary of the Storm Water Management Plan, the Onsite Civil Engineering Plans for DeBack Farms Pad F, the April 22, 2021 approval letter for the Storm Water Management Plan, Sanitary Sewer and Watermain, and the April 23, 2021 conditional approval letter for the entire plan set.

The plans as presented are ready for conditional approval subject to the following conditions being satisfied prior to the issuance of a Building Permit.

RECOMMENDATION

Move to conditionally approve the Storm Water Management Plan Update Memo and Site Utility Plan for Scannell Properties LLC – DeBack Farms Pad F at 12574 Adams Road subject to the following:

1. **All comments on the Utility Director's review letter dated April 23, 2021 are addressed, as necessary.**
2. **The Design Engineer determines that the plans approved by the Caledonia Utility District are technically adequate and are stamped by the Design Engineer.**
3. **Submission of the SEWRPC 208 Letter and the DNR Watermain Extension Letter.**
4. **A Storm Water Management Plan Update Memo is provided for each building that is proposed going forward on Pad F to determine that the Village Ordinance is still met.**
5. **Will need to obtain a Land Disturbance Permit from the Engineering Department.**

To: Tony Bulkelman – Village of Caledonia

From: Todd G. Mueller

Date: March 24, 2021 (Revised April 21, 2021)

Subject: DeBack Farms – Pad F Stormwater Memorandum

The following as a short summary detailing the DeBack Farms – Pad F site compliance with the approved overall Stormwater Management Plan for the DeBack Farms Business Park, dated 10/26/2016.

Stormwater Management

The Pad F site has been designed to comply in its entirety with the approved Stormwater Management Plan for the DeBack Farms Business Park, dated 10/26/2016. The master plan for this campus was designed for an impervious (85%) to pervious (15%) ratio to allow for an overall curve number of 94 (refer to page 4 of the approved Stormwater Management Report).

The overall plan for the park has been modified from the construction of one large building in an east-west orientation to multiple building sites, with Pad F in a north-south orientation. In order to adhere to the original overall campus drainage plan, the proposed drainage basins are being designed to meet the original intent and all subsequent buildings will also be required to show compliance with the approved park stormwater plan.

The majority of the site area is planned for Pond 4 with a small portion of the site and roadway draining into Ponds 1 and 5. Accommodations are being made to maintain the drainage patters of the mass graded areas as well. The drainage basin delineation and impervious area exhibits are included as attachments to this memorandum.

There are also four offsite drainage areas flowing onto the proposed site. Offsite 4A, 4B and 4C remain unchanged from the approved report. Basin Offsite 1B which originally flowed exclusively to Pond 5, is now split between Ponds 4 and 5 due to the switch in orientation of the proposed building. These flows are being accounted for and can easily be accommodated into the approved design. The attached drainage basin exhibit shows the approved basin delineation in green along with the proposed basins in various colors.

The following tables are a summary of the proposed site drainage areas in comparison with the approved delineation (values in blue). The drainage area to Pond 1 is comprised only of proposed roadway at this time, so it has been excluded from the summary tables.

SITE DRAINAGE BASINS TO POND 4

Area	Drainage Area (ac)	CN	Impervious Ratio*	Approved Area (ac)	CN	Impervious Ratio*
To Pond 4	30.72	88	60.3%	32.10	94	85.0%
OFF 4A	1.30	79	20.0%	1.30	79	20.0%
OFF 4B	1.00	79	20.0%	1.00	79	20.0%
OFF 4C	2.60	78	0.0%	2.60	78	0.0%
OFF 1B To Pond 4	2.94	78	0.0%	-	-	-
Temp To Pond 4	9.25	71	0.0%	-	-	-
Totals* **	**47.81**	-	-	**37.00**	-	-

*Water surface area included in impervious ratio
**See attached Impervious Area Exhibits for calculations
***Areas do not include the drainage basins into Pond 3 which also drains into Pond 4 (these flows are included in the models)

SITE DRAINAGE BASINS TO POND 5

Area	Drainage Area (ac)	CN	Impervious Ratio*	Approved Area (ac)	CN	Impervious Ratio*
To Pond 5	5.32	79	20.1%	6.70	94	85.0%
OFF 1B To Pond 5	1.96	78	0.0%	4.90	78	0.0%
Temp To Pond 5	5.69	71	0.0%	-	-	-
Totals	**12.97**	-	-	**11.60**	-	-

*Water surface area included in impervious ratio
**See attached Impervious Area Exhibits for calculations

The following tables are a summary of the proposed peak flows to Ponds 4 and 5 in comparison with the approved report. See attachments for HydroCAD model summaries for each Pond from the approved Stormwater Management Plan for the DeBack Farms Business Park, dated 10/26/2016

COMPARISON OF PROPOSED TO APPROVED PEAK FLOWS

Location	Peak Flows 2-yr (cfs)	Peak Flows 10-yr (cfs)	Peak Flows 100-yr (cfs)
TO POND 4	89.84	153.36	281.75
APPROVED	105.03	158.62	262.37
FLOW REDUCTION (?)	YES	YES	NO*

*Small increase in flow to be controlled by ponding created by the draintile system in the mass grading field in the interim conditions.

Location	Peak Flows 2-yr (cfs)	Peak Flows 10-yr (cfs)	Peak Flows 100-yr (cfs)
TO POND 5	12.87	26.32	56.25
APPROVED	26.92	43.10	75.74
FLOW REDUCTION (?)	YES	YES	YES

The following table is a summary of the proposed peak flows to downstream Culvert #9. In a phone conversation with Tony Bunkelman on 4/20/2021, this discharge point was analyzed and the flows were agreed to be below the maximum allowable. See attachments for HydroCAD model summaries for each Pond from the approved Stormwater Management Plan for the DeBack Farms Business Park, dated 10/26/2016.

Location	Peak Flows 100-yr (cfs)
TO CULVERT #9	11.98
APPROVED	12.03
FLOW REDUCTION (?)	YES

Attachments

- Drainage Basin Exhibit
- Impervious Area to Pond 4 Exhibit
- Impervious Area to Pond 5 Exhibit
- HydroCAD model summaries from the approved Stormwater Management Plan for the DeBack Farms Business Park, dated 10/26/2016
- HydroCAD Model Updated for Pad F Development

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 300' 600'

PR 1A
AREA = 15.6 AC

PR 5
AREA = 6.7 AC

TO POND 5
5.32 ACRES

OFF 1B TO POND 5
1.96 ACRES

ROADWAY TO POND
0.56 ACRES

PR 1B
AREA = 31.3 AC

TEMP TO POND 5
5.69 ACRES

PROPOSED BUILDING
(F.F.E. = 780.00| 323,146 S.F.)

OFF 1B
AREA = 4.3 AC

OFF 1B TO POND 4
2.94 ACRES

PR 4
AREA = 32.1 AC

TO POND 4
30.72 ACRES

TEMP TO POND 4
9.25 ACRES

PR 3
AREA = 8.1 AC

APPROVED BASIN DELINEATIONS

OFF 4C
AREA = 2.6 AC

OFF 4A
AREA = 1.3 AC

OFF 4B
AREA = 1.0 AC

Z:\PROJECTS\2014\390.00C-WI\CAD\EXHIBITS\390.00C SWMP.DWG 3/25/2021 12:51 PM

DEBACK FARMS - PAD F DRAINAGE BASIN EXHIBIT

04/21/2021

PINNACLE ENGINEERING GROUP

20725 WATERTOWN ROAD | SUITE 100 | BROOKFIELD, WI 53186 | WWW.PINNACLE-ENGR.COM |

PLAN | DESIGN | DELIVER PEG JOB# 390.00C

ONSITE CIVIL ENGINEERING INFRASTRUCTURE PLANS

FOR

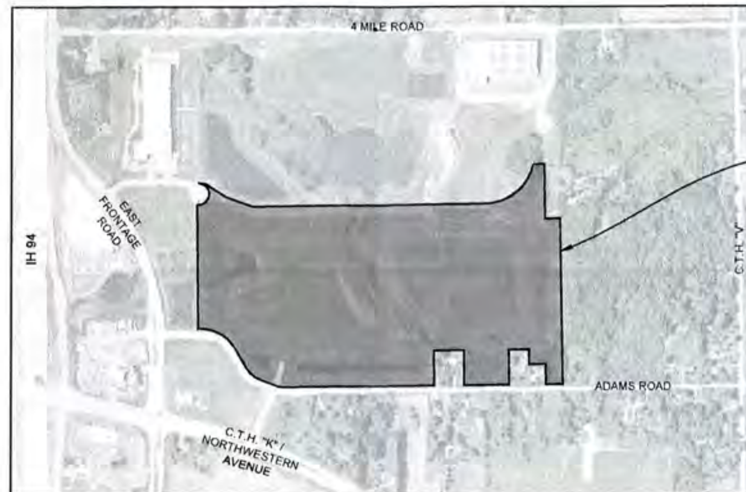
DEBACK FARMS - PAD F

CALEDONIA, WISCONSIN

PLANS PREPARED
FOR

SCANNELL PROPERTIES #499, LLC

320 WEST OHIO STREET SUITE 3W
CHICAGO, IL 60654



LOCATION MAP
SCALE: 1" = 500'

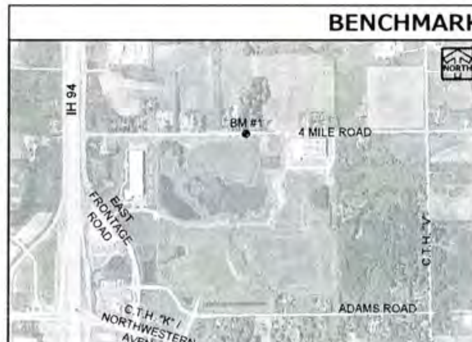
LEGEND

	EXISTING	PROPOSED
SANITARY SEWER MANHOLE		
STORM SEWER MANHOLE		
STORM SEWER AREA DRAIN		
STORM SEWER INLET (ROUND CASTING)		
STORM SEWER INLET (RECTANGULAR CASTING)		
PRECAST FLARED END SECTION		
CONCRETE HEADWALL		
AIR RELEASE ASSEMBLY		
VALVE BOX		
FIRE HYDRANT		
BUFFALO BOX		
CLEANOUT		
SANITARY SEWER		
FORCE MAIN		
STORM SEWER		
DRAIN TILE		
WATER MAIN		
UTILITY CROSSING		
LIGHTING		
ELECTRICAL CABLE	E	E
OVERHEAD WIRES	OHW	OHW
CAUTION EXISTING UTILITIES NEARBY		
ELECTRICAL TRANSFORMER OR PEDESTAL		
POWER POLE		
POWER POLE WITH LIGHT		
STREET SIGN		
GAS MAIN	G	G
TELEPHONE LINE	T	T
CONTOUR		
SPOT ELEVATION	× (750.00)	■ 750.00
WETLANDS		
FLOODWAY		
FLOODPLAIN		
HIGH WATER LEVEL (HWL)		
NORMAL WATER LEVEL (NWL)		
DIRECTION OF SURFACE FLOW		
DITCH OR SWALE		
DIVERSION SWALE		
OVERFLOW RELIEF ROUTING		
TREE WITH TRUNK SIZE		
SOIL BORING		
TOPSOIL PROBE		
FENCE LINE, TEMPORARY SILT	SF	SF
FENCE LINE, WIRE		
FENCE LINE, CHAIN LINK OR IRON		
FENCE LINE, WOOD OR PLASTIC		
CONCRETE SIDEWALK		
CURB AND GUTTER		
DEPRESSED CURB		
REVERSE PITCH CURB & GUTTER		
EASEMENT LINE		

ABBREVIATIONS

BL	BASE LINE	NWL	NORMAL WATER LEVEL
C	LONG CHORD OF CURVE	PC	POINT OF CURVATURE
C & G	CURB AND GUTTER	PT	POINT OF TANGENCY
CB	CATCH BASIN	PVI	POINT OF VERTICAL INTERSECTION
CL	CENTERLINE	R	RADIUS
D	DEGREE OF CURVE	ROW	RIGHT-OF-WAY
EP	EDGE OF PAVEMENT	SAN	SANITARY SEWER
FF	FINISHED FLOOR	ST	STORM SEWER
FG	FINISHED GRADE	T	TANGENCY OF CURVE
FL	FLOW LINE	TB	TOP OF BANK
FP	FLOODPLAIN	TC	TOP OF CURB
FR	FRAME	TF	TOP OF FOUNDATION
FW	FLOODWAY	TP	TOP OF PIPE
HWL	HIGH WATER LEVEL	TS	TOP OF SIDEWALK
INV	INVERT	TW	TOP OF WALK
L	LENGTH OF CURVE	WM	WATER MAIN
MH	MANHOLE	△	INTERSECTION ANGLE

BENCHMARKS



BM 1 — CONCRETE MONUMENT WITH BRASS CAP AT THE NORTH CORNER SECTION 30, TOWN 4 NORTH, RANGE 22 EAST, ELEVATION = 782.82

VERTICAL DATUM: NGVD 29
HORIZONTAL DATUM: NAD 1927

GENERAL NOTES

1. THE INTENTION OF THE PLANS AND SPECIFICATIONS IS TO SET FORTH PERFORMANCE AND CONSTRUCTION MATERIAL STANDARDS FOR THE PROPER EXECUTION OF WORK. ALL WORKS CONTAINED WITHIN THE PLANS AND SPECIFICATIONS SHALL BE COMPLETED IN ACCORDANCE WITH ALL REQUIREMENTS FROM LOCAL, STATE, FEDERAL OR OTHER GOVERNING AGENCY'S LAWS, REGULATIONS JURISDICTIONAL ORDINANCES/CODES/RULES/ETC., AND THE OWNER'S DIRECTION.
2. A GEOTECHNICAL REPORT HAS BEEN PREPARED BY GILES ENGINEERING ASSOCIATES, INC DATED DECEMBER 10, 2020, FOR THE PROJECT SITE. THE DATA ON SUB-SURFACE SOIL CONDITIONS IS NOT INTENDED AS A REPRESENTATION OR WARRANTY OF THE CONTINUITY OF SUCH CONDITIONS BETWEEN BORINGS OR INDICATED SAMPLING LOCATIONS. IT SHALL BE EXPRESSLY UNDERSTOOD THAT OWNER WILL NOT BE RESPONSIBLE FOR ANY INTERPRETATIONS OR CONCLUSIONS DRAWN THERE BY THE CONTRACTOR. DATA IS MADE AVAILABLE FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY ADDITIONAL SOILS INVESTIGATIONS THEY FEEL ARE NECESSARY FOR THE PROPER EVALUATION OF THE SITE FOR PURPOSES OF PLANNING, BIDDING, OR CONSTRUCTING THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR TO PROVIDE PLAN AND GEOTECHNICAL REPORT FOR FILLED AREAS WHERE BUILDING WILL OCCUR. CERTIFICATION OF THE FILL AREAS AND ITS COMPACTION SHALL BE PROVIDED. CONTACT THE VILLAGE OF CALEDONIA BUILDING INSPECTOR @ 262-835-6420 FOR DETAILS OF REQUIREMENTS AND INSPECTIONS.
4. THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND UNDERSTAND ALL COMPONENTS OF THE PLANS AND SPECIFICATIONS, INCLUDING FIELD VERIFYING SOIL CONDITIONS, PRIOR TO SUBMISSION OF A BID PROPOSAL.
5. THE CONTRACTOR SHALL PROMPTLY REPORT ANY ERRORS OR AMBIGUITIES LEARNED AS PART OF THEIR REVIEW OF PLANS, SPECIFICATIONS, REPORTS AND FIELD INVESTIGATIONS.
6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COMPUTATION OF QUANTITIES AND WORK REQUIRED TO COMPLETE THIS PROJECT. THE CONTRACTOR'S BID SHALL BE BASED ON ITS OWN COMPUTATIONS AND IN NO SUCH INSTANCE RELY ON THE ENGINEER'S ESTIMATE.
7. QUESTIONS/CLARIFICATIONS WILL BE INTERPRETED BY ENGINEER/OWNER PRIOR TO THE AWARD OF CONTRACT. ENGINEER/OWNER WILL SUBMIT OFFICIAL RESPONSES IN WRITING. INTERPRETATIONS PRESENTED IN OFFICIAL RESPONSES SHALL BE BINDING ON ALL PARTIES ASSOCIATED WITH THE CONTRACT. IN NO WAY SHALL WORD-OF-MOUTH DIALOG CONSTITUTE AN OFFICIAL RESPONSE.
8. PRIOR TO START OF WORK, CONTRACTOR SHALL BE COMPLETELY FAMILIAR WITH ALL CONDITIONS OF THE SITE, AND SHALL ACCOUNT FOR CONDITIONS THAT AFFECT, OR MAY AFFECT CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, LIMITATIONS OF WORK ACCESS, SPACE LIMITATIONS, OVERHEAD OBSTRUCTIONS, TRAFFIC PATTERNS, LOCAL REQUIREMENTS, ADJACENT ACTIVITIES, ETC. FAILURE TO CONSIDER SITE CONDITIONS SHALL NOT BE CAUSE FOR CLAIM OF JOB EXTRAS.
9. COMMENCEMENT OF CONSTRUCTION SHALL EXPLICITLY CONFIRM THAT THE CONTRACTOR HAS REVIEWED THE PLANS AND SPECIFICATIONS IN ENTIRETY AND CERTIFIES THAT THEIR SUBMITTED BID PROPOSAL CONTAINS PROVISIONS TO COMPLETE THE PROJECT, WITH THE EXCEPTION OF UNFORESEEN FIELD CONDITIONS, ALL APPLICABLE PERMITS HAVE BEEN OBTAINED AND CONTRACTOR UNDERSTANDS ALL OF THE REQUIREMENTS OF THE PROJECT.
10. SHOULD ANY DISCREPANCIES OR CONFLICTS IN THE PLANS OR SPECIFICATIONS BE DISCOVERED AFTER THE AWARD OF CONTRACT, ENGINEER SHALL BE NOTIFIED IN WRITING IMMEDIATELY AND CONSTRUCTION OF ITEMS AFFECTED BY THE DISCREPANCIES/CONFLICTS SHALL NOT COMMENCE, OR CONTINUE, UNTIL A WRITTEN RESPONSE FROM ENGINEER/OWNER IS DISTRIBUTED. IN THE EVENT OF A CONFLICT BETWEEN REFERENCED CODES, STANDARDS, SPECIFICATIONS AND PLANS, THE ONE ESTABLISHING THE MOST STRINGENT REQUIREMENTS SHALL BE FOLLOWED.
11. THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, OBTAIN ALL NECESSARY PERMITS AND LICENSES TO COMPLETE THE PROJECT. OBTAINING PERMITS, OR DELAYS, IS NOT CAUSE FOR DELAY OF THE CONTRACT OR SCHEDULE. CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS.
12. THE CONTRACTOR SHALL NOTIFY ALL INTERESTED GOVERNING AGENCIES, UTILITY COMPANIES AFFECTED BY THIS CONSTRUCTION PROJECT, AND DIGGER'S HOTLINE IN ADVANCE OF CONSTRUCTION TO COMPLY WITH ALL JURISDICTIONAL ORDINANCES/CODES/RULES/ETC., PERMIT STIPULATIONS, AND OTHER APPLICABLE STANDARDS.
13. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO INITIATE, INSTITUTE, ENFORCE, MAINTAIN, AND SUPERVISE ALL SAFETY PRECAUTIONS AND JOB SITE SAFETY PROGRAMS IN CONNECTION WITH THE WORK.
14. CONTRACTOR SHALL KEEP THE JOBSITE CLEAN AND ORDERLY AT ALL TIMES. ALL LOCATIONS OF THE SITE SHALL BE KEPT IN A WORKING MANNER SUCH THAT DEBRIS IS REMOVED CONTINUOUSLY AND ALL RESPECTIVE CONTRACTORS OPERATE UNDER GENERAL "GOOD HOUSEKEEPING."
15. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, ENGINEER, AND THEIR AGENTS FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE WORK ON THIS PROJECT.

PROJECT TEAM CONTACTS

CIVIL ENGINEER:
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(312) 258-3322
CHRISC@SCANNELLPROPERTIES.COM

INDEX OF SHEETS

CONSTRUCTION SET

REQUIRED SUBMITTALS FOR APPROVAL

1. ASPHALT PAVEMENTS
2. CONCRETE PAVEMENTS (EXTERIOR)
3. STONE BASE COURSE
4. TRENCH BACKFILL
5. PIPE BEDDING

REQUIRED SUBMITTALS FOR RECORDS

1. WATER MAIN PIPE FITTINGS
2. SANITARY SEWER
3. STORM SEWER
4. LIME MIX DESIGN (IF APPLICABLE)

WISCONSIN — TODD D. MUELLER — E-37996 — SHEBOYGAN — PROFESSIONAL ENGINEER

EXPIRATION DATE: JULY 31, 2022

DIGGERS HOTLINE
Toll Free (800) 242-8511
Milwaukee Area (414) 259-1181
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

PINNACLE ENGINEERING GROUP, LLC
ENGINEER'S LIMITATION

PINNACLE ENGINEERING GROUP

PLAN | DESIGN | DELIVER

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

COVER SHEET

REVISIONS

SHEET C-1 of C-22

LEGEND OF SYMBOLS & ABBREVIATIONS

SANITARY MANHOLE	FIBER OPTIC MARKER	SIGN	C	CENTERLINE		SANITARY SEWER
STORM MANHOLE	FIBER OPTIC MANHOLE/VAU...	WM, WG	CONC	CONCRETE	W	STORM SEWER
STORM INLET	TELEPHONE PEDESTA.	FLAG POLE	EL	ELEVATION	FO	WATER MAIN
CLEANOUT	TELEPHONE MANHOLE/VAU...	BASKETBALL HOOP	EXT	EXISTING	T	FIBER OPTIC, INT
CATCH BASIN	TELEPHONE MARKER	BOLLARD	INV	INVERT	OHW	TELEPHONE, INT
AREA	TRANSFORMER	CROSS CUT	MH	MANHOLE	CATV	ELECTRIC, INT
UNKNOWN MANHOLE	ELECTRIC METER/PEDESTA.	IRON PIPE	MON	MONUMENT	G	OVERHEAD WIRES
WELL	ELECTRIC MANHOLE/VAU...	IRON REBAR/ROD	POB	POINT OF BEGINNING	E	CABLE TELEVISION
HYDRANT	CABLE TV MEDESTAL	MAG NAIL	POC	POINT OF COMMENCEMENT		GAS MAIN
WATER VALVE	CABLE TV MANHOLE/VAU...	SECTION MONUMENT	ROW	RIGHT OF WAY		WET ACRES
DOWN SPOUT	GAS VALVE	BENCH MARK	SEC	SECTION		TREE, INT
SPRINKLER VALVE	GAS METER	CONIFER TREE	SQ FT	SQUARE FEET		NO ACCESS
WATER SHUT OFF	GAS MARKER	DECIDUOUS TREE	W	WITH		
STANDPIPE	AIR CONDITIONING UNIT	BUSH	RE	RECORDED AS		
WATER MANHOLE	GUY WIRE ANCHOR	MISC. AND SYMBOL	(D)	DEEDED AS		
FLOODLIGHT	DIRECTIONAL ARROW					
BUS POLE	DUMPSTER					
TRAFFIC SIGNAL	HANDICAP STALL					
UTILITY POLE	SPOT ELEVATION					

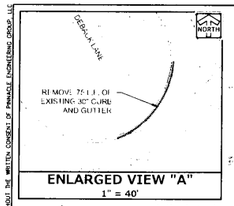
EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTY THAT EXISTING INFORMATION CONTAINED WITHIN THE SURVEY AND ALL ANSWERS OR ACCURATE CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES.

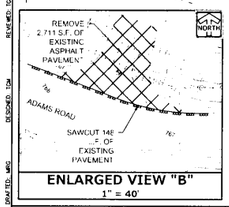
DEMOLITION LEGEND

- SAW CUT
- REMOVE CURB AND GUTTER
- REMOVE ASPHALT PAVEMENT

GRAPHICAL SCALE (FEET)
0 — 1" = 80' — 160'



ENLARGED VIEW "A"
1" = 40'



ENLARGED VIEW "B"
1" = 40'

CONSTRUCTION SET

EXISTING CONDITIONS & DEMOLITION PLAN

PINNACLE ENGINEERING GROUP ENGINEERING	WISCONSIN OFFICE 1021 WATERTOWN ROAD, SUITE 100 BROOKFIELD, WI 53186 (262) 754-8888

DEBACK FARMS -
PAD F
CALEDONIA, WISCONSIN

EXISTING CONDITIONS & DEMOLITION PLAN

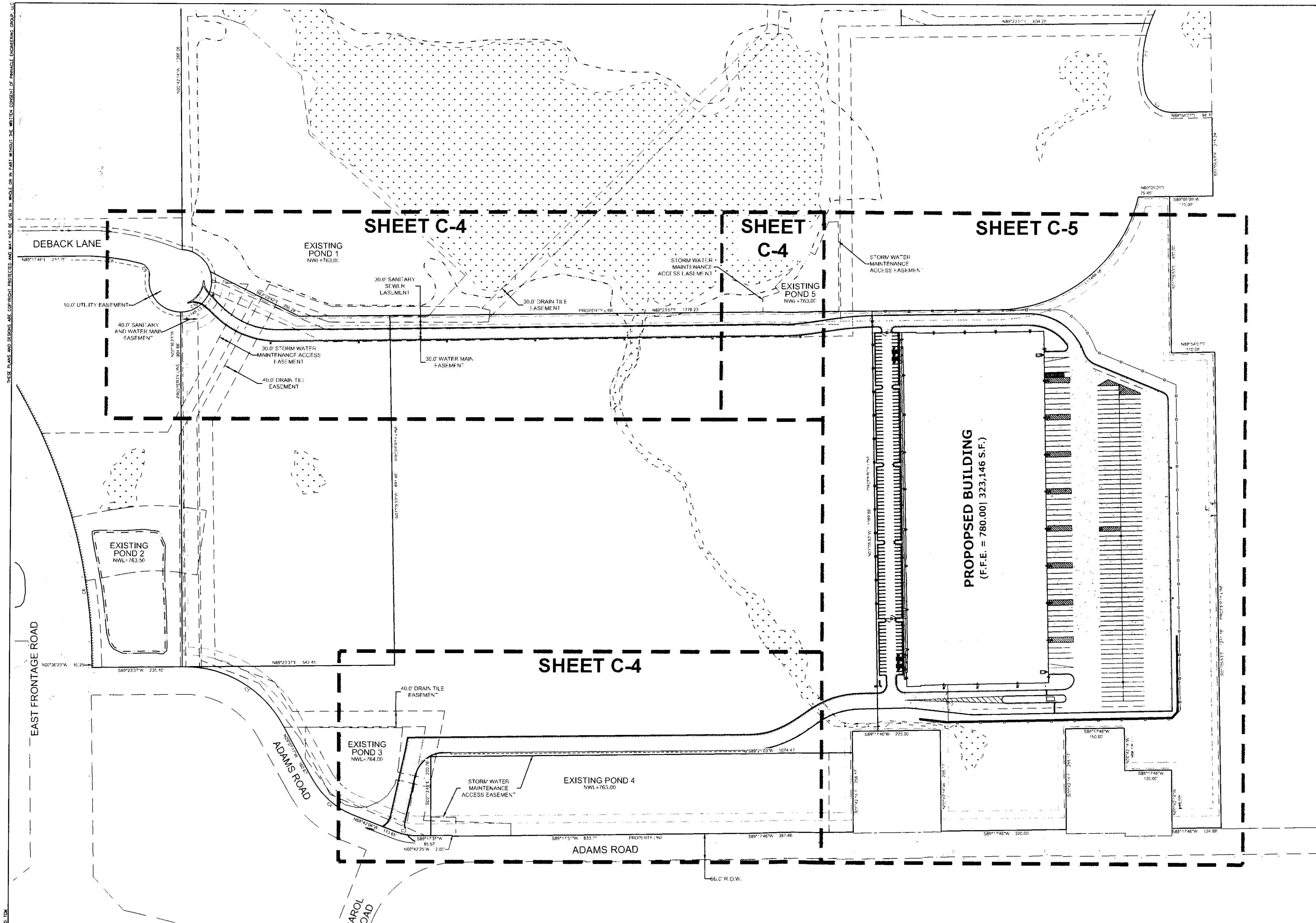
REVISIONS

1	CONSTRUCTION SET	05/27/22	

PROJECT NO. 390.00C
DRAWN BY AKA
CHECKED BY 03/06/23
SCALE 1" = 80'

SHEET C-2 OF C-22

Z:\PROJECTS\2014\390.00C WI\CAD\SHEETS\390.00C WI EXISTING CONDITIONS.DWG



SITE DATA

SITE AREA	1,015,950 SQ. FT. / 23.32 AC
BUILDING FOOTPRINT	323,146 SQ. FT. / 7.42 AC
IMPERVIOUS AREA	610,864 SQ. FT. / 14.02 AC / 60.1%
GREEN SPACE	405,086 SQ. FT. / 9.30 AC / 39.9%
PARKING PROVIDED (9'x18')	182 (6 ADA)
ADA REQUIREMENTS	6 SPACES (1 VAN ACCESSIBLE)
ADA PROVIDED	6 SPACES (4 VAN ACCESSIBLE)
PARKING RATIO TO FLOOR AREA	0.56 SPACES PER 1000 S.F. (3.5 PER 1,000 MAX PER VILLAGE CODE)

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF CALEDONIA STANDARDS. NO WORK SHALL BE PERFORMED IN VILLAGE R.O.W.'S WITHOUT PROPER VILLAGE PERMITS & APPROVALS.

NO DISTURBANCE OF THE EXISTING WETLAND AREA IS ALLOWED PRIOR TO THE APPROVAL OF A WETLAND FILL PERMIT.

EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTS THAT EXISTING INFORMATION CONTAINED WITHIN THESE PLANS IS ALL-INCLUSIVE OR ACCURATE. CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES.

SITE AND DIMENSIONAL PLAN NOTES

1. ALL DIMENSIONS ARE FACE OF CURB, SHOULDER, OR CENTER OF LANE LINE UNLESS NOTED OTHERWISE.
2. ALL PROPOSED CURB AND GUTTER SHALL BE 18" STANDARD CURB AND GUTTER (SEE DETAIL), UNLESS OTHERWISE NOTED. CURB AND GUTTER DRAINING AWAY FROM THE FACE OF CURB IS NOTED AS REVERSE CURB AND GUTTER.
3. BUILDING DIMENSIONS AND ADJACENT PARKING AND UTILITY LAYOUT HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL CONTACT DIGGERS HOTLINE (1-800-242-8511) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
5. IMPROVEMENTS ADJACENT TO BUILDING IF SHOWN SUCH AS TRUCK DOCK, RETAINING WALLS, SIDEWALKS, CURBING, FENCES, CANOPIES, RAMPS, HANDICAP ACCESS, PLANTERS, DUMPSTERS AND TRANSFORMERS ETC. HAVE BEEN SHOWN FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS, SPECIFICATIONS, AND DETAILS.
6. REFER TO ELECTRICAL PLANS FOR LIGHTING LOCATIONS, SPECIFICATIONS, AND DETAILS.
7. SEE ADDITIONAL NOTES AND DETAILS ON SITE DIMENSIONAL PLANS AND CONSTRUCTION DETAILS.
8. ALL PAVING SHALL CONFORM TO STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY & STRUCTURE CONSTRUCTION, LATEST EDITION AND APPLICABLE VILLAGE OF CALEDONIA ORDINANCES, AND SPECIFICATIONS CONTAINED WITHIN THIS PLAN SET.
9. CONTRACTOR SHALL CONSULT STRIPING COLOR WITH OWNER PRIOR TO CONSTRUCTION.
10. PROVIDE CONTRACTOR GRADE ACRYLIC STRIPING PAINT FOR NEW ASPHALT OR COATED ASPHALT. APPLY MARKING PAINT AT A RATE OF ONE (1) GALLON PER THREE TO FOUR HUNDRED (300-400) LINEAL FEET OF FOUR (4) INCH WIDE STRIPES OR TO MANUFACTURER'S SPECIFICATION, WHICHEVER IS GREATER.
11. THOROUGHLY CLEAN SURFACES FREE OF DIRT, SAND, GRAVEL, OIL AND OTHER FOREIGN MATTER. CONTRACTOR RESPONSIBLE TO INSPECT EXISTING PAVEMENT SURFACES FOR CONDITIONS AND DEFECTS THAT WILL ADVERSELY AFFECT QUALITY OF WORK AND WHICH CANNOT BE PUT INTO AN ACCEPTABLE CONDITION THROUGH NORMAL PREPARATORY WORK AS SPECIFIED.
12. DO NOT PLACE MARKING OVER UNSOUND PAVEMENTS. IF THESE CONDITIONS EXIST, NOTIFY OWNER. STARTING INSTALLATION CONSTITUTES CONTRACTOR'S ACCEPTANCE OF SURFACE AS SUITABLE FOR INSTALLATION.
13. LAYOUT MARKINGS USING GUIDE LINES, TEMPLATES AND FORMS. STENCILS AND TEMPLATES SHALL BE PROFESSIONALLY MADE TO INDUSTRY STANDARDS. "FREE HAND" PAINTING OF ARROWS, SYMBOLS, OR WORDING SHALL NOT BE ALLOWED. APPLY STRIPES STRAIGHT AND EVEN.
14. PROTECT ADJACENT CURBS, WALKS, FENCES, AND OTHER ITEMS FROM RECEIVING PAINT.
15. BARRICADE MARKED AREAS DURING INSTALLATION AND UNTIL THE MARKING PAINT IS DRIED AND READY FOR TRAFFIC.
16. ASPHALTIC CONCRETE PAVING SPECIFICATIONS-

    CODES AND STANDARDS: THE PLACING, CONSTRUCTION AND COMPOSITION OF THE ASPHALTIC BASE COURSE AND ASPHALTIC CONCRETE SURFACING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS 450, 455, 460 AND 465 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION. HEREAFTER THIS PUBLICATION WILL BE REFERRED TO AS THE STATE HIGHWAY SPECIFICATIONS.

    WEATHER LIMITATIONS: APPLY TACK COATS WHEN AMBIENT TEMPERATURE IS ABOVE 50° F (10° C) AND WHEN TEMPERATURE HAS NOT BEEN BELOW 35° F (1° C) FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. DO NOT APPLY WHEN BASE IS WET OR CONTAINS EXCESS OF MOISTURE. CONSTRUCT ASPHALTIC CONCRETE SURFACE COURSE WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40° (4°C) AND WHEN BASE IS DRY AND WHEN WEATHER IS NOT RAINY. BASE COURSE MAY BE PLACED WHEN AIR TEMPERATURE IS ABOVE 30° F (-1° C).

    GRADE CONTROL: ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS FOR EACH COURSE DURING CONSTRUCTION.

    CRUSHED AGGREGATE BASE COURSE: THE TOP LAYER OF BASE COURSE SHALL CONFORM TO SECTIONS 301 AND 305, STATE HIGHWAY SPECIFICATIONS.

    BINDER COURSE AGGREGATE: THE AGGREGATE FOR THE BINDER COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 315, STATE HIGHWAY SPECIFICATIONS.

    SURFACE COURSE AGGREGATE: THE AGGREGATE FOR THE SURFACE COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 465, STATE HIGHWAY SPECIFICATIONS.

    ASPHALTIC MATERIALS: THE ASPHALTIC MATERIALS SHALL CONFORM TO SECTION 455 AND 460, STATE HIGHWAY SPECIFICATIONS.

    SURFACE PREPARATION: NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.
17. TRAFFIC CONTROL SHALL BE PER M.U.T.C.D.
18. PUBLIC CURB & GUTTER REPLACEMENT SHALL BE TIED TO EXISTING CURB & GUTTER WITH #4 TIE BARS. PUBLIC CURB & GUTTER SHALL BE A 6-BAG MIX.

LEGEND

LIGHT DUTY PAVEMENT
HEAVY DUTY PAVEMENT
CONCRETE PAVEMENT
CONCRETE SIDEWALK

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

SITE DIMENSIONAL OVERVIEW

REVISIONS

CONSTRUCTION SET 04/27/21

390.00C | ARA | 01/06/21 | 1"=100'

SHEET C-3 OF C-22

CONSTRUCTION SET

SITE DIMENSIONAL OVERVIEW

DEBACK LANE

EXISTING POND 1 NWL=763.00

DRIVEWAY ENTRANCE W/ CONCRETE APRON (SEE DETAIL)

R45.0'

10.0' TRANSITION

10.0' TRANSITION

PROPERTY LINE S89°23'34"E 250.76'

10.0' UTILITY EASEMENT

40.0' SANITARY AND WATER MAIN EASEMENT

PROPERTY LINE N00°36'23"W 594.65'

R200.0'

R230.0'

30.0' STORM WATER MAINTENANCE ACCESS EASEMENT

40.0' DRAIN TILE EASEMENT

25.0' BUILDING SETBACK

5.0' PARKING SETBACK

30.0' SANITARY SEWER EASEMENT

40.0' DRAIN TILE EASEMENT

30.0' DRAIN TILE EASEMENT

PROPERTY LINE N89°23'34"E 1778.23'

30.0' WATER MAIN EASEMENT

PROPOSED LIGHT POLE (TYP.)

PROPERTY LINE N89°23'34"E 1778.23'

PROPERTY LINE N00°36'23"W 594.65'

LEGEND

- LIGHT DUTY PAVEMENT (4" CRUSHED ASPHALT BASE COURSE, 2" ASPHALT BINDER COURSE, 1.5" ASPHALT SURFACE COURSE)
- HEAVY DUTY PAVEMENT (12" CRUSHED AGGREGATE BASE COURSE, 2.5" ASPHALT BINDER COURSE, 2" ASPHALT SURFACE COURSE)
- CONCRETE PAVEMENT (6" CRUSHED AGGREGATE BASE COURSE, 6" CONCRETE PAVEMENT)
- CONCRETE SIDEWALK (4" CRUSHED AGGREGATE BASE COURSE, 4" CONCRETE PAVEMENT)

(A) 4" SOLID WHITE STRIPE
(B) 4" DIAGONAL WHITE STRIPES (2' O.C.)
(C) 4" DASHED WHITE STRIPING (3' DASH, 9' GAP)
(D) ADA PARKING STALL SIGNAGE (SEE DETAIL)
(E) ADA STALL INSIGNIA
(F) 18" CURB & GUTTER (SEE DETAIL)
(G) 18" REVERSE CURB & GUTTER (SEE DETAIL)
(H) 30" CURB & GUTTER (SEE DETAIL)
(I) 30" REVERSE CURB & GUTTER (SEE DETAIL)
(J) BUILDING DOOR SLANTING MAX SLOPE WITHIN 5'-0" OF DRIVE IN DR MAN DOOR
(K) TAPER CURB HEAD (SEE DETAIL)
CURB & GUTTER
REVERSE PITCH CURB & GUTTER
PARKING COUNT (FOR INFORMATION ONLY, NOT TO BE PAINTED)
MAN DOOR
O.H.D. OVERHEAD DOOR

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 40' 80'

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 40' 80'

STORM WATER MAINTENANCE ACCESS EASEMENT

EXISTING POND 5 NWL=763.00

30.0' SANITARY SEWER EASEMENT

25.0' BUILDING SETBACK

PROPERTY LINE N89°23'34"E 1778.23'

5.0' PARKING SETBACK

R800.0'

R830.0'

30.0' WATER MAIN EASEMENT

PROPOSED LIGHT POLE (TYP.)

PROPERTY LINE N89°23'34"E 542.45'

45.0' DRAIN TILE EASEMENT

END ANCHORED CURB (SEE DETAIL ON SHEET C-20)

STORM WATER MAINTENANCE ACCESS EASEMENT

EXISTING POND 3 NWL=764.00

R75.0'

N68°40'04"W 113.62'

R45.0'

R45.0'

BEGIN ANCHORED CURB (SEE DETAIL ON SHEET C-20)

ADAMS ROAD

CAROL ROAD

N00°40'27"W 2.00'

S89°13'35"W 86.52'

STORM WATER MAINTENANCE ACCESS EASEMENT

EXISTING POND 4 NWL=763.00

3.0' GRAVEL SHOULDER TO MATCH TOTAL THICKNESS OF PAVEMENT AND BASE

50.0' BUILDING SETBACK

30.0' PARKING SETBACK

66.0' R.O.W.

S89°13'35"W 633.77' PROPERTY LINE

CONCRETE FLUME (SEE DETAIL)

R240.0'

R200.0'

R240.0'

PROPERTY LINE S89°21'03"W 1074.47'

66.0' R.O.W.

S89°17'48"W 387.46' PROPERTY LINE

ADAMS ROAD

CONSTRUCTION SET

SITE DIMENSIONAL PLAN

DESIGNED: TDM
DRAFTED: MPG

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING
WISCONSIN OFFICE
2072 WATERTOWN ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

SITE DIMENSIONAL PLAN

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT NO. 390.0005 AREA
PROJECT DATE 03/09/23
SCALE 1" = 40'

SHEET C-4 OF C-22

Z:\PROJECTS\2014\390.0005\WIP\SHEETS\390.0005 WI SITE DIMENSIONAL & PAVING.DWG

LEGEND

- HEAVY DUTY PAVEMENT
- HEAVY DUTY PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- (A) 4" SOLID WHITE STRIPE
- (B) 4" DIAGONAL @ 45° SPACED 2'-0" O.C.
- (C) 4" DASHED WHITE STRIPE (3'-0" LINE W/ 3'-0" GAP)
- (D) ADA PARKING STALL SIGNAGE (SEE DETAIL)
- (E) ADA STALL INSIGNIA
- (F) 18" CURB & GUTTER (SEE DETAIL)
- (G) 18" REVERSE CURB & GUTTER (SEE DETAIL)
- (H) 30" CURB & GUTTER (SEE DETAIL)
- (I) 30" REVERSE CURB & GUTTER (SEE DETAIL)
- (J) RUBBING DOOR SLAB (2% MAX SLOPE WITHIN 5'-0" OF SWING IN OR MAN DOOR)
- (K) TAPER CURB HEAD (SEE DETAIL)
- CURB & GUTTER
- REVERSE PITCH CURB & GUTTER
- PARKING COUNT INFORMATION ONLY - NOT TO BE PAINTED
- MAN DOOR
- OVERHEAD DOOR

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 40' 80'

PROPOPSED BUILDING
(F.F.E. = 780.00 | 323,146 S.F.)

ARM GATE W/ KEY CARD ACCESS AND MANUAL SLIDE GATE (SEE ARCHITECTURAL PLANS)
MONUMENT SIGN (SEE ARCHITECTURAL PLANS)
MANUAL SWING GATE (SEE ARCHITECTURAL PLANS)
4" DIAGONAL AT 45° SPACED 13.5' O.C.
30.0' PARKING SETBACK
50.0' BUILDING SETBACK
PROPOSED RETAINING WALL
PROPOSED GATES (SEE ARCHITECTURAL PLANS)
12" CONCRETE RODENT STRIP (SEE LANDSCAPE PLANS FOR DETAILS)
5.0' PARKING SETBACK
20.0' BUILDING SETBACK
GUARDHOUSE F.F.E. = 776.00 (SEE ARCHITECTURAL PLANS)
BOLLARDS
PROPOSED DUMPSTER LOCATION
PROPOSED LIGHT POLE (TYP.)
CHAIN LINK FENCE (SEE ARCHITECTURAL PLANS)
PROPERTY LINE
RR-GIN ANCHORED CURB (SEE DETAIL ON SHEET C-20)
MANUAL SWING GATE (SEE ARCHITECTURAL PLANS)
5.0' PARKING SETBACK
25.0' BUILDING SETBACK
12" CONCRETE RODENT STRIP (SEE LANDSCAPE PLANS FOR DETAILS)
SEE ENLARGED DETAIL ON SHEET C-20
30.0' WATER MAIN EASEMENT
30.0' SANITARY SEWER EASEMENT
STORM WATER MAINTENANCE ACCESS EASEMENT
END ANCHORED CURB (SEE DETAIL ON SHEET C-20)
CHAIN LINK FENCE (SEE ARCHITECTURAL PLANS)
PROPOSED RETAINING WALL
PROPOSED LIGHT POLE (TYP.)
CHAIN LINK FENCE (SEE ARCHITECTURAL PLANS)
20.0' BUILDING SETBACK
5.0' PARKING SETBACK

CONSTRUCTION SET

SITE DIMENSIONAL PLAN

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING
WISCONSIN OFFICE
2029 WAUKESHA ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

SITE DIMENSIONAL PLAN

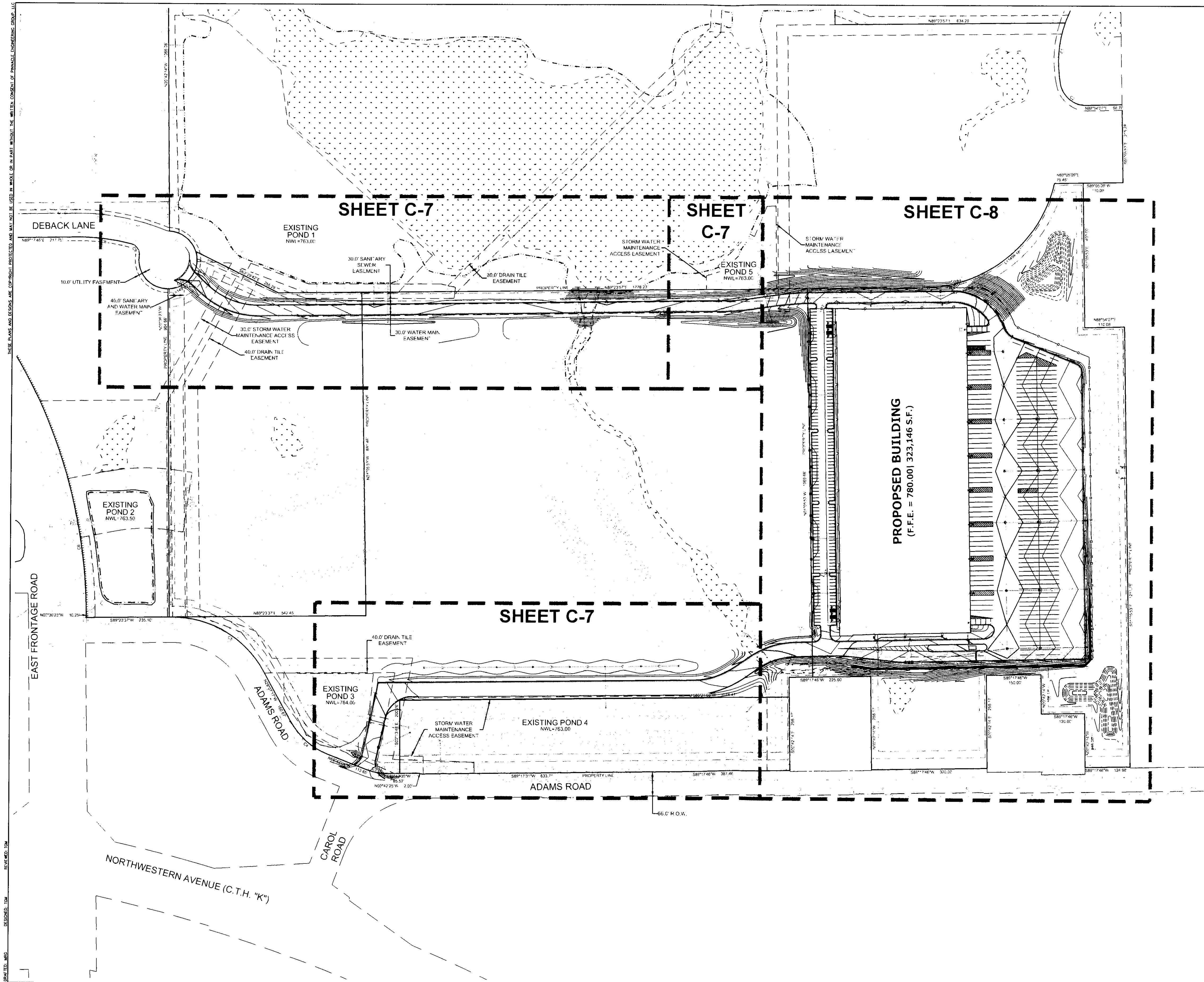
REVISIONS

#	CONSTRUCTION SET	05/12/2021

PROJECT NO. 390.005
DRAWN BY AKA
DATE 03/26/21
SCALE 1" = 40'

SHEET
C-5
of
C-22

Z:\PROJECTS\2014\390.005\CAD\SHEETS\390.005 SITE DIMENSIONAL & PAVING.DWG



LEGEND

	PROPOSED FLARED END SECTION
	STORM CATCH BASIN
	CURB CATCH BASIN
749	PROPOSED CONTOUR
749	PROPOSED TOPSOIL CONTOUR
750.00	SPOT ELEVATION
TW	TOP OF WALL
BW	BOTTOM OF WALL
	DIRECTION OF SURFACE FLOW
	OVERFLOW RELIEF ROUTING
	DITCH OR SWALE
	NORMAL WATER LEVEL (NWL)
	HIGH WATER LEVEL (HWL)

EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTS THAT EXISTING INFORMATION CONTAINED WITHIN THESE PLANS IS ALL-INCLUSIVE OR ACCURATE. CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES

GRADING NOTES

1. CONTRACTOR SHALL VERIFY ALL GRADES, ENSURE ALL AREAS DRAIN PROPERLY AND REPORT ANY DISCREPANCIES TO PINNACLE ENGINEERING GROUP PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.
2. ALL EXISTING CONTOURS REPRESENT EXISTING SURFACE GRADES UNLESS OTHERWISE NOTED. ALL PROPOSED GRADES SHOWN ARE FINISH SURFACE GRADES UNLESS OTHERWISE NOTED.
3. SPOT ELEVATIONS REPRESENT THE GRADE ALONG THE CURB AND GUTTER FLOWLINE UNLESS OTHERWISE NOTED.
4. ALL EXCAVATIONS AND MATERIAL PLACEMENT SHALL BE COMPLETED TO DESIGN ELEVATIONS AS DEPICTED IN THE PLANS.

   CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPUTATION(S) OF ALL GRADING QUANTITIES. WHILE PEG ATTEMPTS TO PROVIDE A COST EFFECTIVE APPROACH TO BALANCE EARTHWORK, GRADING DESIGN IS BASED ON MANY FACTORS, INCLUDING SAFETY, AESTHETICS, AND COMMON ENGINEERING STANDARD OF CARE, THEREFORE NO GUARANTEE CAN BE MADE FOR A BALANCED SITE.

   THE CONTRACTOR MAY SOLICIT APPROVAL FROM ENGINEER/OWNER TO ADJUST FINAL GRADES FROM DESIGN GRADES TO PROVIDE AN OVERALL SITE BALANCE AS A RESULT OF FIELD CONDITIONS.
5. GRADING ACTIVITIES SHALL BE IN A MANNER TO ALLOW POSITIVE DRAINAGE ACROSS DISTURBED SOILS, WHICH MAY INCLUDE EXCAVATION OF TEMPORARY DITCHES TO PREVENT PONDING, AND IF NECESSARY PUMPING TO ALLEVIATE PONDING. CONTRACTOR SHALL PREVENT SURFACE WATER FROM ENTERING INTO EXCAVATIONS. IN NO WAY SHALL OWNER BE RESPONSIBLE FOR REMEDIATION OF UNSUITABLE SOILS CREATED/ORIGINATED AS A RESULT OF IMPROPER SITE GRADING OR SEQUENCING. CONTRACTOR SHALL SEQUENCE GRADING ACTIVITIES TO LIMIT EXPOSURE OF DISTURBED SOILS DUE TO WEATHER.
6. THE CONTRACTOR IS RESPONSIBLE FOR MEETING MINIMUM COMPACTION STANDARDS. THE CONTRACTOR SHALL NOTIFY ENGINEER/OWNER IF PROPER COMPACTION CANNOT BE OBTAINED. THE PROJECT'S GEOTECHNICAL CONSULTANT SHALL DETERMINE WHICH IN-SITU SOILS ARE TO BE CONSIDERED UNSUITABLE SOILS. THE ENGINEER/OWNER AND GEOTECHNICAL TESTING CONSULTANT WILL DETERMINE IF REMEDIAL MEASURES WILL BE NECESSARY.
7. IN THE EVENT THAT ANY MOISTURE-DENSITY TEST(S) FAIL TO MEET SPECIFICATION REQUIREMENTS, THE CONTRACTOR SHALL PERFORM CORRECTIVE WORK AS NECESSARY TO BRING THE MATERIAL INTO COMPLIANCE AND RETEST THE FAILED AREA AT NO COST TO THE OWNER.
8. WITH THE AUTHORIZATION OF THE ENGINEER/OWNER, MATERIAL THAT IS TOO WET TO PERMIT PROPER COMPACTION MAY BE SPREAD ON FILL AREAS IN AN EFFORT TO DRY. CONTRACTOR SHALL CLEARLY FIELD MARK THE EXTERIOR LIMITS OF SPREAD MATERIAL WITH PAINTED LATH AND SUBMIT A PLAN TO THE ENGINEER/OWNER THAT IDENTIFIES THE LIMITS. UNDER NO CONDITION SHALL THE SPREAD MATERIAL DEPTH EXCEED THE MOST RESTRICTIVE OF THE EFFECTIVE TREATMENT DEPTH OF MACHINERY THAT WILL BE USED TO TURNOVER THE SPREAD MATERIAL, OR THE MAXIMUM COMPACTION LIFT DEPTH.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER/OWNER IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION.
10. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ADEQUATE AND SAFE TEMPORARY SHORING, BRACING, RETENTION STRUCTURES, AND EXCAVATIONS.
11. THE SITE SHALL BE COMPLETED TO WITHIN 0.10-FT (+/-) OF THE PROPOSED GRADES AS INDICATED WITHIN THE PLANS PRIOR TO PLACEMENT OF TOPSOIL OR STONE. CONTRACTOR IS ENCOURAGED TO SEQUENCE CONSTRUCTION SUCH THAT THE SITE IS DIVIDED INTO SMALLER AREAS TO ALLOW STABILIZATION OF DISTURBED SOILS IMMEDIATELY UPON COMPLETION OF INDIVIDUAL SMALLER AREAS.
12. CONTRACTOR SHALL CONTACT "DIGGER'S HOTLINE" FOR LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES AND SHALL BE RESPONSIBLE FOR PROTECTING SAID UTILITIES FROM ANY DAMAGE DURING CONSTRUCTION.
13. CONTRACTOR SHALL PROTECT INLETS AND ADJACENT PROPERTIES WITH SILT FENCING OR APPROVED EROSION CONTROL METHODS UNTIL CONSTRUCTION IS COMPLETED. CONTRACTOR SHALL PLACE SILT FENCING AT DOWN SLOPE SIDE OF GRADING LIMITS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING FACILITIES OR UTILITIES. ANY DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
15. WORK WITHIN ANY ROADWAY RIGHT-OF-WAY SHALL BE COORDINATED WITH THE APPROPRIATE MUNICIPAL OFFICIAL PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FEES. GRADING WITHIN RIGHT-OF-WAY IS SUBJECT TO APPROVAL BY SAID OFFICIALS. RESTORATION OF RIGHT-OF-WAY IS CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF GRADING. RESTORATION SHALL INCLUDE ALL ITEMS NECESSARY TO RESTORE RIGHT-OF-WAY IN-KIND INCLUDING LANDSCAPING.
16. CONTRACTOR SHALL COMPLY WITH ALL VILLAGE OF CALEDONIA AND RACINE COUNTY CONSTRUCTION STANDARDS/ORDINANCES.
17. LANDSCAPE AND TURF AREAS SHALL HAVE A MINIMUM OF 6-INCH TOPSOIL REPLACEMENT.
18. TOPSOIL BERMING SHALL ACHIEVE 90% STANDARD PROCTOR DENSITY AT 3%(±) OPTIMUM MOISTURE CONTENT.
19. THE EXISTING STORM SEWER AND UNDERDRAIN SYSTEMS SHALL BE FLAGGED SO THAT IT IS NOT DISTURBED DURING CONSTRUCTION.

CONSTRUCTION SET

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

GRADING PLAN OVERVIEW

REVISIONS

CONSTRUCTION SET	04/27/21	

JOB NO. 390.00C
ARA
DATE 01/06/21
1"=100'

SHEET C-6 OF C-22

GRADING PLAN OVERVIEW

DEBACK LANE

EXISTING POND 1 NWL=763.00

WETLANDS

WETLANDS

PROPERTY LINE S89°23'57"E 1178.23

PROPERTY LINE N00°36'23"W 304.66

PROPERTY LINE N01°19'53"W 854.14

PROPERTY LINE S89°21'03"W 1074.47

25.0' BUILDING SETBACK

5.0' PARKING SETBACK

30.0' SANITARY SEWER EASEMENT

40.0' DRAIN TILE EASEMENT

30.0' DRAIN TILE EASEMENT

40.0' SANITARY AND WATER MAIN EASEMENT

30.0' STORM WATER MAINTENANCE ACCESS EASEMENT

30.0' WATER MAIN EASEMENT

40.0' DRAIN TILE EASEMENT

WETLANDS

LEGEND

- PROPOSED FLARED END SECTION
- STORM CATCH BASIN
- CURB CATCH BASIN
- PROPOSED CONTOUR
- PROPOSED DEPRESSIONAL CONTOUR
- SPOT ELEVATION
- TOP OF BANK
- BOTTOM OF BANK
- DIRECTION OF SURFACE FLOW
- OVERLAND RELIEF ROUTING
- DITCH OR SWALE
- NORMAL WATER LEVEL (NWL)
- HIGH WATER LEVEL (HWL)

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 40' 80'

WETLANDS

STORM WATER MAINTENANCE ACCESS EASEMENT

EXISTING POND 5 NWL=763.00

PROPERTY LINE N89°23'57"E 1178.23

30.0' SANITARY SEWER EASEMENT

25.0' BUILDING SETBACK

5.0' PARKING SETBACK

30.0' WATER MAIN EASEMENT

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 40' 80'

40.0' DRAIN TILE EASEMENT

WETLANDS

STORM WATER MAINTENANCE ACCESS EASEMENT

EXISTING POND 3 NWL=764.00

STORM WATER MAINTENANCE ACCESS EASEMENT

EXISTING POND 4 NW. =763.00

PROPERTY LINE S89°21'03"W 1074.47

50.0' BUILDING SETBACK

30.0' PARKING SETBACK

66.0' R.O.W.

S89°17'35"W 85.52'

S89°17'31"W 633.71' PROPERTY LINE

66.0' R.O.W.

S89°17'48"W 387.46' PROPERTY LINE

ADAMS ROAD

CAROL ROAD

ADAMS ROAD

N00°42'04"W 113.82'

N00°42'25"W 2.00'

767.81' EX.

767.46' EX.

767.11' EX.

766.41' EX.

769.97

769.83

769.67

CONSTRUCTION SET

GRADING PLAN

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE
10721 WATERTOWN ROAD SUITE 100
BROOKFIELD, WI 53186
(262) 754-6888

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

GRADING PLAN

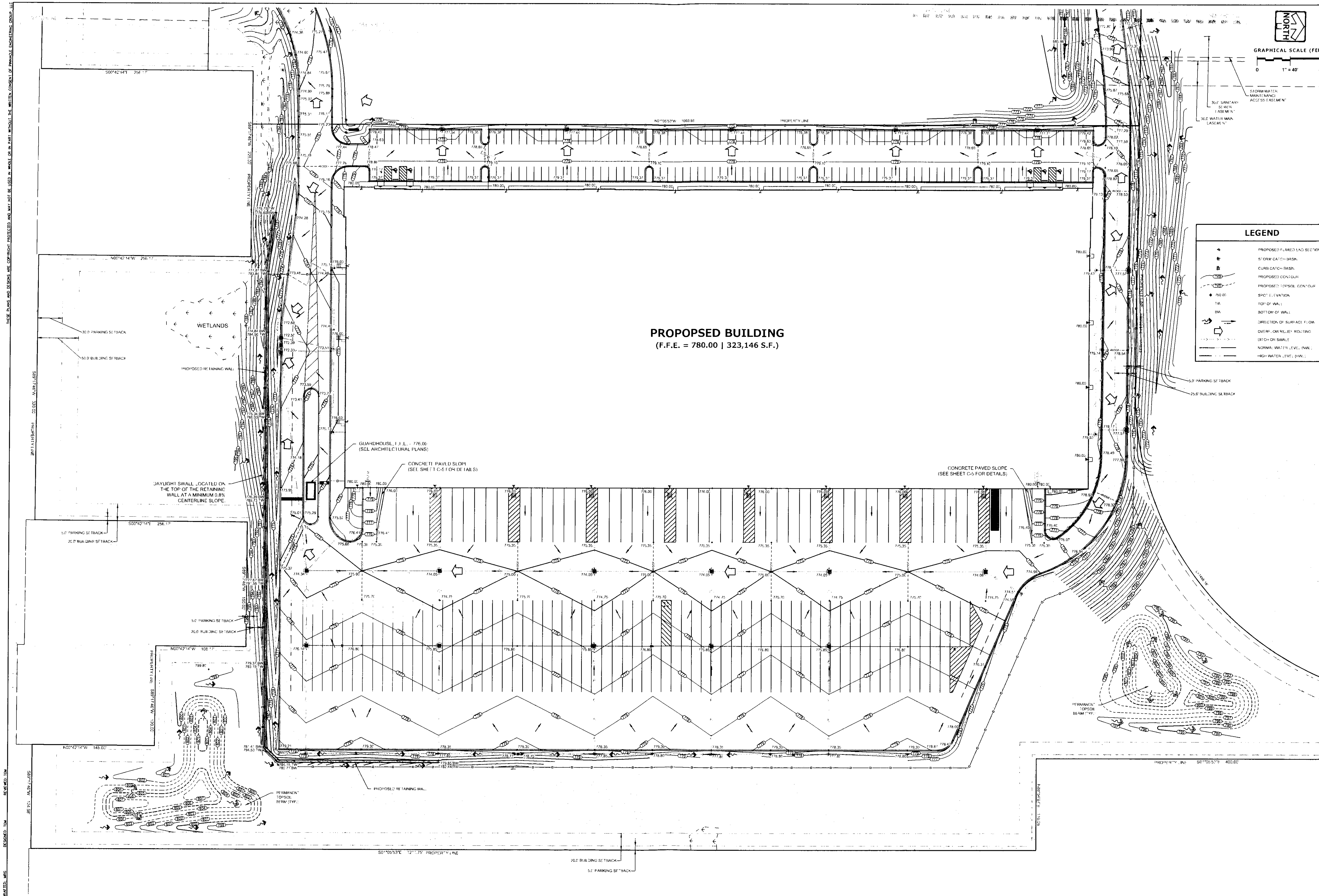
REVISIONS

NO.	DESCRIPTION	DATE	BY
	CONSTRUCTION SET	6/24/2021	

PROJECT NO. 330.0005
DRAWN BY ABA
DATE 23/06/21
SCALE 1" = 40'

SHEET C-7 OF C-22

Z:\PROJECTS\2014\330.0005\CAD\SHEETS\330.0005 WI GRADING PLAN.DWG


GRAPHICAL SCALE (FEET)
1" = 40'
STORM WATER MAINTENANCE ACCESS EASEMENT
PROPERTY LINE
PROPOPSED BUILDING
(F.F.E. = 780.00 | 323,146 S.F.)
WETLANDS
PROPOSED RETAINING WALL
GUARDHOUSE, F.F.E. = 776.00 (SEE ARCHITECTURAL PLANS)
CONCRETE PAVED SLOPE (SEE SHEET C-6 FOR DETAILS)
DAYLIGHT SWALE LOCATED ON THE TOP OF THE RETAINING WALL AT A MINIMUM 0.8% CENTERLINE SLOPE.
PERMANENT TOPSOIL BERM (TYP.)
5.0' PARKING SETBACK
25.0' BUILDING SETBACK
20.0' BUILDING SETBACK
LEGEND
PROPOSED FLARED END SECTION
STORM CATCH BASIN
CURB CATCH BASIN
PROPOSED CONTOUR
PROPOSED TOPSOIL CONTOUR
SPOT ELEVATION
TOP OF WALL
BOTTOM OF WALL
DIRECTION OF SURFACE FLOW
OVERFLOW RELIEF ROUTING
DITCH OR SWALE
NORMAL WATER LEVEL (NWL)
HIGH WATER LEVEL (HWL)

CONSTRUCTION SET

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE
BROOKFIELD, WI 53186

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

GRAPHING PLAN

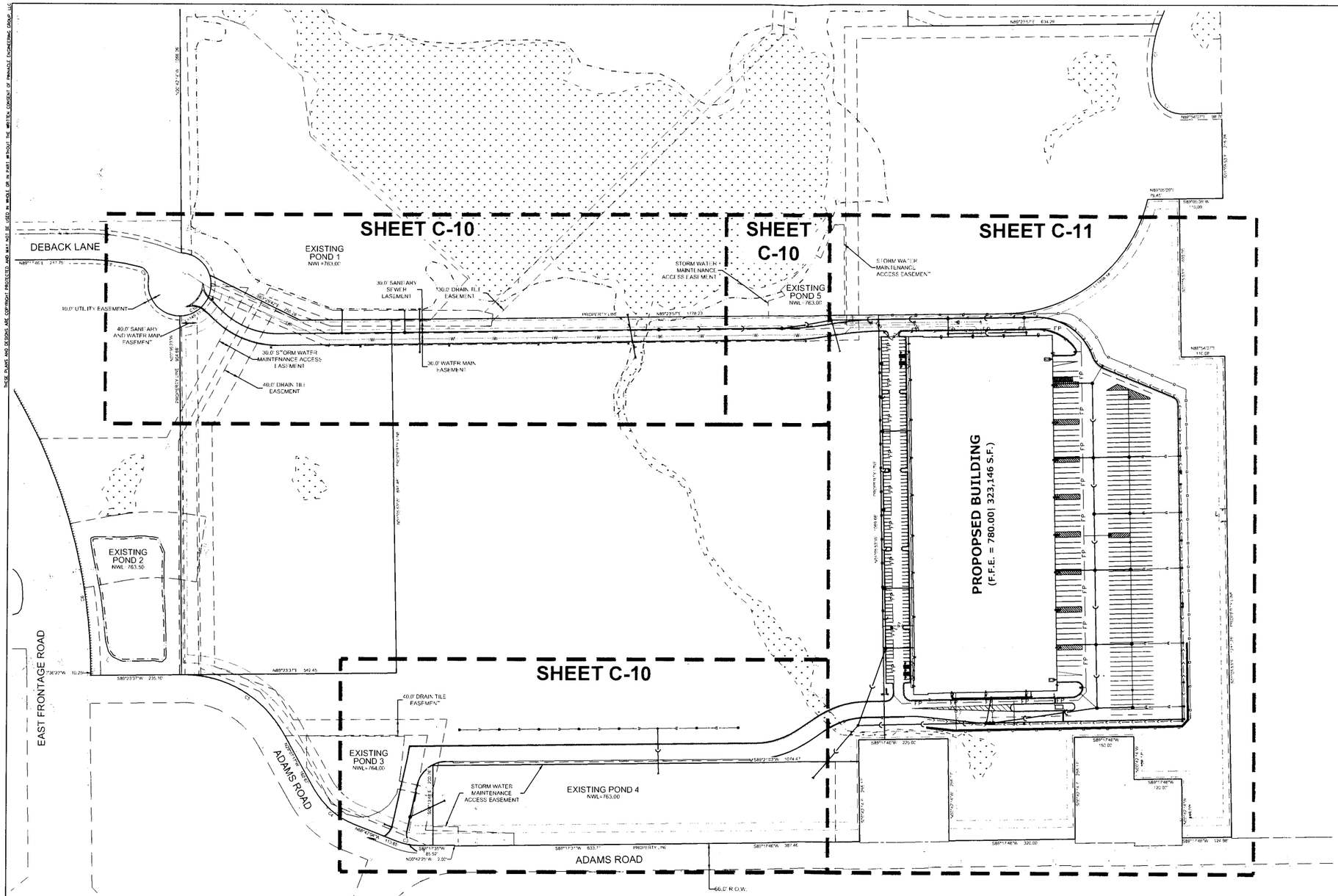
REVISIONS

1 CONSTRUCTION SET 04/27/21

390.00C | ARA | 01/06/21 | 1" = 40'

SHEET C-8 of C-22

GRADING PLAN



NORTH

GRAPHICAL SCALE (FEET)

0 1" = 100' 200'

EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTS THAT EXISTING INFORMATION CONTAINED WITHIN THESE PLANS IS ALL-INCLUSIVE OR ACCURATE. CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES.

NOTES

1. EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE TYPE, LOCATION, SIZE AND ELEVATION OF UNDERGROUND UTILITIES AS THEY DEEM NECESSARY FOR PROPOSED UTILITY CONNECTIONS AND/OR TO AVOID DAMAGE THERETO. CONTRACTOR SHALL CALL "DIGGER'S HOTLINE" PRIOR TO ANY CONSTRUCTION.

2. ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN (LATEST EDITION AND ADDENDUM) AND ALL STATE AND LOCAL CODES AND SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS AND CODES APPLY AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.

3. UTILITY CONSTRUCTION AND SPECIFICATIONS SHALL COMPLY WITH THE VILLAGE OF CALEDONIA SPECIAL PROVISIONS AND WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES COMM 82.

4. LENGTHS OF PROPOSED UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS ARE SHOWN FOR CONTRACTOR CONVENIENCE ONLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPUTATIONS OF MATERIALS REQUIRED TO COMPLETE WORK. LENGTHS SHALL BE FIELD VERIFIED DURING CONSTRUCTION.

5. CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT EXISTING UTILITY COVERS (SUCH AS MANHOLE COVERS, VALVE BOX COVERS, ETC.) TO MATCH FINISHED GRADES OF THE AREAS DISTURBED DURING CONSTRUCTION.

6. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, ELEVATIONS, AND SIZES OF PROPOSED UTILITIES AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS PRIOR TO ATTEMPTING CONNECTIONS AND BEGINNING UTILITY CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.

7. ALL NEW ON-SITE STORM SEWER SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.

8. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF CALEDONIA PUBLIC WORKS DEPARTMENT 48-HOURS IN ADVANCE OF STORM SEWER CONNECTIONS TO THE CITY-OWNED SYSTEM TO SCHEDULE INSPECTIONS.

9. ROUTING OF GAS, ELECTRIC AND TELEPHONE SERVICES ARE SHOWN ON THE ARCHITECTURAL PLANS AND SUBJECT TO CHANGE BASED UPON FINAL REVIEW AND APPROVAL BY RESPECTIVE UTILITY COMPANIES AND OWNER. CONTRACTOR SHALL CONTACT EACH UTILITY COMPANY AND COORDINATE FINAL LOCATIONS FOR ALL UTILITY SERVICES PRIOR TO START OF CONSTRUCTION.

10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE PROPER AUTHORITIES FOR ANY REQUIRED PERMITS, AUTHORIZATIONS, TRAFFIC CONTROL AND ANY PERMIT FEES REQUIRED.

11. FIELD TILE CONNECTION - ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION SHALL BE INCLUDED IN THE UNIT PRICE(S) FOR STORM SEWER. TILE LINES CROSSED BY THE TRENCH SHALL BE REPLACED WITH THE SAME MATERIAL AS THE STORM SEWER.

12. STORM SEWER SPECIFICATIONS -

PIPE - REINFORCED CONCRETE PIPE (RCP) SHALL MEET THE REQUIREMENTS OF ASTM CLASS C-76 WITH RUBBER GASKET JOINTS CONFORMING TO ASTM C-443. STRENGTH CLASSIFICATIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING

HEIGHT OF COVER (FEET)	0-2	2-3	3-6	6-15	15-25	25+
MINIMUM CONCRETE PIPE CLASSIFICATION	IV	III	II	III	IV	ENGINEER TO SPECIFY

HIGH DENSITY DUAL-WALL POLYETHYLENE N-12 CORRUGATED PIPE (HDPE) SHALL BE AS MANUFACTURED BY ADS OR EQUAL WITH WATER TIGHT JOINTS, AND SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-294 TYPE "S", OR POLYVINYL CHLORIDE (PVC) - CLASS PS46 MEETING AASHTO M278, AS NOTED. IF HDPE PIPE IS USED FOR POND OUTFALLS, A MINIMUM OF THREE (3) SECTIONS (2 STRAPS) SHALL BE STRAPPED TOGETHER.

INLETS - INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FILE NO. 25 OF THE "STANDARD SPECIFICATIONS" WITH A 1'-8" X 2'-6" MAXIMUM OPENING. STRUCTURE SHOP DRAWINGS SHALL BE SUBMITTED TO PINNACLE ENGINEERING GROUP FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURING AND INSTALLATION.

BACKFILL AND BEDDING - STORM SEWER SHALL BE CONSTRUCTED WITH GRAVEL BACKFILL AND CLASS "B" BEDDING IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 6.43.5 OF THE "STANDARD SPECIFICATIONS".

MANHOLE FRAMES AND COVERS - SEE STANDARD DETAILS ON SHEET C-20 FOR SPECIFICATIONS ON STORM SEWER FRAMES AND GRATES/COVERS.

IF HDPE PIPE IS USED FOR POND OUTFALLS, A MINIMUM OF THREE (3) SECTIONS (2 STRAPS) SHALL BE STRAPPED TOGETHER.

16. THE EXISTING STORM SEWER AND UNDERDRAIN SYSTEMS SHALL BE FLAGGED SO THAT THEY ARE NOT DISTURBED DURING CONSTRUCTION.

17. SEE STORM SEWER PLANS AND CONSTRUCTION DETAILS FOR ADDITIONAL INFORMATION.

CONSTRUCTION SET

LOOP AND FIRE DEPARTMENT CONNECTION SHOWN FOR CONCEPTUAL HYDRANT SPACING ONLY. THIS PLAN SHALL NOT BE USED FOR FIRE PROTECTION SYSTEM AND SYSTEM CONSTRUCTION. FINAL DESIGN AND SIZING SHALL BE BY FIRE PROTECTION ENGINEER.

LEGEND

◉	STORM SEWER MANHOLE	——)——	STORM SEWER
●	STORM SEWER CATCH BASIN (ROUND CASTING)	----))----	DRAINTILE
■	STORM SEWER CATCH BASIN (RECTANGULAR CASTING)	○	DRAINTILE DONUT
▶	PRECAST CONCRETE FLARED END SECTION	—>—>—>—>—	UNDERDRAIN
▣	CLEANOUT	—— FP ——	FIRE PROTECTION
⊙	SANITARY SEWER MANHOLE	- - ▶ - -	SANITARY SEWER
⊗	VALVE BOX	---- W ----	WATERMAIN - PRIVATE
✓	FIRE HYDRANT	- - - IW - - -	WATERMAIN - PUBLIC

DRAFTED: MRG
DESIGNED: TGM
REVIEWED: TGM

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE
20725 WATERTOWN ROAD SUITE 100
BROOKFIELD, WI 53186
(262) 754 8888

DEBACK FARMS -
PAD F
CALEDONIA, WISCONSIN

STORM SEWER PLAN OVERVIEW

REVISIONS

1	CONSTRUCTION SET	04/27/21

PEG JOB No. 390.00C
PEG PM ARA
START DATE 01/06/21
SCALE 1"=100'

SHEET
C-9
OF
C-22

STORM SEWER PLAN OVERVIEW

Z:\PROJECTS\2014\390.00C WI\CAD\SHEETS\390.00C WI STORM SEWER PLAN.DWG

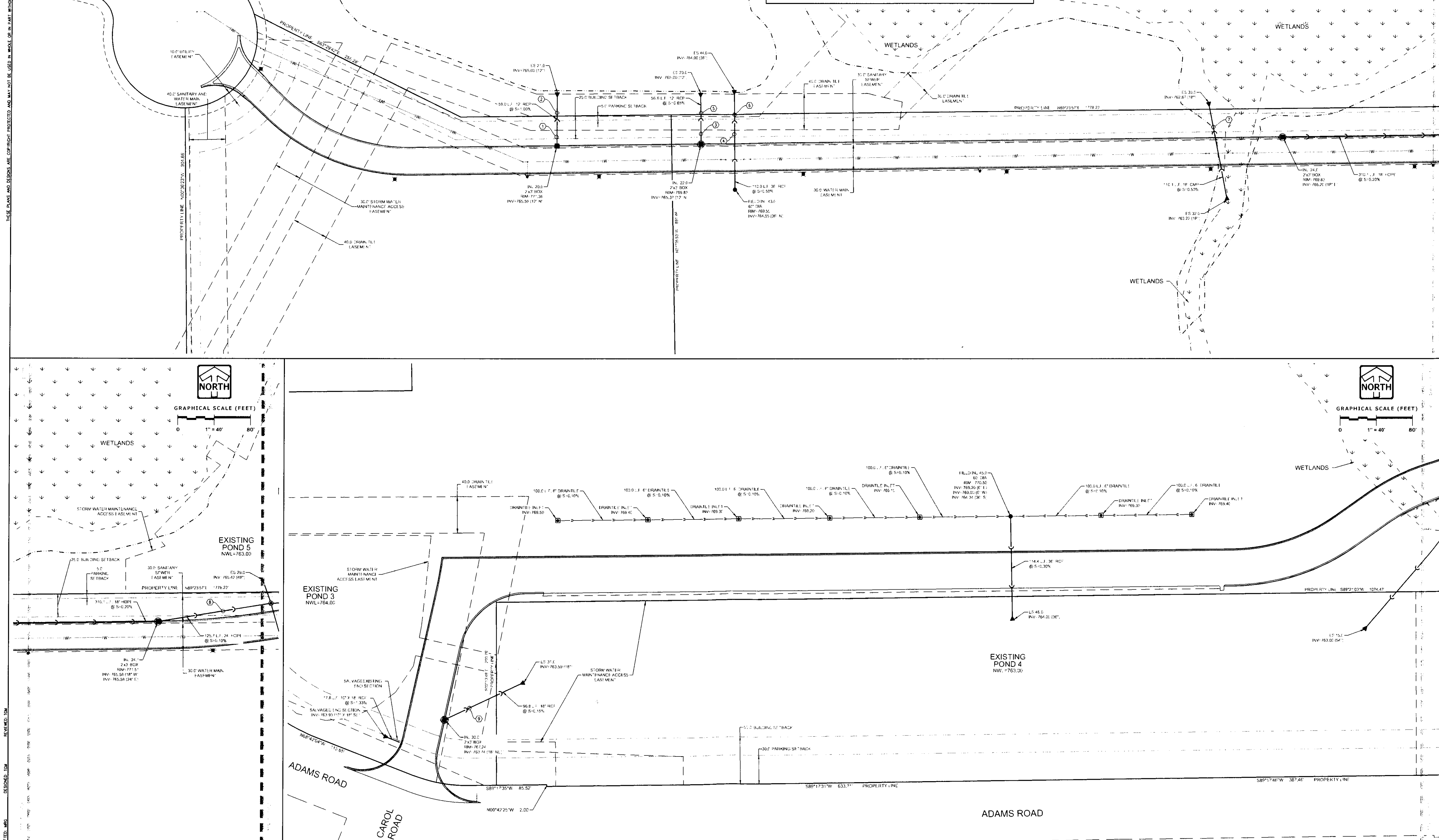
CROSSINGS

① 12" STORM OVER 30" EX. SAN 12" B/PIPE = 765.32 30" T/PIPE = 755.91	④ 36" STORM OVER 30" EX. SAN 36" B/PIPE = 763.92 30" T/PIPE = 756.02	⑦ 18" STORM OVER 30" EX. SAN 18" B/PIPE = 762.61" T/PIPE = 756.67
② 12" STORM OVER 18" EX. STM 12" B/PIPE = 765.05 18" T/PIPE = 760.62	⑤ 12" STORM OVER 18" EX. STORM 12" B/PIPE = 765.04 18" T/PIPE = 760.26	⑧ 18" STORM OVER 30" EX. SAN 18" B/PIPE = 766.03 30" T/PIPE = 757.00
③ 12" STORM OVER 30" EX. SAN 12" B/PIPE = 765.13 30" T/PIPE = 756.00	⑥ 36" STORM OVER 18" EX. STORM 36" B/PIPE = 763.79 18" T/PIPE = 760.14	⑨ 18" STORM OVER 18" EX. STM 18" B/PIPE = 763.48 18" T/PIPE = 757.91

SEE UTILITY PLAN & PROFILE SHEETS FOR PROPOSED SANITARY & WATERMAIN CROSSINGS

LEGEND

◉	STORM SEWER MANHOLE		STORM SEWER
●	STORM SEWER CATCH BASIN (ROUND CASTING)		DRAINTILE
■	STORM SEWER CATCH BASIN (RECTANGULAR CASTING)		DRAINTILE CONN.
▶	PRECAST CONCRETE FLARED END SECTION		UNDERDRAIN
	CLEANOUT	FP	FIRE PROTECTION
	SANITARY SEWER MANHOLE		SANITARY SEWER
	VALVE BOX		WATERMAIN - PRIVATE
	FIRE HYDRANT	W	WATERMAIN - PUBLIC



CONSTRUCTION SET

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

STORM SEWER PLAN

PINNACLE ENGINEERING GROUP

ENGINEERING | NATURAL RESOURCES | SURVEYING

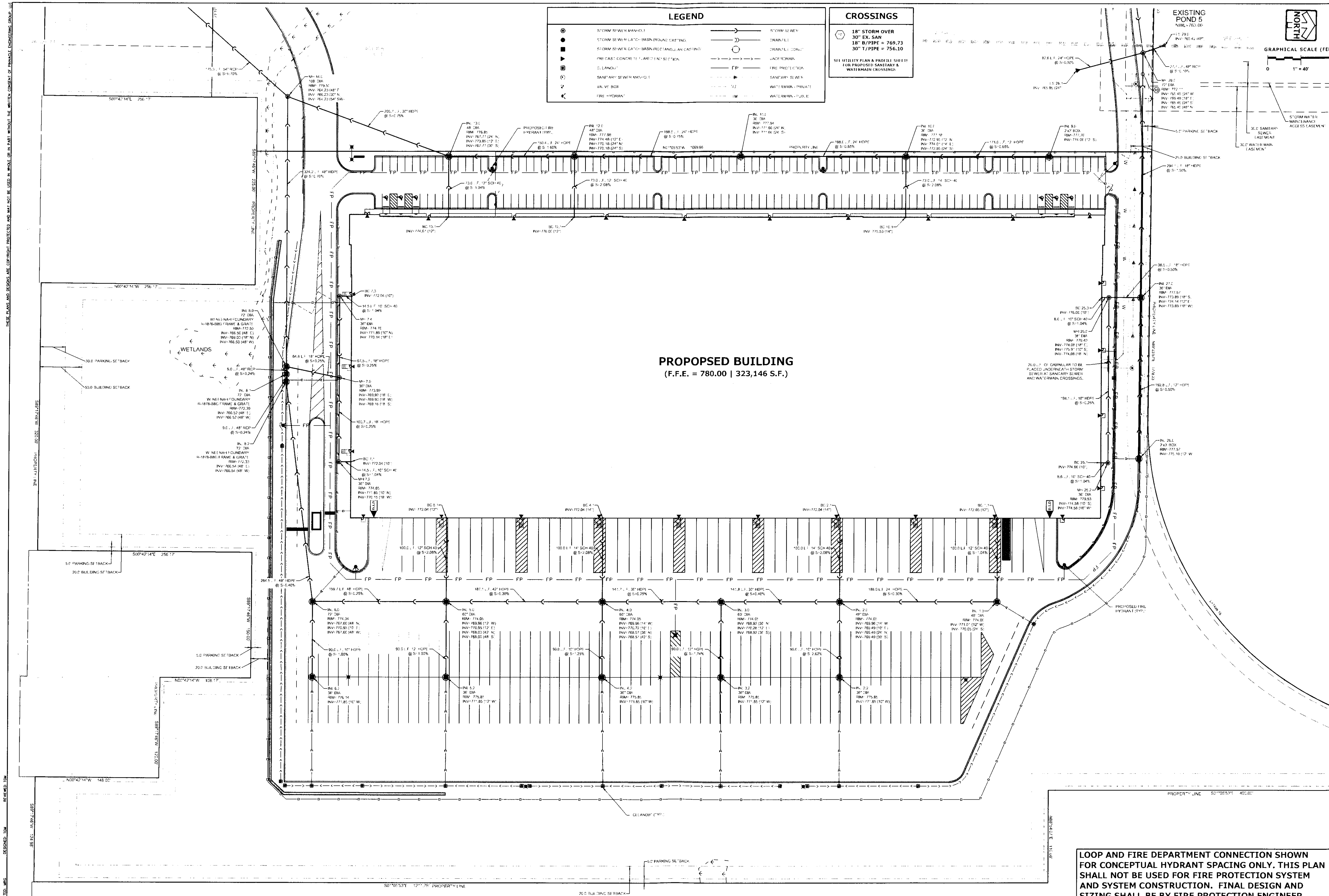
REVISIONS

1 CONSTRUCTION SET 04/27/21

PEG JOB NO. 390.00C
PEG PM ARA
START DATE 01/06/21
SCALE 1" = 40'

SHEET C-10 OF C-22

STORM SEWER PLAN


LEGEND
STORM SEWER MANHOLE
STORM SEWER CATCH BASIN (ROUND CASTING)
STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
PRECAST CONCRETE FLARED END SECTION
CLEANOUT
SANITARY SEWER MANHOLE
VALVE BOX
FIRE HYDRANT
STORM SEWER
DRAINTILE
UNDERDRAIN
FP
FIRE PROTECTION
SANITARY SEWER
WATERMAIN - PRIVATE
WATERMAIN - PUBLIC
CROSSINGS
18" STORM OVER
30" EX. SAN
18" B/PIPE = 769.73
30" T/PIPE = 756.10
SEE UTILITY PLAN & PROFILE SHEETS FOR PROPOSED SANITARY & WATERMAIN CROSSINGS
EXISTING POND 5
NORTH
GRAPHICAL SCALE (FEET)
0
1" = 40'
80'
PROPOPSED BUILDING
(F.F.E. = 780.00 | 323,146 S.F.)
WETLANDS
PROPOSED FIRE HYDRANT (TYP.)
PROPERTY LINE
N01°05'53"W 1069.66
CONSTRUCTION SET

LOOP AND FIRE DEPARTMENT CONNECTION SHOWN FOR CONCEPTUAL HYDRANT SPACING ONLY. THIS PLAN SHALL NOT BE USED FOR FIRE PROTECTION SYSTEM AND SYSTEM CONSTRUCTION. FINAL DESIGN AND SIZING SHALL BE BY FIRE PROTECTION ENGINEER.

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

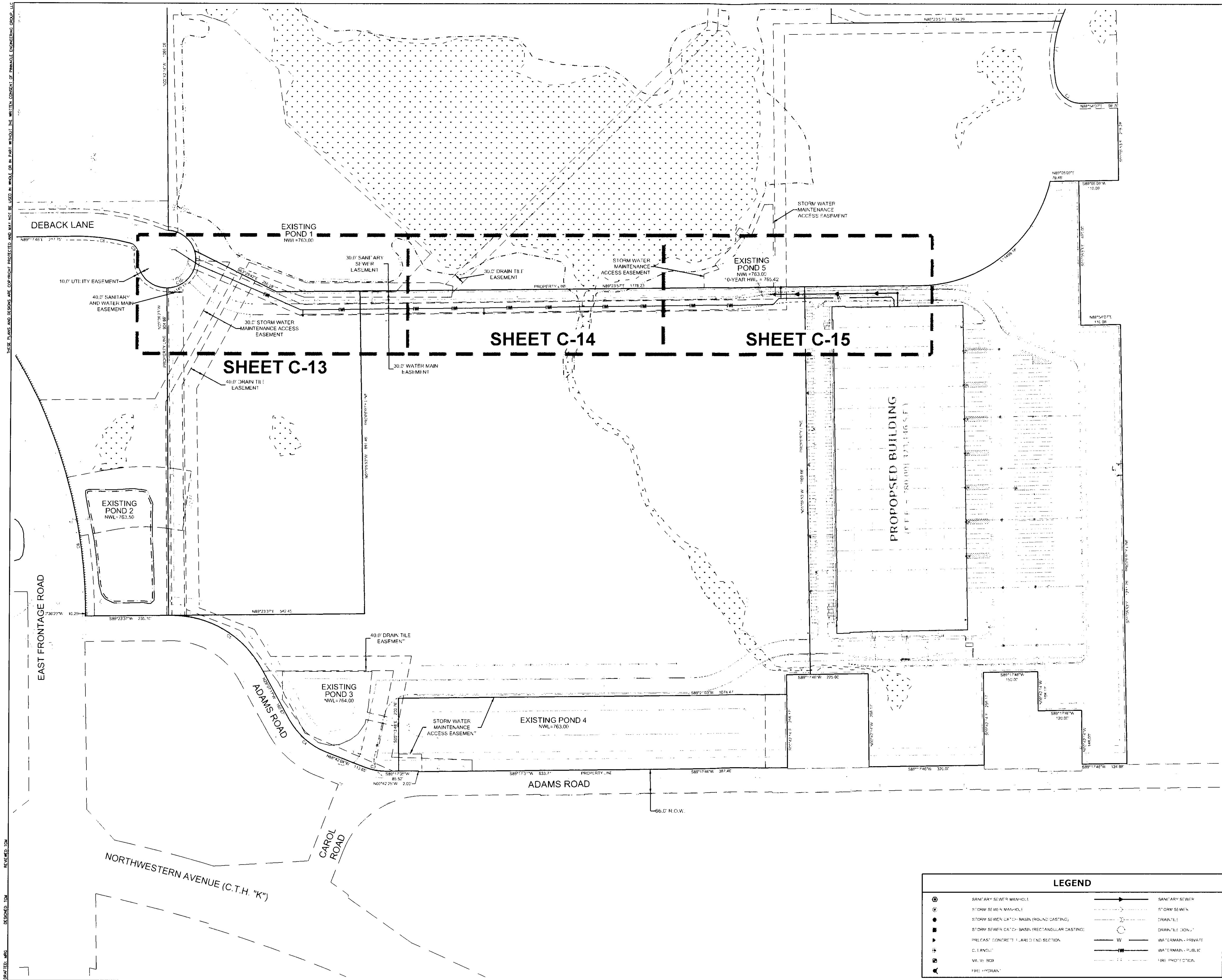
STORM SEWER PLAN

REVISIONS

390.00C | ARA | 01/06/21 | 1" = 40'

SHEET C-11 of C-22

STORM SEWER PLAN



GRAPHICAL SCALE (FEET)

0 — 1" = 100' — 200'

EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTS THAT EXISTING INFORMATION CONTAINED WITHIN THESE PLANS IS ALL-INCLUSIVE OR ACCURATE. CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES.

NOTES

1. EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE TYPE, LOCATION, SIZE AND ELEVATION OF UNDERGROUND UTILITIES AS THEY DEEM NECESSARY FOR PROPOSED UTILITY CONNECTIONS AND/OR TO AVOID DAMAGE THERETO. CONTRACTOR SHALL CALL "DIGGER'S HOTLINE" PRIOR TO ANY CONSTRUCTION.

2. ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN (LATEST EDITION AND ADDENDUM) AND ALL STATE AND LOCAL CODES AND SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS AND CODES APPLY, AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.

3. UTILITY CONSTRUCTION AND SPECIFICATIONS SHALL COMPLY WITH THE CALEDONIA UTILITY DISTRICT STANDARD SPECIFICATIONS AND WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES COMM 82.

4. LENGTHS OF PROPOSED UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS ARE SHOWN FOR CONTRACTOR CONVENIENCE ONLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPUTATIONS OF MATERIALS REQUIRED TO COMPLETE WORK. LENGTHS SHALL BE FIELD VERIFIED DURING CONSTRUCTION.

5. CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT EXISTING UTILITY COVERS (SUCH AS MANHOLE COVERS, VALVE BOX COVERS, ETC.) TO MATCH FINISHED GRADES OF THE AREAS DISTURBED DURING CONSTRUCTION.

6. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, ELEVATIONS, AND SIZES OF PROPOSED UTILITIES AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS PRIOR TO ATTEMPTING CONNECTIONS AND BEGINNING UTILITY CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.

7. ALL NEW ON-SITE SANITARY AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.

8. THE CONTRACTOR SHALL CONTACT THE CALEDONIA UTILITY DISTRICT 48-HOURS IN ADVANCE OF SANITARY AND WATER CONNECTIONS TO THE VILLAGE-OWNED SYSTEM TO SCHEDULE INSPECTIONS.

9. ROUTING OF GAS, ELECTRIC AND TELEPHONE SERVICES ARE SHOWN ON THE ARCHITECTURAL PLANS AND SUBJECT TO CHANGE BASED UPON FINAL REVIEW AND APPROVAL BY RESPECTIVE UTILITY COMPANIES AND OWNER. CONTRACTOR SHALL CONTACT EACH UTILITY COMPANY AND COORDINATE FINAL LOCATIONS FOR ALL UTILITY SERVICES PRIOR TO START OF CONSTRUCTION.

10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE PROPER AUTHORITIES FOR ANY REQUIRED PERMITS, AUTHORIZATIONS, TRAFFIC CONTROL AND ANY PERMIT FEES REQUIRED.

11. FIELD TILE CONNECTION - ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION SHALL BE INCLUDED IN THE UNIT PRICE(S) FOR STORM SEWER. TILE LINES CROSSED BY THE TRENCH SHALL BE REPLACED WITH THE SAME MATERIAL AS THE STORM SEWER.

12. THE CONTRACTOR IS RESPONSIBLE FOR THE SIZE, TYPE AND NUMBER OF WATER MAIN BENDS, HORIZONTAL AND VERTICAL, REQUIRED TO COMPLETE CONSTRUCTION. COST FOR BENDS, HORIZONTAL AND VERTICAL, SHALL BE INCIDENTAL AND INCLUDED IN THE OVERALL COST OF THE CONTRACT.

13. WATER MAIN SPECIFICATIONS -

    PIPE - WATER MAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA STANDARD C-900, CLASS 150, DR-18, WITH CAST IRON O.D. AND INTEGRAL ELASTOMERIC BELL AND SPIGOT JOINTS. ALL WATER LATERALS SHALL BE INSTALLED PER CALEDONIA UTILITY DISTRICT SPECIFICATIONS.

    VALVES AND VALVE BOXES - GATE VALVES SHALL BE AWWA GATE VALVES MEETING THE REQUIREMENTS OF AWWA C-500 AND CHAPTER 8.27.0 OF THE "STANDARD SPECIFICATIONS". GATE VALVES AND VALVE BOXES SHALL CONFORM TO CALEDONIA UTILITY DISTRICT SPECIFICATIONS.

    HYDRANTS - HYDRANTS SHALL CONFORM TO CALEDONIA UTILITY DISTRICT SPECIFICATIONS AND IN ACCORDANCE WITH FILE NO. 38 OF THE "STANDARD SPECIFICATIONS." THE DISTANCE FROM THE GROUND LINE TO THE CENTERLINE OF THE LOWEST NOZZLE AND THE LOWEST CONNECTION OF THE FIRE DEPARTMENT SHALL BE NO LESS THAN 18-INCHES AND NO GREATER THAN 23-INCHES. HYDRANTS SHALL BE WATEROUS PACER WB-67.

    BEDDING AND COVER MATERIAL - PIPE BEDDING AND COVER MATERIAL SHALL BE CRUSHED STONE CHIPS CONFORMING TO CHAPTER 8.43.2 OF THE "STANDARD SPECIFICATIONS".

    BACKFILL - BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS". GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".

14. SANITARY SEWER SPECIFICATIONS

    PIPE - SANITARY SEWER PIPE MATERIAL SHALL BE POLYVINYL CHLORIDE (PVC) MEETING REQUIREMENTS OF ASTM D 3034, SDR-35, WITH INTEGRAL BELL TYPE FLEXIBLE ELASTOMERIC JOINTS, MEETING THE REQUIREMENTS OF ASTM D-3212. ALL SANITARY SEWER LATERALS SHALL BE INSTALLED PER CALEDONIA UTILITY DISTRICT SPECIFICATIONS.

    BEDDING AND COVER MATERIAL - BEDDING AND COVER MATERIAL SHALL CONFORM TO THE APPROPRIATE SECTIONS OF THE "STANDARD SPECIFICATION" WITH THE FOLLOWING MODIFICATION: "COVER MATERIAL SHALL BE THE SAME AS USED FOR BEDDING AND SHALL CONFORM TO SECTION 8.43.2 (A). BEDDING AND COVER MATERIAL SHALL BE PLACED IN A MINIMUM OF THREE SEPARATE LIFTS, OR AS REQUIRED TO INSURE ADEQUATE COMPACTING OF THESE MATERIALS, WITH ONE LIFT OF BEDDING MATERIAL ENDING AT OR NEAR THE SPRINGLINE OF THE PIPE. THE CONTRACTOR SHALL TAKE CARE TO COMPLETELY WORK BEDDING MATERIAL UNDER THE HAUNCH OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT."

    BACKFILL - BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS." GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS."

    MANHOLES - MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH FILE NOS. 12, 13 AND 15 OF THE "STANDARD SPECIFICATIONS" AND ALL CALEDONIA UTILITY DISTRICT SPECIFICATIONS. STRUCTURE SHOP DRAWINGS SHALL BE SUBMITTED TO PINNACLE ENGINEERING GROUP FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURING AND INSTALLATION.

    MANHOLE FRAMES AND COVERS - MANHOLE FRAMES AND COVERS SHALL BE NEENAH R-1661-A WITH TYPE "D" SELF SEALING LIDS, NON-ROCKING OR EQUAL.

15. WATER MAIN AND SANITARY SEWER SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND PLACING OF INSULATION SHALL CONFORM TO CHAPTER 4.17.0 "INSULATION" OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN 6TH EDITION UPDATED WITH ITS LATEST ADDENDUM (TYP.).

16. TRACER WIRE SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES. THE TRACER WIRE FOR THE SANITARY SEWER LATERAL SHALL BE CONTINUOUS AND SHALL BE EXTENDED ABOVE GRADE VIA A 4-INCH PVC PIPE WITH SCREW-ON CAP ADJACENT TO THE PROPOSED TERMINATION POINT OF THE LATERAL FOR THE PROPOSED BUILDING.

17. SEE UTILITY PLANS AND CONSTRUCTION DETAILS FOR ADDITIONAL INFORMATION.

LEGEND

SANITARY SEWER MANHOLE	SANITARY SEWER
STORM SEWER MANHOLE	STORM SEWER
STORM SEWER CATCH BASIN (ROUND CASTING)	DRAINTILE
STORM SEWER CATCH BASIN (RECTANGULAR CASTING)	DRAINTILE DONUT
PRECAST CONCRETE FLARED END SECTION	WATERMAIN - PRIVATE
CLEANOUT	WATERMAIN - PUBLIC
VALVE BOX	FIRE PROTECTION
FIRE HYDRANT	

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE
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DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

UTILITY PLAN & PROFILE OVERVIEW

REVISIONS

1	CONSTRUCTION SET	04/27/21

PEG JOB NO. 390.00C — PM: ARA — START DATE: 01/06/21 — SCALE: 1"=100'

SHEET C-12 OF C-22

CONSTRUCTION SET

UTILITY PLAN & PROFILE OVERVIEW

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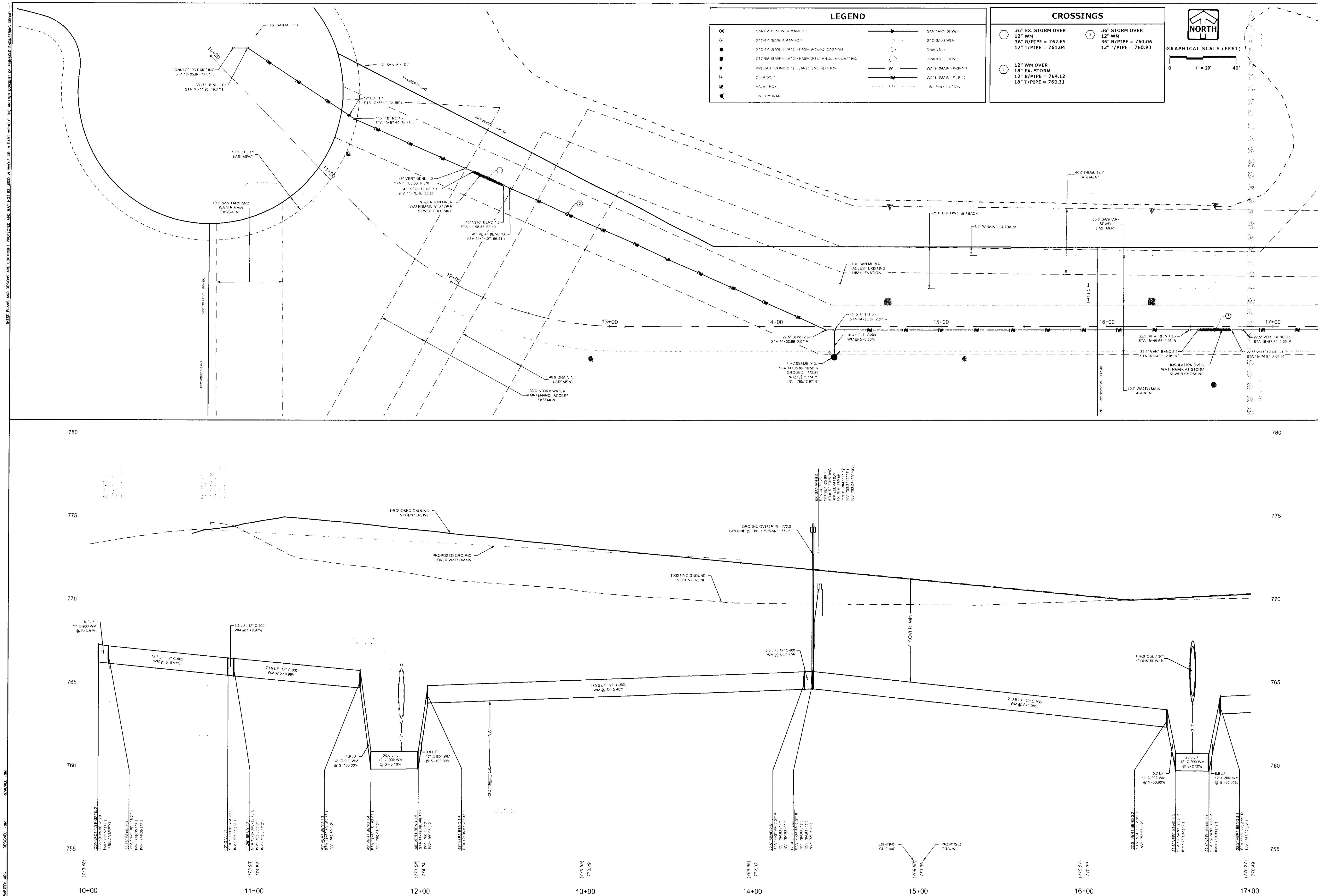

CONSTRUCTION SET

PINNACLE ENGINEERING GROUP
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DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

UTILITY PLAN & PROFILE

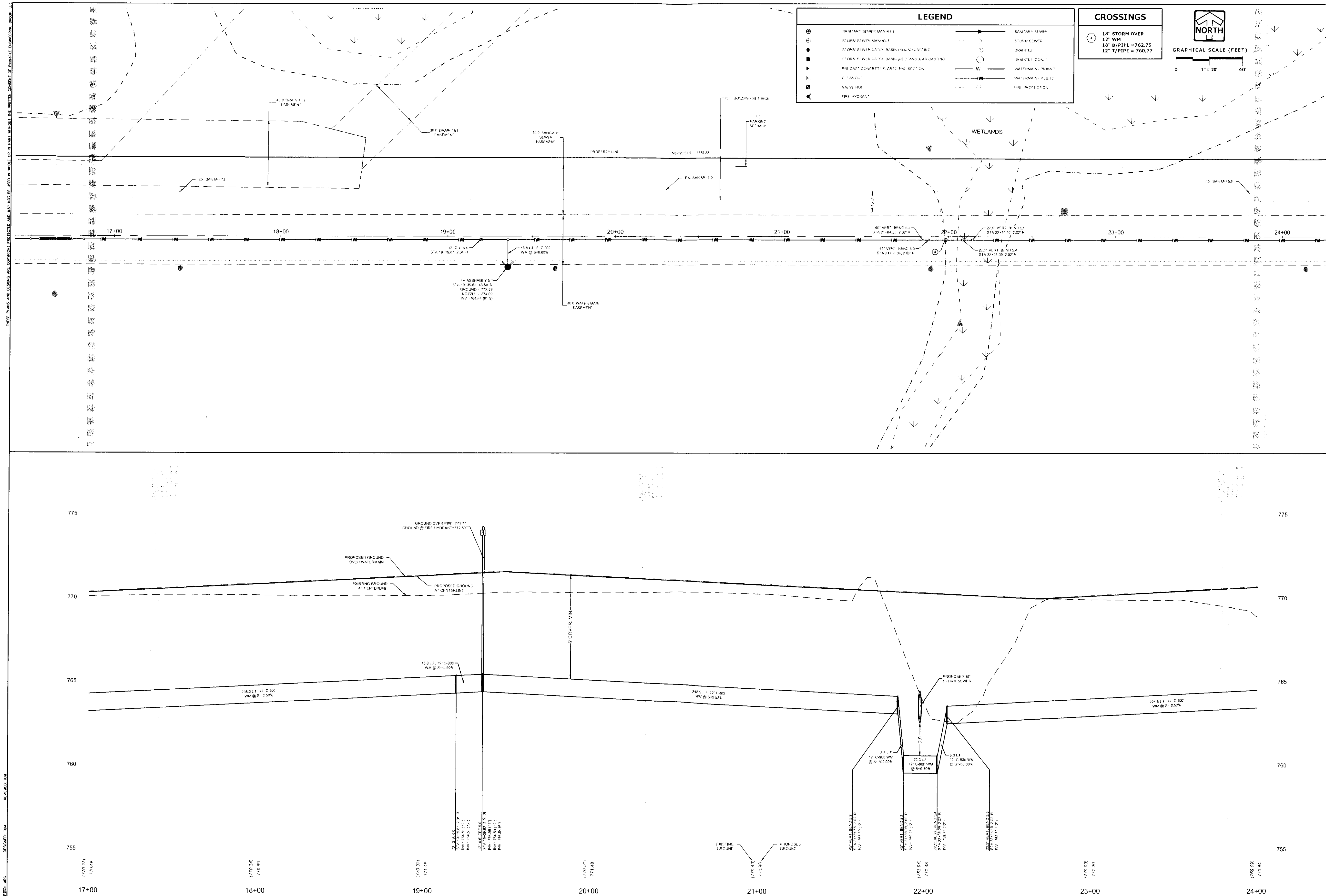
REVISIONS

CONSTRUCTION SET

390.00C
ARA
01/06/21
1" = 20'

SHEET
C-13
OF
C-22

UTILITY PLAN & PROFILE



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DEBACK FARMS - PAD F

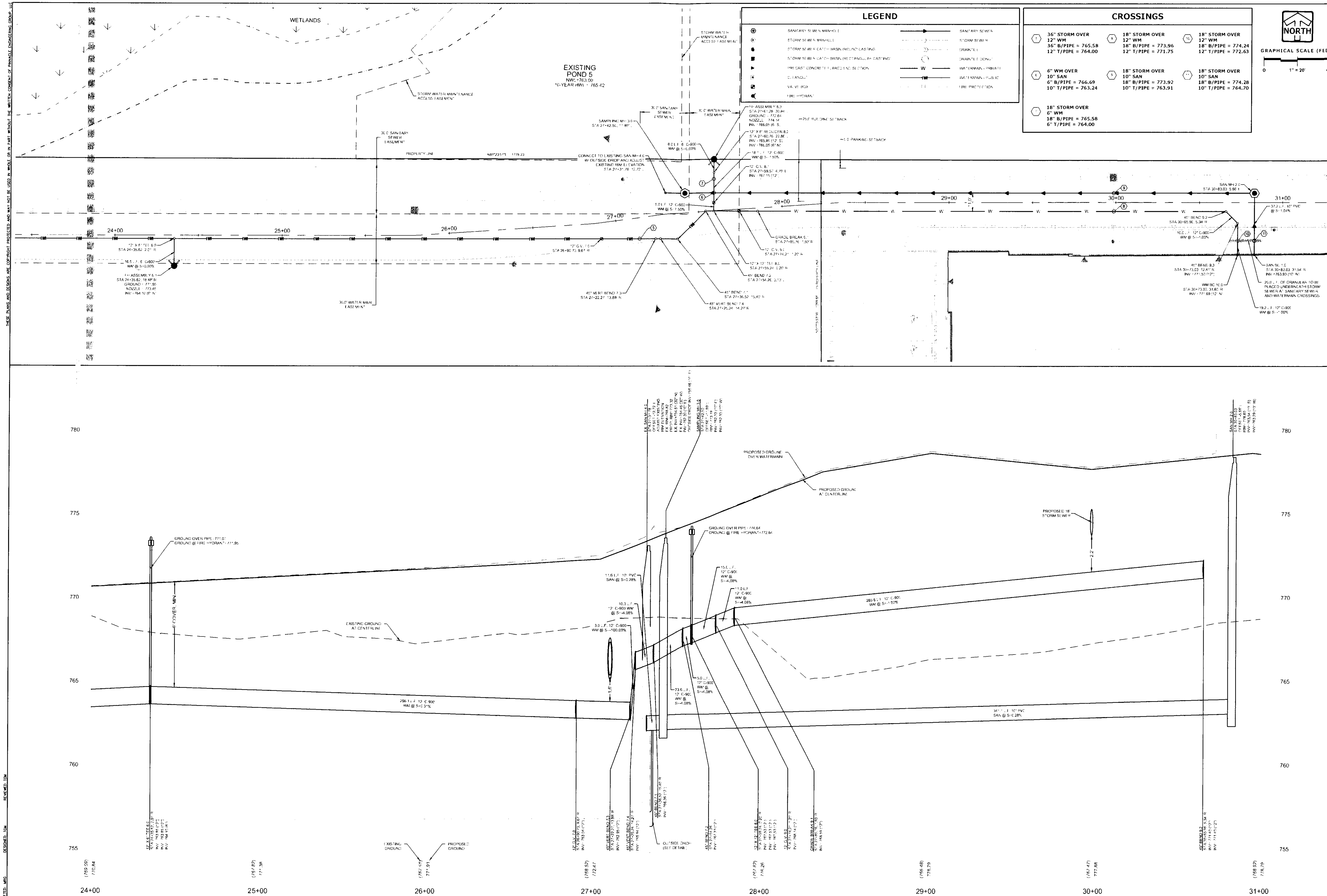
CALEDONIA, WISCONSIN

UTILITY PLAN & PROFILE

REVISIONS

SHEET C-14 of C-22

UTILITY PLAN & PROFILE



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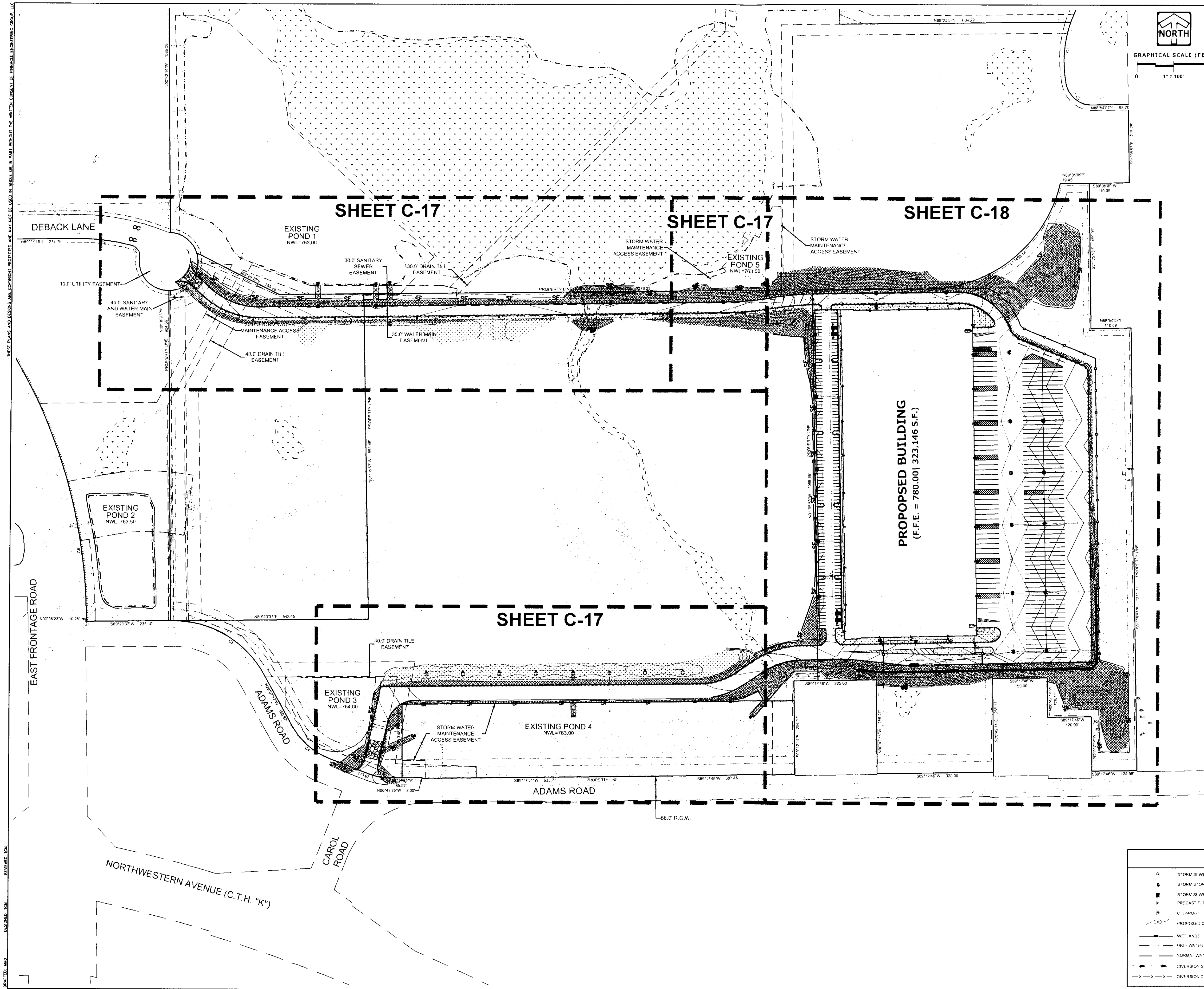
DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

UTILITY PLAN & PROFILE

REVISIONS
CONSTRUCTION SET

SHEET C-15 of C-22

UTILITY PLAN & PROFILE



GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL CONSTRUCTION SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER GENERAL PERMIT (WPDES PERMIT NO WI-S067831-4) FOR CONSTRUCTION SITE LAND DISTURBANCE ACTIVITIES. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL TECHNICAL STANDARDS AND PROVISIONS IN EFFECT AT THE TIME OF CONSTRUCTION. THESE PROCEDURES AND STANDARDS SHALL BE REFERRED TO AS BEST MANAGEMENT PRACTICES (BMP'S). IT IS THE RESPONSIBILITY OF ALL CONTRACTORS ASSOCIATED WITH THE PROJECT TO OBTAIN A COPY OF AND UNDERSTAND THE BMP'S PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. ALL NECESSARY PERMITS MUST BE OBTAINED FROM THE VILLAGE AND OTHER LOCAL, STATE, AND FEDERAL AGENCIES PRIOR TO PERFORMING ANY EARTHWORK OR WORK IN THE VILLAGE RIGHT-OF-WAY.
2. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL CONTROL MEASURES AS DIRECTED BY OWNER/ENGINEER OR GOVERNING AGENCIES SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
3. MODIFICATIONS TO THE APPROVED SWPPP IN ORDER TO MEET UNFORESEEN FIELD CONDITIONS ARE ALLOWED IF MODIFICATIONS CONFORM TO BMP'S. ALL MODIFICATIONS MUST BE APPROVED BY OWNER/ENGINEER/GOVERNING AGENCY PRIOR TO DEVIATION OF THE APPROVED PLAN.
4. INSTALL PERIMETER EROSION CONTROL MEASURES (SUCH AS CONSTRUCTION ENTRANCES, SILT FENCE AND EXISTING INLET PROTECTION) PRIOR TO ANY SITE WORK, INCLUDING GRADING OR DISTURBANCE OF EXISTING SURFACE COVER, AS SHOWN ON PLAN IN ORDER TO PROTECT ADJACENT PROPERTIES/STORM SEWER SYSTEMS FROM SEDIMENT TRANSPORT.
5. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL LOCATIONS OF VEHICLE INGRESS/EGRESS POINTS. CONTRACTOR IS RESPONSIBLE TO COORDINATE LOCATION(S) WITH THE PROPER AUTHORITIES, PROVIDE NECESSARY FEES AND OBTAIN ALL REQUIRED APPROVALS OR PERMITS. ADDITIONAL CONSTRUCTION ENTRANCES OTHER THAN AS SHOWN ON THE PLANS MUST BE APPROVED BY THE APPLICABLE GOVERNING AGENCIES PRIOR TO INSTALLATION.
6. PAVED SURFACES ADJACENT TO CONSTRUCTION ENTRANCES SHALL BE SWEPT AND/OR SCRAPED TO REMOVE ACCUMULATED SOIL, DIRT AND/OR DUST IMMEDIATELY AND AS REQUESTED BY THE GOVERNING AGENCIES.
7. ALL EXISTING STORM SEWER FACILITIES THAT WILL COLLECT RUNOFF FROM DISTURBED AREAS SHALL BE PROTECTED TO TO PREVENT SEDIMENT DEPOSITION WITHIN STORM SEWER SYSTEMS. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER AND SILT FENCE SHALL BE IMMEDIATELY FITTED AT ALL INSTALLED CULVERT INLETS. ALL INLETS, STRUCTURES, PIPES, AND SWALES SHALL BE KEPT CLEAN AND FREE OF SEDIMENTATION AND DEBRIS.
8. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, WATER MAIN, ETC.) OUTSIDE OF THE PERIMETER CONTROLS SHALL INCORPORATE THE FOLLOWING:

   PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.

   BACKFILL, COMPACT AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.

   DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH BMP'S PRIOR TO RELEASE INTO STORM SEWER OR DITCHES.
9. AT A MINIMUM, SEDIMENT BASINS AND NECESSARY TEMPORARY DRAINAGE PROVISIONS SHALL BE CONSTRUCTED AND OPERATIONAL BEFORE BEGINNING OF SIGNIFICANT MASS GRADING OPERATIONS TO PREVENT OFFSITE DISCHARGE OF UNTREATED RUNOFF.
10. ALL WATERCOURSES AND WETLANDS SHALL BE PROTECTED WITH SILT FENCE TO PREVENT ANY DIRECT DISCHARGE FROM DISTURBED SOILS.
11. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR INSPECTION AND REPAIR DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE IF EROSION CONTROL IS REQUIRED AFTER THE CONTRACTOR HAS COMPLETED THE PROJECT.
12. TOPSOIL STOCKPILES SHALL HAVE A BERM OR TRENCH AROUND THE CIRCUMFERENCE AND PERIMETER SILT FENCE TO CONTROL SILT. IF TOPSOIL STOCKPILE REMAINS UNDISTURBED FOR MORE THAN SEVEN (7) DAYS TEMPORARY SEEDING AND STABILIZATION IS REQUIRED.
13. EROSION CONTROL MEASURES TEMPORARILY REMOVED FOR UNAVOIDABLE CONSTRUCTION ACTIVITIES SHALL BE IN WORKING ORDER IMMEDIATELY FOLLOWING COMPLETION OF SUCH ACTIVITIES OR PRIOR TO THE COMPLETION OF EACH WORK DAY, WHICH EVER OCCURS FIRST.
14. MAINTAIN SOIL EROSION CONTROL DEVICES THROUGH THE DURATION OF THIS PROJECT. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. DISTURBANCES ASSOCIATED WITH EROSION CONTROL REMOVAL SHALL BE IMMEDIATELY STABILIZED.
15. PUMPS MAY BE USED AS BYPASS DEVICES. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS. PUMP DISCHARGE SHALL BE DIRECTED INTO AN APPROVED FILTER BAG OR APPROVED SETTLING DEVICE.
16. GRADING EFFORTS SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. EROSION AND SEDIMENT CONTROL MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS, AND THE USE OF TEMPORARY OR PERMANENT MEASURES. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF FOURTEEN (14) DAYS REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH TECHNICAL STANDARDS.
17. ALL DISTURBED SLOPES EXCEEDING 4:1, SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75BN EROSION MATTING (OR APPROVED EQUAL) AND ALL CHANNELS SHALL BE STABILIZED WITH NORTH AMERICAN GREEN C125BN (OR APPROVED EQUAL) OR APPLICATION OF AN APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF AS REQUIRED. EROSION MATTING AND/OR NETTING USED ONSITE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
18. DURING PERIODS OF EXTENDED DRY WEATHER THE CONTRACTOR SHALL KEEP A WATER TRUCK ON SITE FOR THE PURPOSE OF WATERING DOWN SOILS WHICH MAY OTHERWISE BECOME AIRBORNE. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING WIND EROSION (DUST) DURING CONSTRUCTION AT HIS/HER EXPENSE.
19. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE VISUALLY INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM ON A DAILY BASIS.
20. QUALIFIED PERSONNEL (PROVIDED BY THE GENERAL/PRIME CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED AND EROSION AND SEDIMENT CONTROLS WITHIN 24 HOURS OF ALL 0.5-INCH OR MORE PRECIPITATION EVENTS WITH A MINIMUM INSPECTION INTERVAL OF ONCE EVERY SEVEN (7) CALENDAR DAYS IN THE ABSENCE OF A QUALIFYING RAIN OR SNOWFALL EVENT. REPORTING SHALL BE IN ACCORDANCE WITH OF THE GENERAL PERMIT. CONTRACTOR SHALL IMMEDIATELY ARRANGE TO HAVE ANY DEFICIENT ITEMS REVEALED DURING INSPECTIONS REPAIRED/REPLACED.
21. NO EQUIPMENT IS TO BE PLACED OR STORED IN ANY ROAD RIGHT-OF-WAYS WITHOUT PROPER APPROVAL FROM THE VILLAGE.
22. SEE ADDITIONAL DETAILS AND NOTES ON SITE STABILIZATION AND CONSTRUCTION DETAILS.

CONSTRUCTION SITE SEQUENCING

1. INSTALL PERIMETER SILT FENCE, INLET PROTECTION AND TEMPORARY CONSTRUCTION ENTRANCE.
2. STRIP AND STOCKPILE TOPSOIL. INSTALL SILT FENCE AROUND PERIMETER OF STOCKPILE.
3. CONDUCT ROUGH GRADING EFFORTS AND INSTALL CHECK DAMS AND SEDIMENT TRAPS/BASINS AS NEEDED.
4. GRADE SITE, INSTALL, MONITOR, AND MAINTAIN EROSION CONTROL DOWN SLOPE OF DISTURBED AREAS & INSTALL TRACK MAT PER PLANS AND DNR/NOI REQUIREMENTS. ALL TRACKING TO BE CLEANED UP IMMEDIATELY.
5. INSTALL UTILITY PIPING AND STRUCTURES. IMMEDIATELY INSTALL INLET PROTECTION.
6. COMPLETE FINAL GRADING, INSTALLATION OF GRAVEL BASE COURSES, PLACEMENT OF CURBS, PAVEMENTS, WALKS, ETC.
7. PLACE TOPSOIL AND IMMEDIATELY STABILIZE DISTURBED AREAS WITH EROSION CONTROLS.
8. EROSION CONTROL MEASURES SHALL BE REMOVED ONLY AFTER SITE CONSTRUCTION IS COMPLETE WITH ALL SOIL SURFACES HAVING AN ESTABLISHED VEGETATIVE COVER.

CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM 1 AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS.

EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTS THAT EXISTING INFORMATION CONTAINED WITHIN THESE PLANS IS ALL-INCLUSIVE OR ACCURATE. CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES.

LEGEND

STORM SEWER MANHOLE	SILT FENCE
STORM STORM CATCH BASIN (ROUND CASTING)	STRAW WATTLE DITCH CHECK
STORM SEWER CATCH BASIN (RECTANGULAR CASTING)	INLET PROTECTION
PRECAST FLARED END SECTION	PIPE INLET PROTECTION - STRAW WATTLE
CLEANOUT	CONSTRUCTION ENTRANCE
PROPOSED CONTOUR	HYDROSEED (PER MANUFACTURER SPECIFICATIONS)
WETLANDS	EROSION CONTROL BLANKET
HIGH WATER LEVEL (HWL)	
NORMAL WATER LEVEL (NWL)	
DIVERSION SWALE	
DIVERSION DITCH	

CONSTRUCTION SET

PINNACLE ENGINEERING GROUP
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DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

EROSION CONTROL PLAN OVERVIEW

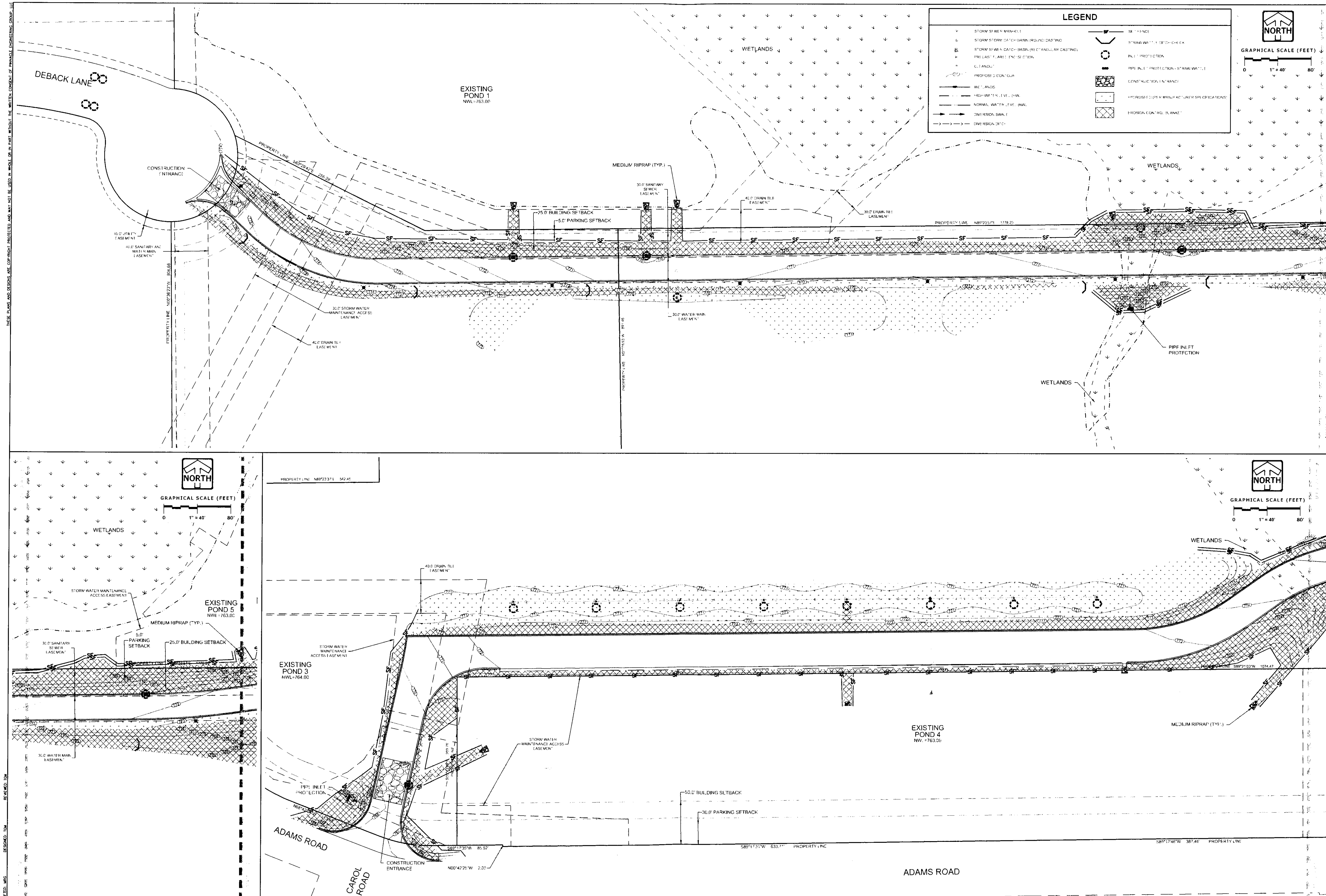
REVISIONS

1	CONSTRUCTION SET	04/27/21

390.00C | ARA | 01/06/21 | 1"=100'

SHEET C-16 OF C-22

EROSION CONTROL PLAN OVERVIEW



DEBACK FARMS - PAD F

CALEDONIA, WISCONSIN

EROSION CONTROL PLAN

PINNACLE ENGINEERING GROUP

ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE

REVISIONS

1	CONSTRUCTION SET	04/27/21

PEG JOB No. 390.00C

PEG PM ARA

START DATE 01/06/21

SCALE 1" = 40'

SHEET C-17 OF C-22

CONSTRUCTION SET

EROSION CONTROL PLAN

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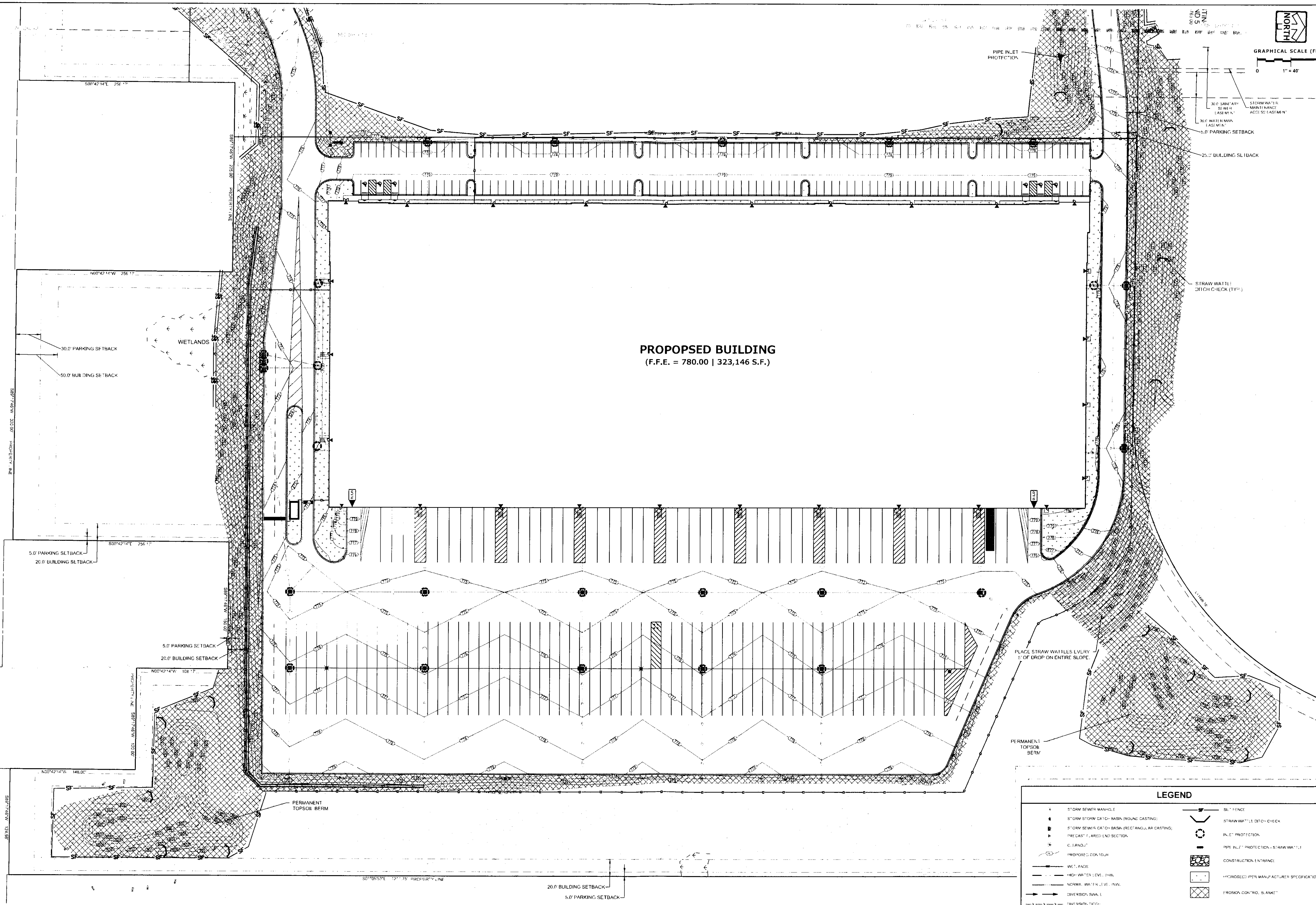
PROPOPSED BUILDING
(F.F.E. = 780.00 | 323,146 S.F.)
WETLANDS
30.0' PARKING SETBACK
50.0' BUILDING SETBACK
5.0' PARKING SETBACK
20.0' BUILDING SETBACK
25.0' BUILDING SETBACK
PIPE INLET PROTECTION
GRAPHICAL SCALE (FEET)
1" = 40'
STRAW WATTLE DITCH CHECK (TYP.)
PLACE STRAW WATTLES EVERY 1' OF DROP ON ENTIRE SLOPE.
PERMANENT TOPSOIL BERM
LEGEND
STORM SEWER MANHOLE
STORM STORM CATCH BASIN (ROUND CASTING)
STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
PRECAST FLARED END SECTION
CLEANOUT
PROPOSED CONTOUR
WETLANDS
HIGH WATER LEVEL (HWL)
NORMAL WATER LEVEL (NWL)
DIVERSION SWALE
DIVERSION DITCH
SILT FENCE
STRAW WATTLE DITCH CHECK
INLET PROTECTION
PIPE INLET PROTECTION - STRAW WATTLE
CONSTRUCTION ENTRANCE
HYDROSEED (PER MANUFACTURER SPECIFICATIONS)
EROSION CONTROL BLANKET

CONSTRUCTION SET

EROSION CONTROL PLAN

PINNACLE ENGINEERING GROUP
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DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

EROSION CONTROL PLAN

REVISIONS

1	CONSTRUCTION SET	04/27/21

PEG JOB No. 390.00C
PEG PM ARA
START DATE 01/06/21
SCALE 1" = 40'

SHEET C-18 OF C-22

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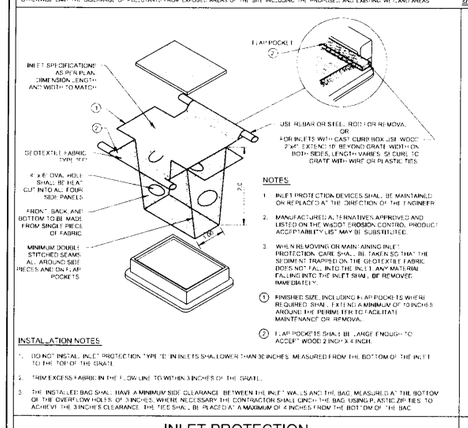
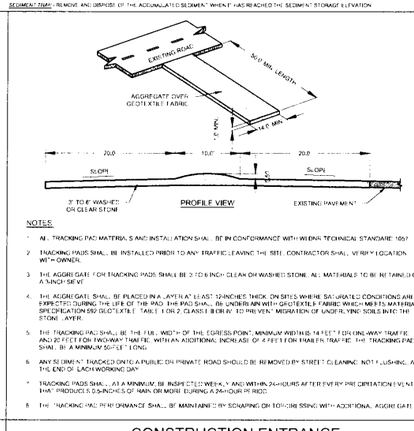
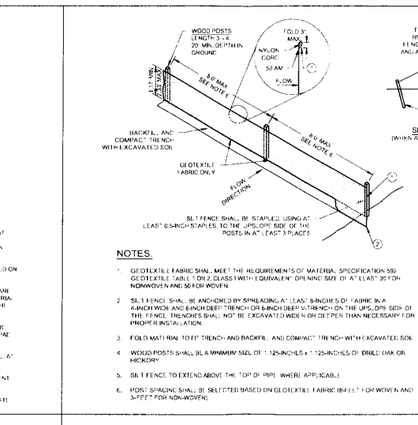
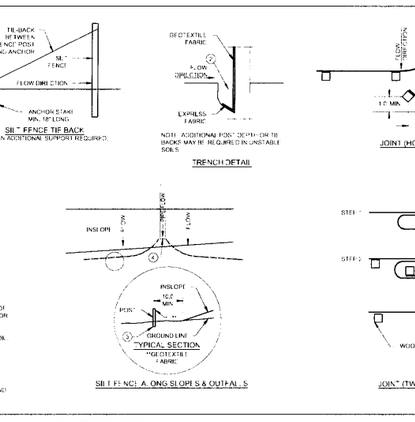








1.0 POTENTIAL POLLUTANT SOURCES

GIVEN THE PROPOSED ACTIVITY ON THE PROJECT SITE, THE PRIMARY POTENTIAL POLLUTANT SOURCE ASSOCIATED WITH THIS CONSTRUCTION PROJECT IS SOIL EROSION AND TRANSPORTATION. REFER TO SECTION 4 OF THIS PLAN. ADDITIONAL POTENTIAL SOURCES OF POLLUTION MAY INCLUDE FUEL TANKS, WASTE CONTAINERS, OIL OR OTHER PETROLEUM PRODUCTS, DETERGENTS, PAINTS, CONSTRUCTION DEBRIS, SANITARY STATIONS, FERTILIZERS AND DUST. REFER TO SECTION 6 OF THIS PLAN.

2.0 EROSION AND SEDIMENT CONTROL IMPLEMENTATION

THE FOLLOWING ARE DESCRIPTIONS OF THE EROSION AND SEDIMENT CONTROL PRACTICES THAT SHALL BE IMPLEMENTED DURING CONSTRUCTION OF THIS PROJECT. IN ADDITION TO THESE MEASURES, CONTRACTOR SHALL DISTURB ONLY AREAS NECESSARY TO COMPLETE THE CONSTRUCTION PROJECT. ALL PRACTICES SHALL BE CONDUCTED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES (BMP).

2.1 CONSTRUCTION AND EROSION CONTROL SEQUENCING

CONSTRUCTION SEQUENCING WILL BE UTILIZED AS A MEANS OF CONTROLLING EROSION AND LIMITING SEDIMENT TRANSPORT. SEQUENCING AS LISTED BELOW IS GENERAL IN NATURE AND MAY VARY DEPENDING ON WEATHER CONDITIONS AND/OR PHASING OF CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A DETAILED SITE SEQUENCING PLAN TO OWNER FOR APPROVAL AT LEAST 5 BUSINESS DAYS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM 6 AS NEEDED TO COMPLETE CONSTRUCTION ONLY IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL REQUIREMENTS.

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCES, INLET PROTECTION ON EXISTING STORM SEWER AND CULVERT INLET LOCATIONS, AND PERIMETER SILT FENCING.
2. INSTALL SILT FENCING ALONG THE PERIMETER OF PROPOSED TOPSOIL STOCKPILE LOCATIONS. THE FIRST TOPSOIL DEPOSITED WITHIN THE STOCKPILE LIMITS SHALL BE PLACED TO CREATE TEMPORARY BERMING ALONG THE SILT FENCE TO PREVENT DIRECT STORMWATER RUNOFF AGAINST SILT FENCING. CONTRACTOR SHALL LIMIT LAND DISTURBING ACTIVITIES ASSOCIATED WITH TEMPORARY BERMING TO A MINIMUM.
3. STRIP TOPSOIL WITHIN THE LIMITS OF THE SEDIMENT TRAPS THAT WILL BE USED FOR TEMPORARY SEDIMENT CONTROL. STRIPPED TOPSOIL SHALL BE PLACED TO CONSTRUCT DIVERSION BERMING OR PLACED WITHIN THE STOCKPILE LIMITS.
4. STRIP TOPSOIL ALONG THE REMAINDER OF DIVERSION BERMING AND IMMEDIATELY PLACE TOPSOIL TO CREATE THE BERMING MASS. TOPSOIL STRIPPING SHALL NOT OCCUR UNTIL ALL DOWNSTREAM SEDIMENT CONTROLS ARE IN PLACE.
5. CONDUCT ROUGH GRADING OPERATIONS AND UTILITY PIPING INSTALLATION. DRAIN TILE SHALL NOT BE INSTALLED UNTIL UPLAND AREAS CONTRIBUTING STORMWATER RUNOFF ARE STABILIZED. DITCH CHECKS SHALL BE INSTALLED WITHIN DRAINAGE DITCHES IMMEDIATELY FOLLOWING CREATION OF DITCHES AND INLET PROTECTION SHALL BE INSTALLED TO PROTECT ANY STORM SEWER OR CULVERTS THAT WILL FUNCTION DURING CONSTRUCTION.
6. FINE GRADE SUB-GRADE SOILS WITHIN PAVEMENT AND BUILDING LIMITS. PLACE STONE BASE MATERIAL AS SOON AS POSSIBLE FOLLOWING COMPLETION OF FINE GRADING EFFORTS.
7. FINE GRADE REMAINING DISTURBED AREAS. PLACE SALVAGED TOPSOIL, EROSION BLANKETS/MATTING, AND SEED/MULCH AS SOON AS POSSIBLE FOLLOWING COMPLETION OF FINE GRADING EFFORTS.
8. EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED OR 70% VEGETATIVE COVER IS ESTABLISHED. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SILT FENCE, TEMPORARY FENCING/PRETECTION, DITCH CHECKS, AND OTHER TEMPORARY CONTROLS AND RESTORATION PRACTICES AS NECESSARY TO THE SATISFACTION OF THE OWNER.

2.2 STABILIZATION PRACTICES

THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, AND WHEN STABILIZATION MEASURES ARE INITIATED, SHALL BE RECORDED ON THE STABILIZATION SCHEDULE FOR MAJOR GRADING ACTIVITIES.

STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. NO MORE THAN SEVEN (7) DAYS SHALL PASS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED UNLESS:

THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER. IN THAT EVENT, STABILIZATION MEASURE SHALL BE INITIATED AS SOON AS PRACTICABLE.

CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN FOURTEEN (14) DAYS FROM WHEN ACTIVITIES CEASED (I.E. THE TOTAL TIME PERIOD THAT THE CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN FOURTEEN (14) DAYS). IN THAT EVENT, STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED. SEE THE SOIL PROTECTION CHART PRESENTED IN THE CONSTRUCTION DOCUMENTS FOR RATES OF PERMANENT AND TEMPORARY VEGETATION.

STABILIZATION MEASURES SHALL BE DETERMINED BASED ON SITE CONDITIONS AT THE TIME CONSTRUCTION ACTIVITY HAS CEASED INCLUDING BUT NOT LIMITED TO WEATHER CONDITIONS AND LENGTH OF TIME MEASURE MUST BE EFFECTIVE. THE FOLLOWING ARE ACCEPTABLE STABILIZATION MEASURES:

PERMANENT SEEDING IN ACCORDANCE WITH APPROVED LANDSCAPING PLAN
TEMPORARY SEEDING MAY CONSIST OF SPRING OATS (100LBS/ACRE) AND/OR WHEAT OR CEREAL RYE (150LBS/ACRE)
HYDRO-MULCHING WITH A TACKIFIER
GEOTEXTILE EROSION MATTING
SODDING

2.3 STRUCTURAL PRACTICES

THE FOLLOWING ARE DESCRIPTIONS OF STRUCTURAL PRACTICES TO BE IMPLEMENTED TO DIVERT FLOWS FROM EXPOSED SOILS, STORE FLOWS, OR OTHERWISE LIMIT THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE INCLUDING THE PROPOSED AND EXISTING WETLAND AREAS. SUCH PRACTICES COULD INCLUDE SILT FENCE, PROTECTION FENCE, CONSTRUCTION ENTRANCE, DITCH CHECK, EROSION CONTROL MATTING, DIVERSION BERM/SWALE, SEDIMENT TRAP, LEVEL SPREADER, INLET PROTECTION, OUTLET PROTECTION, AND TEMPORARY OR PERMANENT SEDIMENT BASIN. THE FOLLOWING STRUCTURAL PRACTICES ARE TO BE UTILIZED DURING THIS PROJECT:

SILT FENCE SHALL BE PLACED DOWN SLOPE OF DISTURBED AREAS OF THE CONSTRUCTION SITE AND AROUND THE PERIMETER OF THE TOPSOIL STOCKPILE. THIS INCLUDES PROTECTION OF EXISTING WETLAND AREAS TO BE MAINTAINED. SILT FENCE MAY ALSO BE USED AS A TEMPORARY CONTROL DEVICE WHERE SEDIMENTATION RUNOFF IS DISCOVERED.

CONSTRUCTION ENTRANCE SHALL BE INSTALLED TO REDUCE SOIL EROSION POLLUTANTS FROM LEAVING THE SITE DURING CONSTRUCTION ACTIVITIES. IF THE CRUSHED STONE DOES NOT ADEQUATELY REMOVE MUD FROM VEHICLE TIRES, THEY SHALL BE HOSED OFF BEFORE ENTERING A PAVED ROADWAY. ANY SOIL DEPOSITED ON THE PUBLIC PAVED ROAD WAY SHALL BE REMOVED IMMEDIATELY.

DITCH CHECK (STRAW WATTLES) SHALL BE INSTALLED IN DRAINAGE CHANNELS AS NEEDED.

EROSION CONTROL MATTING SHALL BE PLACED ON AREAS OR EMBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 3H:1V BEFORE VEGETATION IS ESTABLISHED.

DIVERSION BERM/SWALE SHALL BE CONSTRUCTED TO DIVERT RUNOFF AROUND THE SITE AND TO DIVERT RUNOFF FROM THE DISTURBED AREA TO A SEDIMENT TRAP OR OTHER CONTROL. BERMS/SWALES SHALL BE STABILIZED WITH EQUIPMENT TRACKING AND TEMPORARY SEEDING.

SEDIMENT TRAPS/BASIN SHALL BE CONSTRUCTED TO COLLECT RUNOFF AND RUNOFF FROM SITE DIVERSION BERMS/SWALES.

INLET PROTECTION SHALL BE INSTALLED AT STORMWATER DRAINAGE INLETS TO REDUCE SEDIMENT WITHIN STORM SEWER CONVEYANCE FEATURES.

OUTLET SCOUR PROTECTION SHALL BE INSTALLED AT STORMWATER DRAINAGE OUTLETS TO DIFFUSE FLOWS.

3.0 ADDITIONAL PRACTICES

ADDITIONAL POLLUTANT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

CONSTRUCTION WASTE SHALL BE PROPERLY DISPOSED OF. THIS INCLUDES ALL CONSTRUCTION SITE WASTE MATERIAL, SANITARY WASTE, AND WASTE FROM VEHICLE TRACKING OF SEDIMENTS. THE CONTRACTOR SHALL ENSURE THAT NO MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, BURNED, OR DISCHARGED TO THE WATERS OF THE STATE. VEHICLES HAULING MATERIAL AWAY FROM THE SITE SHALL BE COVERED WITH A TARPAULIN TO PREVENT BLOWING DEBRIS.

DUST CONTROL SHALL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:

COVERING 30% OR MORE OF THE SOIL SURFACE WITH A NON-ERODIBLE MATERIAL.

ROUGHENING (EQUIPMENT TRACKING) THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND. RIDGES SHALL BE AT LEAST SIX (6) INCHES IN HEIGHT.

FREQUENT WATERING OF EXCAVATION AND FILL AREAS.

PROVIDING GRAVEL OR PAVING AT ENTRANCE/EXIT DRIVES, PARKING AREAS AND TRANSIT PATHS.

STREET SWEEPING SHALL BE PERFORMED IMMEDIATELY TO REMOVE ANY SEDIMENTS TRACKED ON PAVEMENTS, ESPECIALLY PUBLIC AND STATE OWNED ROADS (STH 142, FRONTAGE ROADS, ADAMS ROAD, CAROL ROAD, & I-94). WHEN PERFORMING ROADWAY CLEANING OPERATIONS, THE CONTRACTOR SHALL USE EQUIPMENT HAVING VACUUM OR WATER SPRAY MECHANISM TO ELIMINATE THE DISPERSION OF DUST. IF VACUUM EQUIPMENT IS EMPLOYED IT SHALL HAVE SUITABLE SELF-CONTAINED PARTICULATE COLLECTORS TO PREVENT DISCHARGE FROM THE COLLECTION BIN INTO THE ATMOSPHERE.
SAWCUT SLURRY SHALL BE SQUEEGEED OFF TO THE SHOULDER GRAVEL OR SHOVELED BEHIND THE CURB INTO THE GRAVEL ROAD BASE. SLURRY OF ANY KIND SHALL NOT BE ALLOWED INTO STORM SEWERS, DITCHES, WATERWAYS OR WETLANDS.

ROCK BAGS SHALL BE USED TO COVER ANY GAPS BETWEEN SILT FENCE, DRAINAGE OPENINGS ADJACENT TO TRACKING PADS AND JUST GENERALLY AVAILABLE AT ALL TIMES TO DEAL WITH EROSION ISSUES. SEE WISDOT SPECIFICATIONS (628.2.13) FOR MORE INFORMATION ON ROCK BAGS - https://wisconsindot.gov/rdwy/stndspec/ss-06-28.pdf

4.0 EROSION AND SEDIMENT STRUCTURAL PRACTICE MAINTENANCE

THE FOLLOWING MAINTENANCE PRACTICES SHALL BE USED TO MAINTAIN IN GOOD AND EFFECTIVE OPERATING CONDITIONS, VEGETATION, EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THIS PLAN. UPON IDENTIFICATION, DEFICIENCIES IN STORMWATER CONTROLS SHALL BE ADDRESSED IMMEDIATELY. THE MAINTENANCE PROCEDURES FOR THIS DEVELOPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO THE BELOW:

SILT FENCE - REPAIR OR REPLACE ANY DAMAGED FILTER FABRIC AND/OR STAKES. REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

CONSTRUCTION ENTRANCE - AS NEEDED, ADD STONE TO MAINTAIN CONSTRUCTION ENTRANCE DIMENSIONS AND EFFECTIVENESS.

DITCH CHECK (STRAW WATTLES) - RE-SECURE STAKES, ADJUST OR REPOSITION BALES TO ADDRESS PROPER FLOW OF STORMWATER, AND REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE BALE.

EROSION CONTROL MATTING - REPAIR MATTING IMMEDIATELY IF INSPECTION REVEALS BREACHED OR FAILED CONDITIONS. REPAIR AND RE-GRADE SOIL WHERE CHANNELIZATION HAS OCCURRED.

DIVERSION BERM/SWALE - REPLACE OR RE-COMPACT THE CONSTRUCTION MATERIALS AS NECESSARY.

SEDIMENT TRAP - REMOVE AND DISPOSE OF THE ACCUMULATED SEDIMENT WHEN IT HAS REACHED THE SEDIMENT STORAGE ELEVATION.

INLET PROTECTION - CLEAN, REPAIR OR REPLACE FILTER FABRIC AND/OR STONE WHEN CONTROL MEASURE IS CLOGGED. INLET FILTER BAGS SHALL BE REPLACED ONCE ONE-HALF FULL OF SEDIMENT.

OUTLET PROTECTION - CLEAN, REPAIR OR REPLACE FILTER FABRIC, TURF REINFORCEMENT MATTING AND/OR STONE WHEN CONTROL MEASURE IS ONE-HALF FULL OF SEDIMENT.

SEDIMENT BASIN - AT THE END OF CONSTRUCTION, CONTRACTOR SHALL REMOVE AND DISPOSE OF THE ACCUMULATED SEDIMENT AND RESTORE BASIN AREA TO INTENDED POST-CONSTRUCTION DESIGN GRADES.

5.0 INSPECTION

INSPECTIONS SHALL BE COMPLETED WITHIN TWENTY-FOUR (24) HOURS OF THE END OF A RAINFALL EVENT THAT IS ONE-HALF INCH OR GREATER OR EQUIVALENT SNOWFALL, OR AT A MINIMUM ONCE EVERY SEVEN (7) CALENDAR DAYS. INSPECTIONS SHALL BE UNDERTAKEN BY QUALIFIED PERSONNEL PROVIDED BY THE CONTRACTOR AND SHALL INCLUDE DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. A STORMWATER POLLUTION PREVENTION PLAN INSPECTION REPORT SHALL BE COMPLETED AND ADDED TO THE SWPPP. RAINFALL SHALL BE RECORDED ON THE SWPPP RAINFALL LOG. CONTRACTOR SHALL IMMEDIATELY ARRANGE FOR REPAIR OR REPLACEMENT OF ANY DAMAGED OR DEFICIENT CONTROL MEASURES OBSERVED DURING THE INSPECTION.

QUALIFIED PERSONNEL MEANS A PERSON KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS A LICENSED PROFESSIONAL ENGINEER, A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL, A CERTIFIED EROSION SEDIMENT OR STORMWATER INSPECTOR, OR OTHER TRAINED INDIVIDUAL.

6.0 SPILL PREVENTION

6.1 GENERAL MATERIAL MANAGEMENT PRACTICES

THE GOOD HOUSEKEEPING PRACTICES LISTED BELOW SHALL BE FOLLOWED THROUGHOUT THE CONSTRUCTION PROJECT.

1. CONTRACTOR SHALL STORE ONLY ENOUGH PRODUCTS REQUIRED TO COMPLETE THIS PROJECT.
2. ALL MATERIAL SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR ORIGINAL CONTAINERS CONTAINING MANUFACTURER'S LABEL.
3. MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
4. MATERIALS REQUIRED TO HAVE A MATERIAL SAFETY DATA SHEET (MSDS) SHALL HAVE A COPY STORED IN THE PROJECT'S MSDS DATABASE.

6.2 SPILL CONTROL PRACTICES

THE PRACTICES LISTED BELOW SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP.

1. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE MAINTAINED ONSITE.
2. IMMEDIATELY UPON DISCOVERY, ALL SPILLS SHALL BE CLEANED UP ACCORDING TO THE MANUFACTURERS' RECOMMENDED METHODS.
3. PERSONNEL CLEANING UP A SPILL SHALL USE PERSONAL PROTECTIVE EQUIPMENT.
4. IMMEDIATELY UPON DISCOVERY, SPILLS OF TOXIC OR HAZARDOUS MATERIALS SHALL BE REPORTED TO THE OWNER AND GENERAL CONTRACTOR.
5. NOTIFICATION AND REPORTING TO THE APPROPRIATE FEDERAL, STATE, AND LOCAL GOVERNMENT AGENCIES SHALL BE MADE AS REQUIRED.

GENERAL INFORMATION

THIS STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED TO FULFILL ONE OF THE REQUIREMENTS OF THE GENERAL ENVIRONMENTAL PROTECTION AGENCY (EPA) NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (WISCONSIN POLLUTION DISCHARGE ELIMINATION SYSTEM "WPDES" PERMIT NO. WI-S067831-4) FOR THE DISCHARGE OF STORMWATER ASSOCIATED WITH CONSTRUCTION PROJECTS DISTURBING ONE ACRE OR MORE. THE OWNER AND CONTRACTORS SHALL COMPLY WITH ALL REQUIREMENTS OF THE WPDES FOR ALL SUCH CONSTRUCTION PROJECTS. THE STORMWATER DISCHARGES ASSOCIATED WITH THE CONSTRUCTION ACTIVITY FROM THIS SITE ARE SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE PERMITS.

THE EXECUTED OWNER CERTIFICATION AND THE CONTRACTOR CERTIFICATIONS SHALL BE KEPT ONSITE WITH THE APPROVED PLANS.

SWPPP AVAILABILITY

THE OWNER SHALL RETAIN A COPY OF THE SWPPP AT THE CONSTRUCTION SITE FROM THE DATE OF THE PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

KEEPING PLANS CURRENT

THE CONTRACTOR SHALL AMEND THE PLAN WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS TO THE WATERS OF THE STATE AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE PLAN OR IF THE PLAN PROVES TO BE INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY CONTROLLING POLLUTANTS IN STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION SITE ACTIVITY. IN ADDITION, THE THE PLAN SHALL BE AMENDED TO IDENTIFY ANY NEW CONTRACTOR AND/OR SUBCONTRACTOR THAT WILL IMPLEMENT A MEASURE OF THE PLAN. AMENDMENTS TO THE PLAN MAY BE REQUIRED BY THE MUNICIPALITY, OWNER, OR OTHER REVIEWING AGENCY. COPIES OF THE AMENDMENTS SHALL BE KEPT ONSITE AS PART OF THE SWPPP.

RETENTION OF RECORDS

THE OWNER SHALL RETAIN COPIES OF THIS AND ALL REPORTS AND NOTICES REQUIRED BY THIS PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT, FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE PERMIT COVERAGE EXPIRES OR IS TERMINATED. THIS PERIOD MAY BE EXTENDED BY THE REQUEST OF THE AGENCY AT ANY TIME. IN ADDITION, THE OWNER SHALL RETAIN A COPY OF THE PLAN REQUIRED BY THIS PERMIT AT THE CONSTRUCTION SITE FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

A NOTICE OF INTENT (NOI) APPLICATION MUST BE COMPLETED AND INCORPORATED INTO THE SWPPP.

WPDES NOTICE OF TERMINATION GUIDANCE

WHEN A SITE HAS BEEN FINALLY STABILIZED AND ALL STORMWATER DISCHARGES FROM CONSTRUCTION SITES THAT ARE AUTHORIZED BY THE PERMIT ARE ELIMINATED, THE OWNER OF THE FACILITY MUST SUBMIT A COMPLETED NOTICE OF TERMINATION THAT IS SIGNED IN ACCORDANCE WITH THE PERMIT. CONTRACTOR SHALL SUBMIT A COMPLETED NOTICE OF TERMINATION TO OWNER FOR EXECUTION PRIOR TO THEIR FINAL PAY APPLICATION REQUEST.

CONTROL MEASURE GROUP	CONTROL MEASURE	CONTROL MEASURE CHARACTERISTICS
VEGETATIVE SOIL COVER	TEMPORARY SEEDING	PROVIDES QUICK TEMPORARY COVER TO CONTROL EROSION WHEN PERMANENT SEEDING IS NOT DESIRED OR TIME OF YEAR IS INAPPROPRIATE
	PERMANENT SEEDING	PROVIDES PERMANENT VEGETATIVE COVER TO CONTROL EROSION, FILTERS SEDIMENT FROM WATER, MAY BE PART OF FINAL LANDSCAPE PLAN
NON VEGETATIVE SOIL COVER	AGGREGATE COVER	PROVIDES TEMPORARY COVER ON ROADS AND PARKING LOTS AND AREAS WHERE VEGETATION CANNOT BE ESTABLISHED, PREVENTS MUD FROM BEING PICKED UP AND TRANSPORTED OFF-SITE
	PAVING	PROVIDES PERMANENT COVER ON PARKING LOTS AND ROADS OR OTHER AREAS WHERE VEGETATION CANNOT BE ESTABLISHED
DIVERSIONS	DIVERSION BERM / SWALE	DIVERTS RUNOFF TO A SEDIMENT TRAP OR OTHER CONTROL
ENCLOSED DRAINAGE	STORM SEWER	CONVEYS SEDIMENT LADEN WATER TO A SEDIMENT BASIN
OUTLETS	APRON ENDWALL OR RIPRAP	PROTECTS DOWNSTREAM CHANNEL FROM HIGH VELOCITY OF FLOW DISCHARGING FROM STRUCTURE
SEDIMENT BASINS	TEMPORARY SEDIMENT TRAP	CONSTRUCTED TO REMOVE SILTATION FROM RUNOFF FROM SITE DIVERSION BERMS/SWALES AND IN OVERLAND FLOOD ROUTE. CAN BE CONVERTED TO PERMANENT SEDIMENT BASIN
SEDIMENT FILTERS	SILT FENCE	PLACED DOWN SLOPE OF DISTURBED AREA TO KEEP RUNOFF CONTAINED ON-SITE
	INLET PROTECTION	INSTALLED IN OPEN GRATE STRUCTURES TO COLLECT SEDIMENT
	DITCH CHECK	PLACED IN DRAINAGE CHANNELS TO FILTER SEDIMENT FROM RUNOFF
MUD AND DUST CONTROL	CONSTRUCTION ENTRANCE	REDUCES SOIL EROSION POLLUTANTS BEING TRANSPORTED OFF-SITE
	STREET SWEEPING	REDUCES POLLUTANTS TRACKED FROM CONSTRUCTION SITE
	DUST CONTROL	PREVENTS DUST FROM LEAVING CONSTRUCTION SITE

STABILIZATION EFFECTIVENESS (TIME OF YEAR)

STABILIZATION TYPE	STABILIZATION UTILIZATION PERIODS								
	JAN	FEB.	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
PERMANENT SEEDING			A	*	*	*	*	*	*
DORMANT SEEDING	B								
TEMPORARY SEEDING			C	*	*	*	D *	*	*
SODDING			E	*	*	*	*	*	*

A. KENTUCKY BLUEGRASS 90 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 30 LBS/ACRE
B. KENTUCKY BLUEGRASS 135 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 45 LBS/ACRE + 2 TONS STRAW MULCH/ACRE
C. SPRING OATS 100 LBS/ACRE
D. WHEAT OR CEREAL RYE 150 LBS/ACRE
E. SOD
F. STRAW MULCH 2 TONS/ACRE

* IRRIGATION/WATERING REQUIRED TO SUPPORT ESTABLISHMENT AS NEEDED

NOTES

1. INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.
2. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE WisDOT EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.
3. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH.

INSTALLATION NOTES

1. DO NOT INSTALL INLET PROTECTION TYPE "D" IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.
2. TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3 INCHES OF THE GRATE.
3. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3 INCHES. WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCHES CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4 INCHES FROM THE BOTTOM OF THE BAG.

INLET PROTECTION

NOTES

1. ALL TRACKING PAD MATERIALS AND INSTALLATION SHALL BE IN CONFORMANCE WITH WI DNR TECHNICAL STANDARD 1057.
2. TRACKING PADS SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE. CONTRACTOR SHALL VERIFY LOCATION WITH OWNER.
3. THE AGGREGATE FOR TRACKING PADS SHALL BE 3 TO 6 INCH CLEAR OR WASHED STONE. ALL MATERIALS TO BE RETAINED ON A 3-INCH SIEVE.
4. THE AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12-INCHES THICK. ON SITES WHERE SATURATED CONDITIONS ARE EXPECTED DURING THE LIFE OF THE PAD, THE PAD SHALL BE UNDERLAIN WITH GEOTEXTILE FABRIC WHICH MEETS MATERIAL SPECIFICATION 592 GEOTEXTILE, TABLE 1 OR 2, CLASS I, II OR IV, TO PREVENT MIGRATION OF UNDERLYING SOILS INTO THE STONE LAYER.
5. THE TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT. MINIMUM WIDTH IS 14 FEET FOR ONE-WAY TRAFFIC AND 20 FEET FOR TWO-WAY TRAFFIC, WITH AN ADDITIONAL INCREASE OF 4 FEET FOR TRAILER TRAFFIC. THE TRACKING PAD SHALL BE A MINIMUM 50-FEET LONG.
6. ANY SEDIMENT TRACKED ONTO A PUBLIC OR PRIVATE ROAD SHOULD BE REMOVED BY STREET CLEANING, NOT FLUSHING, AT THE END OF EACH WORKING DAY.
7. TRACKING PADS SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24-HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5-INCHES OF RAIN OR MORE DURING A 24-HOUR PERIOD.
8. THE TRACKING PAD PERFORMANCE SHALL BE MAINTAINED BY SCRAPING OR TOP-DRESSING WITH ADDITIONAL AGGREGATE.

CONSTRUCTION ENTRANCE

SILT FENCE TIE BACK
(WHEN ADDITIONAL SUPPORT REQUIRED)

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

TRENCH DETAIL

JOINT (HOOK METHOD)

SILT FENCE ALONG SLOPES & OUTFALLS

JOINT (TWIST METHOD)

NOTES

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE TABLE 1 OR 2, CLASS I WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
2. SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8-INCHES OF FABRIC IN A 4-INCH WIDE AND 6-INCH DEEP TRENCH OR 6-INCH DEEP V-TRENCH ON THE UPSLOPE SIDE OF THE FENCE. TRENCHES SHALL NOT BE EXCAVATED WIDER OR DEEPER THAN NECESSARY FOR PROPER INSTALLATION.
3. FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL.
4. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1.125-INCHES x 1.125-INCHES OF DRIED OAK OR HICKORY.
5. SILT FENCE TO EXTEND ABOVE THE TOP OF PIPE WHERE APPLICABLE.
6. POST SPACING SHALL BE SELECTED BASED ON GEOTEXTILE FABRIC (8-FEET FOR WOVEN AND 3-FEET FOR NON-WOVEN).

SILT FENCE

ENTRENCHMENT DETAIL

STRAW WATTLE DITCH CHECK

INLET PROTECTION - TYPE "A"

INLET PROTECTION - TYPE "B"
(WITHOUT CURB BOX)

TYPE "B" & "C" INSTALLATION NOTES

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3 INCHES OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHODS TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

NOTES

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE, TABLE 1 OR 2, CLASS I WITH AN EOS OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKET WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE "C" (WITH CURB BOX), AN ADDITIONAL 18 INCHES OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

INLET PROTECTION, TYPE "C"
(WITH CURB BOX)

INLET PROTECTION

BERM

CHANNEL

NOTES

1. DIVERSION MAY REQUIRE AREAS OF BERM AND OTHER AREAS OF CHANNEL TO PROVIDE SUFFICIENT PERIMETER PROTECTION.
2. DIVERSION BERM VERSUS CHANNEL PRACTICES SHALL BE SELECTED SUCH TO PREVENT PONDING (E.G. - POSITIVE DRAINAGE SHALL BE MAINTAINED).
3. FOR DIVERSIONS THAT ARE TO SERVE LONGER THAN 30 DAYS, THE SIDE SLOPES INCLUDING THE RIDGE AND THE DOWN SLOPE SIDE OF THE DIVERSION SHALL BE STABILIZED AS SOON AS THEY CONSTRUCTED BY EQUIPMENT TRACKING AND TEMPORARY SEEDING. FOR DIVERSIONS SERVING LESS THAN 30 DAYS, THE DOWN SLOPE SIDE OF THE DIVERSION SHALL BE STABILIZED AS SOON AS CONSTRUCTED BY EQUIPMENT TRACKING AND TEMPORARY SEEDING.
4. DIVERSIONS SHALL BE PROTECTED FROM DAMAGE BY CONSTRUCTION ACTIVITIES. AT ALL POINTS WHERE DIVERSION BERMS OR CHANNELS WILL BE CROSSED BY CONSTRUCTION EQUIPMENT, THE DIVERSION SHALL BE SHAPED APPROPRIATELY AND/OR TEMPORARY CULVERTS OF ADEQUATE CAPACITY MAYBE ADDED AT CROSSINGS.
5. AT MINIMUM, INSTALL ONE DITCH CHECK (SEE DETAIL) FOR EVERY 2 VERTICAL FEET OF DROP.
6. DIVERSIONS SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD. MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION TO SITE CONDITIONS. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE DIVERSION BERM.

DIVERSION BERM / CHANNEL

END VIEW

PLAN VIEW

SIDE VIEW

NOTES

1. RIP RAP AND GEOTEXTILE FABRIC SHALL MEET REQUIREMENTS FOR STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

RIP RAP AT END SECTIONS

CONSTRUCTION SET

DRAFTED: MRG
DESIGNED: TGM
REVIEWED: TGM

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE
20725 WATERTOWN ROAD SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

CONSTRUCTION DETAILS

REVISIONS

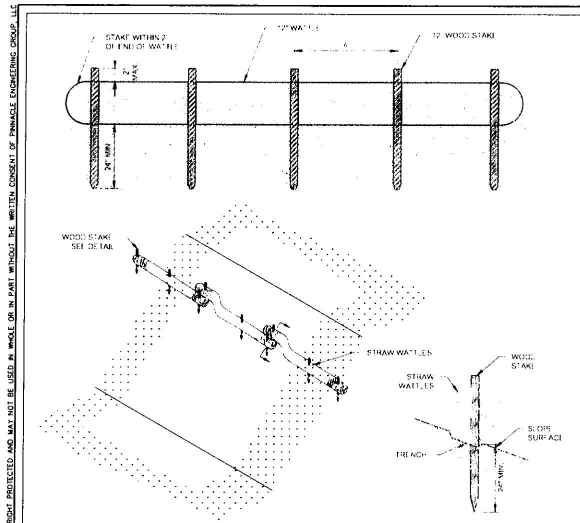
1 CONSTRUCTION SET 04/27/21

PROJECT NO. 390.006
PM: ARA
START DATE: 01/06/21
SCALE: N.T.S.

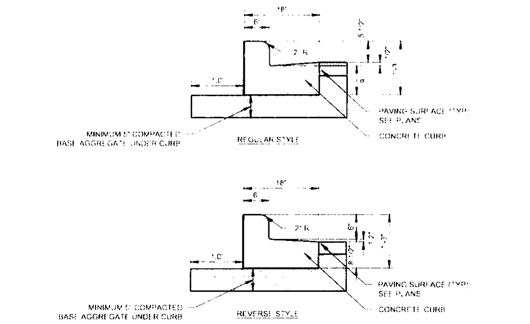
SHEET
C-19
OF
C-22

CONSTRUCTION DETAILS

Z:\PROJECTS\2014\390.006 WI\CAD\SHEETS\390.006 WI CONSTRUCTION DETAILS.DWG



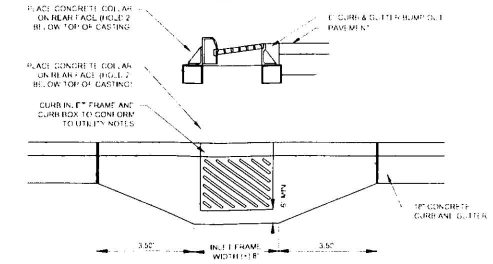
STRAW WATTLE



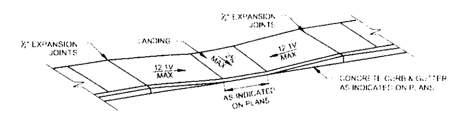
NOTES

1. LATERAL CONTRACTION JOINTS SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 15 FEET NOR LESS THAN 6 FEET. THE JOINTS SHALL BE A MINIMUM OF 3 INCHES IN DEPTH.
2. EXPANSION JOINTS SHALL BE PLACED TRANSVERSELY AT RADIUS POINTS ON CURVES OF RADIUS 200 FEET OR LESS, AND AT ANGLE POINTS, OR AS DIRECTED BY THE ENGINEER OF RECORD. THE EXPANSION JOINTS FILLER SHALL BE A ONE PIECE FIBERBOARD OR THE APPROVED EQUIVALENT MATERIAL HAVING THE SAME DIMENSIONS AS CURB & GUTTER AT THAT STATION AND BE 0.5 INCH THICK.
3. IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON THOROUGHLY COMPACTED CRUSHED STONE.
4. REVERSE STYLE CURB LOCATIONS ARE NOTED ON THE PLANS.

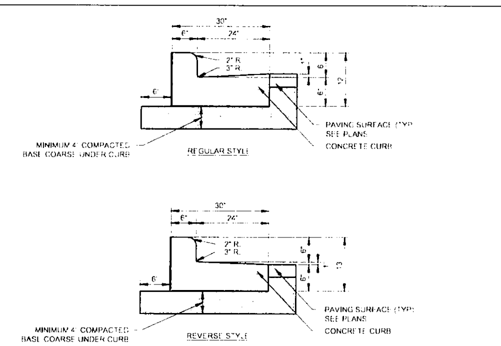
18" VERTICAL FACE CURB



CURB AND GUTTER BUMP OUT



TYPICAL ACCESSIBLE RAMP - SPLIT



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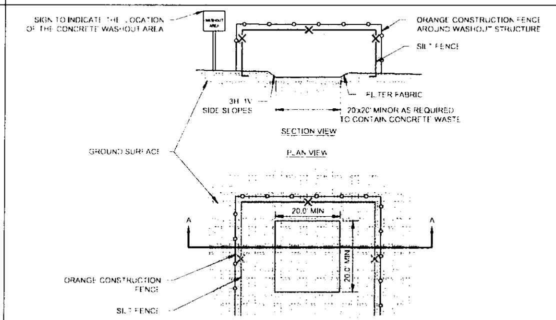
3. IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON THOROUGHLY COMPACTED CRUSHED STONE.
4. REVERSE STYLE CURB LOCATIONS ARE NOTED ON THE PLANS.

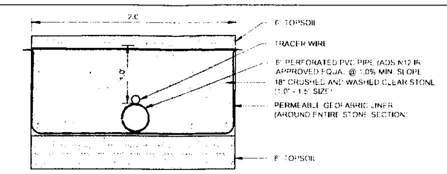
30" VERTICAL FACE CURB



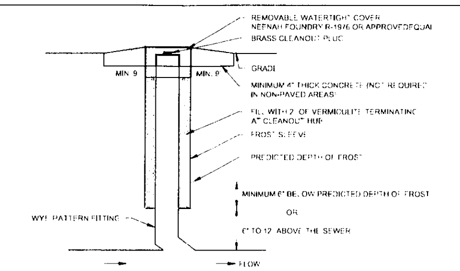
NOTES

1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT OF SITE.
2. VEHICLE TRACKING CONTROL IS REQUIRED AT CONCRETE WASHOUT ENTRANCE IF ACCESS TO CONCRETE WASHOUT AREA IS OFF PAVEMENT.
3. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND/OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR WASTE CONCRETE.
4. WASTE MATERIAL FROM CONCRETE WASHOUT OPERATIONS MUST BE REMOVED AND LEGALLY DISPOSED OF WHEN IT HAS ACCUMULATED TWO-THIRDS OF THE WET STORAGE CAPACITY OF THE STRUCTURE.
5. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT AN APPROVED SITE.
6. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED.
7. WASHOUT PITS SHALL BE LINED WITH MIN. 10 MIL PLASTIC LINER.

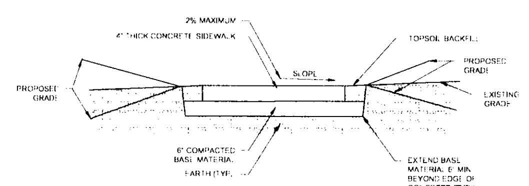
CONCRETE WASHOUT AREA



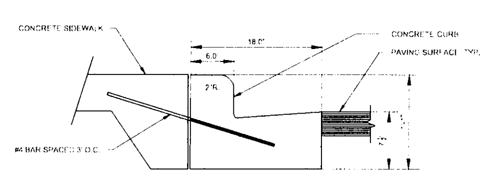
UNDERDRAIN



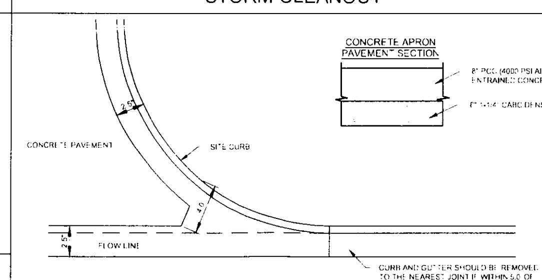
STORM CLEANOUT



CONCRETE SIDEWALK



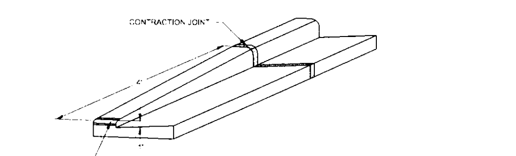
18" CURB ADJACENT TO SIDEWALK



NOTES:

1. ALL DRIVEWAY APPROACHES SHALL BE CONNECTED TO THE EXISTING CONCRETE ROAD BASE WITH TIE BARS.

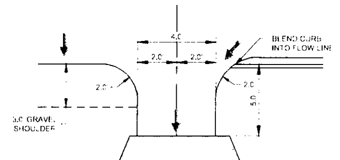
DRIVEWAY ENTRANCE - CONCRETE APRON



NOTES:

1. CONTRACTION JOINTS SHALL BE PLACED EVERY 10 FEET.
2. EXPANSION JOINTS (3/4" EXPANSION FIBER MATERIAL) SHALL BE PLACED EVERY 300 FEET AND AT EVERY POINT AND 3 FEET FROM STRUCTURES.

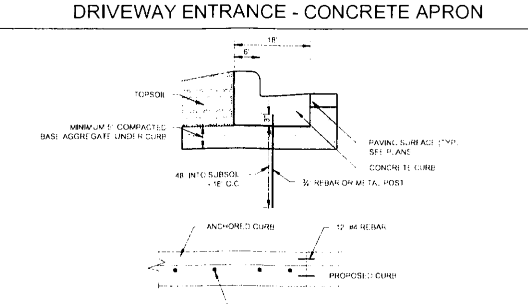
TAPER CURB HEAD



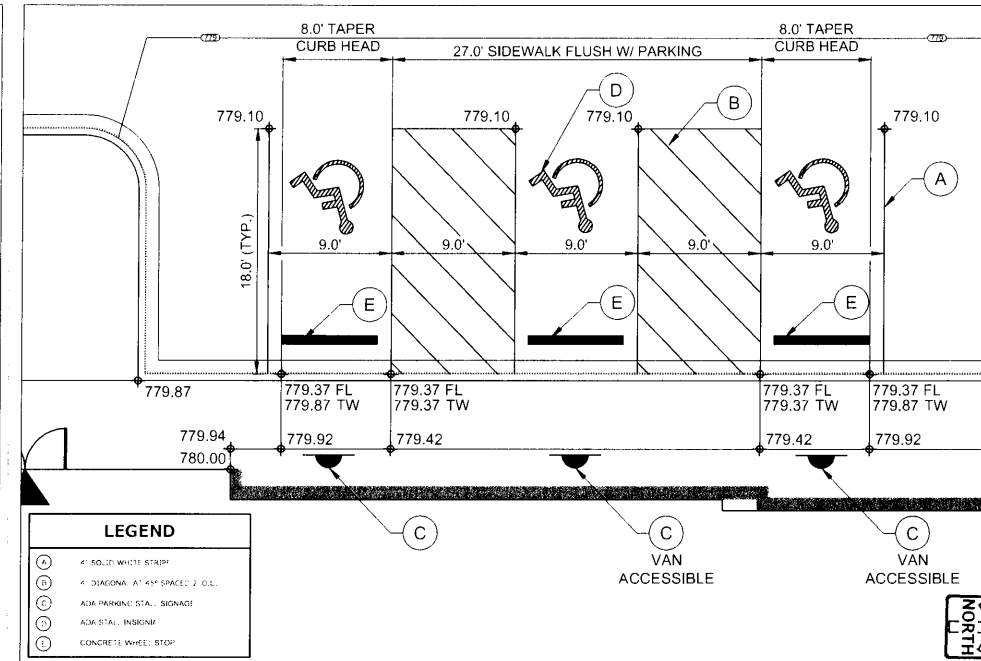
NOTES:

1. PITCH CONCRETE AT 2% FROM FLOW LINE OF GUTTER SECTION TO EL OF FLUME.

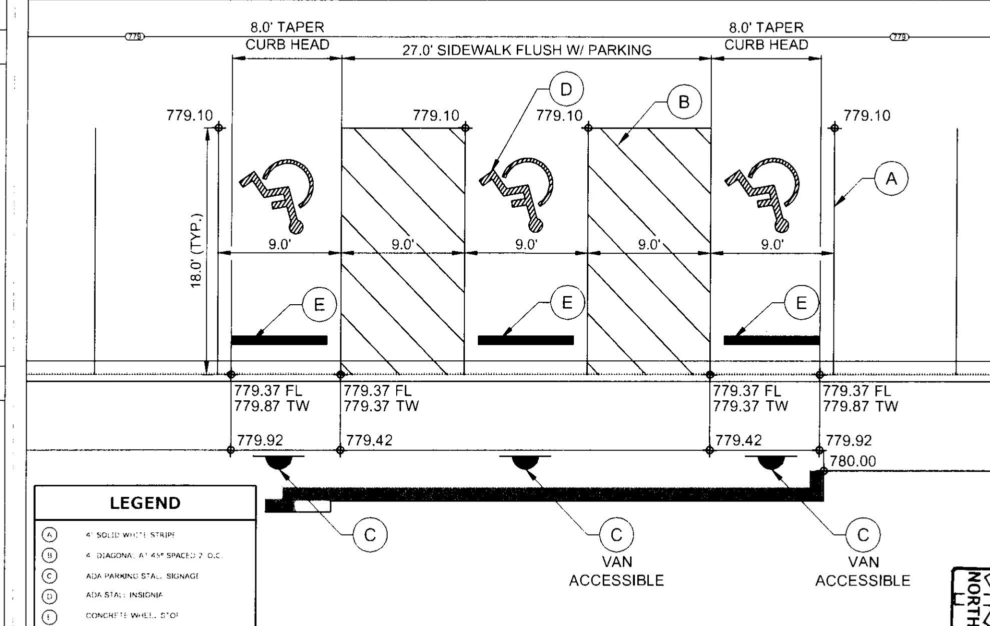
CONCRETE FLUME



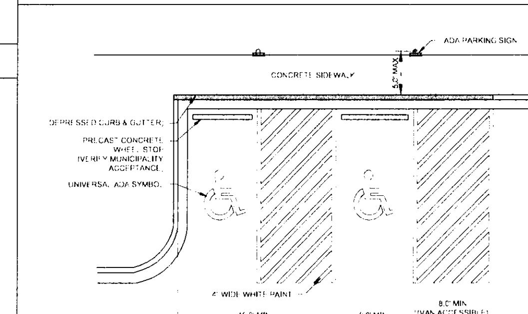
CURB ANCHORING DETAIL



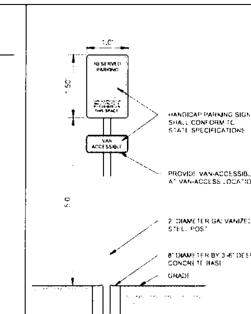
SOUTHWEST ADA PARKING DETAILS SCALE: 1" = 5'



NORTHWEST ADA PARKING DETAILS SCALE: 1" = 5'



ADA PARKING STRIPING



ADA SIGN

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

CONSTRUCTION DETAILS

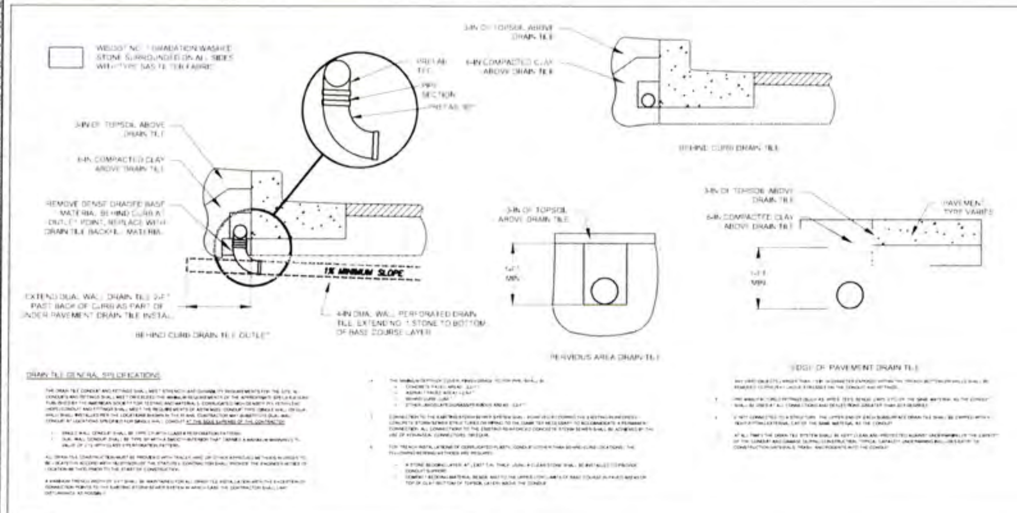
REVISIONS		
1	CONSTRUCTION SET	06/17/21

PEG JOB No. 390.00C
PEG PM ARA
START DATE 01/06/21
SCALE N.T.S.

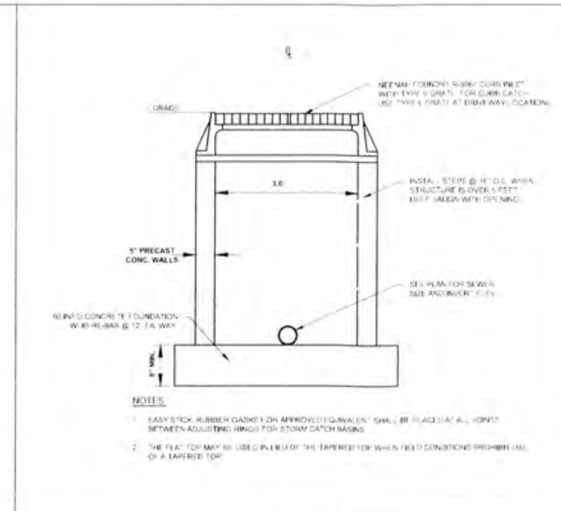
SHEET C-20 OF C-22

CONSTRUCTION SET

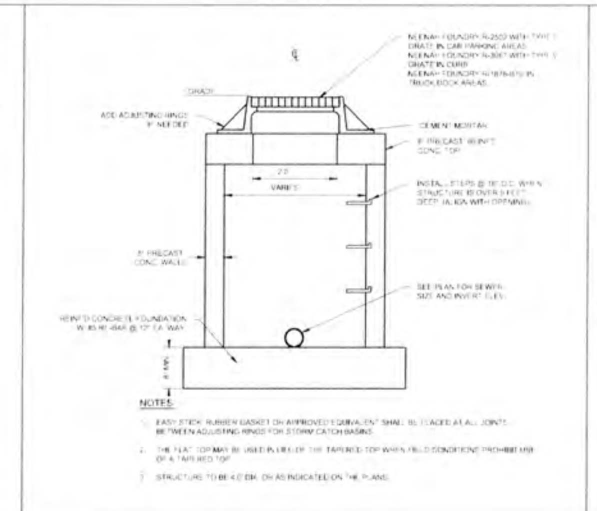
CONSTRUCTION DETAILS



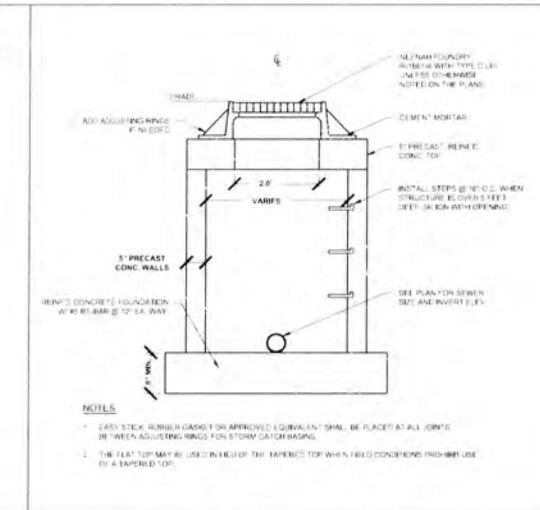
DRAINTILE



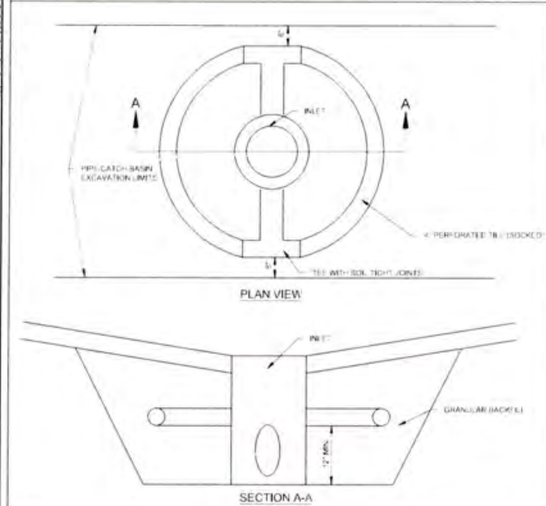
2' x 3' INLET



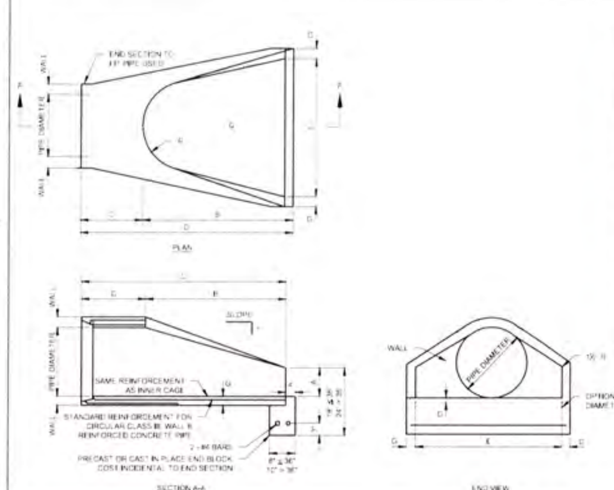
INLET



STORM SEWER MANHOLE



INLET - UNDERDRAIN



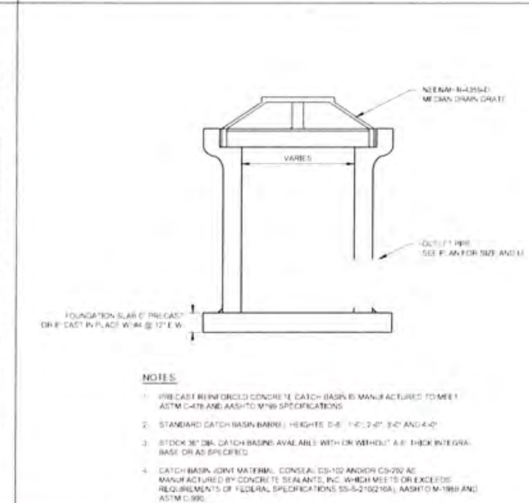
PIPE DIA.	APPROX. QTY (lbs)	WALL (in)	A (in)	B (in)	C (in)	D (in)	E (in)	G (in)	R (in)	APPROX. SLOPE
12"	530	2	4	24	4'-0 7/8"	6'-0 7/8"	24	2	9	1:2.4
15"	740	2 1/4	6	27	3'-10"	6'-1"	30	2 1/4"	11	1:2.4
18"	990	2 1/2	9	27	3'-10"	6'-1"	36	2 1/2	12	1:2.4
21"	1280	2 3/4	9	36	36	6'-1"	3'-6	2 3/4	13	1:2.4
24"	1520	3	9 1/2	3'-7 1/2	30	6'-1 1/2"	4'-0	3	14	1:2.5
27"	1930	3 1/4	10 1/2	4'-0"	25 1/2	6'-1 1/2"	4'-6"	3 1/4	14 1/2	1:2.4
30"	2190	3 1/2	12	4'-6"	19 3/4	6'-1 3/4"	5'-0"	3 1/2	15	1:2.5
33"	3200	3 3/4	13 1/2	4'-10 1/2"	39 1/4	6'-1 3/4"	5'-6"	3 3/4	17 1/2	1:2.5
36"	4100	4	15	5'-3"	34 3/4	6'-1 3/4"	6'-0"	4	20	1:2.5
42"	5380	4 1/2	21	5'-3"	36	6'-2	6'-6	4 1/2	22	1:2.5
48"	6550	5	24	6'-0"	26	6'-2"	7'-0"	5	22	1:2.5
54"	8240	5 1/2	27	5'-5"	35	6'-4"	7'-6"	5 1/2	24	1:2.0
60"	8730	6	35	5'-0"	39	6'-3"	8'-0"	5	*	1:1.9
66"	10710	6 1/2	30	6'-0"	27	6'-3	8'-6"	5 1/2	*	1:1.7
72"	12520	7	36	6'-6"	21	6'-3	9'-0"	6	*	1:1.8
78"	14770	7 1/2	36	7'-6"	21	6'-3"	9'-6"	6 1/2	*	1:1.6
84"	18160	8	36	7'-6 1/2"	21	6'-0 1/2"	10'-0"	6 1/2	*	1:1.6

* RADIUS AS FURNISHED BY MANUFACTURER

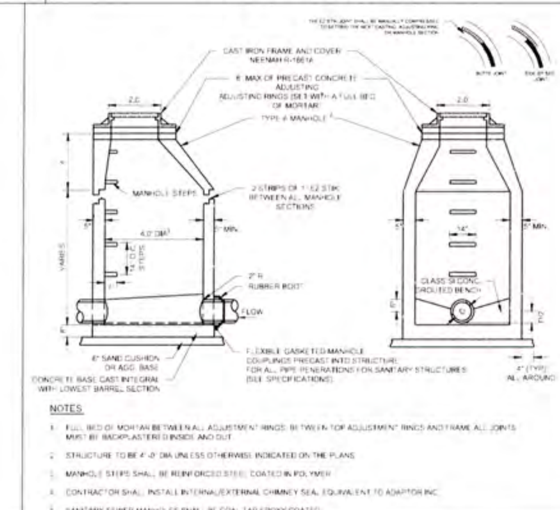
NOTES:

1. PRECAST CONCRETE FLARED END SECTIONS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-170 CLASS 3, WALL B REINFORCED CONCRETE PIPE.
2. PRECAST CONCRETE FLARED END SECTIONS FOR PIPE DIAMETER REQUIRED SHALL BE AS INDICATED ON DETAIL PLAN FOR EACH INDIVIDUAL INSTALLATION.
3. THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR PRECAST CONCRETE FLARED END SECTION OF THE DIAMETER SPECIFIED WHICH PRICE INCLUDES PROVIDING AND INSTALLATION OF EACH END SECTION SPECIFIED.
4. GRATES SHALL BE PROVIDED FOR ALL PRECAST REINFORCED CONCRETE FLARED END SECTIONS 18" IN DIAMETER OR GREATER.

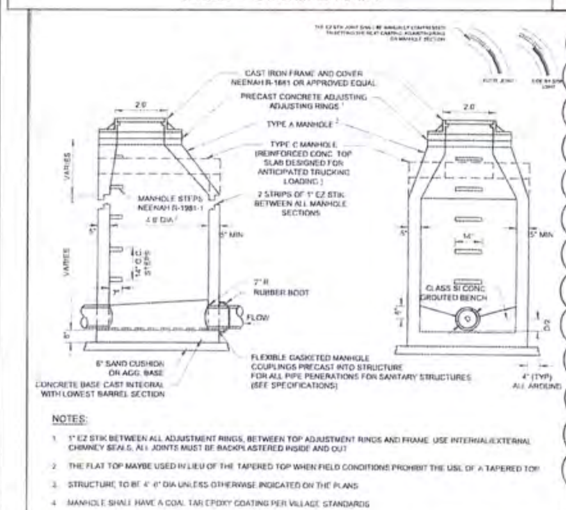
PRECAST FLARED END SECTIONS



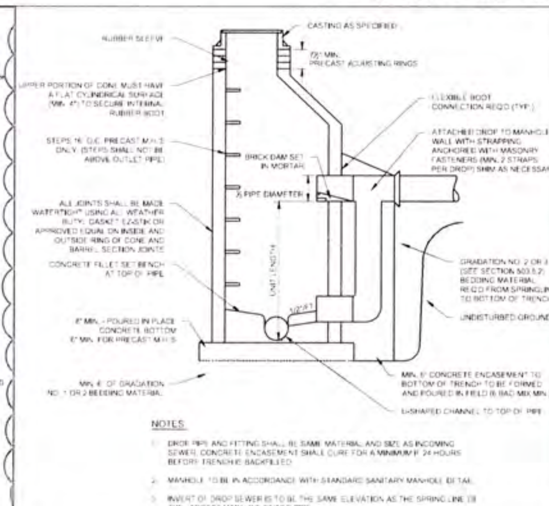
FIELD INLET



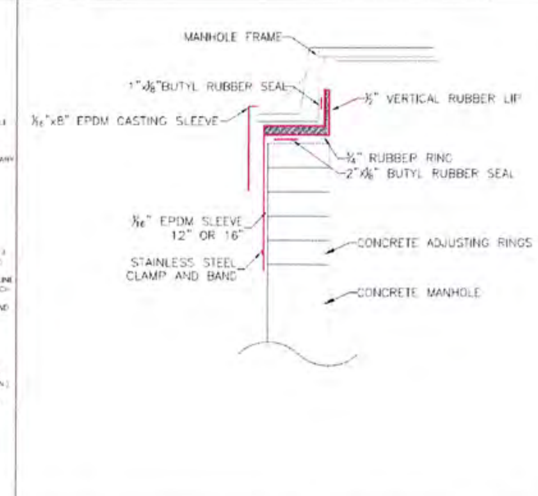
SANITARY MANHOLE



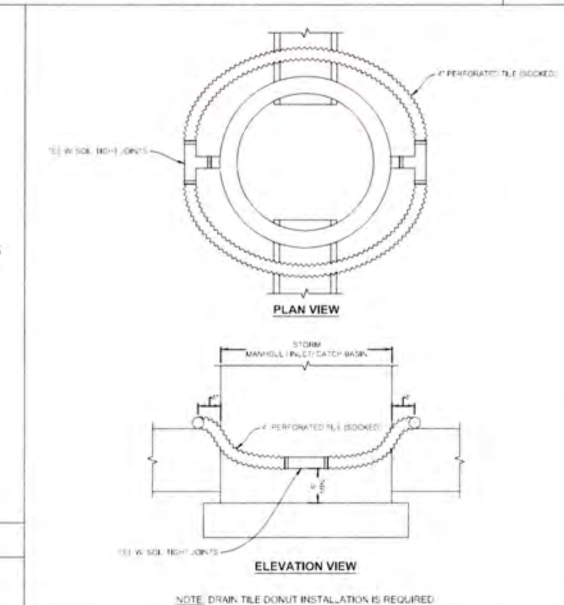
SAMPLING MANHOLE



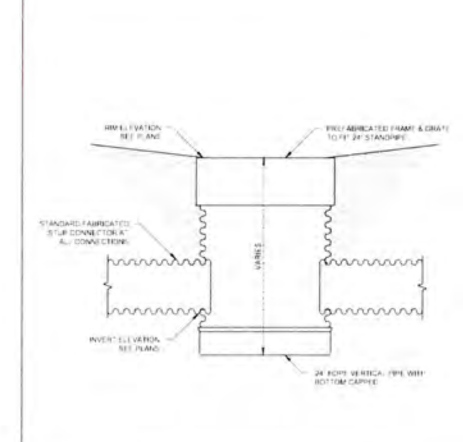
OUTSIDE DROP MANHOLE



INTERNAL/EXTERNAL ADAPTOR SEAL



DRAIN TILE DONUT



DRAINTILE INLET (STANDPIPE)

CONSTRUCTION SET

PINNACLE ENGINEERING GROUP

ENGINEERING | NATURAL RESOURCES | SURVEYING

DEBACK FARMS - PAD F

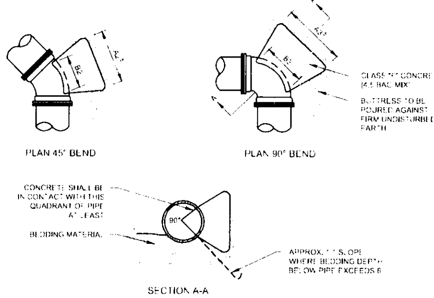
CALEDONIA, WISCONSIN

CONSTRUCTION DETAILS

REVISIONS

SHEET C-21 of C-22

CONSTRUCTION DETAILS

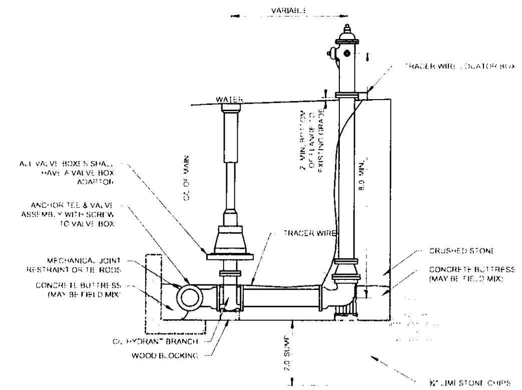


PIPE	22 1/2° BENDS		45° BENDS		90° BENDS	
SIZE	A1	B1	A2	B2	A3	B3
6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-2"
8"	1'-0"	1'-0"	1'-4"	1'-2"	1'-10"	1'-6"
12	1'-4"	1'-4"	1'-10"	1'-10"	2'-8"	2'-3"
16"	1'-10"	1'-8"	2'-6"	2'-4"	3'-10"	2'-10"
20	2'-4"	2'-0"	3'-3"	2'-10"	5'-0"	3'-4"
24"	2'-10"	2'-4"	4'-0"	3'-3"	6'-4"	3'-10"
30	3'-6"	3'-0"	5'-4"	3'-10"	8'-0"	4'-8"

NOTES

1. PROVIDE THRUST BLOCKING TO PREVENT MOVEMENT OF LINES UNDER PRESSURE AT BENDS, TEES, CAPS, VALVES, HYDRANTS, AND AT POINTS SPECIFIED BY THE ENGINEER.
2. ALL BLOCKING SHALL BE WITH POURED CLASS SI CONCRETE AGAINST UNDISTURBED VERTICAL EARTH SURFACE.
3. THRUST BLOCKS TO BE AT ALL BENDS 11¼° OR GREATER.
4. THE COST OF INSTALLING THE THRUST BLOCK SHALL BE INCIDENTAL TO THE CONSTRUCTION OF THE WATER.
5. DIMENSION A2 & A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH MJ BOLTS.

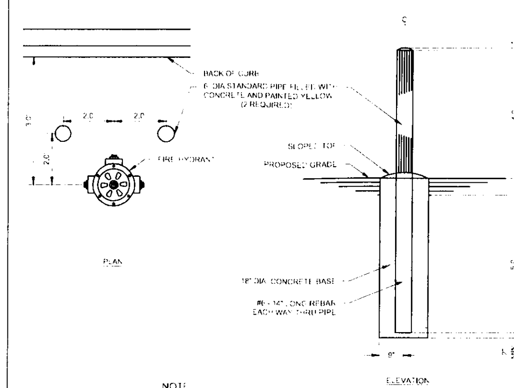
THRUST BLOCK



NOTES

1. MEGALUG RESTRAINING GLANDS ON ALL MECHANICAL JOINTS. THE BOLTS & NUTS ARE TO BE HIGH STRENGTH LOW ALLOY STEEL (CORTEN) AS PER SECTION 11.6.5 OF A.W.W.A. C-111.
2. THE FOLLOWING HYDRANTS SHALL BE ALLOWED: WATEROUS PACER WB-67 HYDRANT

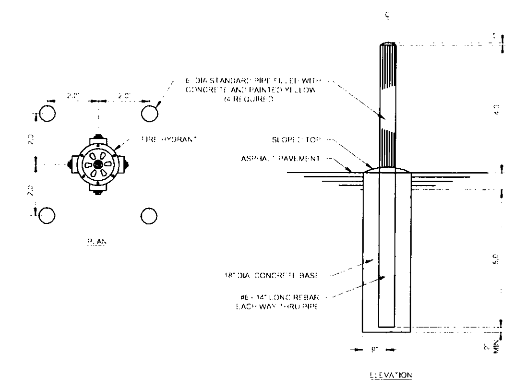
FIRE HYDRANT



NOTE

1. BOLLARDS ARE ONLY TO BE USED ON PRIVATE SITE ONLY

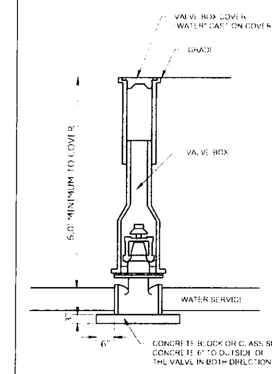
HYDRANT BOLLARD - BEHIND CURB



NOTES

1. USE WHERE HYDRANT IS LOCATED WITHIN PAVED AREAS. COST INCIDENTAL.
2. BOLLARDS ARE ONLY TO BE USED ON PRIVATE SITE ONLY

HYDRANT BOLLARD



NOTES

1. THE CONTRACT UNIT PRICE EACH FOR VALVES OF THE SIZE AND TYPE SPECIFIED SHALL INCLUDE PROVIDING & INSTALLING THE VALVE BOX

VALVE BOX

CONSTRUCTION SET

CONSTRUCTION DETAILS

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE

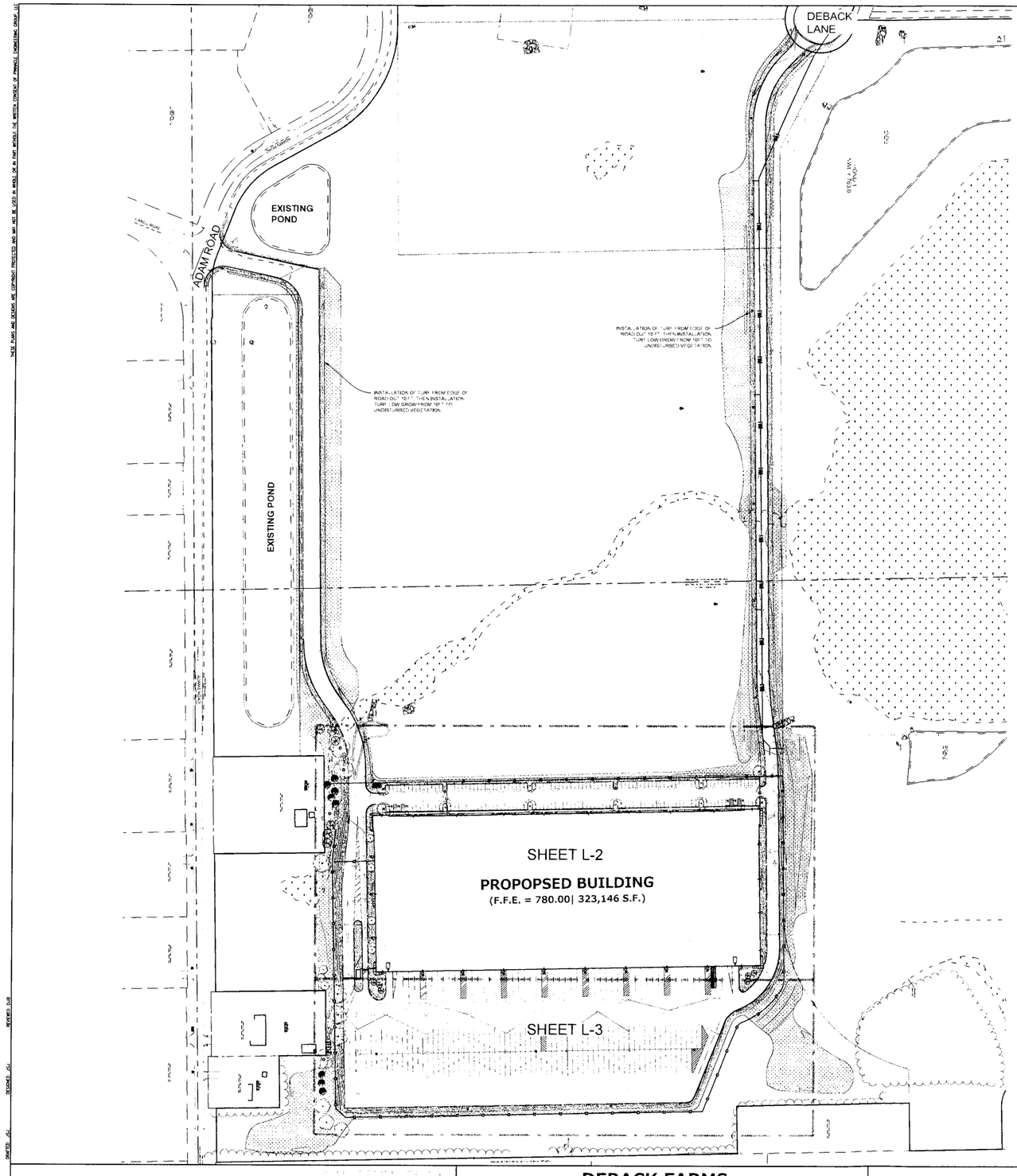
DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

CONSTRUCTION DETAILS

REVISIONS

CONSTRUCTION SET

SHEET C-22 of C-22



PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
AF4	Acer freemanii 'Autumn Fantasy	Autumn Fantasy Maple	2" Cal.	4	50' T x 40' W
AM7	Acer saccharum 'Flax Mill Majesty'	Flax Mill Majesty Maple	2" Cal.	6	55' T x 45' W
GTS	Gleditsia triacanthos inermis 'Shademaster'	Shademaster Locust	2" Cal.	4	60' T x 50' W
OXC	Quercus x schuettii	Swamp Bur Oak	2" Cal.	4	70' T x 65' W
TSS	Tilia tomentosa 'Sterling'	Sterling Silver Linden	2" Cal.	3	45' T x 40' W

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
ACF	Abies concolor	White Fir	5' Ht.	3	40' T x 23' W
PAN	Picea abies	Norway Spruce	5' Ht.	6	60' T x 26' W
PGC	Picea glauca 'Densata'	Black Hills Spruce	5' Ht.	6	30' T x 15' W
PSW	Pinus strobus	White Pine	5' Ht.	8	65' T x 30' W

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
MPM	Malus x 'Prairie Maid'	Prairie Maid Crabapple	1.5" Cal.	2	20' T x 25' W
MSU	Malus x 'Sugar Tyme'	Sugar Tyme Crabapple	1.5" Cal.	2	25' T x 25' W

SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
ACB	Aronia arbutifolia 'Brilliantissima'	Brilliant Red Chokeberry	18" Ht.	7	7' T x 6' W
ABC	Aronia melanocarpa 'Elata'	Glossy Black Chokeberry	18" Ht.	12	5' T x 5' W
CPP	Cephalanthus occidentalis 'Ping Pong'	Ping Pong Buttonbush	18" Ht.	8	8' T x 8' W
CAF	Cornus stolonifera 'Arctic Fire'	Arctic Fire Dogwood	15" Ht.	12	3' T x 3' W
HVS	Hydrangea p. 'Vanilla Strawberry'	Vanilla Strawberry Hydrangee	18" Ht.	8	6' T x 5' W
HBO	Hydrangea paniculata 'Bobo'	Bobo Hydrangea	15" Ht.	4	3' T x 4' W
IVH	Itea virginica 'Little Henry'	Little Hanny Sweetspire	18" Ht.	6	3' T x 3' W
SMC	Spiraea japonica 'Magic Carpet'	Magic Carpet Spiree	18" Ht.	18	2' T x 3' W
SMP	Syringa meyeri 'Palibin'	Dwarf Korean Lilac	18" Ht.	2	5' T x 6' W
VPB	Viburnum prunifolium 'Blackhaw'	Blackhaw Viburnum	18" Ht.	10	10' T x 10' W

EVERGREEN SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
JSF	Juniperus chinensis 'J.N. Select Blue'	Star Power Juniper	4' Ht.	17	16' T x 8' W
JMD	Juniperus chinensis 'Mountbatten'	Mountbatten Juniper	4' Ht.	6	15' T x 7' W
JYO	Juniperus horizontalis 'Youngstown'	Creeping Juniper	18" W.	6	1' T x 6' W
PS3	Pinus mugo 'Slowmound'	Slowmound Mugo Pine	15" Ht.	43	3' T x 3' W
TMT	Taxus x media 'Tauntoni'	Tauton Yew	18" Ht.	6	4' T x 5' W

ORNAMENTAL GRASSES	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
AGD	Andropogon gerardii 'Dancing Wind'	Dancing Wind Big Blue Stem	1 gal.	6	36" T x 30" W
CKF	Calamagrostis x a. 'Karl Foerster'	Karl Foerster Reed Grass	1 gal.	18	36" T x 24" W
CFC	Calamagrostis x a. 'Overdam'	Overdam Reed Grass	1 gal.	14	24" T x 24" W
ESF	Eragrostis spectabilis	Purple Love Grass	1 gal.	6	24" T x 18" W
MSO	Miscanthus sinensis 'Oktoberfest'	Oktoberfest Miscanthus	1 gal.	4	48" T x 36" W
PNW	Panicum virgatum 'Northwind'	Northwind Switch Grass	1 gal.	20	42" T x 28" W
SLB	Schizachyrium scoparium 'Blue Heaven'	Blue Heaven Little Bluestem Grass	1 gal.	30	30" T x 28" W
STD	Sporobolus heterolepis 'Tara'	Prairie Dropseed	1 gal.	3	15" T x 20" W

PERENNIALS	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY	REMARKS
ASB	Allium x 'Summer Beauty'	Summer Beauty Allium	4.5" Cont.	18" o.c.	16	18" T x 12" W
CAL	Calamintha nepeta	Calamint	4.5" cont.	16" o.c.	12	12" T x 18" W
CVZ	Coreopsis verticillata 'Zagreb'	Zagreb Coreopsis	4.5" cont.	16" o.c.	24	20" T x 16" W
GBC	Geranium x cantabrigiense 'Biokovo Carmina'	Biokovo Carmina Cranesbill	4.5" Cont.	24" o.c.	7	12" T x 18" W
GMT	Geum x 'Mai Tai'	Mai Tai Grecian Rose	4.5" Cont.	14" o.c.	29	16" T x 12" W
HPD	Hemerocallis x 'Purple D' orc'	Purple D' oro Daylily	4.5" Cont.	20" o.c.	23	18" T x 20" W
HPP	Heuchera m. 'Palace Purple'	Palace Purple Coral Bells	4.5" Cont.	18" o.c.	14	18" T x 18" W
SMN	Salvia nemorosa 'May Night'	May Night Sage	4.5" Cont.	18" o.c.	4	18" T x 18" W
SAJ	Sedum 'Autumn Joy'	Autumn Joy Sedum	4.5" Cont.	24" o.c.	14	12" T x 24" W

TURF	BOTANICAL NAME	COMMON NAME	QTY	REMARKS
	Turf Hydroseed	Reinders - Cadet 70/30 Fescue/Blue Mix	123,589 sf	
	Turf Hydroseed Low Grow	Reinders No Mow/Low Grow Mix	267,283 sf	

NOTES -INTERNAL ROADWAYS

- INSTALL TURF FROM EDGE OF ROAD OUT 10 FT
- INSTALL TURF LOW GROW FROM 10FT THROUGH AREA OF DISTURBANCE

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 100' 200'

CONSTRUCTION SET

LANDSCAPE OVERVIEW

PINNACLE ENGINEERING GROUP
ENGINEERING · NATURAL RESOURCES · SURVEYING
SCOTTSDALE OFFICE
20725 WATERTOWN ROAD SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888

DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

LANDSCAPE OVERVIEW

REVISIONS

CONSTRUCTION SET	09/27/22		

SHEET
L-1
to
L-4

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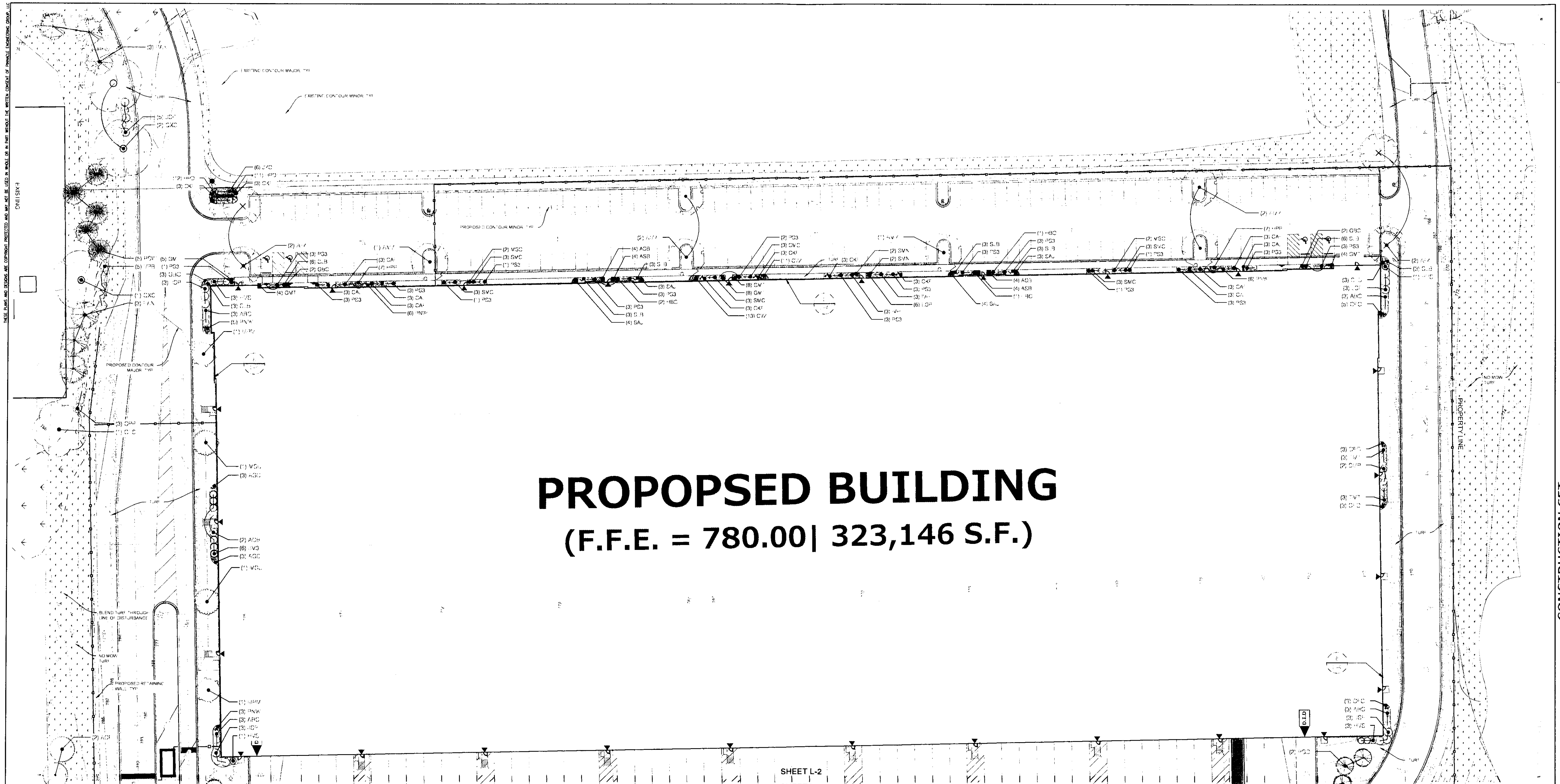

PLANT KEY

TREES	BOTANICAL / COMMON NAME	REMARKS
AF4	Acer freemanii 'Autumn Fantasy' / Autumn Fantasy Maple	50' T x 40' W
AM7	Acer saccharum 'Flax Mill Majesty' / Flax Mill Majesty Maple	55' T x 45' W
GTS	Gleditsia triacanthos inermis 'Shademaster' / Shademaster Locust	60' T x 50' W
QXS	Quercus x schuettii / Swamp Bur Oak	70' T x 65' W
TSS	Tilia tomentosa 'Sterling' / Sterling Silver Linden	45' T x 40' W
EVERGREEN TREES	**BOTANICAL / COMMON NAME**	**REMARKS**
ACF	Abies concolor / White Fir	40' T x 23' W
PAN	Picea abies / Norway Spruce	60' T x 28' W
PGD	Picea glauca 'Densata' / Black Hills Spruce	30' T x 15' W
PSW	Pinus strobus / White Pine	65' T x 30' W
ORNAMENTAL TREES	**BOTANICAL / COMMON NAME**	**REMARKS**
MPM	Malus x 'Prairie Maid' / Prairie Maid Crabapple	20' T x 25' W
MSU	Malus x 'Sugar Tyme' / Sugar Tyme Crabapple	25' T x 25' W
SHRUBS	**BOTANICAL / COMMON NAME**	**REMARKS**
ACB	Aronia arbutifolia 'Brilliantissima' / Brilliant Red Chokeberry	7' T x 6' W
ABC	Aronia melanocarpa 'Elata' / Glossy Black Chokeberry	5' T x 5' W
CPP	Cephalanthus occidentalis 'Ping Pong' / Ping Pong Buttonbush	8' T x 8' W
CAF	Cornus stolonifera 'Arctic Fire' / Arctic Fire Dogwood	3' T x 3' W
HVS	Hydrangea p 'Vanille Strawberry' / Vanilla Strawberry Hydrangea	6' T x 5' W
HBO	Hydrangea paniculata 'Bobo' / Bobo Hydrangea	3' T x 4' W
IVH	Itea virginica 'Little Henry' / Little Henry Sweetspire	3' T x 3' W
SMC	Spiraea japonica 'Magic Carpet' / Magic Carpet Spirea	2' T x 3' W
SMP	Syringa meyeri 'Palibin' / Dwarf Korean Lilac	5' T x 6' W
VPB	Viburnum prunifolium 'Blackhaw' / Blackhaw Viburnum	10' T x 10' W
EVERGREEN SHRUBS	**BOTANICAL / COMMON NAME**	**REMARKS**
JSP	Juniperus chinensis 'J.N. Select Blue' / Star Power Juniper	16' T x 8' W
JM3	Juniperus chinensis 'Mountbatten' / Mountbatten Juniper	15' T x 7' W
JYO	Juniperus horizontalis 'Youngstown' / Creeping Juniper	1' T x 6' W
PS3	Pinus mugo 'Slowmound' / Slowmound Mugo Pine	3' T x 3' W
TMT	Taxus x media 'Tauntonii' / Tauton Yew	4' T x 5' W

ORNAMENTAL GRASSES	BOTANICAL / COMMON NAME	REMARKS
AGD	Andropogon gerardii 'Dancing Wind' / Dancing Wind Big Blue Stem	36" T x 30" W
CKF	Calamagrostis x a 'Karl Foerster' / Karl Foerster Reed Grass	36" T x 24" W
CFO	Calamagrostis x a 'Overdam' / Overdam Reed Grass	24" T x 24" W
ESP	Eragrostis spectabilis / Purple Love Grass	24" T x 18" W
MSO	Miscanthus sinensis 'Oktoberfest' / Oktoberfest Miscanthus	48" T x 36" W
PNW	Panicum virgatum 'Northwind' / Northwind Switch Grass	42" T x 28" W
SLB	Schizachyrium scoparium 'Blue Heaven' / Blue Heaven Little Bluestem Grass	30" T x 28" W
STD	Sporobolus heterolepis 'Tara' / Prairie Dropseed	15" T x 20" W
PERENNIALS	**BOTANICAL / COMMON NAME**	**REMARKS**
ASB	Allium x 'Summer Beauty' / Summer Beauty Allium	18" T x 12" W
CAL	Calamintha nepeta / Calamint	12" T x 18" W
CVZ	Coreopsis verticillata 'Zagreb' / Zagreb Coreopsis	20" T x 16" W
GBC	Geranium x cantabrigiense 'Biokovo Carmina' / Biokovo Carmina Cranesbill	12" T x 18" W
GMT	Geum x 'Mai Tai' / Mai Tai Grecian Rose	16" T x 12" W
HPD	Hemerocallis x 'Purple D'oro' / Purple D'oro Daylily	16" T x 20" W
HPP	Heuchera m 'Palace Purple' / Palace Purple Coral Bells	18" T x 18" W
SMN	Salvia nemorosa 'May Night' / May Night Sage	18" T x 18" W
SAJ	Sedum 'Autumn Joy' / Autumn Joy Sedum	12" T x 24" W

TURF	BOTANICAL / COMMON NAME
(blank pattern)	Turf Hydroseed / Reinders - Cadet 70/30 Fescue/Blue Mix
(dotted pattern)	Turf Hydroseed Low Grow / Reinders No Mow/Low Grow Mix

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 30' 60'

PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

WISCONSIN OFFICE
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DEBACK FARMS - PAD F
CALEDONIA, WISCONSIN

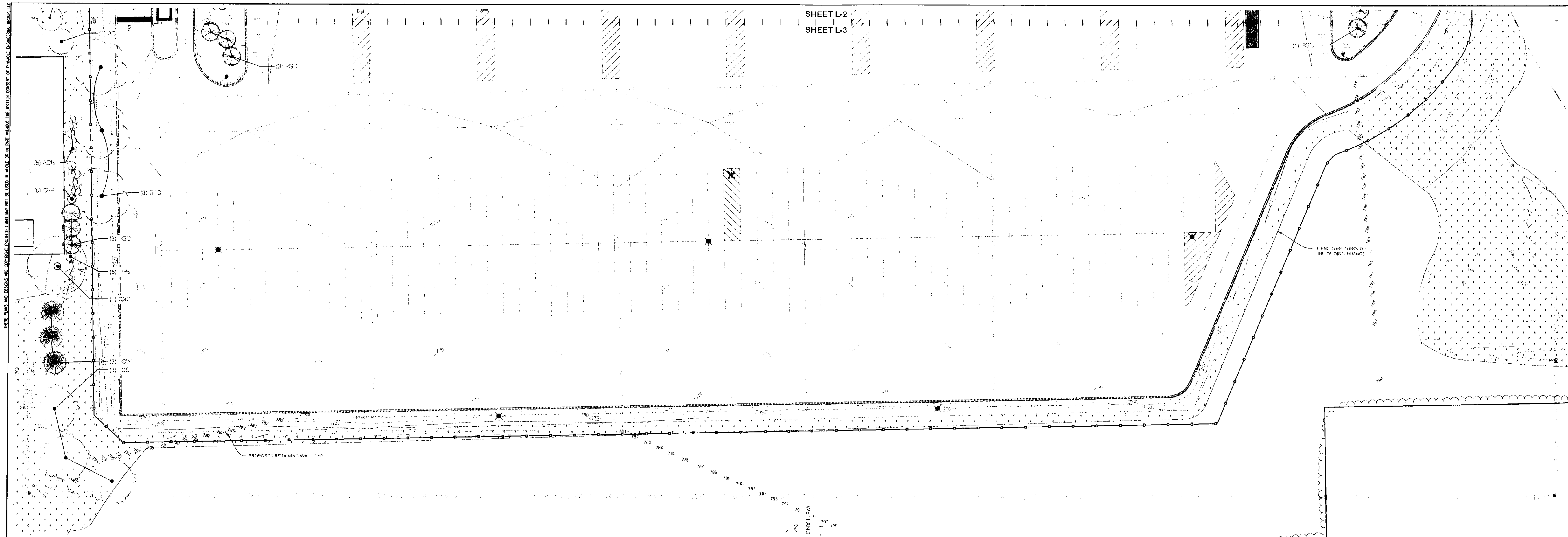
LANDSCAPE ENLARGEMENT

REVISIONS
CONSTRUCTION SET

SHEET L-2 of L-4

CONSTRUCTION SET

LANDSCAPE ENLARGEMENT



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NORTH

GRAPHICAL SCALE (FEET)

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PINNACLE ENGINEERING GROUP

DEBACK FARMS - PAD F

CALEDONIA, WISCONSIN

LANDSCAPE ENLARGEMENT

REVISIONS

SHEET L-3 of L-4

LANDSCAPE ENLARGEMENT

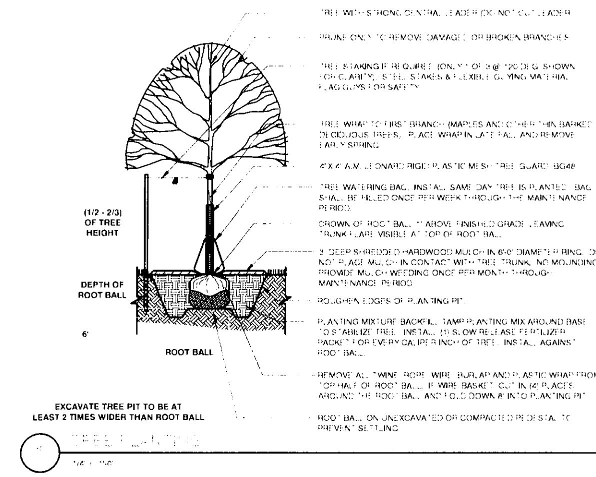
CONSTRUCTION SET

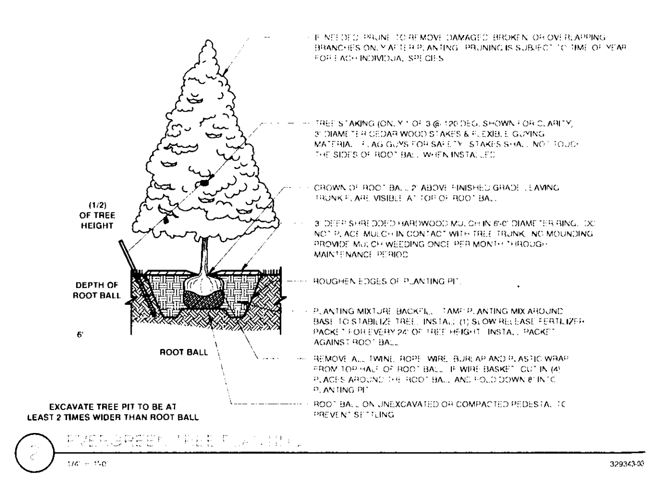
GENERAL PLANTING NOTES

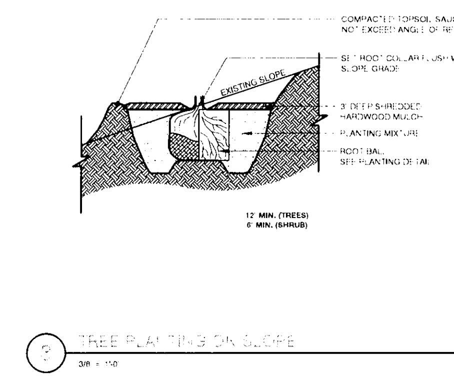
1. THE LAYOUT OF ALL PLANTING BEDS AND INDIVIDUAL TREES AND SHRUBS SHALL BE STAKED BY THE CONTRACTOR IN ADVANCE OF INSTALLATION. FLAGGING, STAKES OR PAINT MAY BE USED TO DELINEATE LOCATIONS AS SCALED FROM THE PLANS. AN APPROVED REPRESENTATIVE WILL REVIEW THESE LOCATIONS WITH THE CONTRACTOR AND MAKE MINOR ADJUSTMENTS AS NECESSARY. BED LAYOUT SHALL ALSO INCLUDE PERENNIAL GROUPINGS BY SPECIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR INDEPENDENTLY DETERMINING THE PLANT MATERIAL QUANTITIES REQUIRED BY THE LANDSCAPE PLANS. REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.
3. NO PLANT MATERIAL OR PLANT SIZE SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVAL BY THE LANDSCAPE ARCHITECT. ANY CHANGES SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT IN WRITING PRIOR TO INSTALLATION.
4. ALL BNB STOCK SHALL BE NURSERY GROWN IN A CLAY LOAM SOIL FOR A MINIMUM OF THREE GROWING SEASONS WITHIN 200 MILES OF PROJECT LOCATION. IN A ZONE COMPATIBLE WITH USDA HARDINESS ZONE 5A. SEED SHALL BE PROVIDED FROM A NURSERY (WITHIN 200 MILES) WITH A SIMILAR PLANT HARDINESS ZONE AS PROJECT LOCATION. EXISTING SOIL SHALL BE AMENDED PER SOIL ANALYSIS REPORT TO ENSURE A PROPER GROWING MEDIUM IS ACHIEVED.
5. ALL PLANT MATERIAL SHALL COMPLY WITH STANDARDS DESCRIBED IN AMERICAN STANDARD OF NURSERY STOCK - Z60.1 ANSI. LANDSCAPE ARCHITECT OR OWNERS AUTHORIZED REPRESENTATIVE RESERVES THE RIGHT TO INSPECT AND POTENTIALLY REJECT ANY PLANT MATERIAL DEEMED TO NOT MEET THE REQUIRED STANDARDS.
6. ALL STOCK SHALL BE FREE OF DISEASES AND HARMFUL INSECTS, DAMAGE, DISORDERS AND DEFORMITIES.
7. TREES SHALL HAVE SINGLE, STRAIGHT TRUNKS AND WELL BALANCED BRANCH SYSTEMS. MUTLI-STEM TREES SHALL HAVE 3-4 STRAIGHT TRUNKS AND WELL BALANCED BRANCH SYSTEMS. HEIGHT-TO-CALIPER RATIOS SHALL BE CONSISTENT WITH THE LATEST EDITION OF ANSI Z60.1.
8. ROOT SYSTEMS SHALL BE LARGE ENOUGH TO ALLOW FOR FULL RECOVERY OF THE TREE, AND SHALL CONFORM TO STANDARDS AS THEY APPEAR IN THE MOST CURRENT REVISION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD OF NURSERY STOCK ANSI Z60.1.
9. BNB TREES SHALL BE DUG WITH A BALL OF SOIL, NOT SOFT BALLED OR POTTED AND SHALL BE FIRM IN THEIR ROOTBALL. ROOT BALL SHALL BE WRAPPED (WITH BIODEGRADABLE MATERIAL). THE TREE ROOT FLARE, OR COLLAR, SHALL BE AT OR WITHIN THE TOP THREE INCHES OF GRADE.
10. ALL SPRING TREES MUST BE FRESHLY DUG IN THE MOST RECENT SPRING.
11. ALL AUTUMN TREES MUST BE FRESHLY DUG IN THE MOST RECENT AUTUMN.
12. TREES SHALL BE ALIVE, HEALTHY AND APPROPRIATELY MOIST, AT TIME OF DELIVERY. TREES SHALL BE SUBJECT TO INSPECTION FOR CONFORMITY TO SPECIFICATION REQUIREMENTS AND APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE. THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY TREES THAT DO NOT MEET THE SPECIFICATIONS OR THAT HAVE BEEN DAMAGED DURING SHIPMENT. THE LANDSCAPE INSTALLER MUST RECEIVE APPROVAL FROM LANDSCAPE ARCHITECT FOR ANY SUBSTITUTIONS OR ALTERATIONS.
13. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH PLANTING DETAILS.
14. ALL PLANTING BEDS SHALL HAVE A MINIMUM 10" DEPTH OF PREPARED SOIL. WITH APPROVAL, EXISTING SOIL MAY BE UTILIZED PROVIDED THE PROPER SOIL AMENDMENTS ARE TILLED THOROUGHLY INTO THE TOP 10" OF SOIL. REFER TO SOIL PLACEMENT NOTES.
15. WHILE PLANTING TREES AND SHRUBS, BACKFILL $\frac{2}{3}$ OF PLANTING HOLE AND WATER TREE THOROUGHLY BEFORE INSTALLING THE REMAINDER OF SOIL MIXTURE. AFTER ALL SOIL HAS BEEN PLACED INTO THE PLANTING HOLE WATER THOROUGHLY AGAIN.
16. THE CONTRACTOR MUST LABEL ALL TREES WITH THE COMMON AND BOTANICAL NAMES PRIOR TO FINAL INSPECTION.
17. OAK TREES SHALL BE TREATED FOR TWO-LINE CHESTNUT BORER BOTH AT THE TIME OF INSTALLATION AND DURING THE SECOND GROWING SEASON.
18. ALL PLANTING BEDS SHALL BE MULCHED WITH 3" DEEP SHREDDED HARDWOOD MULCH. AND ALL TREES PLANTED IN TURF AREAS SHALL RECEIVE A 3" DEEP SHREDDED HARDWOOD MULCHED RING AS SHOWN IN PLANTING DETAILS.
19. ALL PLANTING BEDS AND TREE RINGS SHALL HAVE A 4" DEEP TRENCHED BED EDGE CREATED BY EITHER A FLAT LANDSCAPE SPADE OR MECHANICAL EDGER. BED EDGES ARE TO BE CUT CLEAN AND SMOOTH AS SHOWN ON LANDSCAPE PLANS WITH A CLEAN DEFINITION BETWEEN TURF AND PLANTING AREAS.
20. ALL TURF SEED AREAS SHALL RECEIVE A MINIMUM OF 6" DEPTH OF TOPSOIL. WITH APPROVAL, EXISTING SOIL MAY BE UTILIZED PROVIDED THE PROPER SOIL AMENDMENTS ARE TILLED THOROUGHLY INTO THE TOP 6" OF SOIL AS INDICATED IN THE SOIL PLACEMENT NOTES. REQUIRED AMENDMENTS SHALL BE DETERMINED BASED ON A SOIL ANALYSIS TO BE PERFORMED. ALL TOPSOIL AMENDMENT SHALL BE AGED WEED FREE MANURE OR CLASS 1 ORGANIC MATTER.
21. FOR LAWN SEEDING, APPLY A STARTER FERTILIZER AND SEED UNIFORMLY AT THE RATE RECOMMENDED BY MANUFACTURER, AND PROVIDE A MULCH COVERING THAT IS SUITABLE TO PROMOTE SEED GERMINATION AND TURF ESTABLISHMENT. CONTRACTOR TO PROVIDE FERTILIZER, SEED AND MULCH SPECIFICATIONS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. EROSION CONTROL MEASURES ARE TO BE INSTALLED IN THOSE AREAS REQUIRING STABILIZATION (SWALES, SLOPES EXCEEDING 1:3, AND THOSE LOCATIONS INDICATED IN CIVIL DRAWINGS).
22. THE CONTRACTOR TO ENSURE A SMOOTH, UNIFORM QUALITY TURF IS ACHIEVED WITH NO BARE SPOTS LARGER THAN 6" X 6". ANY BARE SPOTS LARGER THAN 6" X6" AT THE END OF ESTABLISHMENT PERIOD SHALL BE RESEEDED AT THE CONTRACTORS EXPENSE TO OBTAIN A DENSE, UNIFORM LAWN.
23. ALL FINISH GRADING AND LAWN AREAS TO BE INSTALLED BY LANDSCAPE CONTRACTOR.
24. ALL DISTURBED AREAS WITHIN THE PROJECT SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
25. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
26. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES, INCLUDING ANY IRRIGATION LINES, PRIOR TO DIGGING. CONSULT DIGGERS HOTLINE.
22. TREES SHALL BE INSTALLED NO CLOSER THAN
   - -10 FEET FROM ANY FIRE HYDRANT
   - - 7 FEET FROM STORM SEWER, SANITARY SEWER LATERALS, AND WATER SERVICE
23. THE CONTRACTOR SHALL ENSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS.
24. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, AND LICENSES NECESSARY FOR THE INSTALLATION OF THIS PLAN.
25. THE CONTRACTOR IS TO REVIEW ALL SITE ENGINEERING DOCUMENTS PRIOR TO INSTALLATION. ANY CONFLICTS MUST BE REPORTED TO THE LANDSCAPE ARCHITECT. THESE LANDSCAPE DRAWINGS ARE FOR THE INSTALLATION OF PLANT MATERIALS ONLY UNLESS OTHERWISE STATED.
26. THE CONTRACTOR SHALL PROVIDE WATERING AND MAINTENANCE SERVICES FOR A PERIOD OF 60 DAYS TO ENSURE VEGETATIVE ESTABLISHMENT. UPON COMPLETION OF THE PROJECT, CONTRACTOR SHALL SUPPLY THE OWNER IN WRITING WITH ONGOING WATERING AND MAINTENANCE INSTRUCTIONS.
27. PLANT MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM TIME OF OWNER ACCEPTANCE, ONLY ONE REPLACEMENT PER PLANT WILL BE REQUIRED DURING THE WARRANTY PERIOD EXCEPT IN THE EVENT OF FAILURE TO COMPLY WITH THE SPECIFIED REQUIREMENTS.
28. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT A FINAL WALK THROUGH WITH THE LANDSCAPE ARCHITECT AND OR OWNERS REPRESENTATIVE TO ANSWER QUESTIONS, PROVIDE INSTRUCTIONS, AND ENSURE THAT PROJECT REQUIREMENTS HAVE BEEN MET.

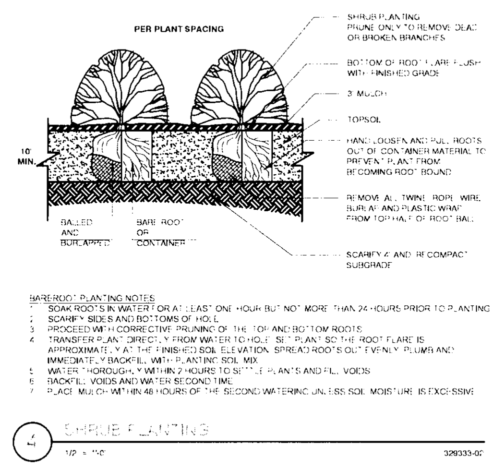
SOIL PLACEMENT NOTES

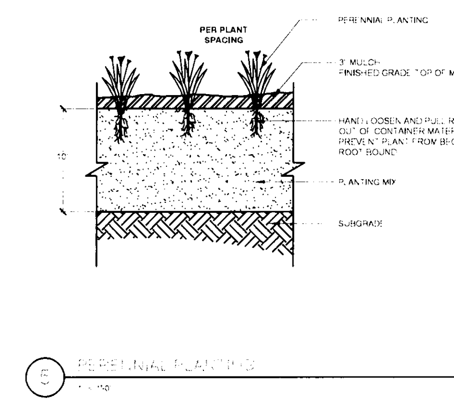
1. LOOSEN SUBGRADE TO A MINIMUM DEPTH INDICATED IN PLANTING NOTES USING A CULTI-MULCHER OR SIMILAR EQUIPMENT, AND REMOVE STONES MEASURING OVER 1-1/2 INCHES IN ANY DIMENSION, STICKS, RUBBISH AND OTHER EXTRANEOUS MATTER. AREAS ADJACENT TO WALKS AND PAVEMENT SHALL BE FREE OF EXCESS STONE AND PAVING MATERIALS SO AS TO PROVIDE AN UNINTERRUPTED CROSS SECTION OF SOIL. INTERNAL PARKING ISLANDS SHALL BE LOOSENED TO A DEPTH OF 30".
2. THOROUGHLY BLEND PLANTING SOIL MIX FOR PLANTING BED AREAS. (1 PART EXISTING SOIL, 1 PART TOPSOIL, 1 PART ORGANIC SOIL AMENDMENT, 2.9 POUNDS PER CUBIC YARD OF 4-4-4 ANALYSIS SLOW-RELEASE FERTILIZER)
3. TREE AND SHRUB HOLES SHALL BE FILLED WITH A PREPARED PLANTING MIXTURE OF 1 PART TOPSOIL, 2 PARTS PLANTING SOIL MIX.
4. SPREAD SOIL AND SOIL AMENDMENTS TO DEPTH INDICATED ON DRAWINGS, BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER NATURAL SETTLEMENT. (FINISH GRADE OF PLANTING BEDS SHALL BE 3" BELOW ALL ADJACENT SURFACES. FINISH GRADE OF TURF SEEDING AREAS SHALL BE 1" BELOW ALL ADJACENT HARD SURFACES, WALKS, AND CURBS.)
5. PLACE APPROXIMATELY 1/2 OF TOTAL AMOUNT OF SOIL REQUIRED. WORK INTO TOP OF LOOSENED SUBGRADE TO CREATE A TRANSITION LAYER, THEN PLACE REMAINDER OF THE SOIL. SOIL TRANSITION LAYER SHALL BE TILLED TO A MINIMUM DEPTH OF 6" BELOW THE DEPTH OF NEWLY PLACED SOIL. PARKING LOT ISLANDS SHALL BE CROWNED TO A HEIGHT OF 6" TO PROVIDE PROPER DRAINAGE UNLESS OTHERWISE NOTED.
6. DO NOT SPREAD IF PLANTING SOIL OR SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET.
7. FINISH GRADING: GRADE SOIL TO A SMOOTH, UNIFORM SURFACE PLANE WITH A LOOSE, UNIFORMLY FINE TEXTURE.
8. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES.
9. RESTORE PLANTING BEDS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING AND BEFORE PLANTING.

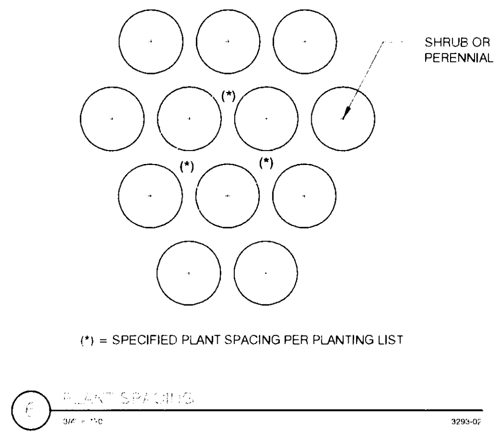


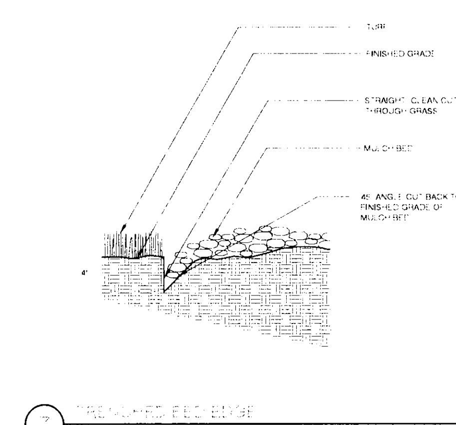


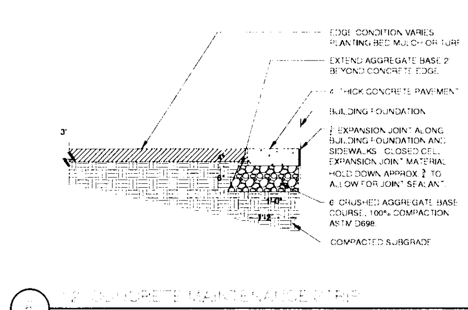












PINNACLE ENGINEERING GROUP

DEBACK FARMS - PAD F

CALEDONIA, WISCONSIN

LANDSCAPE GENERAL NOTES & DETAILS

REVISIONS

SHEET L-4 OF L-4

CONSTRUCTION SET

LANDSCAPE GENERAL NOTES & DETAILS

Village of
CALEDONIA

Office of the Utility Director
Anthony A. Bunkelman P.E.
5043 Chester Lane
Racine, WI 53402
www.caledonia-wi.gov

office: 262-835-6416
fax: 262-835-2388
email: abunkelman@caledonia-wi.gov

Thursday, April 22, 2021

Pinnacle Engineering Group
c/o Adam Artz P.E. & Todd Mueller P.E.
20725 W. Watertown Road Suite 100
Brookfield, WI 53186

RE: Scannell Properties - Storm Water Management Plan & Site Grading Plan Review

Dear Mr. Artz & Mr. Mueller:

The Caledonia Utility District has performed a review of the Storm Water Management Plan and related Utility Plans for the proposed Scannell Properties Development of Pad F at DeBack Farms Business Park. The Storm Water Management Plan is dated April 21, 2021 and the related Utility Plans are dated April 1, 2021. Below is a summary of the review comments.

- **Storm Water Management Plan**
  After discussion on April 20th, the Storm Water Management Plan Memo entitled "DeBack Farms – Pad F Stormwater Memorandum" dated April 21, 2021 is hereby approved for Phase 1 – General Mills.

Site/Utility Plans

- **Sanitary Sewer**
  The Sanitary Sewer portion of the plans have met the conditions of the prior review and are hereby approved for the Sanitary Sewer subject to the submittal of SEWRPC 208 letter for the private lateral, as necessary.

- **Watermain**
  The Watermain portion of the plans have met the conditions of the prior review and are hereby approved for the Watermain subject to the submittal of DNR Watermain extension approval.

- **Storm Sewer**
  - Field Inlet 43 has been changed from a 60" storm sewer to a 36" storm sewer. Will need to provide a Rim elevation for this inlet.

- **General Comments**
  - The 18" cmp which is proposed under the driveway access in the wetland area is proposed to be below the Normal Water Elevation of Pond 1 and/or the wetlands. This culvert should be RCP and be located at the 10-year water surface elevation of the wetlands (763.72) or above.

- Will need to provide any and all necessary permits for filling/disturbing of wetlands for this proposed project.
- On the Rip Rap Detail at End Sections will need to revise the detail so that the rip rap is not above the flow line of the RCP.
- Will need to provide a detail for the retaining walls for the site. In discussion with Morgan Harbor, it was indicated that the large retaining wall along the Southern portion of the site was going to need to be moved/redesigned so that it could be constructed. Will need to provide/include any updated plans for the retaining wall.
- The Utility District retains the right to additional review comments until the plans are approved.
- Once approved by the Caledonia Utility District, 2 stamped hard copies, 1 stamped electronic (pdf) copy, and the Storm Water Model file are to be submitted for the Storm Water Management Plan. 5 stamped hard copies and 1 stamped electronic (pdf) copy are to be submitted for the Site Grading Plan.

The Village of Caledonia Engineering Department has performed a review of the Site Grading Plan and related plan sheets for the proposed Scannell Development. The following comments have been provided for the issuance of a building permit. All questions in regard to the comments below shall be directed to Tom Lazcano, Public Works Director.

Sheet C-5

1. Will need details and specifications on retaining walls. *Will need to make sure that the Civil Plan retaining wall matches the General Contractors design.*
2. Will need to provide the Finished Yard Grades (FYG's) for the building and the guardhouse.

Sheet C-8

1. Recommend emergency overflow path at ridge opposite the southwest corner of the building by curb be lowered to 775.0 or even 774.0 to give 1' or 2' of free board from the lower loading dock elevations of 776.0. Could be higher if the FFE and FYG's are raised. *The triple inlets are great until one gets plugged. There will need to be a minimum of 1.0' of freeboard in this location.*
2. Side slopes are not to exceed 4:1 slopes. Will need to install swales around the proposed berms to drain internally on to the site. Swales shall have a minimum of 1' to 1.5' deep capacity with centerline slopes of no less than .8%. Give proposed swale centerline spot elevations. May need to shift north berm south to stay out of the wooded area. South berm swales will need to drain to a swale that will need to be installed along the back of the retaining wall. Size of berm may need to shrink. *Add a note: Daylight swale at a minimum 0.8% centerline slope. Add hook contours to reflect this.*
3. At the north and south DID loading ramps, will need to taper down 4' from 780 to 796.0 with side slopes not to exceed 4:1. *Will need to cross hatch or place a note that the slopes are paved.*

Sheet C-20

1. Give concrete apron detail for DeBack Drive approach access (area in ROW). *Add note with Concrete Pavement thickness and base thickness. Recommend 8" concrete over 6" 1-1 4" CABC Dense.*

Sheet C-21

1. Need retaining wall details, plans, and specifications. *Layout could be affected by wall tie backs.*

If there are any questions on this review, please contact Tom Lazcano or myself me to discuss.

Sincerely.

Anthony A. Bunkelman P.E.
Utility Director
Village of Caledonia

Village of
CALEDONIA

Office of the Utility Director
Anthony A. Bunkelman P.E.
5043 Chester Lane
Racine, WI 53402
www.caledonia-wi.gov

office 262-835-6416
fax 262-835-2388
email abunkelman@caledonia-wi.gov

Friday, April 23, 2021

Pinnacle Engineering Group
c/o Adam Artz P.E. & Todd Mueller P.E.
20725 W. Watertown Road Suite 100
Brookfield, WI 53186

RE: Scannell Properties - Storm Water Management Plan & Site Grading Plan Conditional Approval

Dear Mr. Artz & Mr. Mueller:

The Village of Caledonia and the Caledonia Utility District have agreed to a conditional approval of the DeBack Farms – Pad F Plans dated April 1, 2021 pursuant to our Teams Meeting held on April 23, 2021. The intent of this approval is to allow the owner to begin earth moving operations for the site. The conditions of the approval are listed below.

- Field Inlet 43, Will need to provide a Rim elevation for this inlet.
- The temporary 18" cmp will have the inverts determined by interpolating the contours on the inlet side and then the slope on the pipe shall be flattened out to 0.5%.
- All Retaining Wall information will be supplied to the Village by Morgan/Harbour upon completion of the wall design plans. Retaining wall tie back concern to be alleviated by shifting the retaining wall to the north.
- The Finished Yard Grade on the building shall be the Finished Floor elevation. Morgan/Harbour shall provide positive drainage away from the Guardhouse.
- To alleviate freeboard concerns during possible clogging conditions at the triple inlet South of the building, the grate will be changed to a larger Neenah grate and Inlet Capacity calculations will be provided with the updated plans.
- Upon designing the retaining wall shift, Pinnacle will verify that the required swale on top of the retaining wall flows at minimum 0.8% centerline slope.
- A Note will be added to grading plan stating that loading dock slopes are concrete paved.
- Concrete apron section as recommended will be added to the Detail on C-20.
- The Land Disturbance Permit short form (signed) has been submitted and appropriate fee paid as of this morning. The Land Disturbance Permit long form application has been supplied by the Village, the Village will attach it to the signed short form already submitted when received. Village will use the April 1, 2021 plans to perform the Erosion Control review.
- Pinnacle agrees to implement all the above modifications into a "Construction Set" along with any additional erosion control measures required by the Village which will be supplied to Pinnacle next week.

If there are any questions on this review, please contact Tom Lazcano or myself me to discuss.

Sincerely,

Anthony A. Bunkelman P.E.
Utility Director
Village of Caledonia

MEMORANDUM

DATE: **Wednesday, April 28, 2021**

TO: **Caledonia Utility District**

FROM: **Anthony A. Bunkelman P.E.**
Utility Director

RE: **Westview Village Drainage Analysis**

BACKGROUND INFORMATION

Westview Village Residents at the intersection of Clover Lane and Rudolph Drive contacted the Village Administrator in regard to extreme flooding and high-water levels across the road within their subdivision during the August 10th, 2020 rain event. Several of the homes in the immediate area had basement flooding from the high-water levels. In looking at the infrastructure and the drainage area there was concerns that the existing storm sewer may not be adequate. According to the residents the area floods multiple times per year. There also was a concern from the residents that additional development within Mount Pleasant has made the problem worse.

To analyze the drainage area and the storm sewer system there were several questions that needed to be reviewed. What is the capacity of the existing storm sewer system? What is the drainage area contributing to the storm sewer? What is the capacity of the Highway 38 culverts? What is the required pipe size and configuration necessary to eliminate the flooding that has historically taken place?

We had a Drainage analysis performed to answer the various questions. What was found was that the upper end of the system could only handle a 5-year storm event and the remainder of the system could handle a 25-year storm event. Design practice has been that the system conveys a 10-year storm event with the 100-year storm event checked for depth of flooding in roadways. The area that is contributing to the storm sewer system is approximately 108 acres in size (18 acres from Mount Pleasant & 39 acres offsite from Caledonia). We also found out that the road culverts under Highway 38 are sized for a 100-year storm event so there is little detention on the South side of Highway 38. As a remedy for the historical flooding issues the existing 24" storm sewer at the intersection of Clover Lane and Rudolph Drive should be upsized to a 36" storm sewer, the storm sewer lowered as necessary to provide consistent slope and the overgrown swale between the homes from Highway 38 be cleaned, as necessary.

RECOMMENDATION

Move to prepare storm sewer plans and swale cleaning plans as necessary to correct the historical flooding issue at Clover Lane & Rudolph Drive.

Foth Infrastructure & Environment, LLC
Memorandum

Tuesday, March 9, 2021

TO: Anthony Bunkleman, PE-Utility Director-Village of Caledonia.

CC: Andy Schultz, PE-Foth Infrastructure Solutions.

FR: Ryan W. Kloth, PE, CFM-Foth Infrastructure Solutions.

RE: Village of Caledonia, WI-Westview Village-Drainage Analysis.

Tony,

The following is a summary of the drainage analysis we performed for the existing Westview Village development in the Village of Caledonia. The purpose of the analysis was to answer the following questions:

- What is the capacity of the existing system?
- What is the drainage area that goes to the storm sewer?
- What is the capacity of the pipes under STH 38?
- What is required pipe size/configuration to remove the flooding that has historically taken place at the southwest portion of the development?

Introduction

SewerGEMS, a hydraulic model developed by Bentley Systems, Inc., was used for the analysis. SewerGEMS uses drainage area, land cover, and rainfall to calculate flows through a system during a multitude of storm events. Drainage areas for each intake within the existing system were determined using field surveyed elevations along with Lidar topography and aerial imagery. Approximately 108 acres of land drain to the existing system. It is important to note that of the 108 acres, approximately 18 acres drains to this development from the Village of Mount Pleasant to the south. Approximately 39 acres drains to the development from offsite areas within the Village of Caledonia. Exhibit 1 contains a drawing showing the drainage areas for the existing system.

Land Cover for each area, used to calculate the rational co-efficient for each drainage area was also determined from aerial imagery. When the individual land cover types are determined for each drainage area, a composite co-efficient is calculated and input into the model. Rainfall for this specific area was taken from the NOAA Atlas 14 Point Procedure Frequency Estimates website. Within this website, rainfall depth and intensity is provided for a specific area. These are provided in a table; the table contains data that is part of an IDF (Intensity Duration Frequency) Curve which is imported into the model. Exhibit 2 contains the table showing the specific rainfall data used.

For the analysis, storm events from the 1-Year storm event through the 100-Year storm event were used. Field survey along with structure measure downs were used to construct the existing condition model skeleton. Drainage Area information and rainfall data were assigned to each intake. The existing conditions model was then run under the different storm events. SewerGEMS generates profiles of the drainage system showing the Hydraulic Grade Line.

Existing Conditions

The specific area which has historically flooded during large storm events is located at the southwest portion of the development; specifically where Rudolph Drive turns into Clover Lane. The results of the existing condition modeling indicate that the overall capacity of the existing system located at the southwest end of the development is the 5-Year storm event; the capacity of the remainder of the system is the 25-Year storm event. The runoff from the approximately 18 acres that drains to this development, is conveyed via an existing 36" RCP underneath STH 38. The runoff contributing to the development from offsite areas of Caledonia are conveyed via 24" pipes underneath Newman Road. The capacity of the 36" pipe from Mount Pleasant is the 100-Year storm event; the capacity of the 24" pipes is approximately a 25-Year event. Exhibit 3 contains profiles within the existing conditions model and the model schematic.

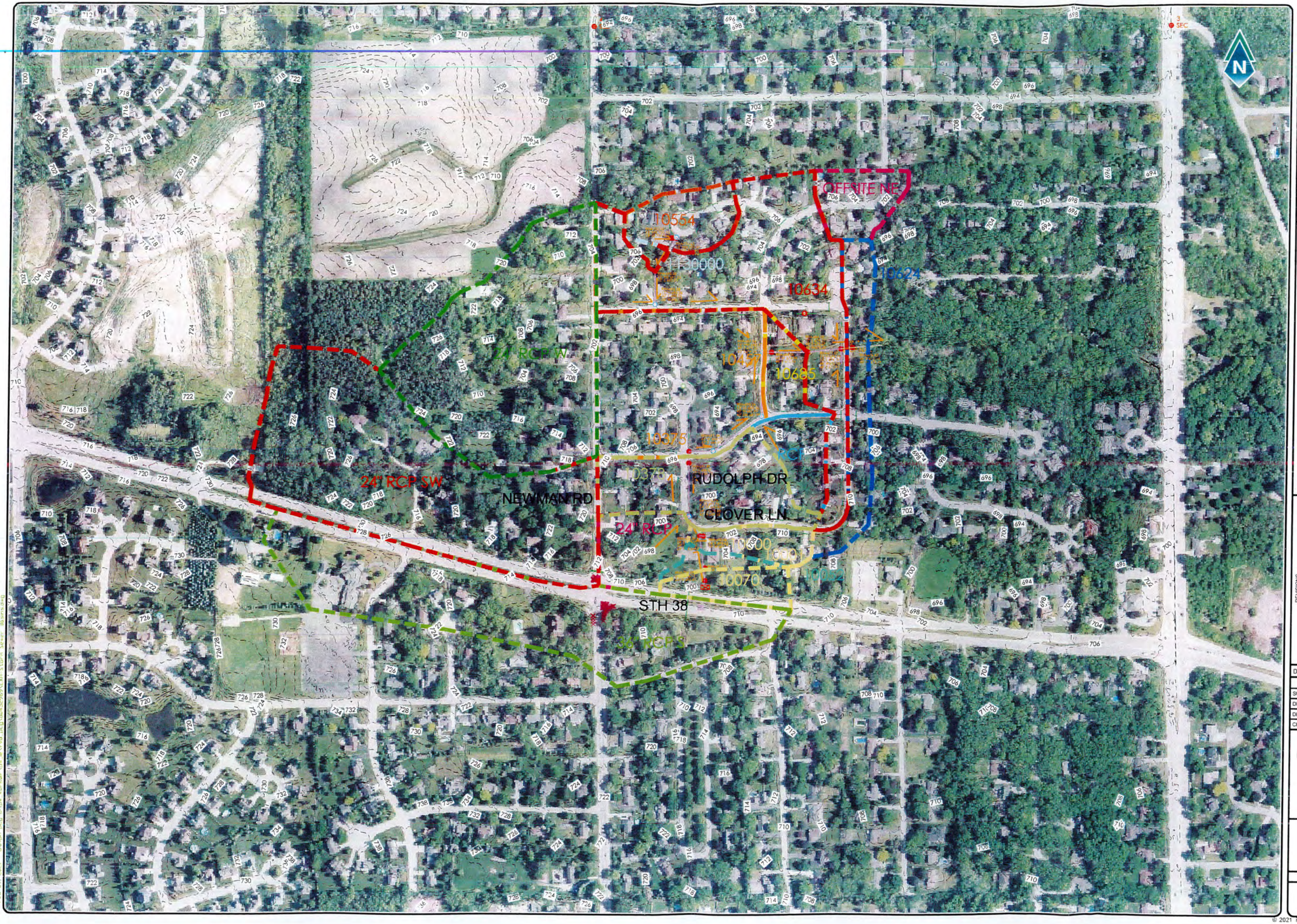
Proposed Conditions

We created a proposed conditions model to determine what revisions to the existing drainage system at the southwest corner of the development would be required to alleviate the historic flooding. After reviewing several alternatives, we determined that the alternative that would alleviate flooding at this location is an upsize and relay of the existing storm sewer system which collects runoff from the 36" sewer underneath STH 38. The modeling has shown that this 24-inch storm sewer cannot convey runoff from the 36-inch storm sewer and creates a surcharged condition. There is also an existing 8-inch storm lateral that connects an existing area drain (Inlet 10052) to the 24-inch sewer. The area drain grate and 8-inch sewer have minimal capacity and contribute to the flooding. Details of the proposed conditions solution are:

Solution

- Removal of existing Inlet 10052 and associated 8-inch storm lateral that ties into the existing 24-inch storm sewer. The runoff that currently drains to Inlet 10052 will drain to Inlet 10070 under proposed conditions. Exhibit 4 contains the schematic for the proposed conditions model as well as the proposed conditions profiles.
- Upsizing of the existing storm sewer from MH 10391 to the outlet from a 24-inch storm sewer to a 36-inch storm sewer.
- Dropping the intake of the proposed sewer one foot when compared to existing conditions; allowing for adequate cover over the storm sewer. The proposed 36-inch storm sewer will be constructed at a consistent slope from the intake to MH 10391. Please see Exhibit 6.
- Remove vegetative overgrowth and debris from the existing ditch containing runoff entering the development from the southwest.

EXHIBIT 1-Existing Drainage Areas



Foth
Foth Infrastructure & Environment, LLC
2514 S. 102nd Street
Suite 278, Lincoln Center II
West Allis, WI 53227
Phone: 414-336-7900 Fax: 414-336-7901

WESTVIEW VILLAGE DRAINAGE STUDY

CALEDONIA STORMWATER UTILITY

VILLAGE OF CALEDONIA, WISCONSIN

RACINE COUNTY

REVISIONS			
NO.	BY	DATE	DESCRIPTION
△			
△			
△			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.

BY _____

DATE _____

Date of Preparation: FEBRUARY 9, 2021

	BY	DATE
SURVEYED	AJM1	11/11/2020
DRAWN	PCG	02/09/2021
DESIGNED	RWK	02/09/2021
CHECKED	RWK	02/09/2021

STORM SEWER BASIN DELINEATION

CIVIL

0 200 FEET

PROJECT ID 20C030.11

EXH1

SHEET . OF X

EXHIBIT 2-Rainfall Data

NOAA Atlas 14, Volume 8, Version 2
Location name: Racine, Wisconsin, USA*
Latitude: 42.7564°, Longitude: -87.8442°
Elevation: 699.94 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	3.92 (3.28-4.82)	4.64 (3.88-5.72)	5.84 (4.86-7.20)	6.84 (5.65-8.45)	8.22 (6.58-10.4)	9.30 (7.28-11.8)	10.4 (7.87-13.4)	11.5 (8.38-15.1)	12.9 (9.11-17.3)	14.1 (9.66-19.0)
10-min	2.87 (2.40-3.53)	3.40 (2.84-4.19)	4.28 (3.56-5.27)	5.01 (4.14-6.19)	6.02 (4.82-7.60)	6.80 (5.33-8.66)	7.60 (5.77-9.82)	8.40 (6.13-11.0)	9.47 (6.67-12.7)	10.3 (7.07-13.9)
15-min	2.34 (1.95-2.87)	2.77 (2.31-3.40)	3.48 (2.89-4.28)	4.07 (3.37-5.03)	4.89 (3.92-6.17)	5.53 (4.34-7.04)	6.18 (4.68-7.98)	6.83 (4.98-8.98)	7.70 (5.42-10.3)	8.37 (5.75-11.3)
30-min	1.64 (1.37-2.02)	1.95 (1.63-2.40)	2.46 (2.05-3.03)	2.89 (2.39-3.57)	3.47 (2.78-4.38)	3.93 (3.07-4.99)	4.38 (3.32-5.66)	4.84 (3.53-6.37)	5.45 (3.84-7.30)	5.92 (4.07-8.01)
60-min	1.04 (0.867-1.28)	1.26 (1.05-1.55)	1.62 (1.35-2.00)	1.92 (1.59-2.38)	2.35 (1.88-2.97)	2.68 (2.10-3.41)	3.01 (2.29-3.90)	3.36 (2.45-4.42)	3.82 (2.69-5.12)	4.17 (2.86-5.64)
2-hr	0.629 (0.530-0.764)	0.770 (0.650-0.936)	1.00 (0.844-1.22)	1.20 (1.01-1.47)	1.48 (1.20-1.85)	1.70 (1.35-2.14)	1.92 (1.47-2.46)	2.15 (1.59-2.80)	2.45 (1.75-3.25)	2.69 (1.87-3.60)
3-hr	0.463 (0.393-0.558)	0.569 (0.483-0.686)	0.747 (0.632-0.902)	0.899 (0.756-1.09)	1.12 (0.910-1.39)	1.29 (1.03-1.61)	1.46 (1.13-1.86)	1.64 (1.23-2.13)	1.89 (1.36-2.50)	2.08 (1.46-2.77)
6-hr	0.279 (0.239-0.332)	0.335 (0.287-0.399)	0.433 (0.370-0.516)	0.518 (0.440-0.619)	0.642 (0.533-0.792)	0.743 (0.602-0.923)	0.850 (0.667-1.07)	0.962 (0.728-1.24)	1.12 (0.816-1.46)	1.24 (0.883-1.63)
12-hr	0.168 (0.146-0.197)	0.193 (0.167-0.227)	0.238 (0.205-0.280)	0.278 (0.239-0.329)	0.340 (0.287-0.416)	0.393 (0.323-0.483)	0.449 (0.358-0.561)	0.509 (0.391-0.648)	0.596 (0.442-0.772)	0.666 (0.480-0.866)
24-hr	0.099 (0.086-0.114)	0.111 (0.097-0.129)	0.134 (0.117-0.155)	0.155 (0.134-0.180)	0.186 (0.159-0.225)	0.213 (0.178-0.259)	0.243 (0.196-0.300)	0.274 (0.214-0.345)	0.320 (0.240-0.410)	0.357 (0.261-0.458)
2-day	0.055 (0.049-0.063)	0.063 (0.056-0.073)	0.078 (0.069-0.089)	0.090 (0.079-0.104)	0.108 (0.093-0.128)	0.123 (0.104-0.147)	0.139 (0.113-0.169)	0.156 (0.123-0.193)	0.179 (0.136-0.226)	0.198 (0.146-0.251)
3-day	0.040 (0.036-0.046)	0.046 (0.041-0.052)	0.056 (0.050-0.064)	0.065 (0.057-0.074)	0.078 (0.067-0.091)	0.088 (0.075-0.104)	0.099 (0.081-0.119)	0.111 (0.088-0.136)	0.127 (0.097-0.159)	0.139 (0.104-0.176)
4-day	0.033 (0.029-0.037)	0.037 (0.033-0.042)	0.045 (0.040-0.051)	0.052 (0.046-0.058)	0.061 (0.053-0.072)	0.069 (0.059-0.082)	0.078 (0.064-0.093)	0.087 (0.069-0.106)	0.099 (0.076-0.123)	0.109 (0.082-0.137)
7-day	0.022 (0.020-0.024)	0.025 (0.022-0.028)	0.030 (0.027-0.033)	0.034 (0.030-0.038)	0.040 (0.035-0.046)	0.045 (0.038-0.052)	0.050 (0.042-0.059)	0.055 (0.044-0.067)	0.063 (0.049-0.077)	0.068 (0.052-0.085)
10-day	0.017 (0.016-0.019)	0.020 (0.018-0.022)	0.023 (0.021-0.026)	0.026 (0.024-0.029)	0.031 (0.027-0.035)	0.034 (0.030-0.040)	0.038 (0.032-0.045)	0.042 (0.034-0.050)	0.047 (0.037-0.058)	0.051 (0.039-0.063)
20-day	0.012 (0.011-0.013)	0.013 (0.012-0.014)	0.015 (0.014-0.017)	0.017 (0.016-0.019)	0.020 (0.017-0.022)	0.022 (0.019-0.024)	0.024 (0.020-0.027)	0.026 (0.021-0.030)	0.028 (0.022-0.034)	0.030 (0.023-0.037)
30-day	0.010 (0.009-0.011)	0.011 (0.010-0.012)	0.013 (0.012-0.014)	0.014 (0.013-0.015)	0.016 (0.014-0.017)	0.017 (0.015-0.019)	0.018 (0.016-0.021)	0.020 (0.016-0.023)	0.021 (0.017-0.026)	0.023 (0.018-0.028)
45-day	0.008 (0.008-0.009)	0.009 (0.008-0.010)	0.010 (0.010-0.011)	0.012 (0.011-0.012)	0.013 (0.012-0.014)	0.014 (0.012-0.015)	0.015 (0.013-0.017)	0.016 (0.013-0.018)	0.017 (0.014-0.020)	0.018 (0.014-0.021)
60-day	0.007 (0.007-0.008)	0.008 (0.008-0.009)	0.009 (0.009-0.010)	0.010 (0.009-0.011)	0.011 (0.010-0.012)	0.012 (0.011-0.013)	0.013 (0.011-0.014)	0.014 (0.011-0.016)	0.014 (0.012-0.017)	0.015 (0.012-0.018)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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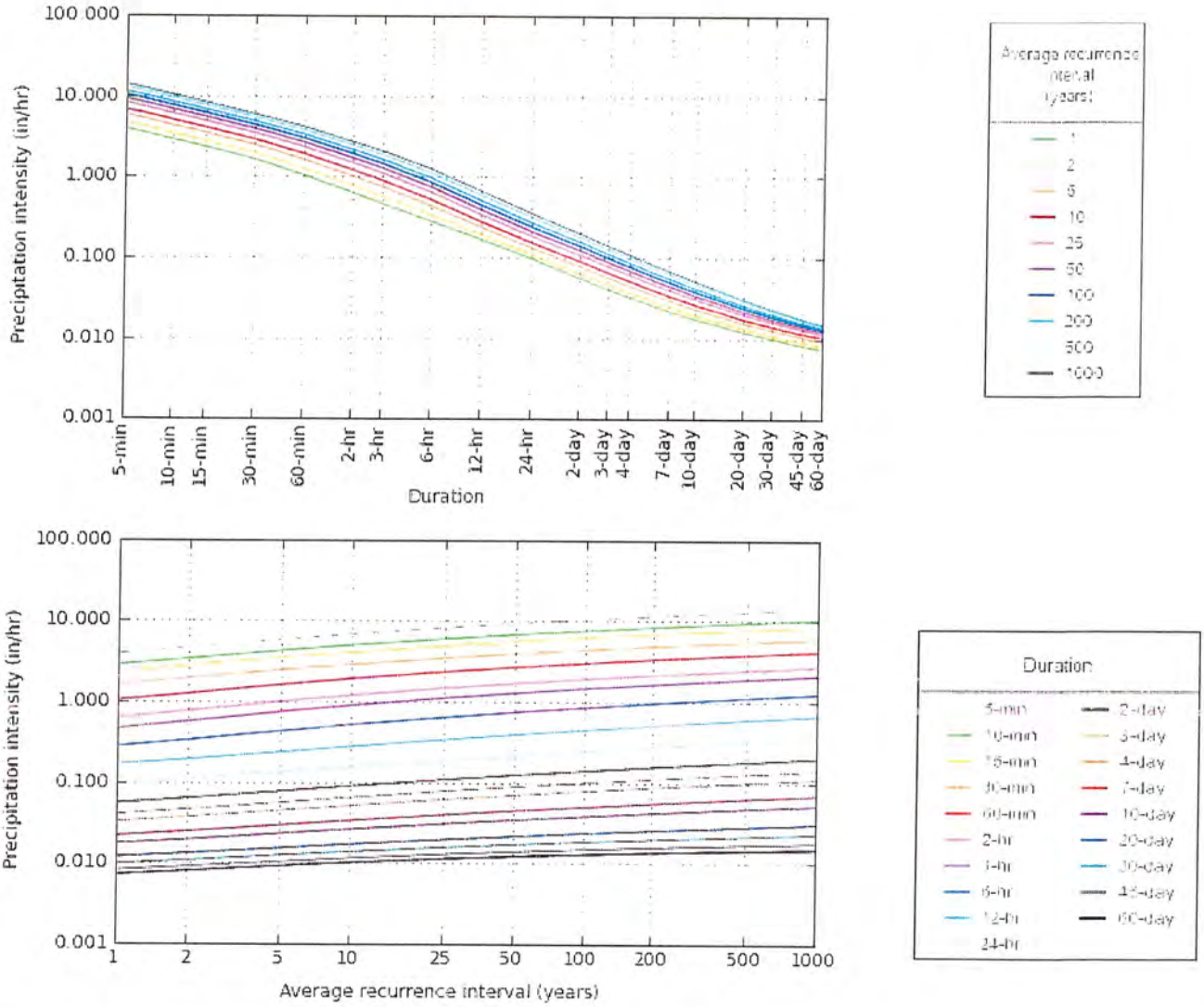
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 42.7564°, Longitude: -87.8442°

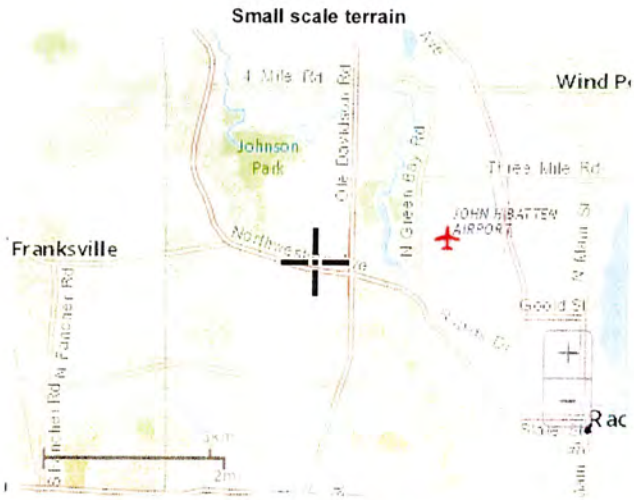


NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Wed Feb 10 20:35:19 2021

Maps & aerials

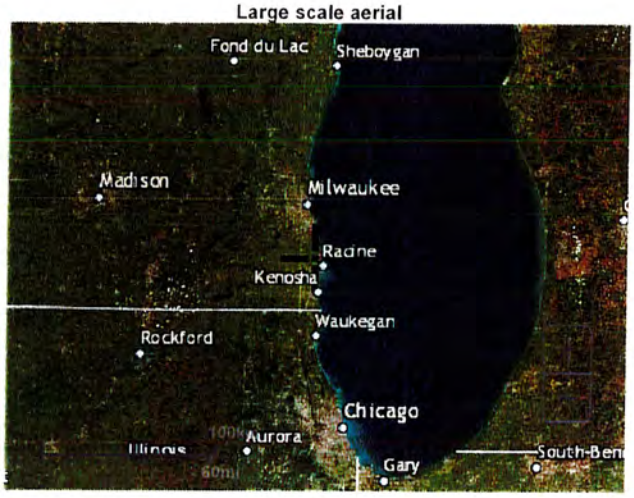
Small scale terrain



Large scale terrain

Large scale map

Large scale aerial



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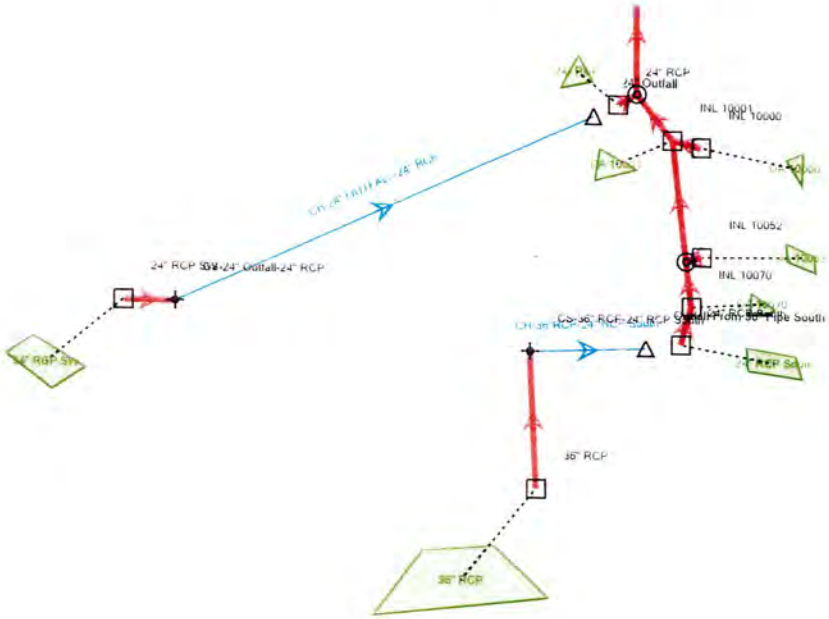
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions? HDSC.Questions@noaa.gov

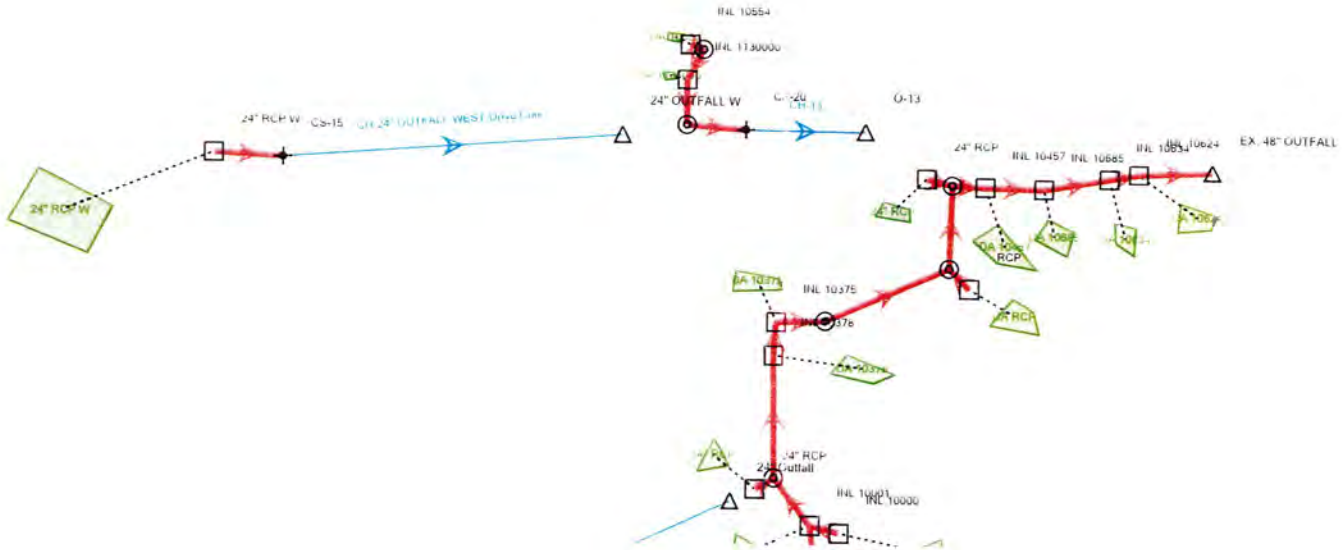
Disclaimer

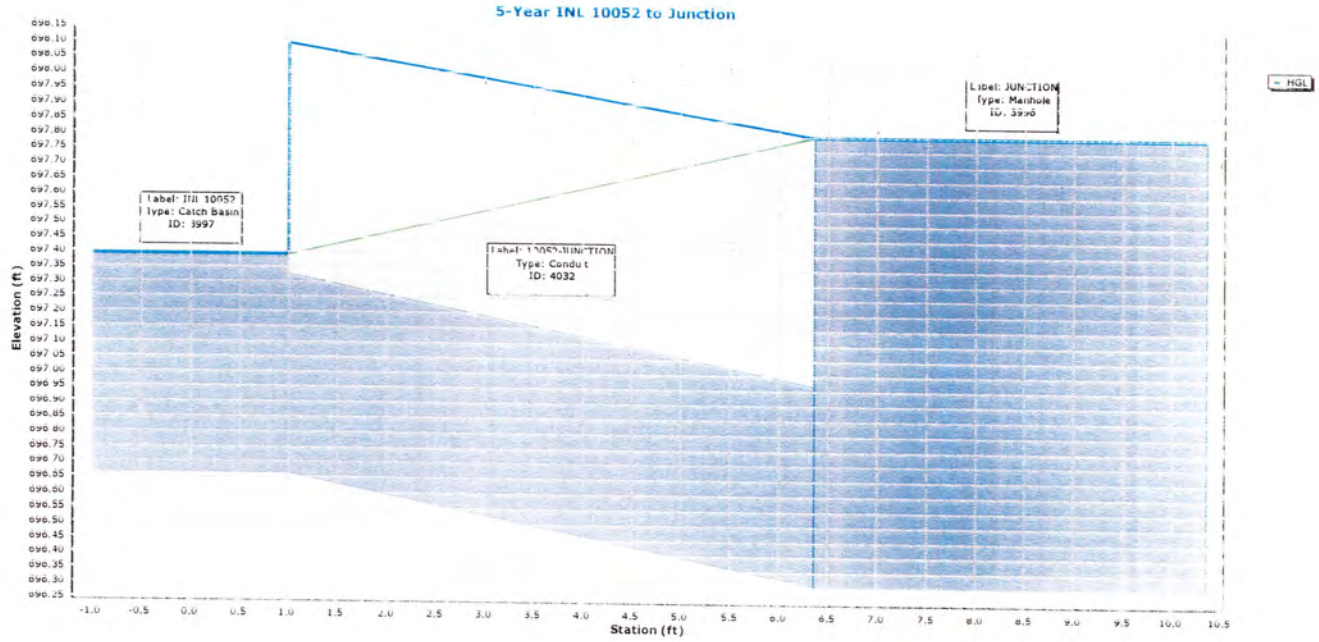
EXHIBIT 3-Existing Conditions Schematic and Profiles

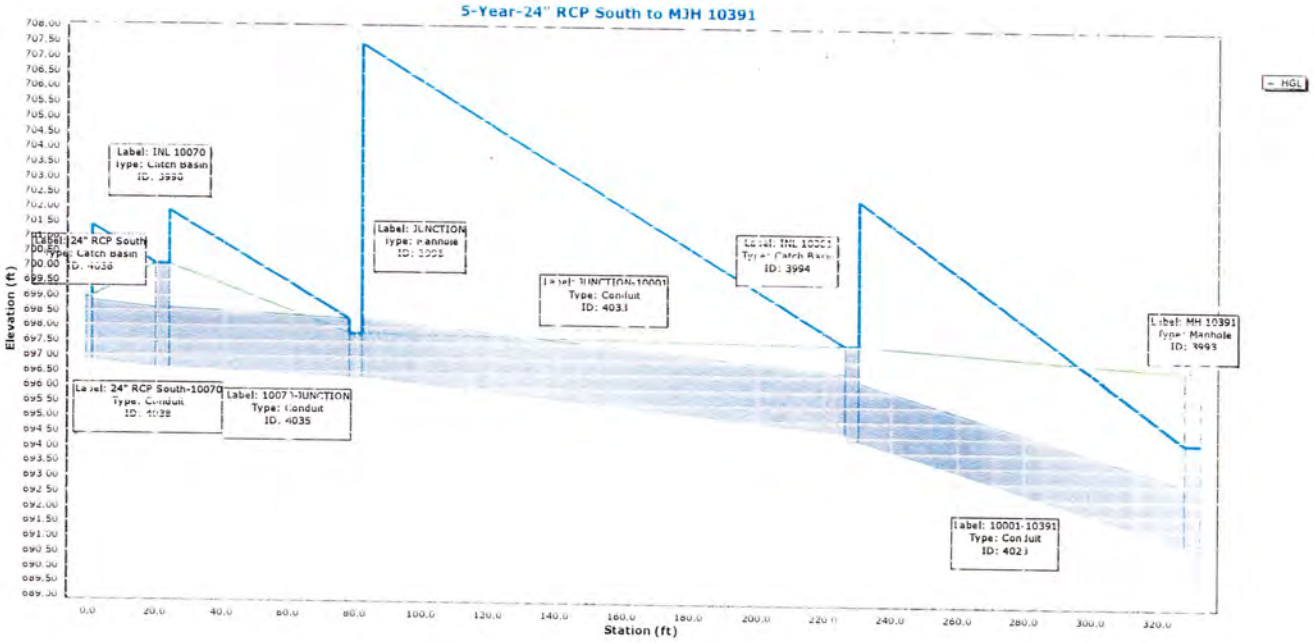
Scenario: Base

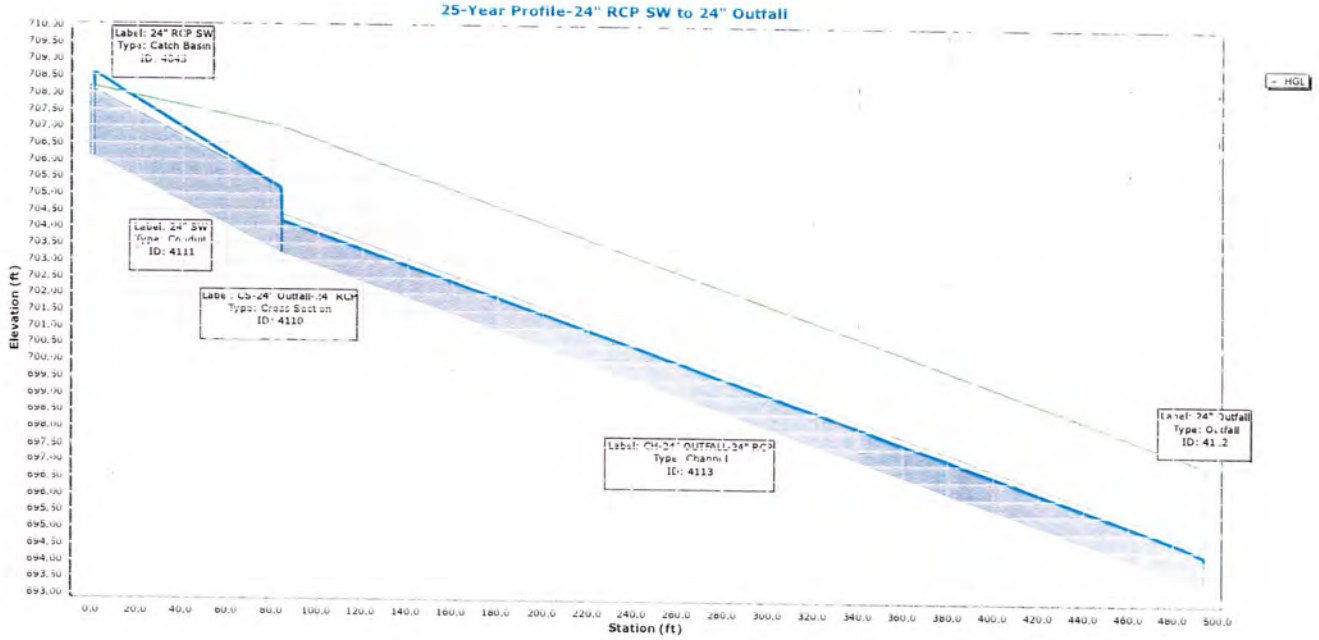


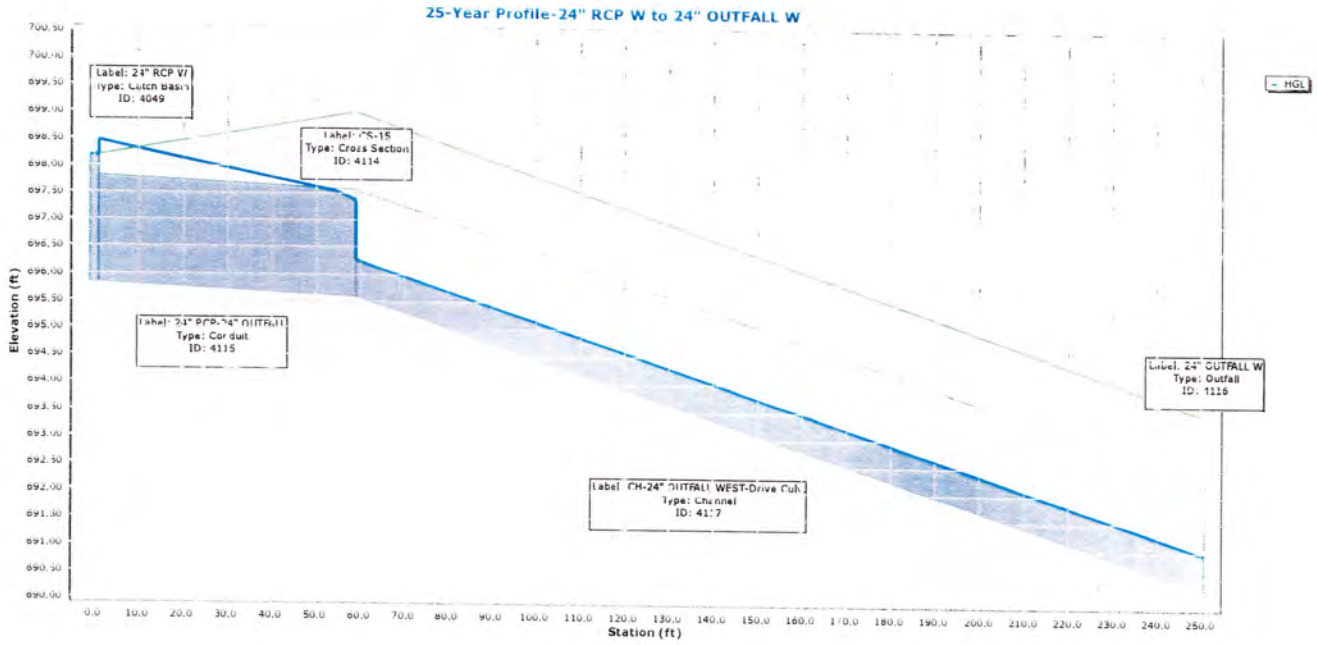
Scenario: Base




5-Year INL 10052 to Junction
Label: INL 10052
Type: Catch Basin
ID: 3997
Label: JUNCTION
Type: Manhole
ID: 3998
Type: Conduit
ID: 4032
HGL
Elevation (ft)
Station (ft)


5-Year-24" RCP South to MJH 10391
Elevation (ft)
Station (ft)
HGL
Label: INL 10070
Type: Catch basin
ID: 3990
Label: 24" RCP South
Type: Catch basin
ID: 4038
Label: JUNCTION
Type: Manhole
ID: 3991
Label: JUNCTION-10001
Type: Conduit
ID: 4031
Label: INL 10001
Type: Catch Basin
ID: 3994
Label: MH 10391
Type: Manhole
ID: 3993
Label: 24" RCP South-10070
Type: Conduit
ID: 4032
Label: 10070-JUNCTION
Type: Conduit
ID: 4035
Label: 10001-10391
Type: Conduit
ID: 4023


25-Year Profile-24" RCP SW to 24" Outfall
Label: 24" RCP SW
Type: Catch Basin
ID: 4045
Label: 24" SW
ID: 4111
Label: CB-24" Outfall-24" RCP
Type: Cross Section
ID: 4110
Label: CH-24" OUTFALL-24" RCP
Type: Channel
ID: 4113
Label: 24" Outfall
Type: Outfall
ID: 4112
HGL
Elevation (ft)
Station (ft)


25-Year Profile-24" RCP W to 24" OUTFALL W
Elevation (ft)
Station (ft)
HGL
Label: 24" RCP W
Type: Catch Basin
ID: 4049
Label: CS-15
Type: Cross Section
ID: 4114
Label: 24" RCP-24" OUTFALL
Type: Conduit
ID: 4115
Label: 24" OUTFALL W
Type: Outfall
ID: 1116
Label: CH-24" OUTFALL WEST-Drive Cul
Type: Channel
ID: 4117

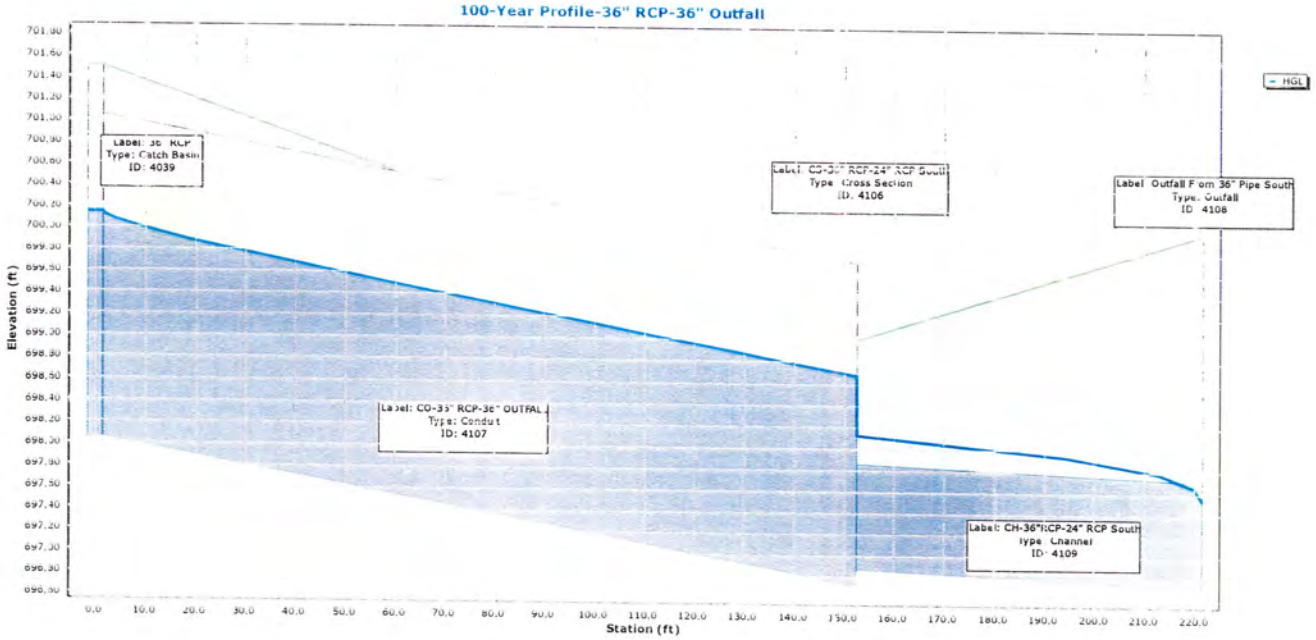
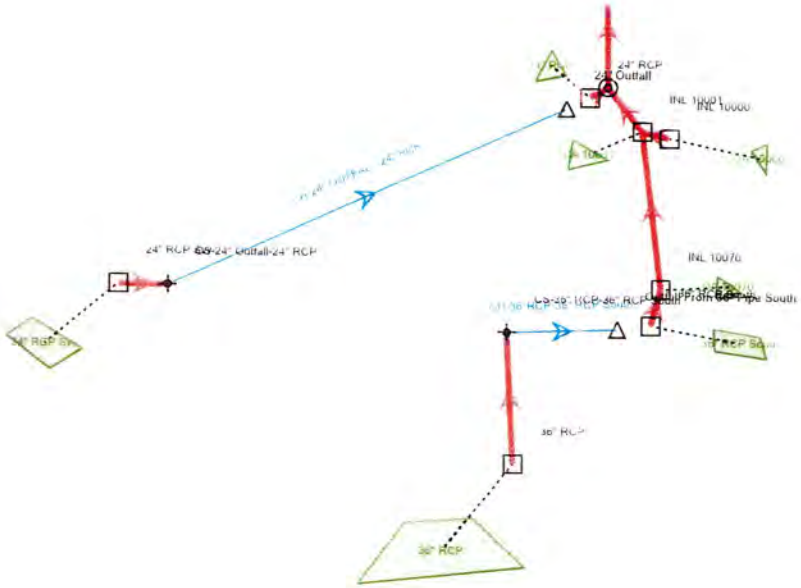
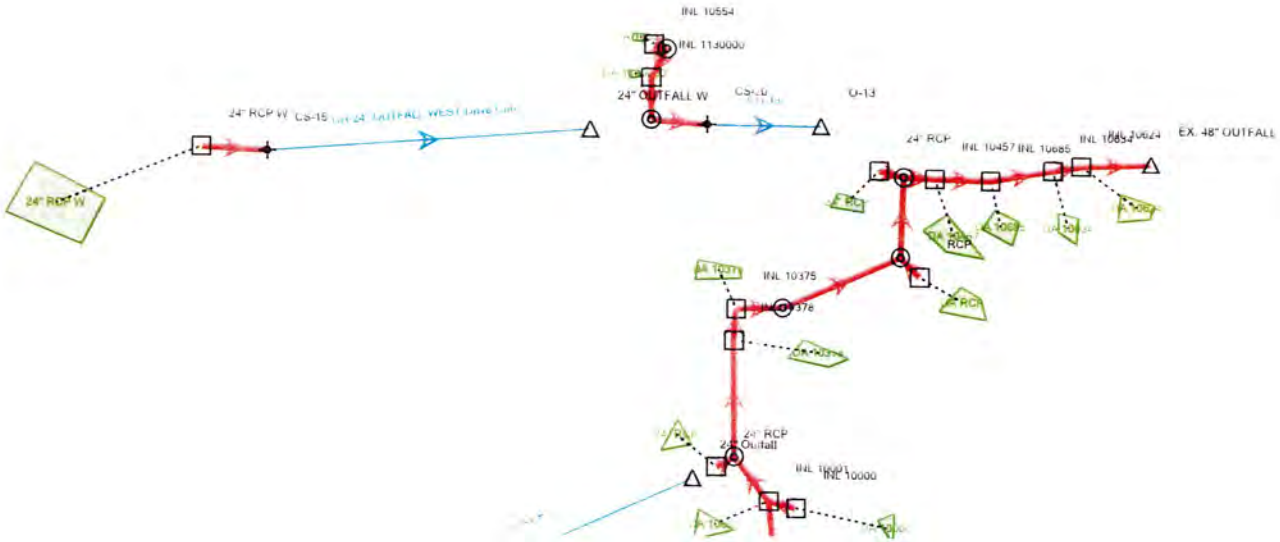

100-Year Profile-36" RCP-36" Outfall
HGL
Label: 36" RCP
Type: Catch Basin
ID: 4039
Label: CO-36" RCP-24" RCP South
Type: Cross Section
ID: 4106
Label: Outfall From 36" Pipe South
Type: Outfall
ID: 4108
Label: CO-36" RCP-36" OUTFALL
Type: Conduit
ID: 4107
Label: CH-36"RCP-24" RCP South
Type: Channel
ID: 4109
Elevation (ft)
Station (ft)

EXHIBIT 4-Proposed Conditions Schematic and Profiles

Scenario: Base



Scenario: Base



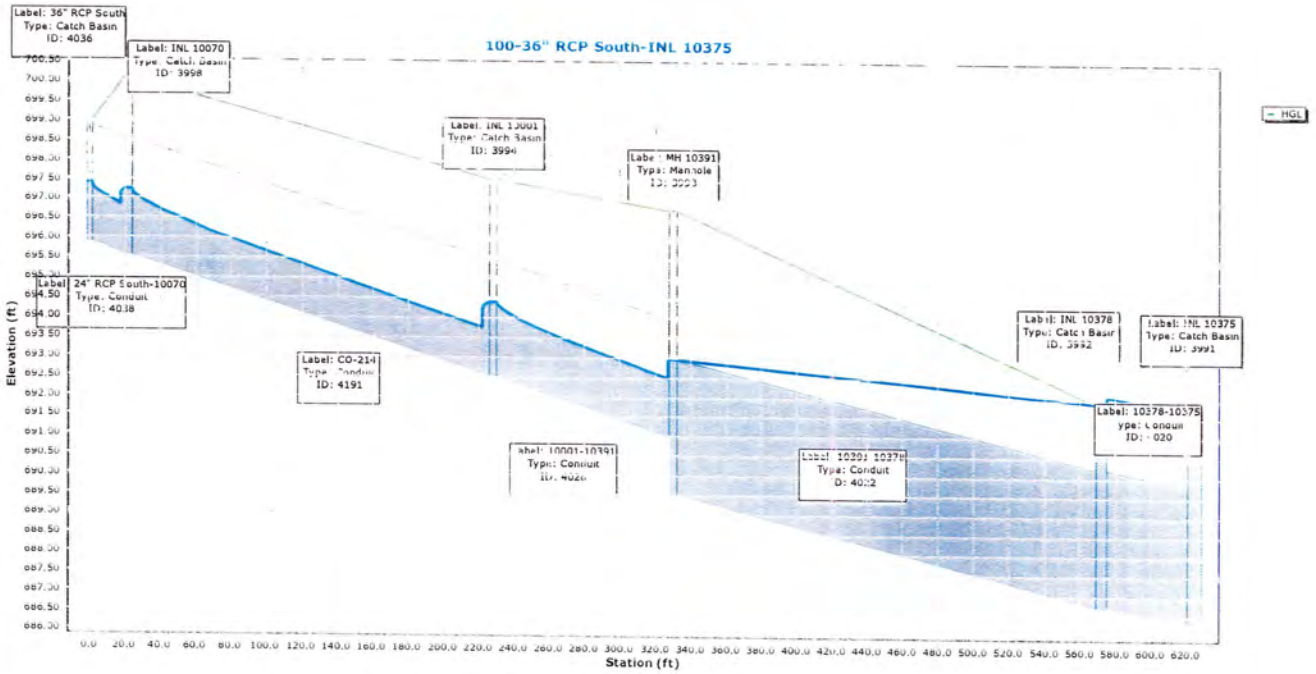
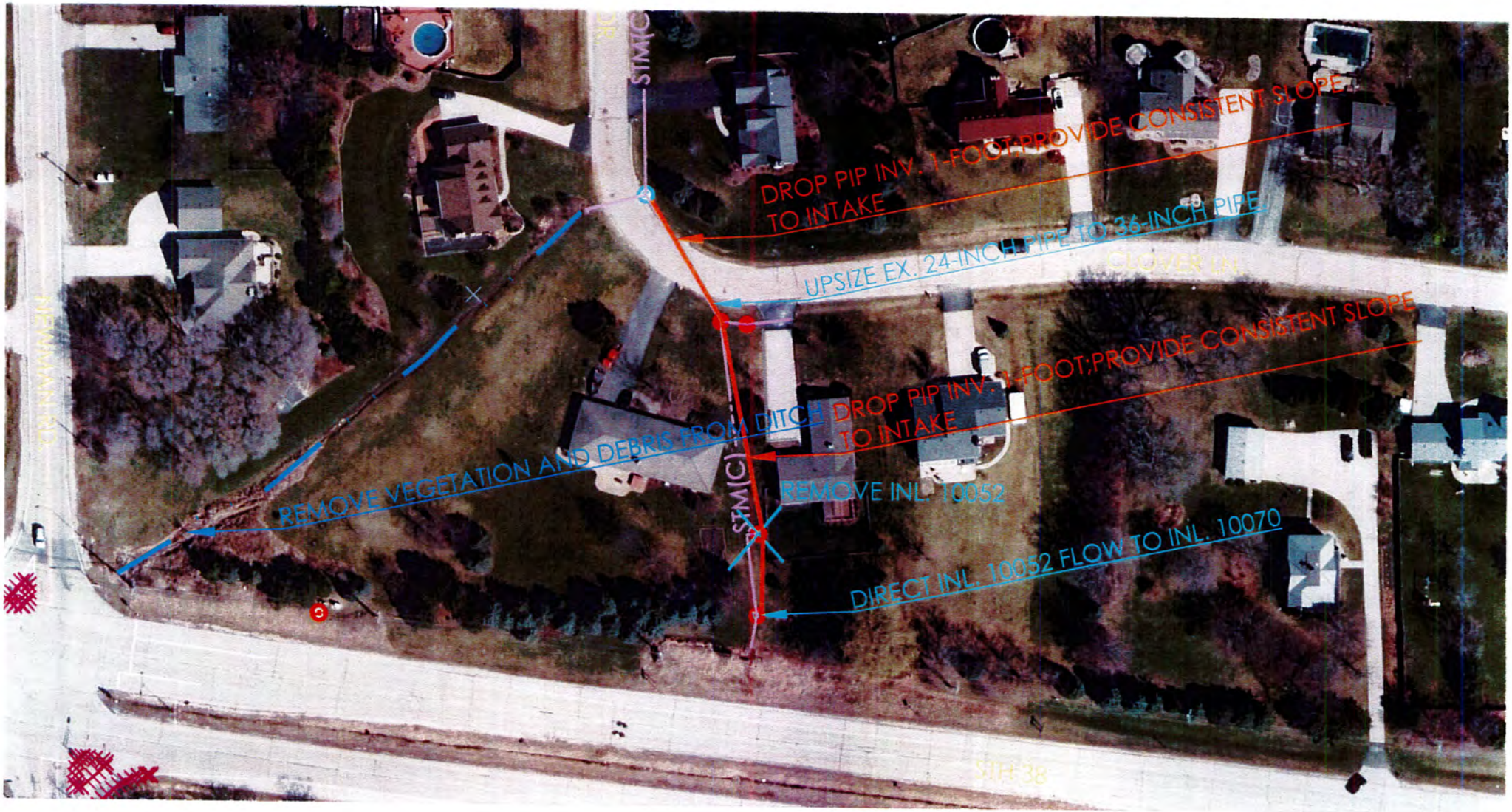

100-36" RCP South-INL 10375
Label: 36" RCP South
Type: Catch Basin
ID: 4036
Label: INL 10070
ID: 3998
Label: INL 10001
ID: 3994
Label: MH 10391
Type: Manhole
Label: 24" RCP South-10070
Type: Conduit
ID: 4018
Label: CO-214
ID: 4191
Label: INL 10378
Type: Catch Basin
ID: 3992
Label: INL 10375
Type: Catch Basin
ID: 3991
Label: 10378-10375
Type: Conduit
ID: 4020
Label: 10001-10391
Type: Conduit
Label: 10391-10378
Type: Conduit
ID: 4022
HGL
Elevation (ft)
Station (ft)

EXHIBIT 5-Proposed Design Solution

EXHIBIT 5-PROPOSED DESIGN SOLUTION



MEMORANDUM

DATE: Wednesday, April 28, 2021

TO: Caledonia Utility District

FROM: Anthony A. Bunkelman P.E. Utility Director

RE: EPA Risk & Resilience Assessment & Emergency Response Plan Approval

BACKGROUND INFORMATION

On October 23, 2018 the Federal Government signed the America's Water Infrastructure Act. This act requires that all community drinking water systems that serve more than 3,300 people to develop or update risk assessments and emergency response plans. Due to the size of the Caledonia Water Utility, the Utility District must prepare and submit a Risk and Resilience Assessment of its system. Once the Risk and Resilience Assessment is certified by the EPA, an Emergency Response Plan is required to be prepared and certified within 6 months. The Caledonia Utility District has until June 30, 2021 to have a Risk and Resilience Assessment certified and until December 31, 2021 to have the Emergency Response Plan certified.

The Risk and Resilience Assessment must include the following:

1. the risk to the system from malevolent acts and natural hazards;
2. the resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage, and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system;
3. the monitoring practices of the system;
4. the financial infrastructure of the system;
5. the use, storage, or handling of various chemicals by the system; and
6. the operation and maintenance of the system.

The America's Water Infrastructure Act also requires that the Risk and Resilience Assessment be reviewed every 5 years. For the Caledonia Utility District, the assessment will need to be reviewed by June 30, 2026. Emergency Response Plans, if necessary, will also need to be revised every 5 years or by December 31, 2026.

Foth provided the lowest cost Proposal for this work and was awarded the project in June of 2020.

Utility District Staff has met with Foth on a couple occasions to go through the analysis on the Water Utility. The Risk Assessment Summary Report provided within this packet is the results of the review of the 6 points above.

RECOMMENDATION

Move to approve the EPA Risk & Resilience Assessment prepared by Foth Infrastructure & Environment LLC and have it submitted to the EPA.

Risk Assessment Summary Report for Caledonia Utility District

Report Date: April 8, 2021

Risk and Resilience Assessment Summary

Purpose

This risk and resilience assessment of Caledonia Utility District was performed on April 8, 2021 using the U.S. Environmental Protection Agency's (EPA) Vulnerability Self-Assessment Tool (VSAT) Web Version 2.0. EPA developed and maintains VSAT Web to serve as an all-hazards risk and resilience assessment tool for water and wastewater utilities of all sizes. Specifically, EPA designed Version 2.0 of VSAT Web to assist community water systems with meeting the requirements for risk and resilience assessments in America's Water Infrastructure Act of 2018 (AWIA).

VSAT Web 2.0 can help water sector owners and operators with identifying the threats that present the highest risks to their facilities and with evaluating the costs and benefits of countermeasures to reduce those risks.

Methodology

VSAT Web 2.0 addresses malevolent acts, natural hazards, and dependency/proximity threats to water sector operations and analyzes the cost-effectiveness of countermeasures to reduce risk. The methodology in VSAT Web 2.0 is based on assessing the risk to a water system asset from a specific threat or hazard (i.e., an Asset-Threat Pair), where risk is defined as follows:

Risk (R) = Threat (T) X Vulnerability (V) X Consequences (C)

- T = Likelihood that the threat will be perpetrated or occur against the asset;
- V = Likelihood that the threat will damage the asset, considering the effectiveness of countermeasures; and
- C = Economic (cost to the utility and region) and public health (injuries and deaths) impacts resulting from damage to the asset.

A monetary value of statistical illness and value of statistical life are assigned to injuries and deaths, respectively, so that risk can be determined as a single monetized value.

AWIA requires community water systems to assess the risks to and resilience of specified assets from both malevolent acts and natural hazards. Accordingly, VSAT Web 2.0 begins with a characterization of water system resilience using the Utility Resilience Index, as described below. The analyst then conducts a qualitative assessment of risks from malevolent acts and natural hazards to all the assets required in AWIA. These steps can ensure that the assessment may be certified as compliant with AWIA.

Following these steps, the analyst determines which assets and threats will undergo a quantitative risk assessment, involving estimates of threat, vulnerability, and consequences. The quantitative risk assessment may include a broad spectrum of assets encompassing the entire water system, or be limited to those assets at highest risk. For threat selection, VSAT Web 2.0 includes all the malevolent acts, natural hazards, and dependency/proximity threats listed in the AWWA J100-10 Standard, along with source water (accidental and intentional) and finished water (accidental) contamination. Analysts may also designate a custom threat.

After completing a quantitative risk assessment under the current (baseline) conditions for the water system, the analyst may choose to conduct an optional assessment of additional (potential) countermeasures (an improvement analysis). VSAT Web 2.0 provides the analyst with a suite of countermeasures from which to select, or the analyst may designate a custom countermeasure. This analysis results in a profile of existing risk and a benefit/cost analysis of potential countermeasures to reduce risk.

Utility Overview

Utility Type and Information	
Utility Type	Drinking Water
Utility Name	Caledonia Utility District
State/Territory	Wisconsin
Zip Code	53402
Population Served	25,314
Ownership	Public
Average Daily Water Service (MGD)	1.64
Average Rate ($/1000 gallons)	$3.06
Comments	

To edit utility type or information, return to the Utility Overview section in the tool.

Utility Resilience Index

The Utility Resiliency Index (URI) is a risk management tool that can assess a utility's capability to respond to and recover from an incident that impacts critical operations.[1] The URI is a valuable complement to the risk assessment performed in VSAT Web 2.0. A utility can use the URI together with the risk assessments results when developing an overall risk management plan.

The URI uses 12 indicators to calculate the index. Responses to the indicators are assigned values and weights, which are aggregated to provide a characterization of a utility's resilience on a scale from 0% to 100%. A low URI score indicates a low capability of the utility to respond to and recover from an incident, while a high URI score indicates a greater capability to do so. If multiple statements under one indicator apply to the utility, select the statement at the highest resilience level. Statements are arranged from lowest to highest resilience level under each indicator.

The URI for Caledonia Utility District is: 48%

[1]Adapted from Morley, K. M. (2012). *Evaluating resilience in the water sector: Application of the Utility Resilience Index (URI).* (http://www.worldcat.org/oclc/801849602) and used with permission.

1. **Emergency Response Plan (ERP)**
   An ERP provides a tactical level plan for immediate response to incidents of all types. Select the statement below that best describes the utility's ERP.

   An ERP has been developed

2. **National Incident Management System (NIMS) Compliance**
   NIMS establishes a common framework for defining roles and responsibilities to enhance incident response. NIMS applies the Incident Command System (ICS) to provide the support structure for response activities. Select the statement below that best describes the utility's NIMS compliance.

   No ICS/NIMS training completed or NIMS compliance unknown

3. **Mutual Aid and Assistance (MAA)**
   MAA agreements between other utilities and jurisdictions help to provide rapid response to incidents. Participation in such agreements is traditionally at no cost and does not obligate signatories to respond. An example is the Water/Wastewater Agency Response Network (WARN). Select the statement below that best describes the utility's MAA agreements.

   Local-Local (with adjacent city/town)

4. **Emergency Power for Critical Operations (EPCO)**
   EPCO is a minimum benchmark of 72 hours for backup power for critical operations and assets. Select the statement below that best describes the utility's EPCO.

   Greater than or equal to 73 hours of backup power

5. **Minimum Daily Demand/Treatment (MDDT)**
   MDDT is the ability to meet minimum daily demand or treatment when the production or treatment plant is non-functional. For example, a drinking water utility typically has some level of in-system storage that can provide minimum daily flows for a time even though a treatment plant may be non-functional. Select the statement below that best describes the utility's MDDT.

   Up to 24 hours

6. **Critical Parts and Equipment (CPA)**
   CPA is the lead time for repair, replacement, or recovery of operationally critical parts or equipment. Critical parts are defined as components of the system that upon failure may have the potential to impair the ability to produce, distribute, or treat drinking water or wastewater, including both physical and cyber/process control systems. Select the statement below that best describes the utility's CPA.

   Less than 24 hours

7. **Critical Staff Resilience (CSR)**
   CSR is the percentage of response-capable staff who are cross-trained in critical operations and maintenance positions and available as staff backup. This indicator is primarily related to pandemic flu planning. Select the statement below that best describes the utility's CSR.

   Greater than 50 to 75%

8. **Business Continuity Plan (BCP)**
   A BCP provides an overall indicator of a utility's commitment to integrating risk management principles into the management culture that supports their operations. These plans address the potential financial effects of a crisis, as well as the utility's flexibility to adapt human resource policies to meet the changing needs of employees. Select the statement below that best describes the utility's BCP.

   No BCP or unknown

9. **Utility Bond Rating (UBR)**
   UBRs are assigned by Moody's and indicate a utility's ability and willingness to satisfy financial obligations. The rating includes five primary factors related to municipal finance, which include market position, financial position, debt levels, governance, and covenants. Some utilities may not have a bond rating since they do not seek additional investment capital from the market. Select the statement below that best describes the utility's UBR.

   AA

10. **Government Accounting Standards Board (GASB) Assessment**
    A GASB Assessment determines how much infrastructure has been evaluated to provide an indication of the utility's overall commitment to proper asset management. The assessment coverage is calculated as: 100 x total number of critical assets categorized into condition categories divided by the total number of critical assets as determined in the asset characterization step of the J100 standard. Select the statement below that best describes the utility's GASB Assessment.

    61 to 80% assessed

11. **Unemployment***
    Unemployment is a general socioeconomic indicator of a community's economic health. The Bureau of Labor Statistics (BLS) maintains a database of state and local rates (see http://www.bls.gov/lau/tables.htm) which provides a consistent source for determining this indicator. The value for this indicator is based on the unemployment level in the community served by the utility. Select the statement below that best describes the unemployment rate in the service area.

    < 2 - 4% National Average

12. **Median Household Income (MHI)***
    MHI is a socioeconomic indicator of the wealth of the community served by the utility. This indicator provides insight on the fragility of a community to withstand a significant incident that could threaten the financial stability of the utility. The U.S. Census Bureau maintains a database for each state and county (see https://www.census.gov/quickfacts/fact/table/US/PST045218). Select the statement below that best describes the MHI in the service area.

    10% or more above State Median

To adjust any of the responses above, return to the tool and revise the selections in the Utility Resilience Index section.

Qualitative Risk Assessment

Results from the Qualitative Risk Assessment for the utility are shown below

Asset Category	Threat Type: Malevolent Act	Threat Type: Natural Hazard	Reason for not selecting threat type
Physical Barriers			More thoroughly covered in other categories.
Source Water			To be more thoroughly covered under pipes and conveyance category.
Pipes and Constructed Conveyances, Water Collection, and Intake	X	X	
Pretreatment and Treatment			Utility is a wholesale customer, this category is handled by wholesale provider.
Storage and Distribution Facilities	X	X	
Electronic, Computer, or other Automated Systems (including the security of such systems)	X	X	

Asset Category	Threat Type: Malevolent Act	Threat Type: Natural Hazard	Reason for not selecting threat type
Monitoring Practices			Utility is a wholesale customer, this category is handled by wholesale provider.
Financial Infrastructure	X	X	
The Use, Storage, or Handling of Chemicals			Utility is a wholesale customer, this category is handled by wholesale provider.
The Operation and Maintenance of the Utility	X	X	

To adjust any of the responses above, return to the tool and revise the answers in the Qualitative Risk Assessment section.

Quantitative Risk Assessment

Below is a list of the assets and threats the analyst selected for the utility's quantitative risk assessment. To edit any of the asset/threat pairs below, return to the Quantitative Risk Assessment section of the tool and make the changes.

Identified Assets	Assigned Threats		
	Assault on boosters	Assault on Transmission Lines	Industrial Contaminant
Caledonia Water System	X	X	X
Caledonia Computer Equipment and System			
Billing			
Dunkelow Rd Booster			
Crestview Tower			
Utility District			
Nicholson Road Meter Building			

Identified Assets	Assigned Threats		
	Pathogen contamination	Disgruntled employee	Stolen Computer
Caledonia Water System	X	X	
Caledonia Computer Equipment and System			X
Billing			
Dunkelow Rd Booster			
Crestview Tower			
Utility District			
Nicholson Road Meter Building			

Identified Assets	Assigned Threats		
	Cyber Attack	F1 - Flood - 100 Year - 100 Year flood event	D(P) - Proximity - Leasee damage/fire

Identified Assets	Assigned Threats		
Caledonia Water System			
Caledonia Computer Equipment and System			
Billing	X		
Dunkelow Rd Booster		X	
Crestview Tower			X
Utility District			
Nicholson Road Meter Building			

Identified Assets	Assigned Threats		
	D(C) - Key Customers - Lawsuit re: loss of service	D(S) - Key Suppliers	F2 - Flood - 500 Year - 500 Year flood event
Caledonia Water System			
Caledonia Computer Equipment and System			
Billing			
Dunkelow Rd Booster			
Crestview Tower			
Utility District	X	X	
Nicholson Road Meter Building			X

Countermeasure Risk Assessment

Countermeasures comprise any infrastructure, equipment, systems, or procedures that reduce risk (threat, vulnerability, or consequences). The table below shows both the existing countermeasures identified for the utility and the potential countermeasures selected for analysis to reduce risk. To edit any of the existing countermeasures, return to the Countermeasure Risk Assessment section of the tool and make changes there.

Selected Countermeasures	Identified Assets		
	Caledonia Water System	Caledonia Computer Equipment and System	Billing
Existing Countermeasures			
Redundant water source(s)	X		
Distribution of alternative drinking water	X		
Backflow prevention devices	X		
Employee screening program	X	X	
Intrusion sensors	X	X	
Site lighting	X	X	
SCADA Alarms	X		
Hardened doors	X	X	
Password Changes			X
Antivirus Subscription			X
Sump Pump			
Potential Countermeasures			
Toxicity monitoring	X		
Security cameras	X	X	
Perimeter fencing	X		
Employee Cybersecurity Training			X
Cyber Insurance			X
Larger Sump Pump			
Site Drainage Improvements			
Equipment Relocation			
Secondary Feeds to Key Customers			

Selected Countermeasures	Identified Assets		
	Dunkelow Rd Booster	Crestview Tower	Utility District
Existing Countermeasures			
Redundant water source(s)			
Distribution of alternative drinking water			
Backflow prevention devices			
Employee screening program			
Intrusion sensors			
Site lighting			
SCADA Alarms			
Hardened doors	X		
Password Changes			
Antivirus Subscription			
Sump Pump	X		
Potential Countermeasures			
Toxicity monitoring			
Security cameras			
Perimeter fencing			
Employee Cybersecurity Training			
Cyber Insurance			
Larger Sump Pump	X		
Site Drainage Improvements	X		
Equipment Relocation		X	
Secondary Feeds to Key Customers			X

Selected Countermeasures	Identified Assets
	Nicholson Road Meter Building

Selected Countermeasures	Identified Assets
Existing Countermeasures	
Redundant water source(s)	
Distribution of alternative drinking water	
Backflow prevention devices	
Employee screening program	
Intrusion sensors	
Site lighting	
SCADA Alarms	
Hardened doors	X
Password Changes	
Antivirus Subscription	
Sump Pump	X
Potential Countermeasures	
Toxicity monitoring	
Security cameras	
Perimeter fencing	
Employee Cybersecurity Training	
Cyber Insurance	
Larger Sump Pump	X
Site Drainage Improvements	X
Equipment Relocation	
Secondary Feeds to Key Customers	

Assessment Summary

The table below shows the monetized risk summary for each asset/threat pair. Baseline results reflect existing countermeasures and improvement results reflect enhanced mitigation with the selected potential countermeasures in place. To edit any of the information shown in the table(s) below, return to either the Quantitative Risk Assessment or Countermeasure Risk Assessment section of the tool and make changes there.

Asset/Threat Pair: Caledonia Water System/Assault on boosters - Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$0	$0
Utility Financial Impact	$2,299,200	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	6%	
Annual Threat Likelihood	0.000001	0

Asset/Threat Pair: Caledonia Water System/Assault on Transmission Lines - Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$0	$0
Utility Financial Impact	$6,400	$0
Regional Economic Impact	$5,396,300	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	3%	
Annual Threat Likelihood	0.000001	0

Asset/Threat Pair: Caledonia Water System/Industrial Contaminant - Monetized Risk Summary

Existing Countermeasures: Redundant water source(s), Distribution of alternative drinking water, Backflow prevention devices; **Potential Countermeasures:** Toxicity monitoring.

Risk Metrics	Baseline	Improvement
Monetized Risk	$37,480,976	$37,480,976
Utility Financial Impact	$74,271	$74,271
Regional Economic Impact	$15,109,700	$15,109,700
Fatalities	575	575
Injuries	2,371	2,371
Vulnerability Likelihood	80%	80%
Annual Threat Likelihood	0.01	0.01

Asset/Threat Pair: Caledonia Water System/Pathogen contamination - Monetized Risk Summary

Existing Countermeasures: Redundant water source(s), Distribution of alternative drinking water, Backflow prevention devices; **Potential Countermeasures**: Toxicity monitoring.

Risk Metrics	Baseline	Improvement
Monetized Risk	$24,165,893	$24,165,893
Utility Financial Impact	$69,811	$69,811
Regional Economic Impact	$15,109,700	$15,109,700
Fatalities	186	186
Injuries	1,860	1,860
Vulnerability Likelihood	75%	75%
Annual Threat Likelihood	0.02	0.02

Asset/Threat Pair: Caledonia Water System/Disgruntled employee - Monetized Risk Summary

Existing Countermeasures: Employee screening program, Intrusion sensors, Site lighting, SCADA Alarms, Hardened doors; **Potential Countermeasures**: Security cameras, Perimeter fencing.

Risk Metrics	Baseline	Improvement
Monetized Risk	$6,898	$154
Utility Financial Impact	$2,299,200	$1,026,500
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	30%	3%
Annual Threat Likelihood	0.01	0.005

Asset/Threat Pair: Caledonia Computer Equipment and System/Stolen

Computer - Monetized Risk Summary

Existing Countermeasures: Employee screening program, Intrusion sensors, Site lighting, Hardened doors; **Potential Countermeasures:** Security cameras.

Risk Metrics	Baseline	Improvement
Monetized Risk	$3	$0
Utility Financial Impact	$10,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	3%	3%
Annual Threat Likelihood	0.01	0.001

Asset/Threat Pair: Billing/Cyber Attack - Monetized Risk Summary

Existing Countermeasures: Password Changes, Antivirus Subscription; **Potential Countermeasures:** Employee Cybersecurity Training, Cyber Insurance.

Risk Metrics	Baseline	Improvement
Monetized Risk	$625	$3
Utility Financial Impact	$25,000	$2,000
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	50%	6%
Annual Threat Likelihood	0.05	0.025

Asset/Threat Pair: Dunkelow Rd Booster F1 - Flood - 100 Year - 100 Year flood event Monetized Risk Summary

Existing Countermeasures: Hardened doors, Sump Pump; **Potential Countermeasures:** Larger Sump Pump, Site Drainage Improvements.

Risk Metrics	Baseline	Improvement
Monetized Risk	$162	$0
Utility Financial Impact	$20,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	81%	5%
Annual Threat Likelihood	0.01	0.01

Asset/Threat Pair: Crestview Tower/D(P) - Proximity - Leasee damage/fire Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures: Equipment Relocation.

Risk Metrics	Baseline	Improvement
Monetized Risk	$340	$0
Utility Financial Impact	$100,000	$14,000
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	34%	3%
Annual Threat Likelihood	0.01	0.001

Asset/Threat Pair: Utility District/D(C) - Key Customers - Lawsuit re loss of service Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures: Secondary Feeds to Key Customers.

Risk Metrics	Baseline	Improvement
Monetized Risk	$81	$8
Utility Financial Impact	$600	$600
Regional Economic Impact	$539,600	$539,600
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	15%	3%
Annual Threat Likelihood	0.001	0.0005

Asset/Threat Pair: Utility District/D(S) - Key Suppliers - Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$3,620	$0
Utility Financial Impact	$8,600	$0
Regional Economic Impact	$7,231,100	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	5%	
Annual Threat Likelihood	0.01	0

Asset/Threat Pair: Nicholson Road Meter Building/F2 - Flood - 500 Year - 500 Year flood event Monetized Risk Summary

Existing Countermeasures: Hardened doors, Sump Pump; **Potential Countermeasures:** Larger Sump Pump, Site Drainage Improvements.

Risk Metrics	Baseline	Improvement
Monetized Risk	$32	$0
Utility Financial Impact	$20,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	81%	24%
Annual Threat Likelihood	0.002	0.001

Countermeasure Costs and Packages

The table below shows the cost analyses for the selected potential countermeasures. If the analyst provided both the capital and the operations and maintenance (O&M) costs for the potential countermeasures, VSAT Web 2.0 calculated an annualized cost using a 4% finance rate over 10 years. To edit any information shown below, return to the Countermeasure Costs section of the tool and make changes there.

Potential Countermeasure	Capital Cost	O&M Cost	Annualized Cost
Toxicity monitoring	$0.00	$0.00	$0.00
Security cameras	$250,000.00	$10,000.00	$40,822.74
Perimeter fencing	$18,000.00	$0.00	$2,219.24
Employee Cybersecurity Training	$0.00	$1,500.00	$1,500.00
Cyber Insurance	$0.00	$2,000.00	$2,000.00
Larger Sump Pump	$1,000.00	$0.00	$123.29
Site Drainage Improvements	$500,000.00	$0.00	$61,645.47
Equipment Relocation	$0.00	$0.00	$0.00
Secondary Feeds to Key Customers	$11,000,000.00	$50,000.00	$1,406,200.39

The section below summarizes the net benefits for each created countermeasure package. To edit any information shown below, return to the Countermeasure Packages section of the tool and make changes there.

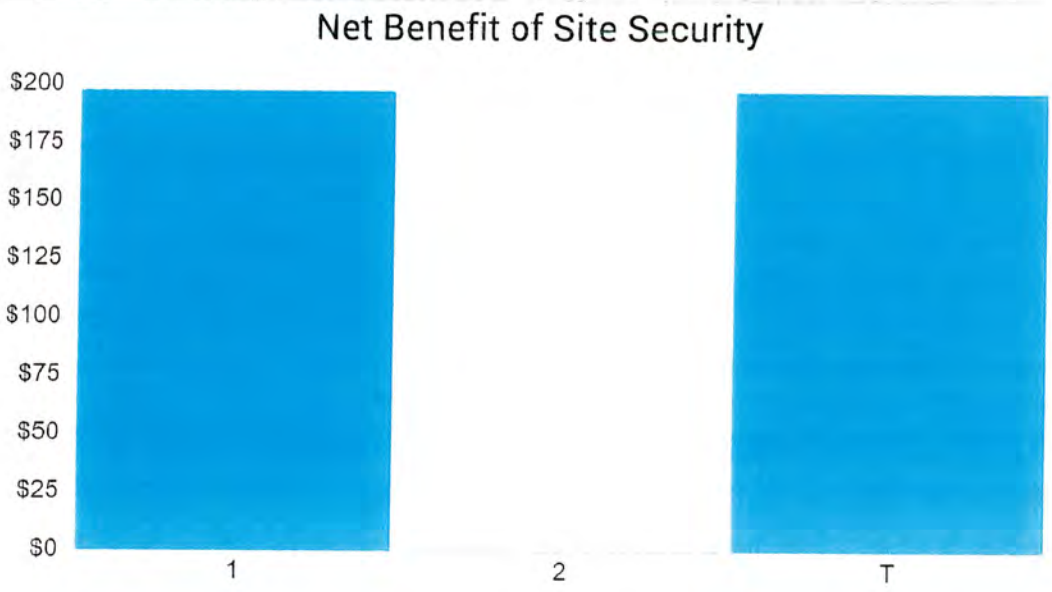
Site Security Potential Countermeasures

To edit any of the information shown in the table(s) below, return to the Countermeasure Analysis section of the tool and make changes there.

Package description:

The package countermeasures and the associated net benefits, which are the differences between the monetized risk reductions and the annualized costs attributed to the potential countermeasure or countermeasure package, are shown in the following table:

Potential Countermeasure	# Asset/Threat Pairs*	Monetized Risk Reduction**	Net Benefit***
Perimeter fencing	1	$2,417	$198
Security cameras	2	$4,329	$0
Total	N/A	**$6,747**	**$198**



Countermeasure Legend

1 Perimeter fencing
2 Security cameras
T.Total Net Benefit

Flood Resistance Potential Countermeasures

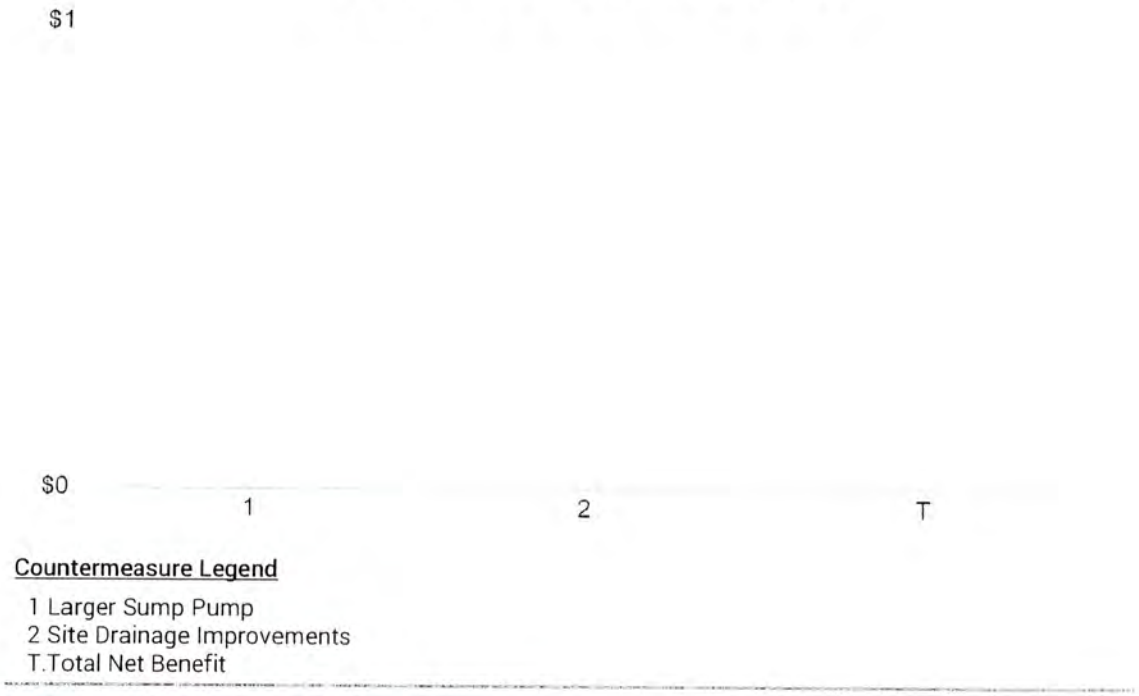
To edit any of the information shown in the table(s) below, return to the Countermeasure Analysis section of the tool and make changes there.

Package description:

The package countermeasures and the associated net benefits, which are the differences between the monetized risk reductions and the annualized costs attributed to the potential countermeasure or countermeasure package, are shown in the following table:

Potential Countermeasure	# Asset/Threat Pairs*	Monetized Risk Reduction**	Net Benefit***
Larger Sump Pump	2	$97	$0
Site Drainage Improvements	2	$97	$0
Total	N/A	$194	$0

Net Benefit of Flood Resistance



Cybersecurity Potential Countermeasures

To edit any of the information shown in the table(s) below, return to the Countermeasure Analysis section of the tool and make changes there.

Package description:

The package countermeasures and the associated net benefits, which are the differences between the monetized risk reductions and the annualized costs attributed to the potential countermeasure or countermeasure package, are shown in the following table:

Potential Countermeasure	# Asset/Threat Pairs*	Monetized Risk Reduction**	Net Benefit***
Cyber Insurance	1	$311	$0
Employee Cybersecurity Training	1	$311	$0
Total	N/A	$622	$0

Net Benefit of Cybersecurity

Infrastructure Improvements Potential Countermeasures

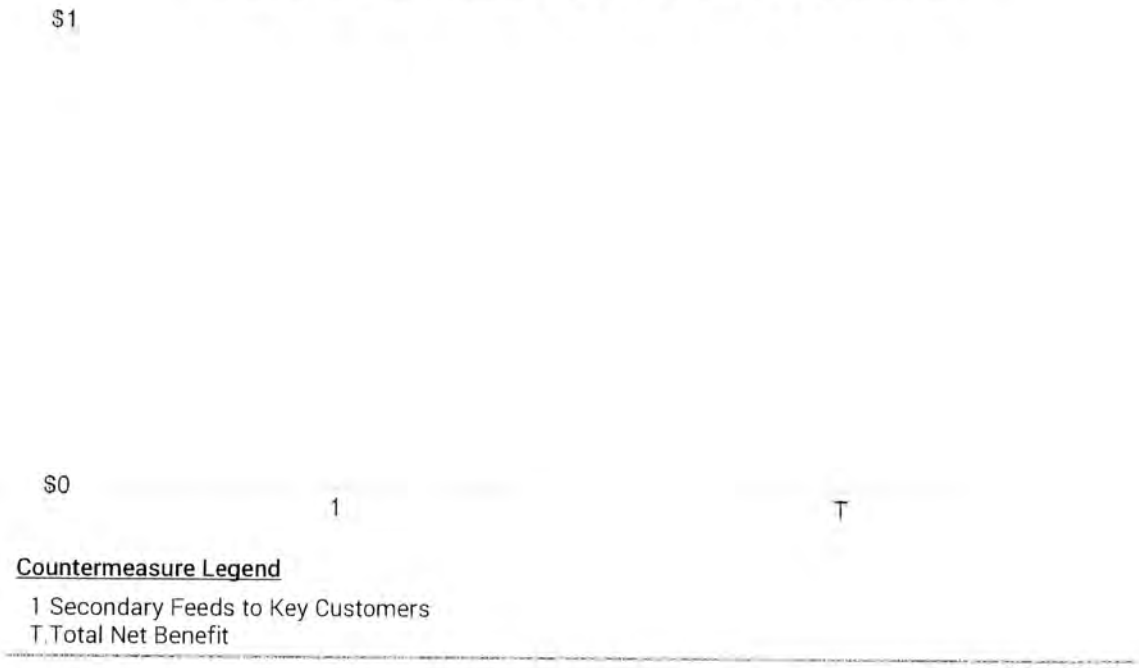
To edit any of the information shown in the table(s) below, return to the Countermeasure Analysis section of the tool and make changes there.

Package description:

The package countermeasures and the associated net benefits, which are the differences between the monetized risk reductions and the annualized costs attributed to the potential countermeasure or countermeasure package, are shown in the following table:

Potential Countermeasure	# Asset/Threat Pairs*	Monetized Risk Reduction**	Net Benefit***
Secondary Feeds to Key Customers	1	$73	$0
Total	N/A	$73	$0

Net Benefit of Infrastructure Improvements



Countermeasure Legend

1 Secondary Feeds to Key Customers
T Total Net Benefit

*Total number of asset/threat pairs to which this potential countermeasure, or countermeasure package, applies.

**Monetized risk reduction attributable to this potential countermeasure, or countermeasure package, based on all asset/threat pairs to which the countermeasure(s) applies

***Net benefit equals the difference between the monetized risk reduction and the annualized cost attributed to the potential countermeasure or countermeasure package