



City of Fort Atkinson  
City Engineer's Office  
101 N. Main Street  
Fort Atkinson, WI 53538

## SPECIFIC IMPLEMENTATION PLAN (SIP) REVIEW REPORT TO THE PLAN COMMISSION

**DATE:** March 14, 2023

**FILE NUMBER:** PUD-2023-01

**PROPERTY ADDRESSES:** 1310-20 Campus Drive

**EXISTING ZONING:** SR-2, Single-Family Residential

**PROPOSED ZONING:** Planned Unit Development

**PARCEL NUMBER:** 226-0614-3323-014 and 226-0614-3323-015

**EXISTING LAND USE:** Rural Single-Family/Vacant

**OWNER:** Tip of The Spear, LLC

**REQUESTED USES:** Multi-Family Residential Apartments

**APPLICANT:** Ryan Quam

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### BACKGROUND ON CSM, REZONING, AND GDP REVIEW:

Section 15.10.44 of the City of Fort Atkinson Zoning Ordinance outlines the requirements for the Specific Implementation Plan application. This process entails the detailed development review step, akin to a traditional Site Plan review. The SIP requires the applicant to provide all detailed components that are associated with the Site Plan review process including the proposed development's building configuration, site layout and access, parking, exterior building design, landscaping, grading and erosion, stormwater, exterior lighting, signage, and operational plan. A SIP must meet all base standards of the Zoning Ordinance, in addition to being consistent with any flexibilities granted through the GDP.

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### REQUEST OVERVIEW:

This project was previously reviewed at a conceptual level during the January 24, 2023 Plan Commission meeting. The applicant and City staff have chosen to pursue both steps in the Planned Unit Development process simultaneously (GDP and SIP). The Zoning Ordinance allows for both steps to occur at the same meeting. Consideration of the SIP at the March 14, 2023 Plan Commission meeting is subject to approvals of the CSM, Rezoning, and GDP steps by both Plan Commission and City Council.

The proposed project includes two 4-story, 36-unit apartment buildings on the site. The first building (Phase 1) would tentatively be started in August 2023 (pending approvals) with leasing available June 2024. Building #2 (Phase 2) would break ground August 2024 with leasing available June 2025. The units will be a mixture of 1-bedroom, 2-bedroom, and 2-bedroom + loft configurations. Parking will be a combination of underground (below the building) and surface parking. The area was annexed into the City in 2022 and is included within the City's new TID District. ***This approval considers only Phase 1 of the project. Phase 2 will return for a Site Plan review by the Commission.***

As shown on the plan set and indicated in the developer's narrative, there are existing identified wetlands on the site per a wetland delineation completed on July 3, 2018. As proposed, a portion of those wetlands would be filled to provide developable area associated with Phase 2 per a Wisconsin DNR approval letter dated March 22, 2022.



Figure 1: *Waubesa Village* - constructed in McFarland, WI above the Concept Plan submitted. The photo is a 3-story building, whereas these are proposed at 4-stories



Figure 2: Waubesa Village - end view

**SIP REVIEW:**

The buildings and site layout are required to meet the minimum dimensional standards of the MRH-30 zoning district (underlying district) with the exception of any granted flexibilities approved through the GDP process. The proposed development meets these requirements, as shown below.

Requirement	Size	Proposed Development*
Minimum Front Setback	30 feet	94 feet
Minimum Street Side Setback (on corner lots)	25 feet	45 feet
Minimum Side Setback	8 feet	>8 feet
Minimum Rear Setback	30 feet	>30 feet
Maximum Principal Building Height	45 feet	<b>FLEXIBILITY: 51.25 feet</b>
Minimum Principal Building Separation	10 feet	N/A (at this time)
Minimum Attached Garage Setback	2 feet recessed from building facade	<b>FLEXIBILITY: Even with building</b>
Minimum Porch Setback (front and side yard)	22 feet	>22 feet (all sides)
Minimum Pavement Setback (lot line to pavement, excludes driveway entrances)	5 feet (side and rear) 10 feet (street ROW)	Met <b>FLEXIBILITY 6-20'</b>
Minimum Dwelling Unit Structure Area	400 square feet/bedroom	>400 square feet/bedroom

Maximum Impervious Surface Ratio	70%	13%
Minimum Green Space	30%	87%
Maximum Building Coverage	35%	5%
Maximum Density	50 dwelling per acre	6.4 dwelling units per acre

\*Anything **bolded** in this column indicates where a flexibility has been identified and granted through the GDP for the proposed project.

The proposed land use of the property is Multi-Family Apartments (21-36 units per building). This is a permitted by right principal land use in the MRH-30 zoning district. The additional land uses requirements associated with this use includes meeting the multi-family design standards, minimum required parking standards, and minimum driveway design standards.

There are a total of 63 off-street parking spaces proposed (27 underground and 36 surface), equating to 1.75 spaces per dwelling unit. The project’s minimum required parking is 54 spaces and there are no maximum parking requirements for Multi-Family Apartment land uses. The parking requirements are met.

The proposed project has submitted the required elements of the Site Plan (SIP) review that are included within the attachment. Below is a review of the various other zoning standards that are required with the proposed development:

**Access and Visibility Standards (Section 15.06.03, 15.06.04, and 15.06.05)**

- Multiple access points can be approved through the Site Plan process on lots greater than 200 feet long = met (1 proposed)
- No access is permitted within 20 feet of an intersection = met
- Maximum driveway size is 24 feet wide = met
- At least one ped/bicycle access point to at least one street frontage is required = met
- All structures must be located outside of vision triangle at intersections = met

**Parking and Loading Standards (Section 15.06.06 and 15.06.07)**

- All drive isles, driveways, and parking areas must be constructed of a hard surface = met
- Minimum 10-foot setback for all driveways = met
- Curbs are required along parking areas and internal landscape islands = met – except at stormwater overland flow locations (approved)
- All parking stalls must provide pavement markings = met
- Throat depth (distance between street access and traffic circulation area/parking area must be a minimum of 25 feet) = met
- Minimum parking stall dimensions are required to be 9 feet wide and 18 feet long = met
- Minimum parking isles widths are required to be 24 feet wide = met
- Minimum of 54 off-street parking stalls are required = met

- A minimum of 4 on-site bicycle stalls, plus 5% of all parking stalls (3 bicycle stalls) are required = met – combination of indoor and outdoor

#### **Exterior Lighting Standards (Section 15.06.20)**

**Note: these will be submitted for staff review following Plan Commission approval**

- At the property line, a maximum of 1.0 footcandle is required = unknown
- The average lighting on-site is required to be a maximum average of 1.0 footcandles = unknown
- The maximum height of all freestanding light fixtures required is 12 feet = unknown
- All outdoor lighting must be full cut-off fixtures and downward facing = unknown

#### **Outdoor Storage and Screening Standards (Section 15.06.21)**

- All trash containment structures are required to be enclosed, a maximum of 6 feet in height, and made of solid wood with an access gate = met (proposed in underground parking structure)
- All building mechanicals on the exterior of the building are required to be screened = met – none proposed
- Outdoor storage areas must be screened = met (no other outdoor storage areas are proposed)

#### **Outdoor Recreation Space Standards (Section 15.06.41)**

- Minimum of 200 square feet plus 25 square feet per bedroom of usable recreation space shall be provided = met (1,100 square feet required, 17,270 square feet proposed)

In Phase 2, there is a proposed 17,270 square foot dog park with perimeter fencing on the north side of the Phase 2 building. Additionally, directly surrounding the Phase 1 building, there is some usable open space provided. Fence details for the park will be forthcoming with Phase 2 Site Plan.

#### **Landscaping Standards (Section 15.08.30)**

Point values are provided for each type of plant and the amount required in each portion of the site is listed within the Zoning Ordinance. This provides the developer with options in customizing the planting selection and location to best fit the project and site. The developer has committed to preserving a number of monument trees on the site.

- 401 landscaping points are required for the street frontage = met
- 180 landscaping points are required for the paved surface areas = met
- 297 landscaping points are required for the building foundation = met
- 992 landscaping points are required for the yards = met

There are no bufferyard requirements for the proposed project because the standards within the Zoning Code only apply to adjacent properties with City of Fort Atkinson zoning.

#### **Exterior Building Design Standards (Section 15.07.40)**

There are defined exterior building design standards for different types of uses in the Zoning Code. This project is proposed to be a multi-family land use. Additionally, the design standards classify the

following materials by type: Class I (brick, stone, glass), II (decorative block, EIFS, stucco), or III (decorative metal panels, siding, wood, fiber cement).

#### Multi-Family Design Standards

- Exterior materials shall be Class I, II, or III = met
  - Primary entrance shall be on the front façade facing the street and covered = met
  - Façade lengths shall not be greater than 25 feet without architectural articulation = met
  - Facades facing the street shall include a minimum of 20% windows and doors = met
  - Upper-story decks and balconies shall be cantilevered, supported by vertical columns, or supported from above = met
  - Building-mounted equipment shall be screened = none proposed
  - Roof-mounted equipment shall be screened = none proposed
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#### **Post Construction Stormwater Management (Ordinance 18-190)**

This ordinance follows state law for all developments with greater than 1 acre of disturbance. The ordinance manages stormwater based upon sites characterized as new construction, redevelopment, or in-fill. The ordinance requires the development's stormwater leaving the site be controlled among three categories, volume (peak runoff), TSS (total suspended solids) and Infiltration.

- Development Category = New Construction
  - Reduce TSS load by 80% based on average annual rainfall = met
  - Infiltration = exempt
  - Control peak discharge to pre-development condition for the 2 YR 24 HR storm = met
- Stormwater BMP Maintenance Agreement = met

#### **Construction Site Erosion Control Plan (Ordinance 18-189)**

This ordinance follows requires certain levels of control during construction to reduce the movement of sediment (dirt) off the construction site and into local waterways (Rock River, Bark River, Allen Creek).

- Best Management Practices (BMP) that reduce the sediment load of stormwater runoff by a minimum of 80% = met
- Written Erosion Control Plan = met
- Prevent tracking of sediment off-site by equipment = met
- Protect catch basins that take sediment laden stormwater into local rivers = met
- Prevent the discharge of sediment as part of site dewatering = met

#### **City Department Reviews**

All departments reviewed the project, those with comments are noted below.

*Engineering* - Phase 2 will be dependent on the development of the current High School access as a public road owned by the City. The road would be constructed into a more urban roadway with curb and gutter, pavement, and sidewalks. Preliminary discussions with the School District of Fort Atkinson have been positive and evaluation of the school's future plans within the dedication of the land for a

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public road are underway. The City has a current easement in place with the high school for underground utilities (water , storm, and sanitary) to build these to the north.

This development and future development in the area warrants a Traffic Impact Analysis (TIA) study. This study is underway by a consultant approved by City Council. This particular development with an additional 72 units is expected to increase traffic to the area but not expected to reach a volume that cannot be accommodated with the current infrastructure. The TIA may indicate short term recommendations at intersections, such as the elimination of left turns at Banker Rd and Madison Ave, or the installation of a 3-way stop at Banker Rd and Campus Dr. Results of this analysis will be provided to the City within a few months. As additional development projects are constructed, concurrent traffic improvements will be made to continue a safe level of service.

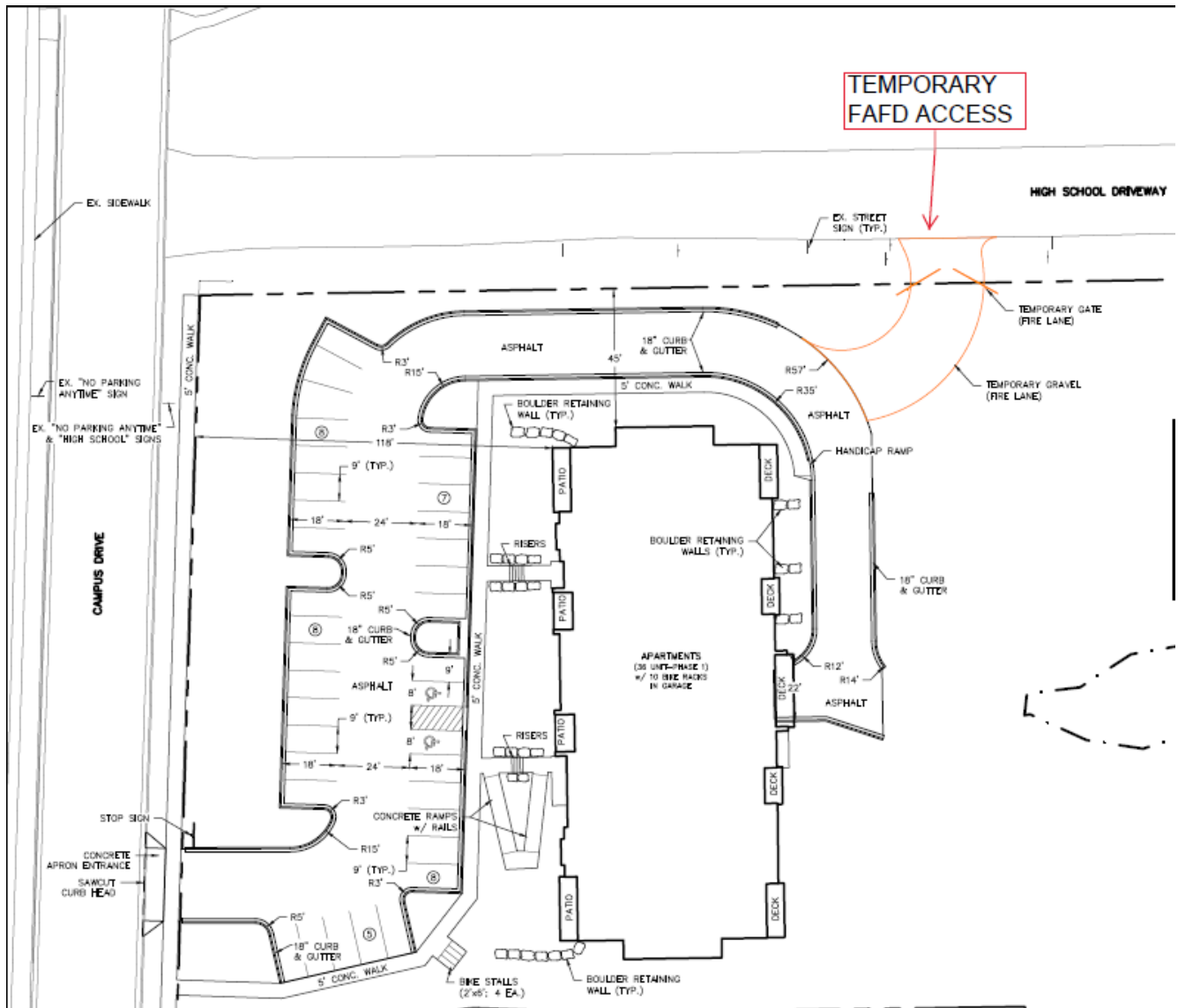
Wetlands have been identified on site. The Developer has reached out to WDNR with information in writing that limited wetland impacts will be allowed on the site that meet their regulations. Permits for this fill will be a required submittal prior to site disturbance.

City staff have asked the developer to create berms within the frontage along Campus Dr in an effort break up the aesthetic of the parking lots adjacent to the street. In addition, the installation of sidewalk has been required along Campus Dr. Several fire hydrants along Campus Dr may need to be adjusted by the City, to allow the sidewalk to be constructed.

Finally, as noted within the Concept Plan, several existing mature trees on the site have been identified for preservation. This includes a few Oak trees along the High School access road and a large white pine, noted near the stormwater basin.

*Fire Department* – The fire department requested an additional hydrant placed along the current school drive along with the construction of Phase 2. The two current hydrants on Campus Drive are sufficient. In addition, a temporary fire access off of the high school drive prior to development of this as a public road is needed. The fire department recommends this temporary access become permanent for the Phase 2 build. Confirmation of sufficient ingress and egress for fire trucks is ongoing and required prior to the start of Phase 1.

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**PUBLIC NOTICE:**

No public notice is required for Specific Implementation Plan review and action.

**COMPREHENSIVE LAND USE PLAN (2019):**

The GDP memorandum provided a more detailed review of this development, finding it in concert with the Comprehensive Plan.

**DISCUSSION:**

The applicant has worked with City staff over the last year in revising and refining the proposed development, in addition to presenting the project conceptually before the Plan Commission in



January. The City's Management Team has reviewed the application and all comments have been included within this document.

The proposed project aims to provide much needed housing within the City of Fort Atkinson, serve as the catalyst for the implementation of the Banker Road Neighborhood Plan, aligns with existing plans for the area, and provides new opportunities for people to work and live in the community, assisting local employers and the local economy. This type of project is not unique to Fort Atkinson or many of the other larger communities in Jefferson County.

Overall, the proposed development is of high-quality design, meets the requirements of the City's ordinances, is in alignment with adopted City plans, and provides new tax base, housing units, and local economic benefits in the community.

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**RECOMMENDATION:**

City staff recommends Plan Commission approve the Specific Implementation Plan, subject to the following conditions:

- Sidewalks be added the full length of the Campus Drive property frontage (southern property line) during Phase 1.
- Waive the requirement for curbing along parking areas for only the 5-stall surface parking area proposed on the far eastern side of the site near the proposed stormwater pond.
- Continued discussions with FAFD related to ingress / egress for equipment for Phase 1
- A full Exterior Lighting Plan is provided that meets all requirements of the Zoning Ordinance. Subject to City staff review and approval.
- Any wetland filling is required to meet all Wisconsin DNR requirements as indicated in the March 22, 2022 letter provided by the applicant.
- Any other recommendations of City staff and the Plan Commission.

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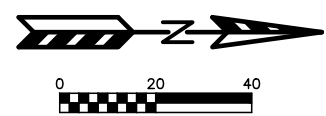
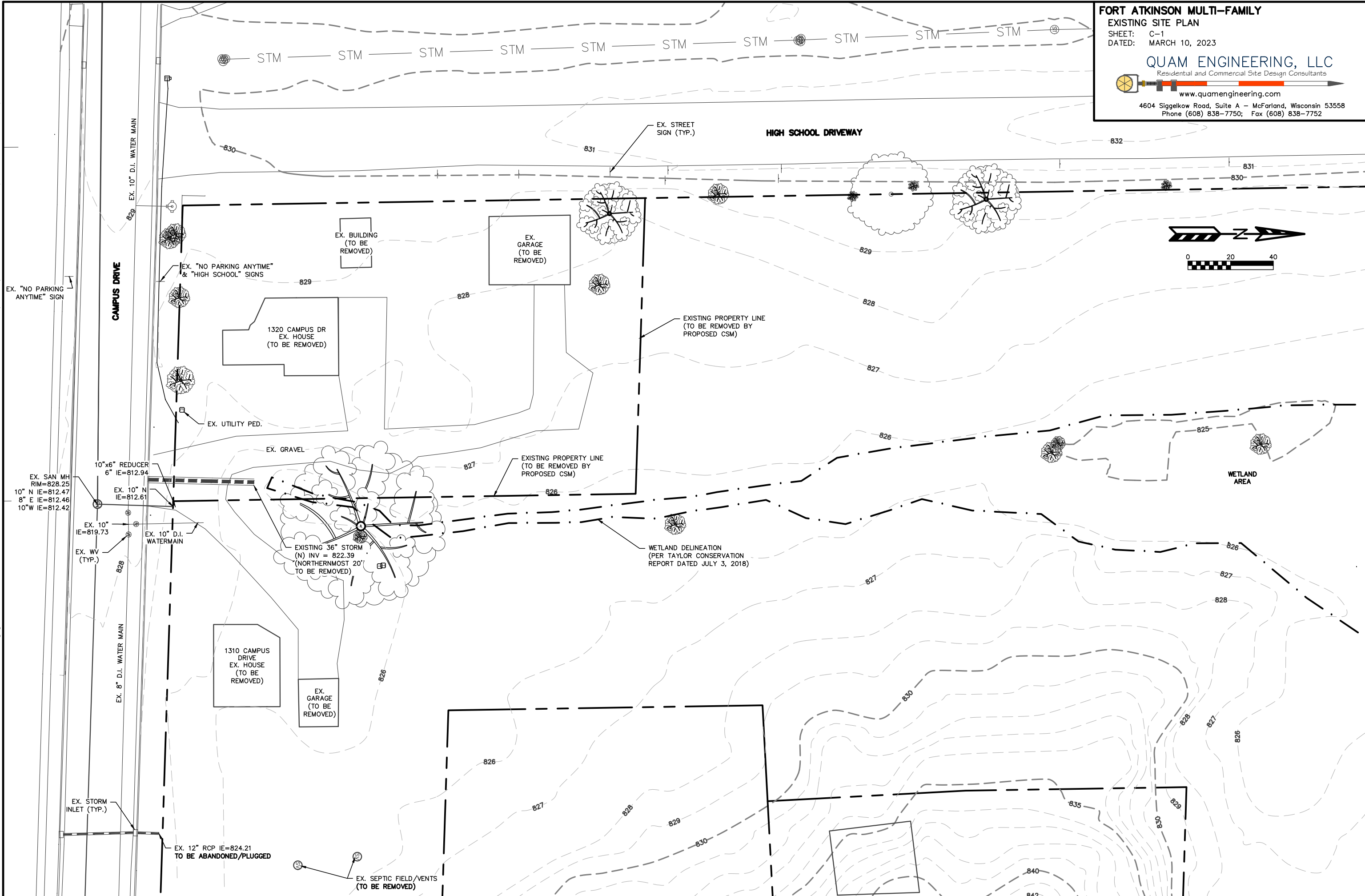
**ATTACHMENTS:**

- Development Narrative
- Phase 1 Site Plan Exhibits
- Erosion and Stormwater Control Plan

**FORT ATKINSON MULTI-FAMILY**  
**EXISTING SITE PLAN**  
 SHEET: C-1  
 DATED: MARCH 10, 2023

**QUAM ENGINEERING, LLC**  
 Residential and Commercial Site Design Consultants

www.quamengineering.com  
 4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558  
 Phone (608) 838-7750; Fax (608) 838-7752



QUAM ENGINEERING, LLC 4604 Siggelkow Road, Suite A - McFarland, WI 53558 (608) 838-7750 \MC-37-20\MC37BASE.DWG

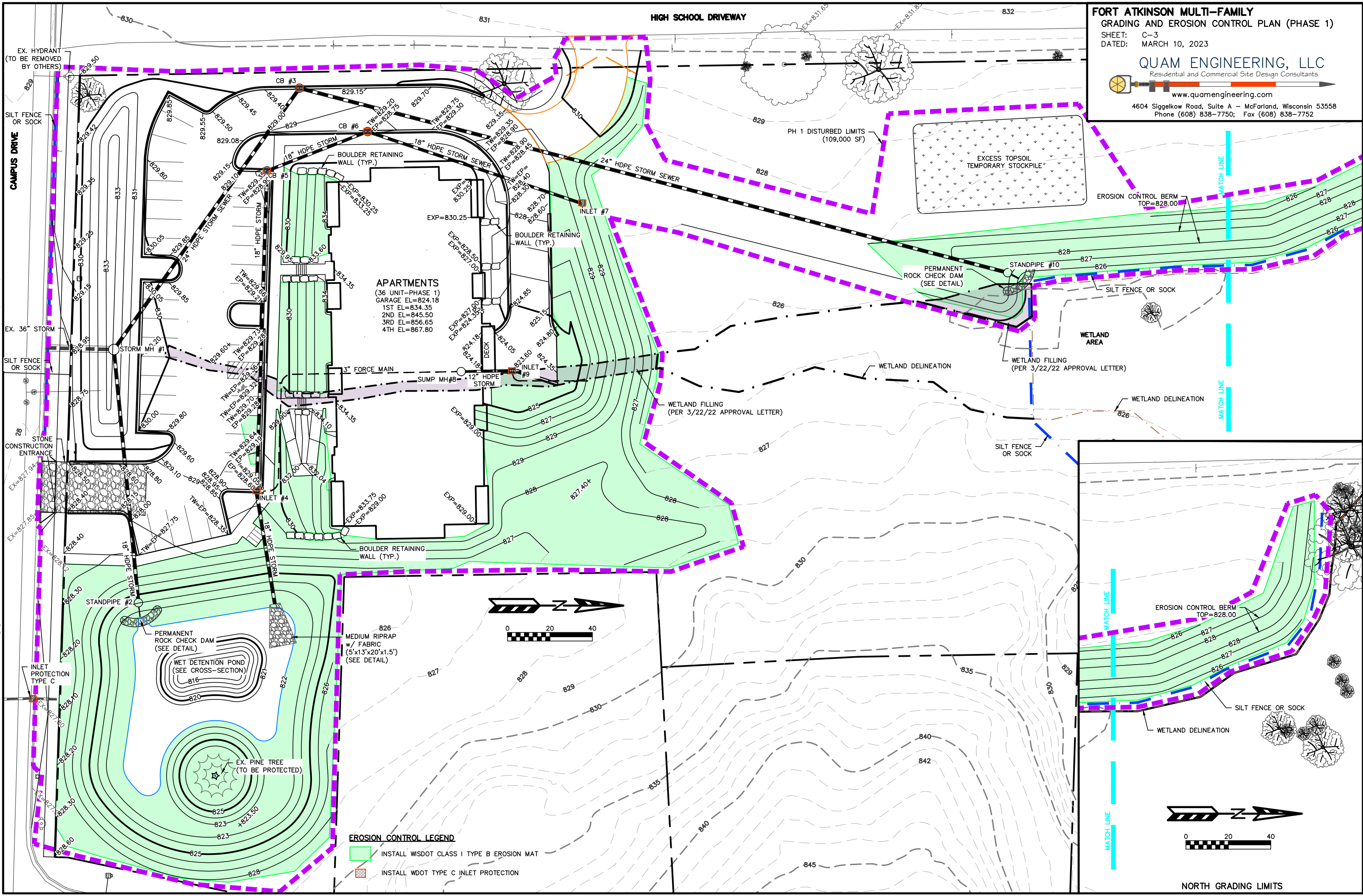
# FORT ATKINSON MULTI-FAMILY GRADING AND EROSION CONTROL PLAN (PHASE 1)

SHEET: C-3  
DATED: MARCH 10, 2023

## QUAM ENGINEERING, LLC

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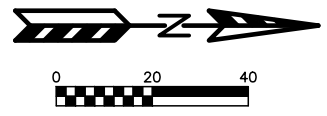
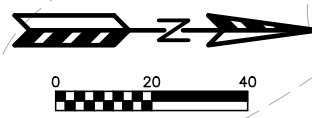


**APARTMENTS**  
(36 UNIT-PHASE 1)  
GARAGE EL=824.18  
1ST EL=834.35  
2ND EL=845.50  
3RD EL=856.65  
4TH EL=867.80

WET DETENTION POND  
(SEE CROSS-SECTION)

PERMANENT ROCK CHECK DAM  
(SEE DETAIL)

- EROSION CONTROL LEGEND**
- INSTALL WISDOT CLASS I TYPE B EROSION MAT
  - INSTALL WDOT TYPE C INLET PROTECTION

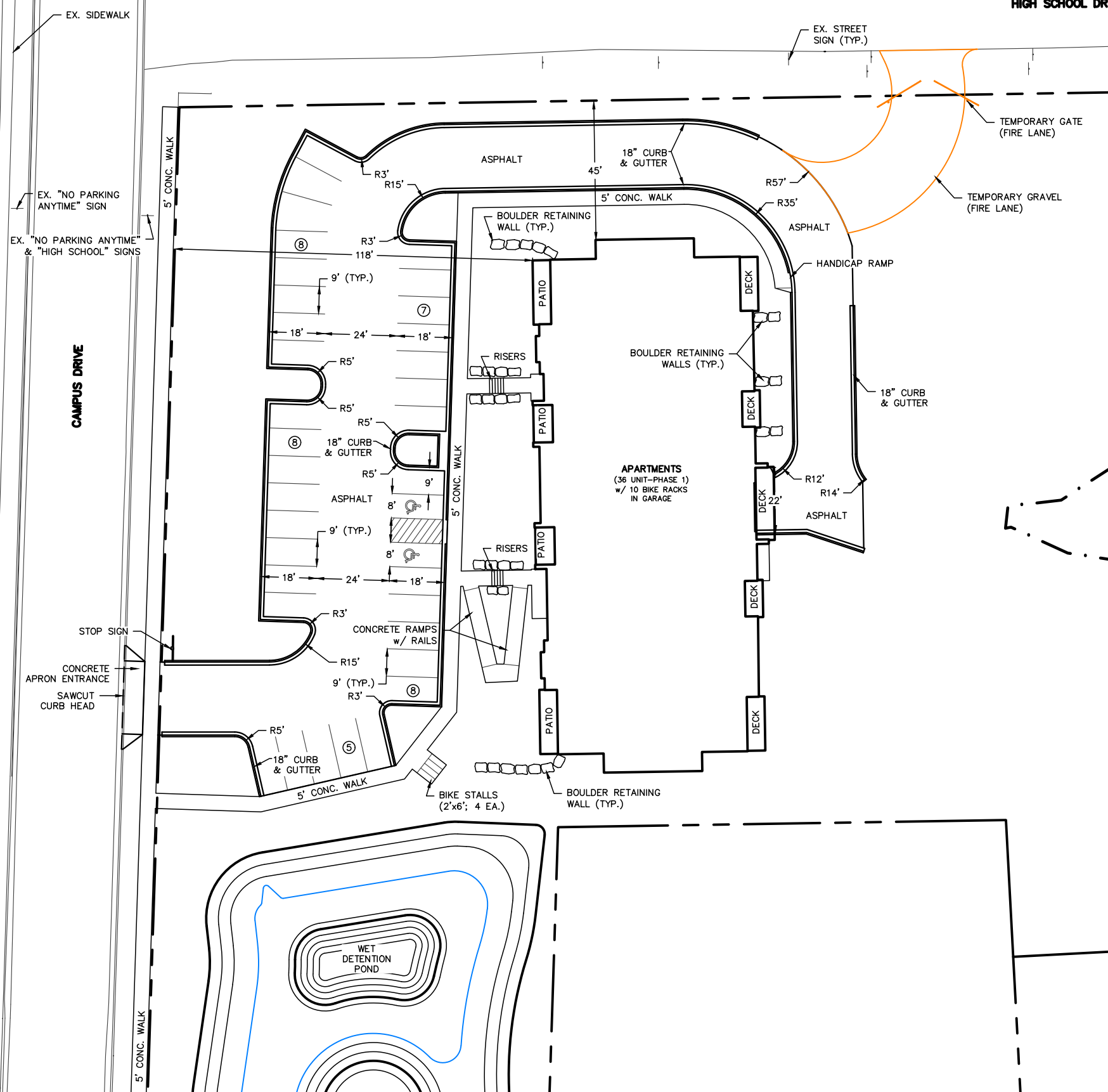


NORTH GRADING LIMITS



**FORT ATKINSON MULTI-FAMILY**  
**PROPOSED SITE PLAN (PHASE 1)**  
 SHEET: C-2  
 DATED: MARCH 13, 2023

**QUAM ENGINEERING, LLC**  
 Residential and Commercial Site Design Consultants  
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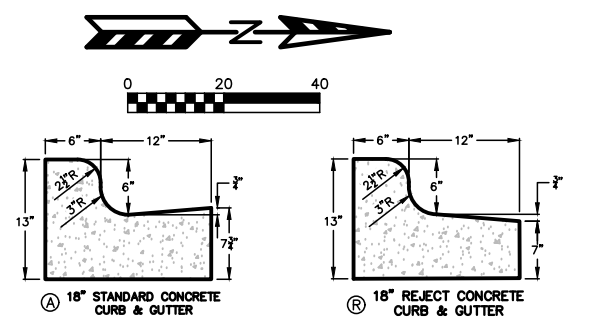
- RESIDENTIAL STALLS PROVIDED**  
 SURFACE PARKING LOT =36 STALLS PROVIDED  
 UNDERGROUND PARKING LOT =27 STALLS PROVIDED  
 TOTAL PROVIDED: =63 STALLS PROVIDED
- BIKE STALLS PROVIDED**  
 OUTDOOR =4 STALLS PROVIDED  
 GARAGE =10 STALLS PROVIDED  
 TOTAL PROVIDED: =14 STALLS PROVIDED

**SITE INFORMATION BLOCK - PHASE 1**

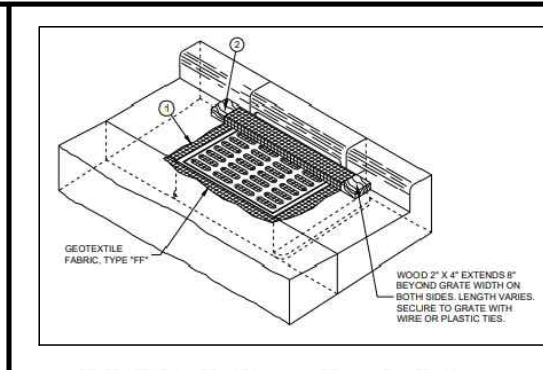
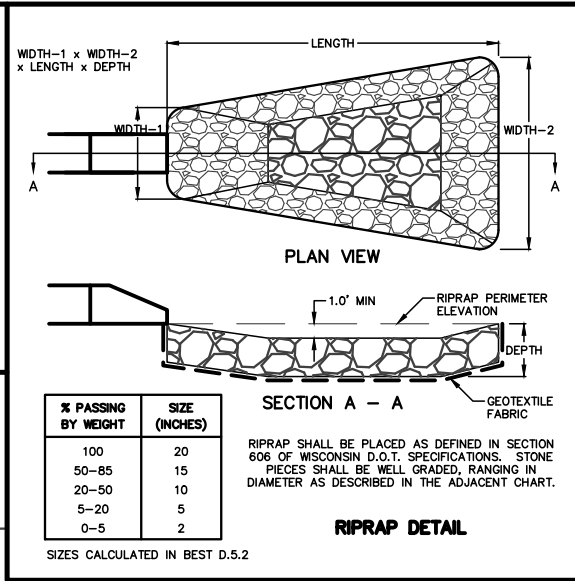
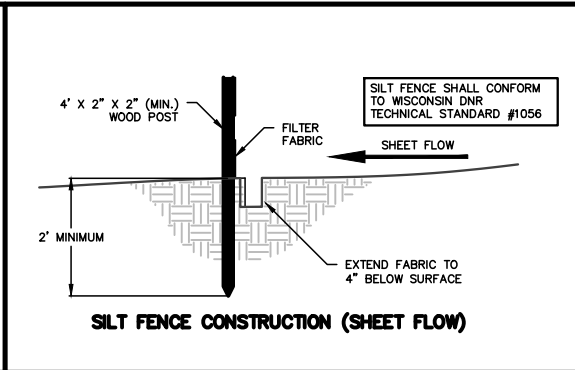
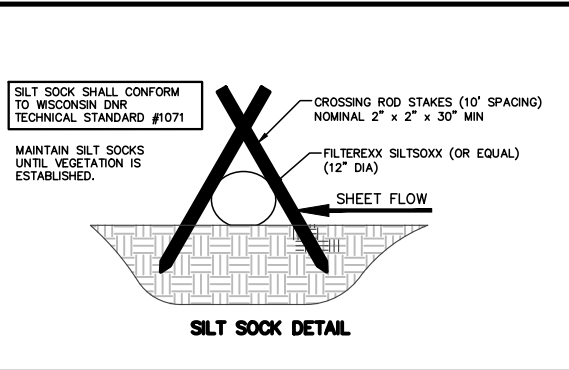
Site Address 1310 CAMPUS DRIVE  
 Site acreage (total) 5.63 ACRES  
 Proposed Zoning PLANNED UNIT DEVELOPMENT (P.U.D.)  
 Phase 1 Surface Coverage:

Building	12,400 SQFT
Parking Lot/Asphalt Drive	17,218 SQFT
Sidewalk & Ret. Walls	2,540 SQFT
<b>TOTAL IMPERVIOUS</b>	<b>32,158 SQFT</b>
Impervious area ratio	13.11%
Landscape area ratio	86.89%

Phase 1 Lot Density: 6.4 DWELLING UNITS / ACRE







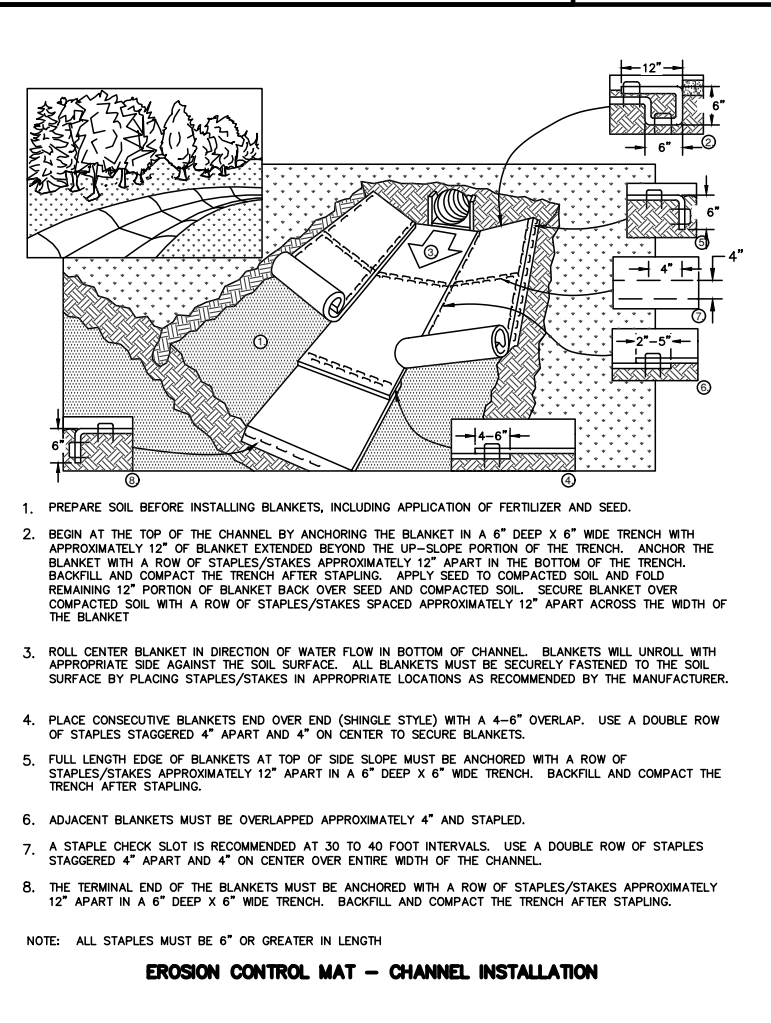
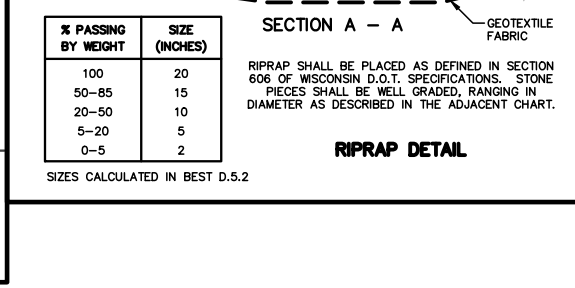
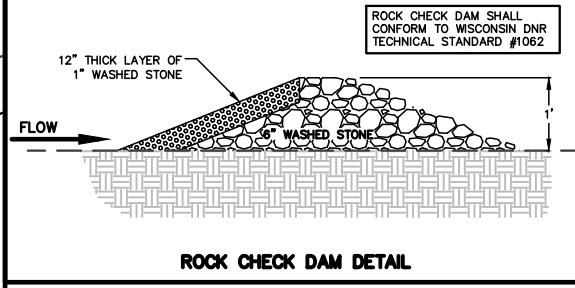
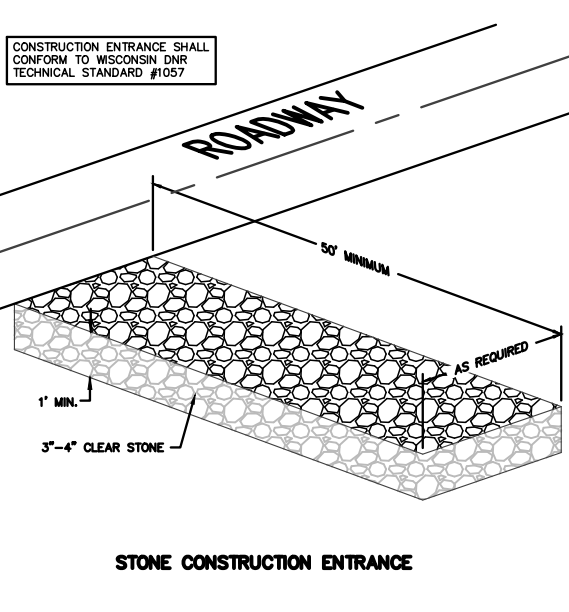
INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE WISCONSIN DEPARTMENT OF TRANSPORTATION'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

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.

- FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- FOR INLET PROTECTION, TYPE C, AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2"x4"
- TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE
- THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS, OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE "C" INLET PROTECTION DETAIL**



**EROSION NOTES:**

THE STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO THE PUBLIC STREET. SEDIMENT REACHING PUBLIC STREET SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.

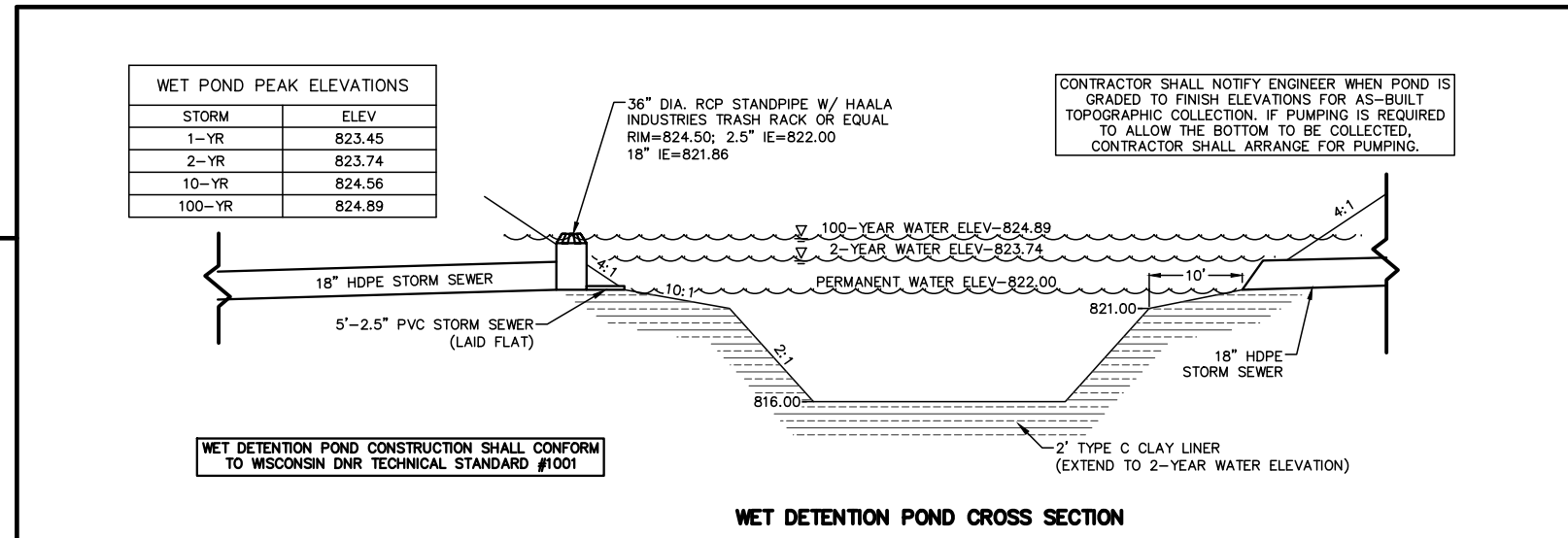
ALL DISTURBED AREAS MUST BE TEMPORARILY STABILIZED WITHIN 14 DAYS OF LAST ACTIVITY. ALL DISTURBED AREAS SHOULD BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.

PERIMETER CONTROL SHALL BE INSTALLED AROUND STOCKPILES, AND STOCKPILES SHALL BE STABILIZED THAT WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER.

EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

**TIME SCHEDULE:**

PHASE	DATE	ACTIVITY
PHASE 1	JULY 1 - 15, 2023	INSTALL INITIAL EROSION CONTROL DEVICES, DETENTION POND, AND ROUGH GRADE SITE.
	JULY 15, 2023 - APRIL 30, 2024	CONSTRUCT PHASE 1 BUILDING, PARKING LOT, UTILITIES, AND SIDEWALKS.
	AUGUST 6, 2023	RESTORE POND SIDESLOPES.
PHASE 2	APRIL 1 - 30, 2024	RESTORE ALL PHASE 1 PVIOUS DISTURBED AREAS.
	JULY 1 - 13, 2024	MAINTAIN EROSION CONTROL MEASURES IN PHASE 2 AREA AND ROUGH GRADE SITE.
	JULY 13, 2024 - APRIL 30, 2025	CONSTRUCT PHASE 2 BUILDING, PARKING LOT, UTILITIES, & SIDEWALKS, AND RESTORE PHASE 2 PVIOUS DISTURBED AREAS.



**WET DETENTION POND CONSTRUCTION SHALL CONFORM TO WISCONSIN DNR TECHNICAL STANDARD #1001**

**RESTORATION NOTES:**

RESTORATION SHALL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL.

PER DNR PRESCRIPTIVE COMPLIANCE, SLOPES STEEPER THAN 5:1 MUST HAVE THE INDICATED EROSION MATTING (PER DNR TECH STANDARD 1052) INSTALLED. THE AREA SHALL BE STABILIZED IMMEDIATELY AFTER REACHING PROPOSED GRADE OR IF THE AREA REMAINS INACTIVE FOR 14 DAYS. SOIL EXPOSURE SHALL BE LIMITED TO 30 CALENDAR DAYS.

ALL PVIOUS DISTURBED AREAS SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, SEED, AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. RAINWATER RENEWAL SEED MIX SUPPLIED BY AGRECOL OR EQUIVALENT SHALL BE USED FOR THE SIDES OF THE WET POND. SEED MIXTURE 40 SHALL BE USED ON ALL OTHER DISTURBED AREAS. ALL SEED MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 630 OF D.O.T. SPECIFICATIONS. AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX.

ALL PVIOUS DISTURBED AREAS SHALL RECEIVE FERTILIZER. FERTILIZER SHALL BE THE FOLLOWING MINIMUM REQUIREMENTS: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 8%; POTASH, NOT LESS THAN 8%. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. SEED MIXTURES SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. MULCH SHALL CONSIST OF HAY OR STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ACRE.

SEEDING FROM SEPTEMBER 16 THROUGH NOVEMBER 15 IS TO BE AVOIDED TO PREVENT FREEZING OF NEW GROWTH. DORMANT SEEDING SHALL COMPLETED AFTER NOVEMBER 15. DISTURBED AREA SHALL HAVE EROSION MATTING APPLIED BEFORE DORMANT SEEDING. DORMANT SEEDING SHALL NOT BE APPLIED ON TOP OF SNOW. IF DORMANT SEEDING DOES NOT RESULT IN AT LEAST 70% COVER BY MAY 15, ADDITIONAL SEEDING SHALL BE REQUIRED.

**OWNER:**  
TIP OF THE SPEAR, LLC  
ATTN: RYAN QUAM  
4604 SIGGELKOW ROAD, SUITE A  
MCFARLAND, WI 53558

**ENGINEER:**  
QUAM ENGINEERING, LLC  
ATTN: RYAN QUAM  
4604 SIGGELKOW ROAD, SUITE A  
MCFARLAND, WI 53558

**FORT ATKINSON MULTI-FAMILY**  
EROSION CONTROL AND STORMWATER DETAILS  
SHEET: C-5  
DATED: MARCH 10, 2023

**QUAM ENGINEERING, LLC**  
Residential and Commercial Site Design Consultants  
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Phone (608) 838-7750; Fax (608) 838-7752

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



February 20, 2023

**City of Fort Atkinson Engineering Department**

Attn: Andy Selle  
101 N Main Street  
Fort Atkinson, WI 53538

Re: Fort Atkinson Multi-Family

The proposed Fort Atkinson Multi-Family development is located at the properties known as 1310 and 1320 Campus Dr in the City of Fort Atkinson. The existing site consists of approximately 5 acres of lawn, woods, driveway, and three single-family houses. The proposed development will include the construction of two 36-unit apartment buildings, each in their own phase of construction. The proposed wet pond will provide stormwater management for the development.

Enclosed are the following documents for the above referenced project:

- 1.) Existing Site Plan;
- 2.) Phase 1 Plans;
  - a. Grading and Erosion Control Plan;
  - b. Utility Plan;
  - c. Details;
- 3.) Phase 2 Plans;
  - a. Grading and Erosion Control Plan;
  - b. Utility Plan;
- 4.) Universal Soil Loss Equation (USLE) worksheet;
- 5.) Rational Method Worksheet;
- 6.) Riprap Sizing Worksheet;
- 7.) Pre-Development HydroCAD Calculations;
- 8.) Post-Development HydroCAD Calculations (Phase 2);
- 9.) Sediment Control Calculations (Phase 2);
- 10.) Drainage and Test Pit Plans;
- 11.) Test Pit Log;
- 12.) Draft Maintenance Plan;

The documents are being submitted to address erosion control and stormwater management requirements for the proposed development and will meet the performance standards defined in the City of Fort Atkinson Ordinance and WDNR NR 151 as follows:

**Erosion Control**

*The proposed construction shall include erosion control measures to prevent gully and bank erosion and limit total off-site erosion to less than 5.0 tons per acre per year.*

All runoff during construction shall be directed to flow through erosion control measures as shown on the Grading and Erosion Control Plans. The USLE calculation worksheet is included and indicates that soil loss will be less than 5.0 tons per acre per year for each phase.

**Sediment Control**



***For new development, by design, reduce to the maximum extent practicable, the total suspended solids load by 80 percent, based on the average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed an 80 percent total suspended solids reduction to meet the requirements of this section.***

The proposed wet pond will provide sediment control for the site. The Sediment Control Calculations are included as Exhibit #9. The existing wetland is included in the modeling since the wetland is part of the upstream watershed that drains through the proposed site.

**Rate Runoff Control**

***By design, BMPs shall be employed to maintain or reduce the peak runoff discharge rates, to the maximum extent practicable, as compared to predevelopment conditions for the 2-year, 24-hour design storm applicable to the post-construction site. The post-development peak flow rates for the 10-year and 100-year, 24-hour storm events shall be controlled either at or below predevelopment discharge rates. Additionally, NR 151 requires rate control for the 1-year, 24-hour storm.***

The results table below summarizes pre-development flow rates, as well as post-development flow rates with and without the proposed wet pond and existing wetland. The proposed wet pond and existing wetland are designed to provide runoff rate control for the site. Like with the sediment control model, the wetland has been included in the rate modeling since it is part of the upstream watershed that drains through the proposed site.

Storm Event (Year)	Total Existing Flow Rate (cfs)	Total Proposed Flow Rate Without Ponds (cfs)	Total Proposed Flow Rate With Ponds (cfs)
1	8.06	8.07	0.87
2	12.94	13.07	1.06
10	31.19	39.17	8.91
100	48.08	118.79	18.58

**Outlets**

***Discharges from the site must have a stable outlet capable of carrying the designed flow at a non-erosive velocity.***

The storm water runoff from the site will be directed to the existing storm sewer which will provide a safe outlet for the site.

**Infiltration**

***For residential development, BMPs shall be designed, installed and maintained to infiltrate runoff to the maximum extent practicable. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 90 percent of the predevelopment infiltration volume, based on an average annual rainfall. Alternatively, infiltrate 25 percent of the post-development runoff from the 2-year, 24-hour design storm with a type II distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than one percent of the project site is required as an effective infiltration area.***

The test pit log indicates redox features within a foot of the surface in the nearby test pits and clay soils to depths of 4.7 feet and 7 feet with groundwater observed below the clay layers. Due to the clay and high water table, the site is exempt from infiltration.

If the documents are satisfactory, please approve the erosion control and storm water management for the project. If you have any questions or comments, please feel free to contact me.

Sincerely,



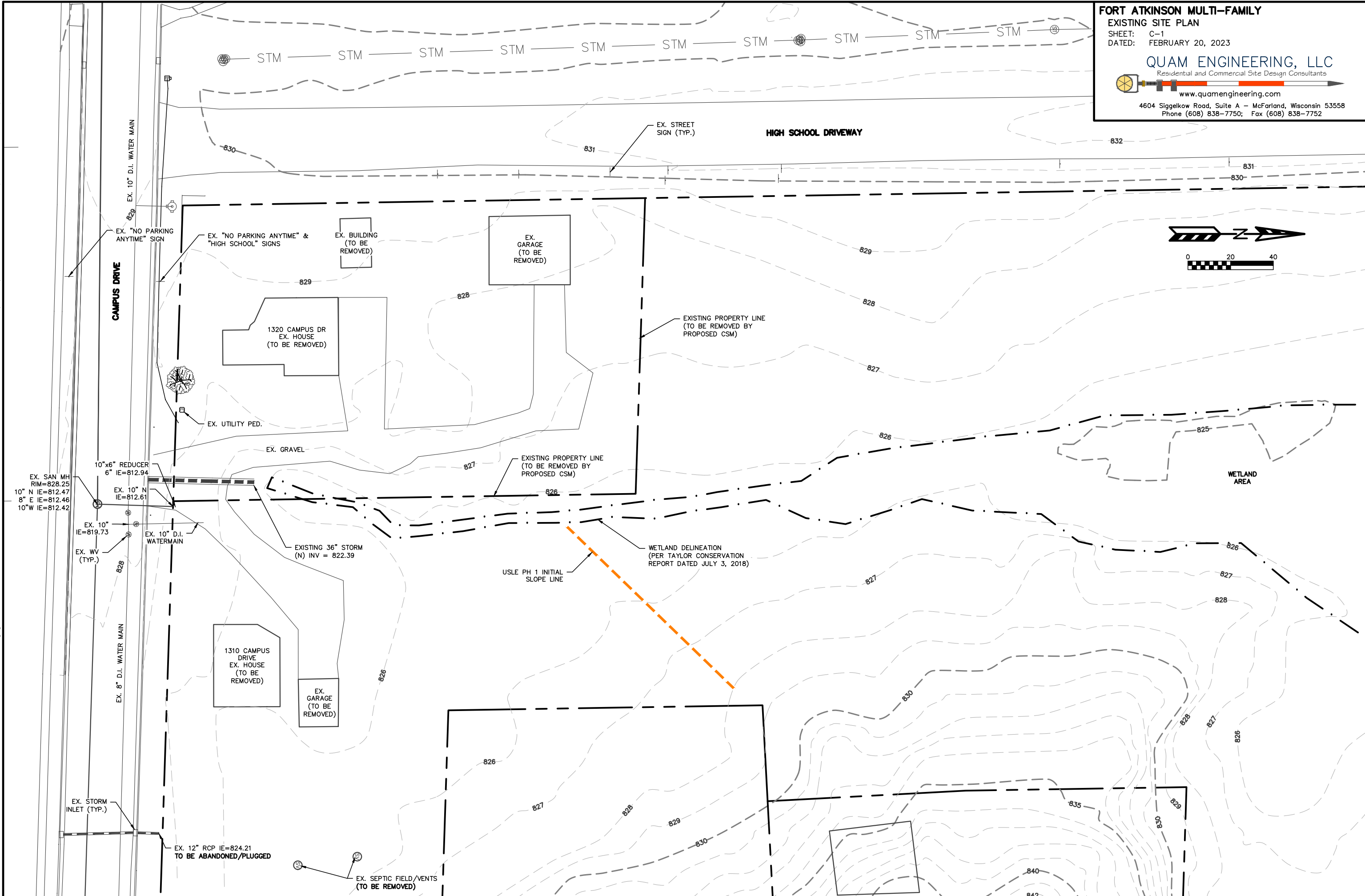
Aaron Falkosky, P.E.

FN: MC-37-22



**FORT ATKINSON MULTI-FAMILY**  
**EXISTING SITE PLAN**  
 SHEET: C-1  
 DATED: FEBRUARY 20, 2023

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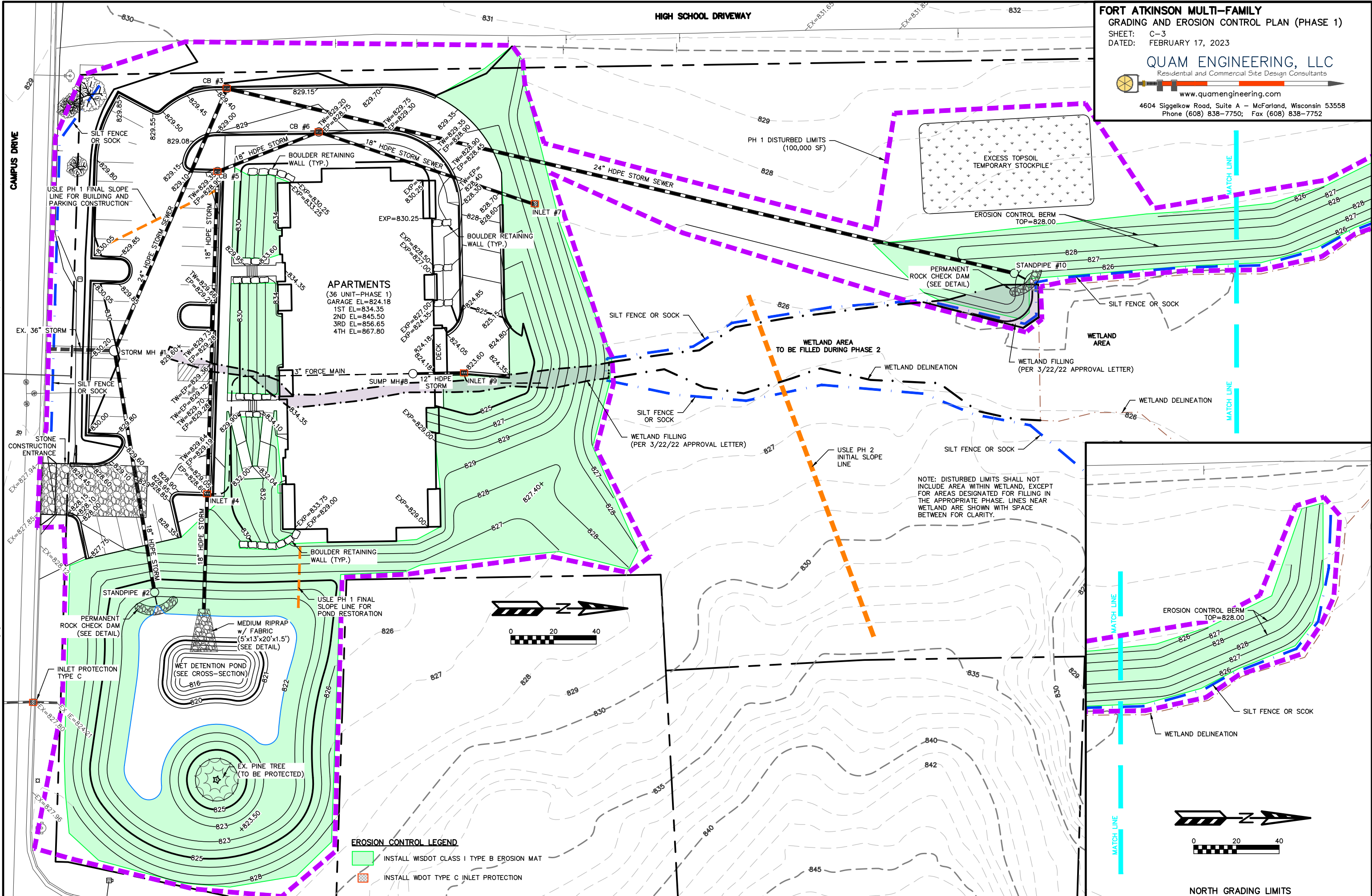
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**FORT ATKINSON MULTI-FAMILY  
GRADING AND EROSION CONTROL PLAN (PHASE 1)**



SHEET: C-3  
DATED: FEBRUARY 17, 2023

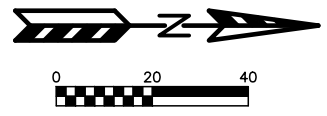
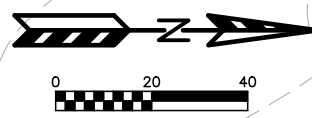
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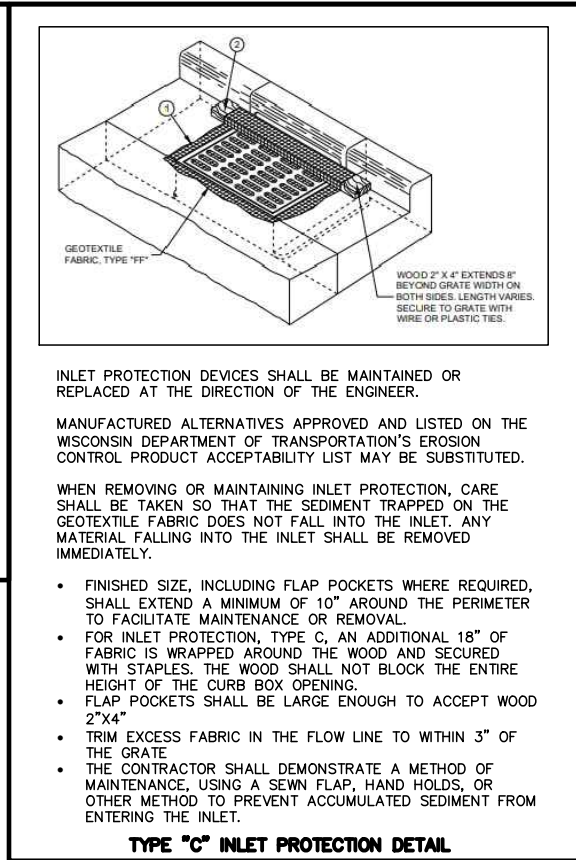
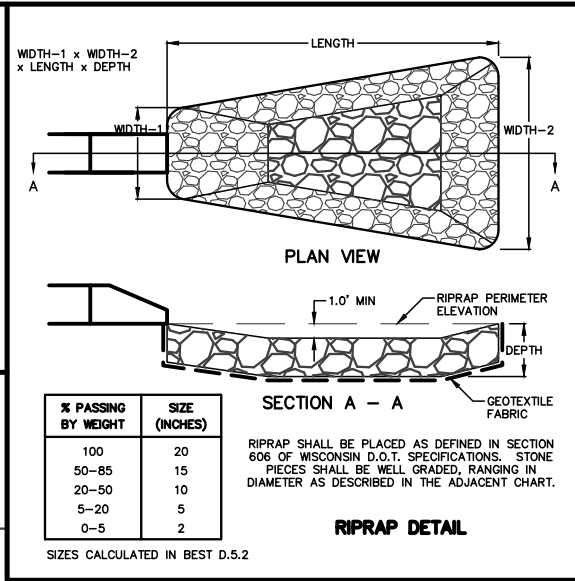
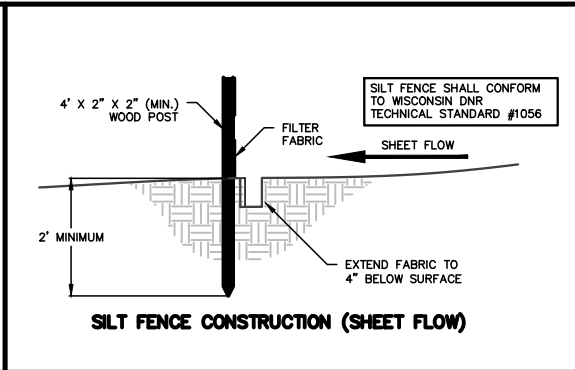
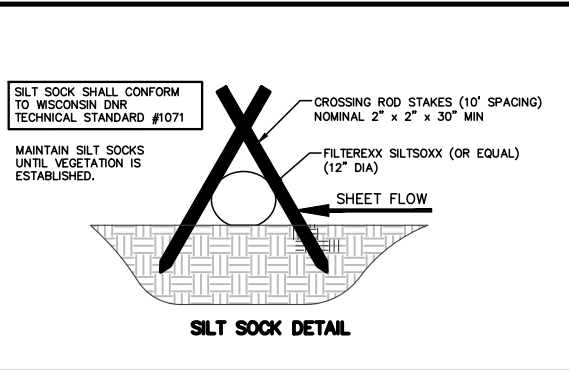
NOTE: DISTURBED LIMITS SHALL NOT INCLUDE AREA WITHIN WETLAND, EXCEPT FOR AREAS DESIGNATED FOR FILLING IN THE APPROPRIATE PHASE. LINES NEAR WETLAND ARE SHOWN WITH SPACE BETWEEN FOR CLARITY.

- EROSION CONTROL LEGEND**
-  INSTALL WISDOT CLASS I TYPE B EROSION MAT
  -  INSTALL WDOT TYPE C INLET PROTECTION



NORTH GRADING LIMITS

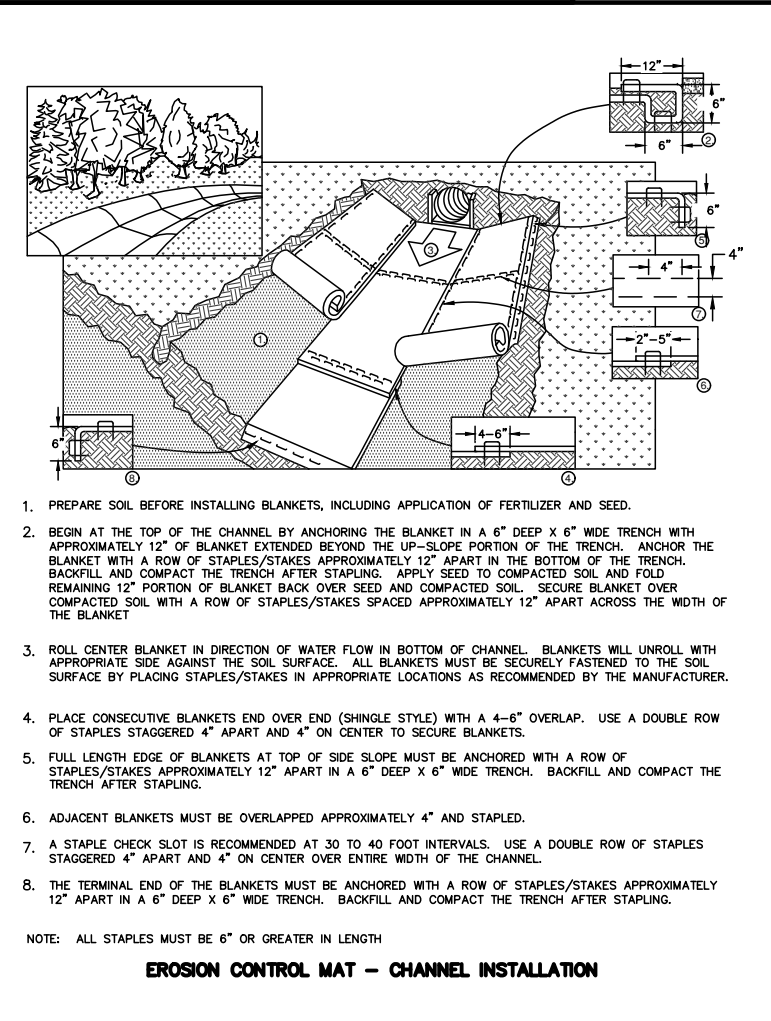
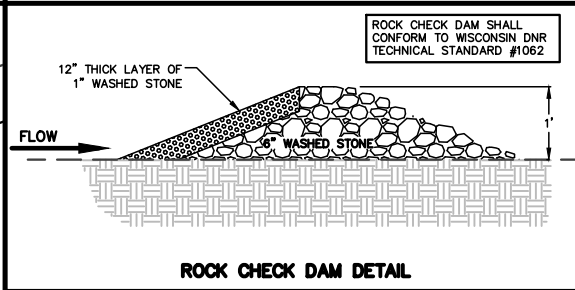
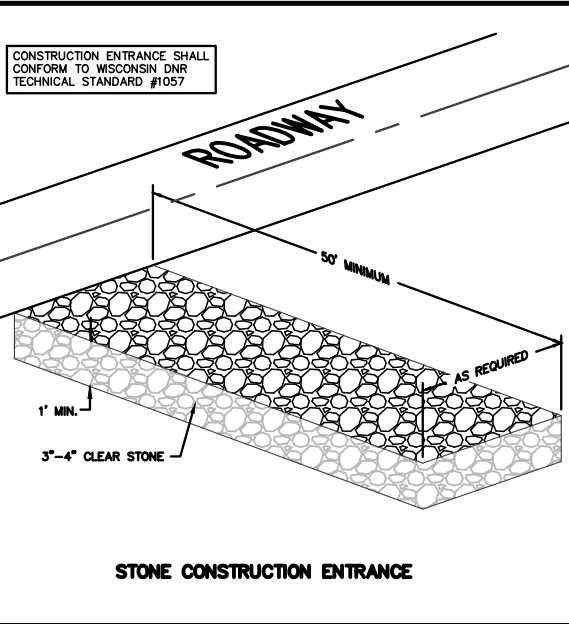




**FORT ATKINSON MULTI-FAMILY**  
**EROSION CONTROL AND STORMWATER DETAILS**  
 SHEET: C-5  
 DATED: FEBRUARY 17, 2023

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**EROSION NOTES:**

THE STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO THE PUBLIC STREET. SEDIMENT REACHING PUBLIC STREET SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.

ALL DISTURBED AREAS MUST BE TEMPORARILY STABILIZED WITHIN 14 DAYS OF LAST ACTIVITY. ALL DISTURBED AREAS SHOULD BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.

PERIMETER CONTROL SHALL BE INSTALLED AROUND STOCKPILES, AND STOCKPILES SHALL BE STABILIZED THAT WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER.

EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

**TIME SCHEDULE:**

**PHASE 1**

JULY 1 - 15, 2023 INSTALL INITIAL EROSION CONTROL DEVICES, DETENTION POND, AND ROUGH GRADE SITE.

JULY 15, 2023 - APRIL 30, 2024 CONSTRUCT PHASE 1 BUILDING, PARKING LOT, UTILITIES, AND SIDEWALKS.

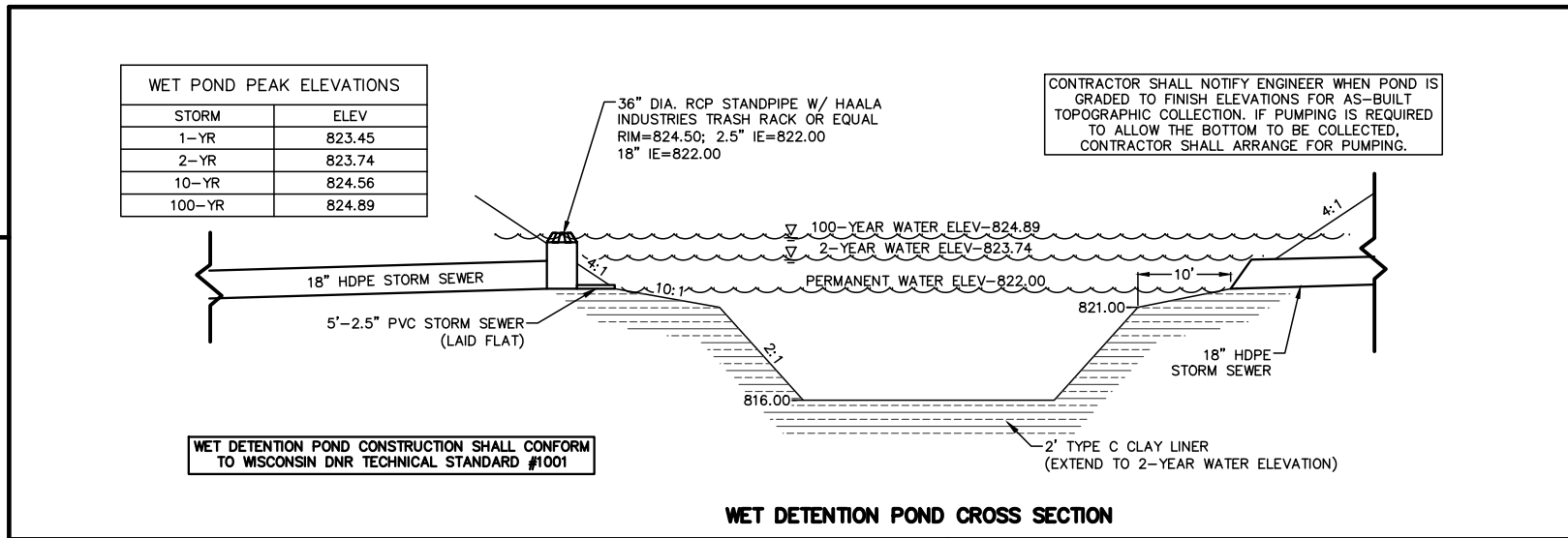
AUGUST 6, 2023 RESTORE POND SIDESLOPES.

**PHASE 2**

APRIL 1 - 30, 2024 RESTORE ALL PHASE 1 PVIOUS DISTURBED AREAS.

JULY 1 - 13, 2024 MAINTAIN EROSION CONTROL MEASURES IN PHASE 2 AREA AND ROUGH GRADE SITE.

JULY 13, 2024 - APRIL 30, 2025 CONSTRUCT PHASE 2 BUILDING, PARKING LOT, UTILITIES, & SIDEWALKS, AND RESTORE PHASE 2 PVIOUS DISTURBED AREAS.



**RESTORATION NOTES:**

RESTORATION SHALL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL.

PER DNR PRESCRIPTIVE COMPLIANCE, SLOPES STEEPER THAN 5:1 MUST HAVE THE INDICATED EROSION MATTING (PER DNR TECH STANDARD 1052) INSTALLED. THE AREA SHALL BE STABILIZED IMMEDIATELY AFTER REACHING PROPOSED GRADE OR IF THE AREA REMAINS INACTIVE FOR 14 DAYS. SOIL EXPOSURE SHALL BE LIMITED TO 30 CALENDAR DAYS.

ALL PVIOUS DISTURBED AREAS SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, SEED, AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. RAINWATER RENEWAL SEED MIX SUPPLIED BY AGRECOL OR EQUIVALENT SHALL BE USED FOR THE SIDES OF THE WET POND. SEED MIXTURE 40 SHALL BE USED ON ALL OTHER DISTURBED AREAS. ALL SEED MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 630 OF D.O.T. SPECIFICATIONS. AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX.

ALL PVIOUS DISTURBED AREAS SHALL RECEIVE FERTILIZER. FERTILIZER SHALL BE THE FOLLOWING MINIMUM REQUIREMENTS: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 8%; POTASH, NOT LESS THAN 8%. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. SEED MIXTURES SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. MULCH SHALL CONSIST OF HAY OR STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ACRE.

SEEDING FROM SEPTEMBER 16 THROUGH NOVEMBER 15 IS TO BE AVOIDED TO PREVENT FREEZING OF NEW GROWTH. DORMANT SEEDING SHALL COMPLETED AFTER NOVEMBER 15. DISTURBED AREA SHALL HAVE EROSION MATTING APPLIED BEFORE DORMANT SEEDING. DORMANT SEEDING SHALL NOT BE APPLIED ON TOP OF SNOW. IF DORMANT SEEDING DOES NOT RESULT IN AT LEAST 70% COVER BY MAY 15, ADDITIONAL SEEDING SHALL BE REQUIRED.

**OWNER:**  
 TIP OF THE SPEAR, LLC  
 ATTN: RYAN QUAM  
 4604 SIGELKOW ROAD, SUITE A  
 MCFARLAND, WI 53558

**ENGINEER:**  
 QUAM ENGINEERING, LLC  
 ATTN: RYAN QUAM  
 4604 SIGELKOW ROAD, SUITE A  
 MCFARLAND, WI 53558

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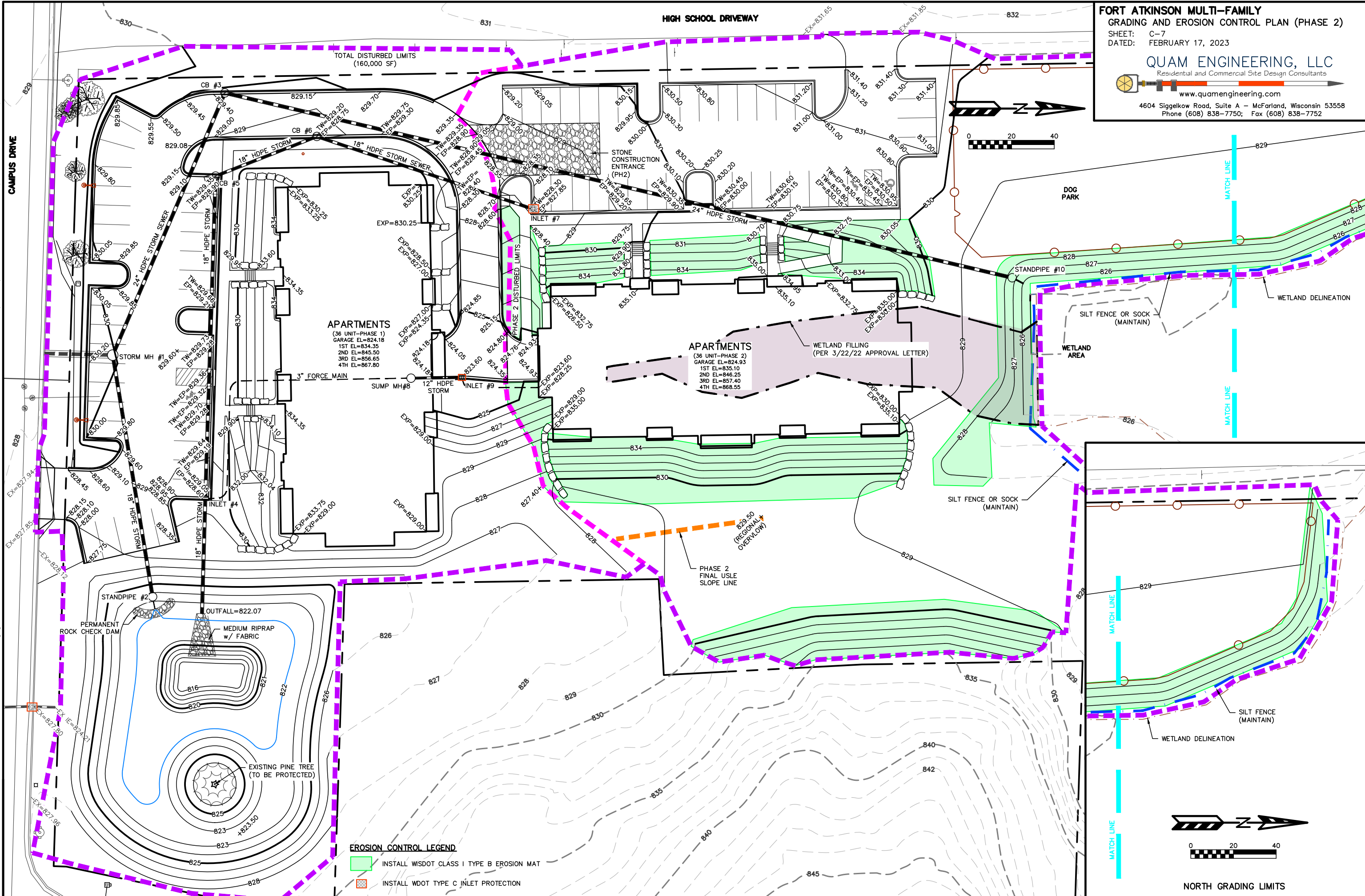
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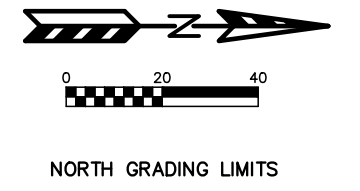
WS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

**FORT ATKINSON MULTI-FAMILY**  
**GRADING AND EROSION CONTROL PLAN (PHASE 2)**  
 SHEET: C-7  
 DATED: FEBRUARY 17, 2023

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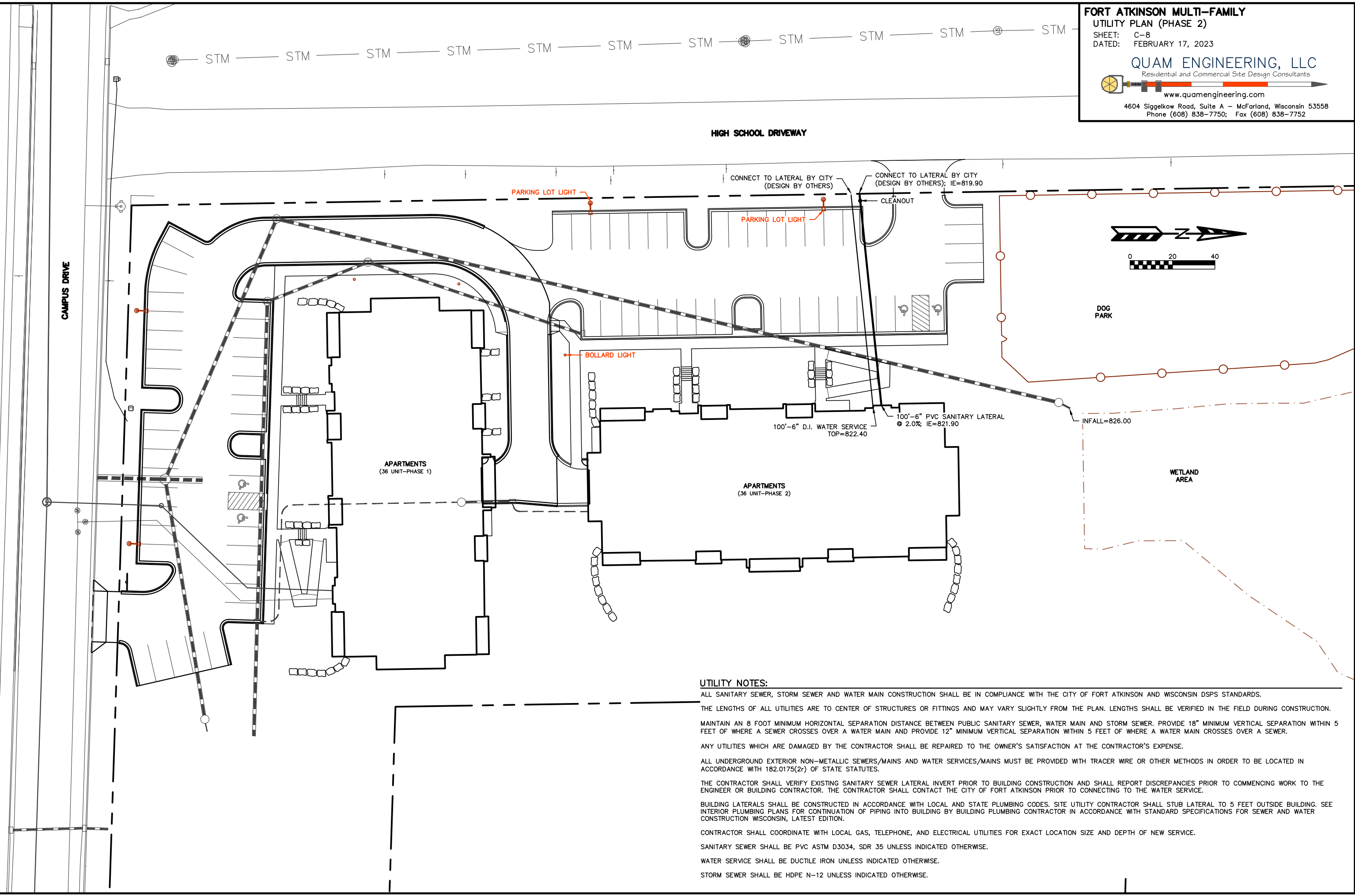
- EROSION CONTROL LEGEND**
- INSTALL WSDOT CLASS I TYPE B EROSION MAT
  - INSTALL WDOT TYPE C INLET PROTECTION



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**FORT ATKINSON MULTI-FAMILY**  
**UTILITY PLAN (PHASE 2)**  
 SHEET: C-8  
 DATED: FEBRUARY 17, 2023

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**UTILITY NOTES:**

- ALL SANITARY SEWER, STORM SEWER AND WATER MAIN CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE CITY OF FORT ATKINSON AND WISCONSIN DSPS STANDARDS.
- THE LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM THE PLAN. LENGTHS SHALL BE VERIFIED IN THE FIELD DURING CONSTRUCTION.
- MAINTAIN AN 8 FOOT MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN PUBLIC SANITARY SEWER, WATER MAIN AND STORM SEWER. PROVIDE 18" MINIMUM VERTICAL SEPARATION WITHIN 5 FEET OF WHERE A SEWER CROSSES OVER A WATER MAIN AND PROVIDE 12" MINIMUM VERTICAL SEPARATION WITHIN 5 FEET OF WHERE A WATER MAIN CROSSES OVER A SEWER.
- ANY UTILITIES WHICH ARE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
- ALL UNDERGROUND EXTERIOR NON-METALLIC SEWERS/MAINS AND WATER SERVICES/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORDANCE WITH 182.0175(2r) OF STATE STATUTES.
- THE CONTRACTOR SHALL VERIFY EXISTING SANITARY SEWER LATERAL INVERT PRIOR TO BUILDING CONSTRUCTION AND SHALL REPORT DISCREPANCIES PRIOR TO COMMENCING WORK TO THE ENGINEER OR BUILDING CONTRACTOR. THE CONTRACTOR SHALL CONTACT THE CITY OF FORT ATKINSON PRIOR TO CONNECTING TO THE WATER SERVICE.
- BUILDING LATERALS SHALL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL AND STATE PLUMBING CODES. SITE UTILITY CONTRACTOR SHALL STUB LATERAL TO 5 FEET OUTSIDE BUILDING. SEE INTERIOR PLUMBING PLANS FOR CONTINUATION OF PIPING INTO BUILDING BY BUILDING PLUMBING CONTRACTOR IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION WISCONSIN, LATEST EDITION.
- CONTRACTOR SHALL COORDINATE WITH LOCAL GAS, TELEPHONE, AND ELECTRICAL UTILITIES FOR EXACT LOCATION SIZE AND DEPTH OF NEW SERVICE.
- SANITARY SEWER SHALL BE PVC ASTM D3034, SDR 35 UNLESS INDICATED OTHERWISE.
- WATER SERVICE SHALL BE DUCTILE IRON UNLESS INDICATED OTHERWISE.
- STORM SEWER SHALL BE HDPE N-12 UNLESS INDICATED OTHERWISE.





# Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)



YEAR 1

Developer: Tip of the Spear, LLC  
 Project: Fort Atkinson Multi-Family - Phase 1 (Pond)  
 Date: 02/17/23  
 County: Dane

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	07/01/23	07/15/23	13.0%	150	Silt Loam	0.43	3.0%	100	0.30	1.00	2.5	1.011	Sediment Basin	0.5
Bare Ground	07/15/23	08/06/23	14.2%	150	Silt Loam	0.43	25.0%	28	3.29	1.00	30.1	0.638	Sediment Basin	3.8
Seed with Mulch or Er	08/06/23	10/05/23	25.6%	150	Silt Loam	0.43	25.0%	25	3.11	0.10	5.1	0.626	Sediment Basin	0.6
End	10/05/23	----	----	----	-----	----			----	-----	----	0.000	Sediment Basin	0.0
		----	----	----	-----	----			----	-----	----	0.000		0.0
		----	----	----	-----	----			----	-----	----	0.000		0.0
<b>TOTAL</b>											<b>37.8</b>		<b>TOTAL</b>	<b>5.0</b>
													<b>% Reduction Required</b>	<b>NONE</b>

SLOPE > 20% USE PRESCRIPTIVE COMPLIANCE

**Notes:**

See Help Page for further descriptions of variables and items in drop-down boxes.  
 The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.  
 For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

**Recommended Permanent Seeding Dates:**

4/1-5/15 and 8/7-8/29 Turf, introduced grasses and legumes  
 Thaw-6/30 Native Grasses, forbs, and legumes

Designed By:	BLB
Date	2/17/2023



# Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)



YEAR 1

Developer: Tip of the Spear, LLC  
 Project: Fort Atkinson Multi-Family - Phase 1 Parking Lot  
 Date: 02/17/23  
 County: Dane

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	07/01/23	07/15/23	13.0%	150	Silt Loam	0.43	3.0%	100	0.30	1.00	2.5	1.011	Sediment Basin	0.5
Bare Ground	07/15/23	04/30/24	57.0%	150	Silt Loam	0.43	1.5%	60	0.14	1.00	5.1	1.034	Sediment Basin	1.1
End	04/30/24	----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
<b>TOTAL</b>											<b>7.6</b>		<b>TOTAL</b>	<b>1.6</b>
													<b>% Reduction Required</b>	<b>NONE</b>

**Notes:**  
 See Help Page for further descriptions of variables and items in drop-down boxes.  
 The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.  
 For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

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 4/1-5/15 and 8/7-8/29 Turf, introduced grasses and legumes  
 Thaw-6/30 Native Grasses, forbs, and legumes

Designed By:	BLB
Date	2/17/2023



# Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)



YEAR 1

Developer: Tip of the Spear, LLC

Project: Fort Atkinson Multi-Family - Phase 2 Construction

Date: 02/17/23

County: Dane

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	07/01/24	07/13/24	11.1%	150	Silt Loam	0.43	5.3%	170	0.75	1.00	5.4	0.959	Inlet Protection	3.6
Bare Ground	07/13/24	04/30/25	57.9%	150	Silt Loam	0.43	1.4%	70	0.14	1.00	5.3	1.049	Sediment Basin	1.1
Seed with Mulch or Er	04/30/25	06/29/25	29.3%	150	Silt Loam	0.43	1.4%	70	0.14	0.10	0.3	1.050	Sediment Basin	0.1
End	06/29/25	----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
<b>TOTAL</b>											<b>11.0</b>		<b>TOTAL</b>	<b>4.8</b>
													<b>% Reduction Required</b>	<b>NONE</b>

**Notes:**

See Help Page for further descriptions of variables and items in drop-down boxes.  
 The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.  
 For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

**Recommended Permanent Seeding Dates:**

4/1-5/15 and 8/7-8/29 Turf, introduced grasses and legumes  
 Thaw-6/30 Native Grasses, forbs, and legumes

Designed By:	BLB
Date	2/17/2023

## Rational Method Worksheet - Storm Sewer Sizing

**PROJECT:** Fort Atkinson Multi-Family

Computed by: BLB

**DATE:** 2/17/2023

Checked by: AFF

LOCATION		BASIN		RAINFALL - RUNOFF					SEWER			
Upstream Structure	Downstream Structure	Runoff Coefficient <small>C (C)</small>	Area (acres) <small>A</small>	Design Storm (Yr)	Rain Intensity <small>(in/hr)</small>	Direct Runoff (cfs) <small>Q=C*I*A</small>	Other Runoff (cfs)	Design Runoff (cfs)	Sewer Size (in)	Min Slope of Sewer <small>(%)</small>	Manning's Number <small>n</small>	Capacity Flowing Full (cfs)
Inlet #7	CB #6	0.72	0.60	10	7.20	3.10	0.00	3.10	18	0.30%	0.012	6.23
CB #6	CB #5	0.72	0.17	10	7.20	0.87	3.10	3.97	18	0.50%	0.012	8.05
CB #5	Inlet #4	0.72	0.20	10	7.20	1.02	3.97	4.99	18	0.60%	0.012	8.81
Inlet #4	Pond	0.72	0.64	10	7.20	3.29	4.99	8.29	18	2.00%	0.012	16.09
$C_{10}=0.72$ ; Commercial from FDM Procedure 13-10-5, Figure 2 $I_{10}$ = rainfall intensity in Jefferson County for a time of concentration of 5 minutes from FDM Procedure 13-10, Attachment 5.4 Capacity Flowing Full was determined using Manning's Equation												

## Rational Method Worksheet - Storm Sewer Sizing

**PROJECT:** Fort Atkinson Multi-Family

Computed by: BLB

**DATE:** 2/17/2023

Checked by: AFF

LOCATION		BASIN		RAINFALL - RUNOFF					SEWER			
Upstream Structure	Downstream Structure	Runoff Coefficient C (C)	Area (acres) A	Design Storm (Yr)	Rain Intensity (in/hr) I	Direct Runoff (cfs) Q=C*I*A	Other Runoff (cfs)	Design Runoff (cfs)	Sewer Size (in)	Min Slope of Sewer (%)	Manning's Number n	Capacity Flowing Full (cfs)
Inlet #7	CB #6	0.89	0.60	100	10.56	5.62	0.00	5.62	18	0.30%	0.012	6.23
CB #6	CB #5	0.89	0.17	100	10.56	1.58	5.62	7.20	18	0.50%	0.012	8.05
CB #5	Inlet #4	0.89	0.20	100	10.56	1.85	7.20	9.05	18	0.60%	0.012	8.81
Inlet #4	Pond	0.89	0.64	100	10.56	5.97	9.05	15.02	18	2.00%	0.012	16.09
$C_{100}=0.89$ ; Commercial from FDM Procedure 13-10-5, Figure 2 $I_{100}$ = rainfall intensity in Jefferson County for a time of concentration of 5 minutes from FDM Procedure 13-10, Attachment 5.4 Capacity Flowing Full was determined using Manning's Equation												

# Riprap Sizing Worksheet

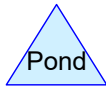
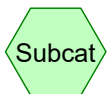
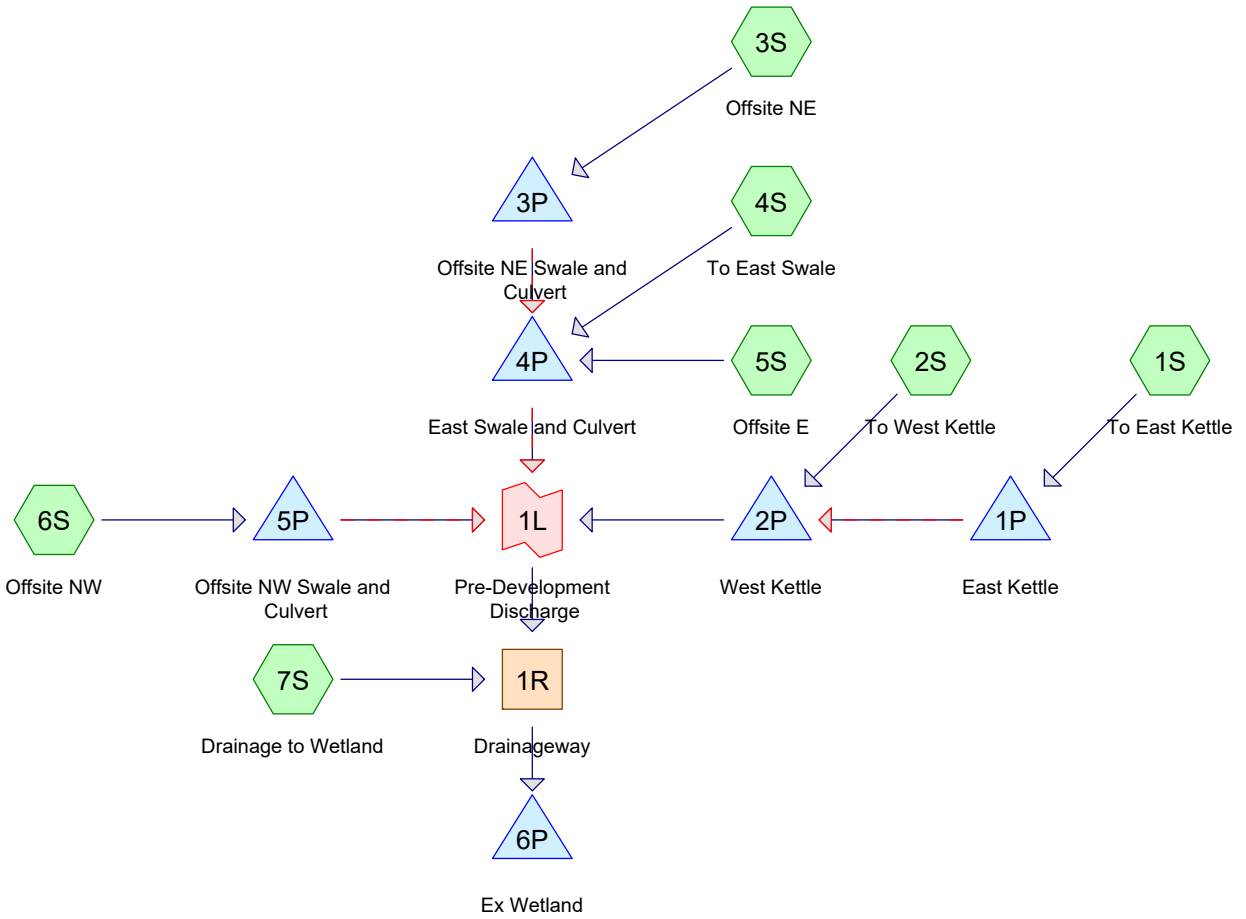
**PROJECT:** Fort Atkinson Multi-Family

Computed by: BLB

**DATE:** 2/17/2023

Checked by: AFF

LOCATION	SEWER		LENGTH		WIDTH		
Outfall Location	Storm Sewer Diameter (in)	Design Discharge (cfs)	Calculated Length (ft)	Design Length (ft)	Calculated Width (ft)	Design Width at Riprap End (ft)	Design Width at Culvert End (ft)
	(D <sub>0</sub> )	Q <sub>10</sub>	L <sub>sp</sub>		W <sub>sp</sub>		W <sub>culvert</sub>
To Wet Pond	18	8.29	19.7	<b>20</b>	12.4	<b>13</b>	<b>5</b>
$L_{sp} = D_0/12 (1.7 (Q_{10} / (D_0/12)^{5/2}) + 8)$							
$W_{sp} = 2 (1.5 (D_0/12) + 0.2 L_{sp})$							
$W_{culvert} = 3 * D_0$							
Riprap blanket design based on W.D.O.T Facilities Development Manual (FDM)							

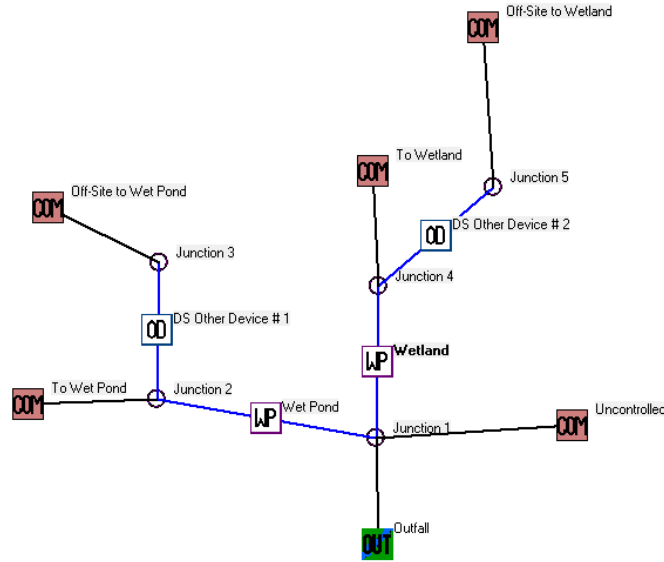


**Routing Diagram for Pre-Development\_current**  
 Prepared by Quam Engineering, LLC, Printed 2/17/2023  
 HydroCAD® 10.00-24 s/n 06587 © 2018 HydroCAD Software Solutions LLC

## SEDIMENT CONTROL CALCULATIONS

The following calculations using the WinSLAMM output indicates that the proposed wet pond and existing wetland will remove 80% of total suspended solids (TSS).

### WinSLAMM Model Summary:



\*Areas to East and West Kettles are not included in TSS modeling.  
These areas do not contribute runoff up to and beyond the 100-year event.

Land Use:					
To Wet Pond					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	<b>Roofs</b>	0.440			
1	Roofs 1	0.440	Entered	--	--
	<b>Parking</b>	0.650			
13	Paved Parking 1	0.650	Entered	--	--
	<b>Driveways/Sidewalks</b>	0.090			
31	Sidewalks 1	0.090	Entered	--	--
	<b>Streets</b>	0.000			
	<b>Landscaped Areas</b>	1.000			
51	Small Landscaped Areas 1	0.990	Entered	--	--
52	Small Landscaped Areas 2	0.010	Entered	--	--
	<b>Other Areas</b>	0.100			
70	Water Body Areas	0.100	Entered	--	--

Land Use:					
To Wetland					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	<b>Roofs</b>	0.120			
1	Roofs 1	0.120	Entered	--	--
	<b>Parking</b>	0.000			
	<b>Driveways/Sidewalks</b>	0.010			
31	Sidewalks 1	0.010	Entered	--	--
	<b>Streets</b>	0.000			
	<b>Landscaped Areas</b>	2.250			
51	Small Landscaped Areas 1	1.790	Entered	--	--
57	Undeveloped Areas 1	0.460	Entered	--	--
	<b>Other Areas</b>	0.000			

Land Use:					
Off-Site to Wet Pond					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	<b>Roofs</b>	0.190			
1	Roofs 1	0.190	Entered	--	--
	<b>Parking</b>	0.000			
	<b>Driveways/Sidewalks</b>	0.000			
	<b>Streets</b>	0.000			
	<b>Landscaped Areas</b>	1.330			
57	Undeveloped Areas 1	0.800	Entered	--	--
58	Undeveloped Areas 2	0.530	Entered	--	--
	<b>Other Areas</b>	0.000			

Land Use:					
Off-Site to Wetland					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	<b>Roofs</b>	1.520			
1	Roofs 1	1.520	Entered	--	--
	<b>Parking</b>	0.000			
	<b>Driveways/Sidewalks</b>	3.180			
25	Driveways 1	3.180	Entered	--	--
	<b>Streets</b>	2.220			
37	Streets 1	2.220	Entered	--	--
	<b>Landscaped Areas</b>	96.740			
57	Undeveloped Areas 1	84.290	Entered	--	--
58	Undeveloped Areas 2	12.450	Entered	--	--
	<b>Other Areas</b>	0.000			



# SEDIMENT CONTROL CALCULATIONS

Land Use:					
Uncontrolled					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.000			
	Parking	0.000			
	Driveways/Sidewalks	0.000			
	Streets	0.000			
	Landscaped Areas	0.040			
51	Small Landscaped Areas 1	0.040	Entered	--	--
	Other Areas	0.000			

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Commercial	To Wet Pond	2.280
2	Commercial	Off-Site to Wet Pond	1.520
3	Commercial	To Wetland	2.380
4	Commercial	Off-Site to Wetland	103.660
5	Commercial	Uncontrolled	0.040

## Wetland

Wet Detention Control Device

**Pond Number 2**  
Drainage System Control Practice

Initial Stage Elevation (ft):

Maximum Inflow into Pond (cfs):

Enter 0 or leave blank for no limit:

Copy Pond Data    Paste Pond Data

Create Pond Stage-Area Values    Refresh Schematic

Enter fraction (greater than 0) that you want to modify all pond areas by and then select 'Modify Pond Areas' button

Modify Pond Areas:

Recalculate Cumulative Volume

Stage (ft)	Area (acres)	Cumulative Volume (ac-ft)
0	0.00	0.000
1	0.01	0.0023
2	1.03	0.2613
3	2.03	1.6882
4	3.03	2.5346
5	4.03	3.7327
6	5.03	5.1318
7	6.03	5.5000
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		

**Add Sharp Crested Weir**

Weir Length (ft)

Height from datum to bottom of weir opening (ft)

**Add V-Notch Weir**

Weir Angle (° 180 degrees)

Height from datum to bottom of weir opening (ft)

Number of V-Notch weirs

**Remove Orifice Set 1**

Orifice Diameter (ft)

Invert elevation above datum (ft)

Number of orifices in set

**Add Orifice Set 2**

Orifice Diameter (ft)

Invert elevation above datum (ft)

Number of orifices in set

**Add Orifice Set 3**

Orifice Diameter (ft)

Invert elevation above datum (ft)

Number of orifices in set

**Add Stone Weeper**

Width at bottom of weeper (ft)

Weeper side slope (L:H:TV)

Upstream side slope (L:H:TV)

Downstream side slope (L:H:TV)

Horizontal flow path length at top of weeper (ft)

Average rock diameter (ft)

Distance from bottom to top of weeper (ft)

Height from datum to bottom of weeper (ft)

**Remove Vertical Stand Pipe**

Pipe diameter (ft)

Height above datum (ft)

Month	Evaporation (in/day)	Water Withdraw Rate (ac-ft/day)
Jan	0.00	0.000
Feb	0.00	0.000
Mar	0.00	0.000
Apr	0.00	0.000
May	0.00	0.000
Jun	0.00	0.000
Jul	0.00	0.000
Aug	0.00	0.000
Sep	0.00	0.000
Oct	0.00	0.000
Nov	0.00	0.000
Dec	0.00	0.000

Stage (ft)	Natural Seepage Rate (in/hr)	Other Outflow Rate (cfs)
0.00	0.00	0.000
0.01	0.00	0.000
1.03	0.00	0.000
2.03	0.00	0.000
3.03	0.00	0.000
4.03	0.00	0.000
5.03	0.00	0.000
6.03	0.00	0.000

**Remove Broad Crested Weir (Required)**

Weir crest length (ft)

Weir crest width (ft)

Height from datum to bottom of weir opening (ft)

**Add Seepage Basin**

Infiltration rate (in/hr)

Width of device (ft)

Length of device (ft)

Invert elevation of seepage basin inlet above datum (ft)

**Add Pump**

Control Practice #: 3    CP Index #: 3

Detail Datum: 823.97

## Wet Pond

Wet Detention Control Device

**Pond Number 1**  
Drainage System Control Practice

Initial Stage Elevation (ft):

Maximum Inflow into Pond (cfs):

Enter 0 or leave blank for no limit:

Copy Pond Data    Paste Pond Data

Create Pond Stage-Area Values    Refresh Schematic

Enter fraction (greater than 0) that you want to modify all pond areas by and then select 'Modify Pond Areas' button

Modify Pond Areas:

Recalculate Cumulative Volume

Stage (ft)	Area (acres)	Cumulative Volume (ac-ft)
0	0.00	0.000
1	0.01	0.0075
2	1.00	0.0114
3	2.00	0.0158
4	3.00	0.0208
5	4.00	0.0263
6	5.00	0.0324
7	6.00	0.0965
8	7.00	0.1700
9	8.00	0.2155
10	9.00	0.2612
11	10.00	0.3297
12	11.00	0.4628
13	12.00	0.5234
14		
15		
16		
17		

**Add Sharp Crested Weir**

Weir Length (ft)

Height from datum to bottom of weir opening (ft)

**Add V-Notch Weir**

Weir Angle (° 180 degrees)

Height from datum to bottom of weir opening (ft)

Number of V-Notch weirs

**Remove Orifice Set 1**

Orifice Diameter (ft)

Invert elevation above datum (ft)

Number of orifices in set

**Add Orifice Set 2**

Orifice Diameter (ft)

Invert elevation above datum (ft)

Number of orifices in set

**Add Orifice Set 3**

Orifice Diameter (ft)

Invert elevation above datum (ft)

Number of orifices in set

**Add Stone Weeper**

Width at bottom of weeper (ft)

Weeper side slope (L:H:TV)

Upstream side slope (L:H:TV)

Downstream side slope (L:H:TV)

Horizontal flow path length at top of weeper (ft)

Average rock diameter (ft)

Distance from bottom to top of weeper (ft)

Height from datum to bottom of weeper (ft)

**Remove Vertical Stand Pipe**

Pipe diameter (ft)

Height above datum (ft)

Month	Evaporation (in/day)	Water Withdraw Rate (ac-ft/day)
Jan	0.00	0.000
Feb	0.00	0.000
Mar	0.00	0.000
Apr	0.00	0.000
May	0.00	0.000
Jun	0.00	0.000
Jul	0.00	0.000
Aug	0.00	0.000
Sep	0.00	0.000
Oct	0.00	0.000
Nov	0.00	0.000
Dec	0.00	0.000

Stage (ft)	Natural Seepage Rate (in/hr)	Other Outflow Rate (cfs)
0.00	0.00	0.000
0.01	0.00	0.000
1.00	0.00	0.000
2.00	0.00	0.000
3.00	0.00	0.000
4.00	0.00	0.000
5.00	0.00	0.000

**Remove Broad Crested Weir (Required)**

Weir crest length (ft)

Weir crest width (ft)

Height from datum to bottom of weir opening (ft)

**Add Seepage Basin**

Infiltration rate (in/hr)

Width of device (ft)

Length of device (ft)

Invert elevation of seepage basin inlet above datum (ft)

**Add Pump**

Control Practice #: 1    CP Index #: 1

Detail Datum: 816.00

# SEDIMENT CONTROL CALCULATIONS

## WinSLAMM Output Summary:

File Name:

### Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	1.467E+06		0.11	10.40 (1)	952.4 (1)	
Outfall Total with Controls	1.470E+06	-0.20 %	0.11	1.976	181.4	80.95 %
<hr/>						
Current File Output: Annualized Total After Outfall Controls	1.474E+06	Years in Model Run:	1.00		181.9	

(1) Values reduced to remove off-site loadings due to setting Other Control Device Concentration Reduction values to 1.

Print Output  
Summary to Text  
File

Print Output  
Summary to .csv  
File

Total Area Modeled (ac)

### Receiving Water Impacts Due To Stormwater Runoff

(CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.11	Good
With Controls	0.11	Good

### Total Control Practice Costs

Capital Cost	<input type="text" value="N/A"/>
Land Cost	<input type="text" value="N/A"/>
Annual Maintenance Cost	<input type="text" value="N/A"/>
Present Value of All Costs	<input type="text" value="N/A"/>
Annualized Value of All Costs	<input type="text" value="N/A"/>

## SEDIMENT CONTROL CALCULATIONS

### **WinSLAMM Input Data:**

Data file name: Q:\Projects\MC-37-20\Stormwater\New Wet Pond\Sediment Control.mdb

WinSLAMM Version 10.4.0

Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN

Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI\_AVG01.pscx

Runoff Coefficient file name: C:\WinSLAMM Files\WI\_SL06 Dec06.rsvx

Residential Street Delivery file name: C:\WinSLAMM Files\WI\_Res and Other Urban Dec06.std

Institutional Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std

Commercial Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std

Industrial Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std

Other Urban Street Delivery file name: C:\WinSLAMM Files\WI\_Res and Other Urban Dec06.std

Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std

Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False

Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI\_GEO03.ppdx

Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv

Cost Data file name:

If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations

Seed for random number generator: -42

Study period starting date: 01/01/81 Study period ending date: 12/31/81

Date: 02-17-2023 Time: 17:16:50

Site information:

LU# 1 - Commercial: To Wet Pond Total area (ac): 2.280

1 - Roofs 1: 0.440 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Paved Parking 1: 0.650 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

31 - Sidewalks 1: 0.090 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

51 - Small Landscaped Areas 1: 0.990 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

52 - Small Landscaped Areas 2: 0.010 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

70 - Water Body Areas: 0.100 ac. Source Area PSD File:

LU# 2 - Commercial: Off-Site to Wet Pond Total area (ac): 1.520

1 - Roofs 1: 0.190 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

57 - Undeveloped Areas 1: 0.800 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

58 - Undeveloped Areas 2: 0.530 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Commercial: To Wetland Total area (ac): 2.380

1 - Roofs 1: 0.120 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

31 - Sidewalks 1: 0.010 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Stormwater Management Submittal

MC-37-22

2/17/2023

Exhibit 9-4

**SEDIMENT CONTROL CALCULATIONS**

51 - Small Landscaped Areas 1: 1.790 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

57 - Undeveloped Areas 1: 0.460 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 4 - Commercial: Off-Site to Wetland Total area (ac): 103.660

1 - Roofs 1: 1.520 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

25 - Driveways 1: 3.180 ac. Disconnected Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

37 - Streets 1: 2.220 ac. Intermediate Street Length = 1.52 curb-mi Street Width (assuming two curb-mi per street mile) = 24.09868 ft

Default St. Dirt Accum. Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

57 - Undeveloped Areas 1: 84.290 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

58 - Undeveloped Areas 2: 12.450 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 5 - Commercial: Uncontrolled Total area (ac): 0.040

51 - Small Landscaped Areas 1: 0.040 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

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

Particle Size Distribution file name: Not needed - calculated by program

Initial stage elevation (ft): 6

Peak to Average Flow Ratio: 3.8

Maximum flow allowed into pond (cfs): No maximum value entered

Outlet Characteristics:

Outlet type: Orifice 1

1. Orifice diameter (ft): 0.2

2. Number of orifices: 1

3. Invert elevation above datum (ft): 6

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10

2. Weir crest width (ft): 4

3. Height from datum to bottom of weir opening: 11.5

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 3

2. Stand pipe height above datum (ft): 8.5

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0075	0.00	0.00
2	1.00	0.0114	0.00	0.00
3	2.00	0.0158	0.00	0.00
4	3.00	0.0208	0.00	0.00
5	4.00	0.0263	0.00	0.00
6	5.00	0.0324	0.00	0.00
7	6.00	0.0965	0.00	0.00

**SEDIMENT CONTROL CALCULATIONS**

8	7.00	0.1700	0.00	0.00
9	8.00	0.2155	0.00	0.00
10	9.00	0.2612	0.00	0.00
11	10.00	0.3297	0.00	0.00
12	11.00	0.4628	0.00	0.00
13	12.00	0.5234	0.00	0.00

Control Practice 2: Other Device CP# 1 (DS) - DS Other Device # 1

Fraction of drainage area served by device (ac) = 1.00  
 Particulate Concentration reduction fraction = 1.00  
 Filterable Concentration reduction fraction = 1.00  
 Runoff volume reduction fraction = 0

Control Practice 3: Wet Detention Pond CP# 2 (DS) - Wetland

Particle Size Distribution file name: Not needed - calculated by program  
 Initial stage elevation (ft): 2.03  
 Peak to Average Flow Ratio: 3.8  
 Maximum flow allowed into pond (cfs): No maximum value entered  
 Outlet Characteristics:

Outlet type: Orifice 1

1. Orifice diameter (ft): 0.5
2. Number of orifices: 1
3. Invert elevation above datum (ft): 2.03

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10
2. Weir crest width (ft): 2
3. Height from datum to bottom of weir opening: 5.53

Outlet type: Vertical Stand Pipe

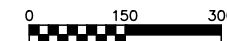
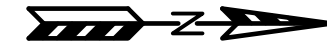
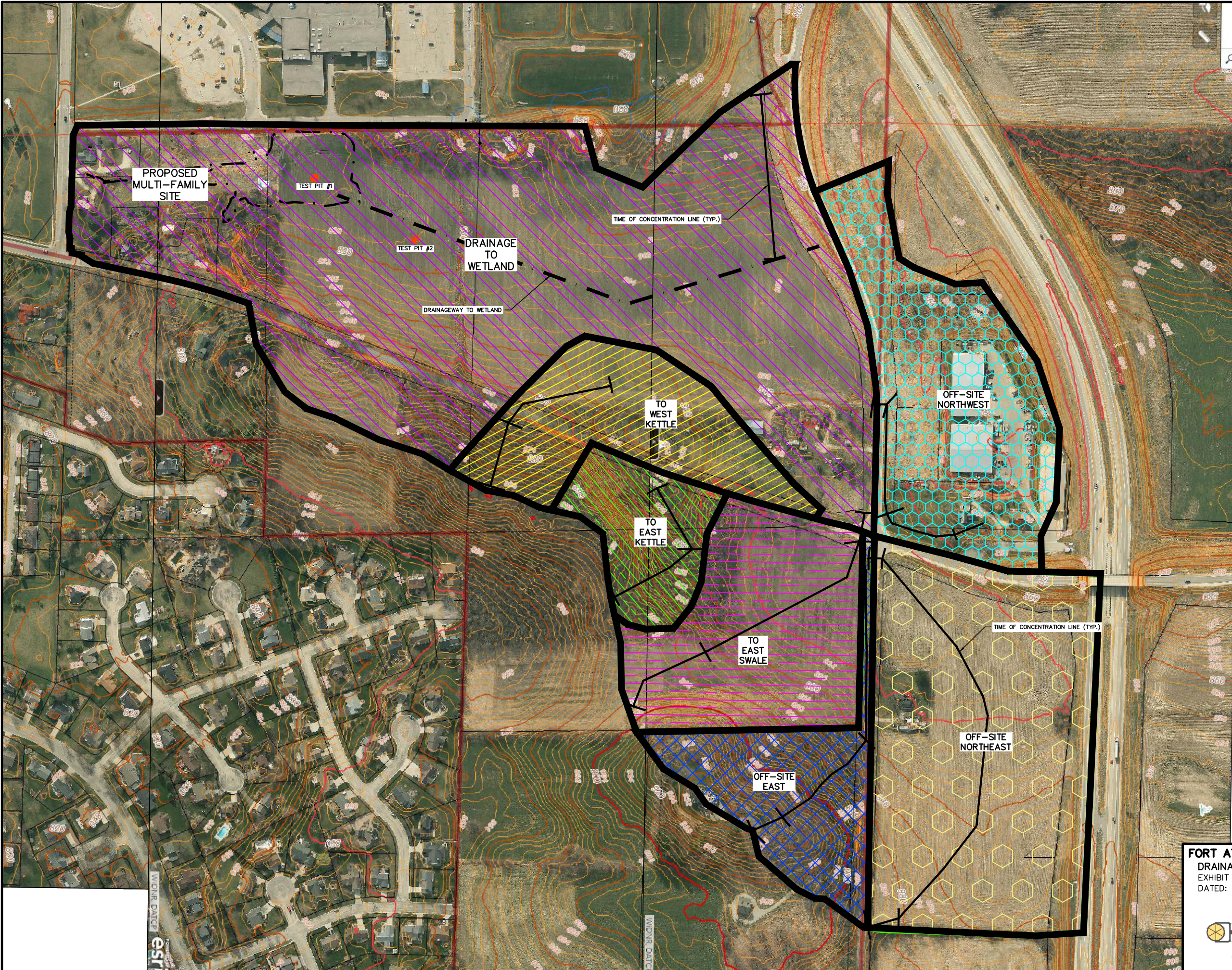
1. Stand pipe diameter (ft): 4
2. Stand pipe height above datum (ft): 3.53

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0023	0.00	0.00
2	1.03	0.2613	0.00	0.00
3	2.03	1.6882	0.00	0.00
4	3.03	2.5346	0.00	0.00
5	4.03	3.7327	0.00	0.00
6	5.03	5.1318	0.00	0.00
7	6.03	5.5000	0.00	0.00

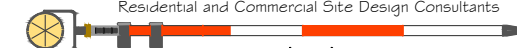
Control Practice 4: Other Device CP# 2 (DS) - DS Other Device # 2

Fraction of drainage area served by device (ac) = 1.00  
 Particulate Concentration reduction fraction = 1.00  
 Filterable Concentration reduction fraction = 1.00  
 Runoff volume reduction fraction = 0



**FORT ATKINSON MULTI-FAMILY**  
DRAINAGE & TEST PIT PLAN - FULL BASIN  
EXHIBIT #10A  
DATED: FEBRUARY 17, 2023

**QUAM ENGINEERING, LLC**  
Residential and Commercial Site Design Consultants



www.quamengineering.com  
4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558  
Phone (608) 838-7750; Fax (608) 838-7752

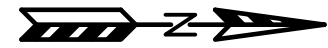
CAMPUS DRIVE

HIGH SCHOOL DRIVEWAY

WETLAND AREA  
(SEE EXHIBIT #10A FOR  
FULL DRAINAGE BASIN)




WET  
POND

TIME OF CONCENTRATION LINE



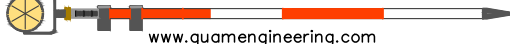
0 30 60

AREAS:

-  - TO WETLAND (ON-SITE): 2.38 ACRES
-  - TO WET POND (ON-SITE): 2.28 ACRES
-  - TO WET POND (OFF-SITE): 1.52 ACRES

**FORT ATKINSON MULTI-FAMILY**  
PROPOSED DRAINAGE PLAN - SITE  
EXHIBIT #10B  
DATED: FEBRUARY 17, 2023

**QUAM ENGINEERING, LLC**  
Residential and Commercial Site Design Consultants



www.quamengineering.com  
4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558  
Phone (608) 838-7750; Fax (608) 838-7752

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent slope, scale or dimensions, north arrow, and BM referenced to nearest road.

**Please print all information.**

Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04 (1) (m)).

County	Jefferson
Parcel I.D.	016-0614-3311-000
Reviewed By	Date

Property Owner Copperhead Property Management LLC	Property Location Govt. Lot NW1/4, NW1/4, S33, T6N, R14E
Property Owner's Mailing Address 207 S. Third St.	Lot # Block # Subd. Name or CSM# <u>West Side Of Road</u>
City State Zip Code Phone Number Ft. Atkinson WI 53538 1	<input type="checkbox"/> City <input type="checkbox"/> Village <input checked="" type="checkbox"/> Town Nearest Road Koshkonong Banker Rd.

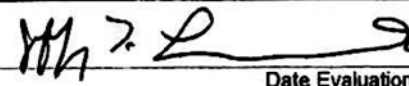
Drainage area _____ <input type="checkbox"/> sq. ft. <input type="checkbox"/> acres Optional: Test Site Suitable for (check all that apply) <input type="checkbox"/> Irrigation <input type="checkbox"/> Bioretention trench <input type="checkbox"/> Trench(es) <input type="checkbox"/> Rain garden <input type="checkbox"/> Grassed swale <input type="checkbox"/> Reuse <input type="checkbox"/> Infiltration trench <input type="checkbox"/> SDS (> 15' wide) <input type="checkbox"/> Other _____	Hydraulic Application Test Method: <input checked="" type="checkbox"/> Morphological Evaluation <input type="checkbox"/> Double-Ring Infiltrometer <input type="checkbox"/> Other (specify) _____
--	--

**1** Obs. #   
 Ground surface elev. 825 ft. Depth to limiting factor 9 in. Hydraulic App. Rate

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Inches/Hr
1	0-9	10YR 3/2	---	sil	2mgr	mfr	cs	5	0.8
2	9-34	10YR 4/4	f1f 7.5YR 5/8 10YR 7/2	cl	1msbk	mfr	cs	5	0.3
3	34-56	7.5YR 4/6	c2d 7.5YR 5/8 10YR 7/2	scl	1msbk	mfr	gw	5	0.3
4	56-96	10YR 5/4	c2d 7.5YR 5/8 10YR 7/2	ls	0m	mfr	---	5	1.6
Water observed @ 60"									

**2** Obs. #   
 Ground surface elev. 829 ft. Depth to limiting factor 10 in. Hydraulic App. Rate

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Inches/Hr
1	0-10	10RY 3/2	---	sil	2mgr	mfr	cs	5	0.8
2	10-27	10YR 3/2	f1f 7.5YR 5/8	sil	2mgr	mfr	cs	5	0.8
3	27-75	10YR 4/4	c2d 7.5YR 5/8 10YR 7/2	cl	1msbk	mfr	cs	5	0.3
4	75-84	7.5YR 4/6	c2d 7.5YR 5/8 10YR 7/2	scl	1msbk	mfr	gw	5	0.3
5	84-120	10YR 5/4	c2d 7.5YR 5/8 10YR 7/2	ls	0m	ml	---	15	1.6
Water observed @ 90"									

CST/PSS Name (Please Print) Jeffrey T. Levake	Signature: 	CST/PSS Number 223322
Address Levake Soil Testing, LLC P.O. Box 568 Lake Mills, WI 53551	Date Evaluation Conducted 2/15/2018	Telephone Number 920-988-7567



# MAINTENANCE PLAN

## **Legal Description of Property:**

LOT \_\_\_\_\_ OF CSM \_\_\_\_\_  
CITY OF FORT ATKINSON, JEFFERSON COUNTY, WISCONSIN

PN #: \_\_\_\_\_

## **Maintenance Provisions:**

### **General**

- Repairs must restore the components to the specifications of the approved plan.

### **Storm Sewer**

- Visual inspection of components shall be performed annually, and debris removed from inlets and storm sewer manholes.
- Repair inlet/outlet areas that are damaged or show signs of erosion.
- Repairs must restore the components to the specifications of the approved plan.

### **Riprap**

- Riprap should be inspected after all storm events for displaced stones and erosion. All necessary repairs should be made immediately.
- Accumulated sediment should be removed periodically.

### **Permanent Rock Check Dam**

- Rock Check Dams should be inspected for damage after each storm event. All damage should be repaired immediately.
- Sediment that accumulates behind the rock check dam should be removed when it reaches a depth of one-half foot.
- Additional stone may need to be added to ensure that the check dam retains its design characteristics.
- Temporary Rock Check Dams shall be removed after final site stabilization.

### **Wet Retention Pond**

- The Owner shall visually inspect the pond perimeters annually.
- The pond perimeter area shall be mowed a minimum of twice per year. Mowing shall maintain a minimum grass height of 6 to 8 inches. All undesirable vegetation and volunteer tree growth shall be removed, including close proximity to the outlet structure. A buffer area shall be maintained at the water's edge to discourage pond usage by migratory fowl. This buffer (15 to 20 feet wide) shall be mowed once per year after December 1<sup>st</sup> or prior to April 15<sup>th</sup> of each year.
- No plantings or structures of any kind are permitted within the wet retention pond area, without prior written approval of the City.
- Siltation in the pond, as identified by visual inspection, shall be dredged and disposed offsite in accordance with NR 347. Dredging shall be required when pond depth is decreased by 2 feet or more or as required by the City.
- The Owner shall maintain records of inspections all in accordance with City Ordinances.
- The outlet structure and standpipe should be inspected at least twice a year and after all storm events for evidence of undercutting and the erosion of adjacent materials.
- Trash and other debris should be removed regularly to prevent clogging of the standpipe and culverts.