



GROTHMAN & ASSOCIATES, SC
PROFESSIONAL SERVICES

STORMWATER MANAGEMENT PLAN
FOR
FNB PROPERTIES SITE IMPROVEMENTS

CITY OF WATERTOWN
JEFFERSON COUNTY, WISCONSIN

G&A PROJECT NUMBER
526-317
AUGUST 28, 2026

STORMWATER MANAGEMENT PLAN

FNB PROPERTIES SITE IMPROVEMENTS

SITE LOCATION: LOTS 1, 4, 5, 8, 9, 12, 13, 16, 17, AND 20, BLOCK 26, PRITCHARDS SECOND ADDITION TO WATERTOWN AND LOT 2, C.S.M. 1511, AS RECORDED IN VOLUME 5 OF C.S.M.S, PAGES 4 AND 5, AS DOCUMENT NO. 776064, LOCATED IN THE SW1/4 OF THE SE1/4, AND GOVERNMENT LOT 4, SECTION 4, T. 8 N., R. 15 E., CITY OF WATERTOWN, JEFFERSON COUNTY, WISCONSIN.

LAT.: 43.183249°; LONG.: -88.722729°

Google Maps Link:

https://www.google.com/maps/@43.1830251,-88.7230355,228m/data=!3m1!1e3?entry=tту&g_ep=EgoyMDI2MDgyNS4wIKXMDS0ASAFAw%3D%3D

PREPARED FOR: Fred Bachmann
N2494 Thunder Hills Road
Lodi, WI 53555

PREPARED BY: Tomás A. Toro-Santos, P.E., P.L.S.
Grothman & Associates, SC
P.O. Box 373
625 Slifer Street
Portage, WI 53901
Phone: 608-742-7788/608-644-8877
Fax: 608-742-0434
ttoro@grothman.com

G&A PROJ. NUMBER: 526-317

DATE OF REPORT: August 28, 2026

Tomás A. Toro-Santos, P.E., P.L.S.
Sr. Engineer-Land Surveyor

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INTRODUCTION

1.1 PROJECT INFORMATION

The proposed re-development is in the City of Watertown at the corner of Hart Street and Wakoka Street (See **Appendix 1**). Currently, the site is utilized as a semi-trailer parking lot and is nearly entirely asphalt pavement. The proposed development will consist of constructing a new building to be utilized for auto repair and maintenance, along with the required facilities for parking. The site will be serviced by a water and sanitary lateral and will have a wet detention pond for storm water quality control with respect to the City of Watertown Ordinances.

1.2 PURPOSE OF REPORT

This report is intended to fulfill the requirements set forth in the City of Watertown Ordinances, requirements regarding stormwater management and erosion control. These requirements include the following:

- Control erosion and sedimentation on site by using Best Management Practices.
- Achieve a 60% reduction of the Total Suspended Solids and 30% reduction of Phosphorus carried in runoff, on an average annual basis, as compared with no sediment or erosion controls.

This Stormwater Management Plan (SMP) analyzes and considers the implementation of the necessary stormwater management measures and construction of devices necessary to satisfy the above listed requirements. Some of these measures and devices include a wet detention pond, vegetated swales, and silt fence barriers.

SECTION 2

EXISTING SITE CONDITIONS

2.1 SITE TOPOGRAPHY

The site has a gentle slope ranging from 1% to 5% with the typical drainage going from west to east. The existing site is currently an asphalt parking lot. The proposed development will utilize the same gentle slopes to create parking areas to service the proposed structure. **Appendixes 2 and 3**, show the existing and proposed configurations of the site.

2.2 SOIL CHARACTERISTICS

According to the Jefferson County Soil Survey published by the USDA-NRCS and geologic maps referenced there are several soil series that exist on site and nearby. These soil series are Sebewa silt loam (7111A), Lamartine silt loam (7766B), and Theresa silt loam (7845B). These soils were classified as Hydraulic Soil Groups (HSG) B/D and C. Since the site and the neighboring properties are heavily developed, HSG D was utilized for all pervious areas. **Appendix 4** includes detailed descriptions of the above soil series and a map indicating the approximate locations of the soil types throughout the site.

2.3 FLOOD PLAIN & FLOOD FRINGES

The Federal Emergency Management Agency (FEMA) Flood Plain Maps locate this site in Panel No. 55055C0086F of the City of Watertown Series 550107. According to the Flood Map, all the areas to be developed are located within Zone X (Area of Minimal Flood Hazard). The location of the site is shown on the FEMA Flood Insurance Rate Map included in **Appendix 5**.

2.4 WETLANDS & HYDRIC SOILS

The soil survey maps and WDNR Wetland Inventory Maps do not indicate the presence of wetlands or wetland locators indicated on the map. **Appendix 6** shows the site location in the Wetland Inventory Map.

2.5 OIL AND GREASE

The proposed site will have all runoff routed to a wet detention pond. Prior to the runoff reaching the wet detention pond, the runoff will be routed through a limestone riprap channel. Limestone has been proven to capture oil and grease within its pores. The benefit of utilizing the limestone in an open channel is that the maintenance is simplistic. Once the limestone has turned black in color, the stone is to be removed and disposed of properly and replaced with new limestone.

SECTION 3

STORMWATER ANALYSIS

3.1 METHODS OF CALCULATING STORMWATER RUNOFF RATE AND VOLUME

Stormwater runoff volumes for pre-development and post-development conditions were calculated by using stormwater computer aided software (HydroCAD), and Technical Release 55 (TR-55). The TR-55 methodology was used to determine the base runoff curve numbers (CN) and the rainfall amounts for each of the design storms. HydroCAD was used to calculate stormwater runoff and to route stormwater through the site. The program uses the Soil Conservation Service (SCS) TR-20 method to calculate inflow and outflow hydrographs.

3.2 STORMWATER ANALYSIS DESIGN CRITERIA

The soil series found on site belong to the hydrologic soil groups B/D and C. The CN values for each of the watersheds were determined based on the hydrologic soil group and the prevailing ground cover per NR151 and TR-55. The watersheds were analyzed under proposed conditions.

Using the TR-55 methodology a CN of 98 was used for any existing or proposed impervious surface which includes the existing residential areas to the west and the proposed structure and parking areas. A CN of 100 was used for the surface area of the wet detention pond.

Detention is the main mode of runoff control proposed for the site. The proposed stormwater plan will incorporate a detention pond to capture, detain, and release stormwater. This device will be constructed at the southwest corner of the development. The proposed drainage area map is included in **Appendix 9**.

3.3 HYDROLOGY RESULTS

As per regulatory requirements, hydrographs were developed for the 1-, 2-, 10-, 25- and 100-, year, 24-hour design storms for post-development conditions. Typically, hydrographs would be developed for the pre-development conditions as well. However, since the project consists of removing impervious surfaces and increasing the time of concentration, the peak rates would be reduced. The results were verified that the proposed wet detention pond would be appropriately sized for the development and its resulting runoff. Table 1 shows a summary of the results of the hydrologic model the outflow from the wet detention pond:

Table 1: Water Elevation and Outflow by Storm (*Wet Detention Pond*)

Storm Freq. (Years)	Water Elevation (ft)	Outflow (CFS)
1	815.01	2.91
2	815.23	3.29
10	815.72	6.60
25	816.08	7.90
100	816.62	12.31

The above summary table shows water elevation and outflow for the wet detention pond as well as the site discharge through the 100-year storm as required by ordinance. More detailed HydroCAD calculations and hydrographs are included in the appendices as **Appendix 10**.

3.4 METHODS OF CALCULATING STORMWATER RUNOFF QUALITY

The City of Watertown requires a 60% reduction in actual total suspended solids for an average annual rainfall, and a 30% reduction in phosphorus as compared to no runoff management controls and requires that a pollutant loading model such as SLAMM be used to evaluate the efficiency of a drainage system.

For the City of Watertown requirements, WinSLAMM (Source Loading and Management Model) is a program that allows the user to enter land uses and define source areas for an individual site. Specific information can be modeled such as detention ponds, grass swales, and it also breaks down impervious areas by source, such as roof tops, streets, driveways, etc. It uses data files for rain events, particle sizes, and runoff coefficients that have been developed for and accepted by the Wisconsin DNR and are specific to the South-Central Wisconsin region. The WinSLAMM program models the site and calculates total particulate solids yield with, and without, the runoff management controls, and it compares the results.

3.5 STORMWATER QUALITY RESULTS

The proposed erosion control devices for the site were modeled using WinSLAMM to determine the sediment trapping efficiency of these devices and determine if the resulting efficiency was at or above 60% and 30% for phosphorus. A Node Diagram of the WinSLAMM model is shown in **Figure 1** below.

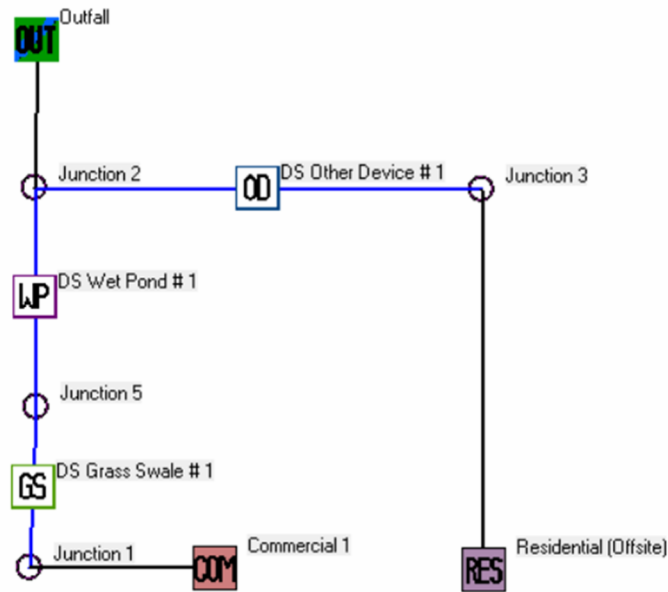


Figure 1

Using the proposed and existing land uses the WinSLAMM program yielded efficiency values of 61.51% for Particulate Solids Reduction and 61.57% for Particulate Phosphorus Removal. An image of the WinSLAMM model calculation results is shown in **Figure 2** below. Detailed summaries of the WinSLAMM input and output data can be found in **Appendix 11**.

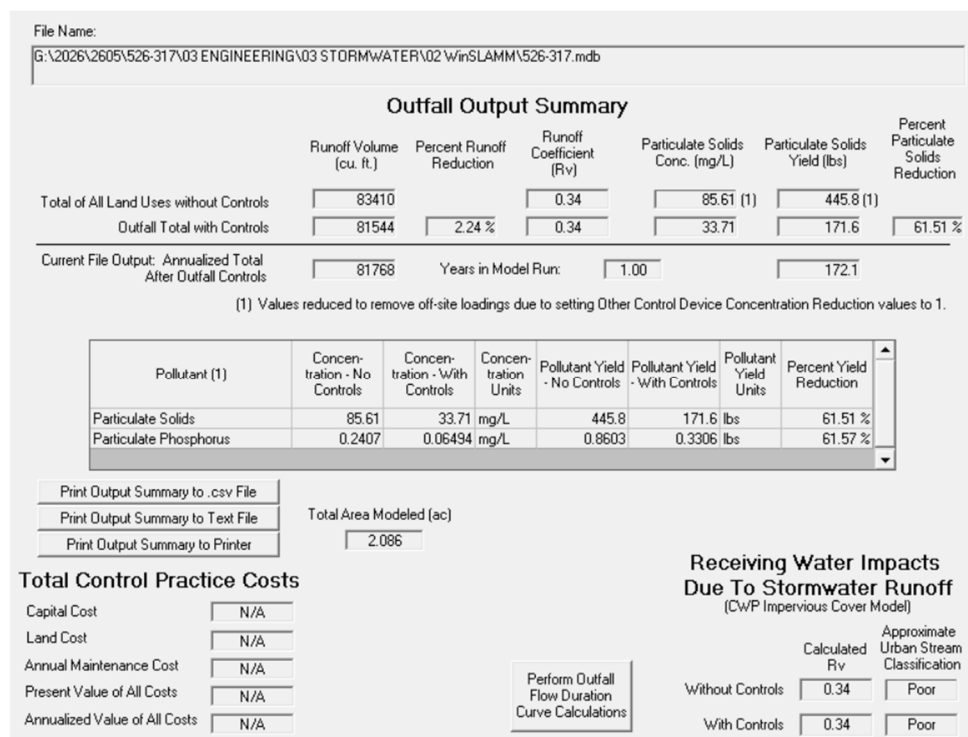


Figure 2

3.6 STORMWATER INFILTRATION

Since the proposed development is a redevelopment project, located in an area with high ground water, and is proposed to be utilized as a vehicle maintenance and repair shop it was advised that the infiltration standard be exempt from this stormwater management plan.

SECTION 4

EROSION CONTROL

4.1 EROSION CONTROL DEVICES AND PRACTICES

Prior to any land disturbing activity, stone tracking pads will be installed at the entrance to the construction site. Silt fence will be installed in area indicated on the Erosion Control Plan. These devices will be installed and maintained until final site stabilization occurs.

The proposed wet detention pond area will be excavated and used as a sediment basin. During construction, the basin will be excavated and used to collect sediment. After construction and final stabilization is complete, these areas will be cleaned, fine graded and planted as required.

Within 30 days of grading, any areas with exposed soil that have not been restored will have temporary hay mulch spread to reduce erosion. Permanent seeding or sod will be in place within a week of project completion and erosion mat will be used in areas of steep slopes and on grassed swales. Any plan changes will be submitted to the City of Watertown for approval. The location of these devices and details are shown on **Appendixes 7 and 8**, respectively.

4.2 MONITORING AND MAINTENANCE

The owner/developer will be responsible for appointing a representative to monitor and maintain all aspects of the erosion control plan during the property development. The representative will be a licensed contractor, familiar with the proposed erosion control practices. It will be his/her responsibility to ensure that the site is inspected at least every seven days and within 24 hours after a rainfall of 0.5 inches or more. The date, time and exact location of the inspection, condition of the erosion control devices, and any repairs performed shall be recorded and maintained in a log on-site. Said log shall be made available to the Engineer and/or the City of Watertown Inspector for review and inspection upon request.

APPENDIX 1

VICINITY MAP





Municipal Boundary



Addresses



Parcels Boundaries

Address Labels



City of Watertown Geographic Information System

Scale: 1:1,847

SCALE BAR = 1"

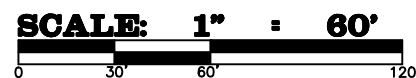
Printed on: August 24, 2026
Author:

DISCLAIMER: This map is not a substitute for an actual field survey or onsite investigation. The accuracy of this map is limited to the quality of the records from which it was assembled. Other inherent inaccuracies occur during the compilation process. City of Watertown makes no warranty whatsoever concerning this information.

APPENDIX 2

EXISTING SITE PLAN





**BENCHMARK:
TOP NUT OF
HYDRANT
ELEV = 819.7**

APPROXIMATE LOCATION OF
SANITARY SEWER MAIN
— SIZE UNKNOWN 8" ASSUMED (TYP.)
CONTRACTOR TO VERIFY
SIZE, MATERIAL, AND LOCATION

MARK:
OUT OF
DRANT
V = 818.8

[illegible]

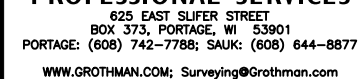
1. THE EXISTING CONDITIONS SHOWN ON THESE PLANS ARE BASED ON FIELD SURVEYS, RECORD DRAWINGS, UTILITY MAPS, AND/OR OTHER AVAILABLE INFORMATION.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
3. HORIZONTAL AND VERTICAL CONTROL IS BASED ON JEFFERSON COUNTY COORDINATE SYSTEM NAD83(2011) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAV88).
4. TOPOGRAPHIC FEATURES SHOWN ARE BASED ON LIDAR DATA PROVIDED BY JEFFERSON COUNTY.
5. SPOT ELEVATIONS AND CONTOURS REPRESENT EXISTING GROUND CONDITIONS AT THE TIME OF THE SURVEY AND ARE SUBJECT TO CHANGE.
6. EXISTING BUILDINGS, CURBS, SIDEWALKS, PAVEMENT, WALLS, AND OTHER STRUCTURES SHOWN ARE BASED ON FIELD OBSERVATION AND/OR SURVEY.
7. EXISTING SITE ACCESS POINTS ARE TO BE MAINTAINED UNLESS OTHERWISE DIRECTED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING TEMPORARY ACCESS WITH THE OWNER DURING CONSTRUCTION.
8. THE OWNER AND ENGINEER MAKE NO GUARANTEE THAT ALL EXISTING FEATURES, UTILITIES, OR SUBSURFACE CONDITIONS ARE SHOWN OR CORRECTLY REPRESENTED.
9. THE CONTRACTOR IS RESPONSIBLE FOR EXERCISING DUE CARE AND FOR VERIFYING ALL FIELD CONDITIONS.
10. BENCHMARK ELEVATIONS WERE ACQUIRED USING GPS EQUIPMENT AND MINOR DISCREPANCIES IN ELEVATION MAY BE PRESENT.

1. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING DEMOLITION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
2. ALL DEMOLITION WORK SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS, INCLUDING OSHA STANDARDS.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR DEMOLITION ACTIVITIES.
4. ALL UTILITIES SHALL BE LOCATED AND CLEARLY MARKED BEFORE ANY DEMOLITION WORK BEGINS.
5. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES PRIOR TO THE START OF DEMOLITION.
6. ALL ACTIVE UTILITY LINES TO BE REMOVED OR RELOCATED SHALL BE DISCONNECTED BY THE APPROPRIATE UTILITY COMPANY.
7. PROTECT ALL EXISTING UTILITIES TO REMAIN. DAMAGES TO UTILITIES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
8. DEMOLITION SHALL BE LIMITED TO AREAS SHOWN ON THE PLANS.
9. IF HAZARDOUS MATERIALS (E.G., ASBESTOS, LEAD) ARE ENCOUNTERED DURING DEMOLITION, THE CONTRACTOR SHALL STOP WORK AND NOTIFY THE OWNER IMMEDIATELY. THE HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS SHALL BE PERFORMED BY A LICENSED AND CERTIFIED

10. MATERIALS TO BE SALVAGED OR REUSED SHALL BE CAREFULLY REMOVED AND STORED AS DIRECTED BY THE OWNER.
11. ALL DEBRIS SHALL BE ADEQUATELY DISPOSED OF OFF-SITE AT A LICENSED FACILITY.
12. BURNING OR BURYING OF MATERIALS ON-SITE IS STRICTLY PROHIBITED.
13. PROVIDE APPROPRIATE BARRICADES, FENCING, SIGNAGE, AND SAFETY MEASURES TO PROTECT THE PUBLIC AND ADJACENT PROPERTIES.
14. PROVIDE DUST AND NOISE CONTROL DURING DEMOLITION ACTIVITIES.
15. STREETS AND SIDEWALKS SHALL BE KEPT CLEAN AND FREE OF DEBRIS DURING DEMOLITION.
16. UPON COMPLETION OF DEMOLITION, GRADE THE SITE TO DRAIN AS SHOWN ON THE PLANS. FILL ANY VOIDS, DEPRESSIONS, OR TRENCHES WITH APPROVED FILL MATERIAL COMPACTED TO THE SPECIFIED DENSITY.
17. RESTORE OR STABILIZE ALL DISTURBED AREAS WITH TOPSOIL AND SEED, OR OTHER GROUND COVER AS REQUIRED.
18. NOTIFY THE ENGINEER OR OWNER AT LEAST 48 HOURS PRIOR TO THE START OF DEMOLITION
19. ALL DEMOLITION ACTIVITIES SHALL BE SUBJECT TO INSPECTION AND APPROVAL.



TOLL FREE: 800-242-8511



CLIENT ADDRESS:
N2494 THUNDER HILLS ROAD
LODI, WI 53555

[illegible]

DESIGNED/DRAWN: AJ
APPROVED: TA
DRAWING ISSUE DATE: 9/1/2021

PROJECT NAME:
FNB PROPERTIES SITE IMPROVEMENTS

PROJECT LOCATION:
1200 WAKOKA STREET AND
1202 WAKOKA STREET
WATERTOWN, WI 53094

SHEET NAME:
**EXISTING CONDITIONS AND
DEMOLITION PLAN**

G&A PROJECT NO.: 526-31

SHEET NO.

C2.0

APPENDIX 3

PROPOSED SITE PLAN





PROFESSIONAL SERVICES

WWW.GROTHMAN.COM: Surveying@Grothman.com

G&A PROJECT NO.: 526-31

SHEET NO.

C3.0



SCALE: 1" = 60'



A horizontal scale bar with alternating black and white segments. It is marked with '0' at the left end, '30'' at the first segment boundary, '60'' at the second segment boundary, and '120' at the right end.



TOLL FREE: 800-242-8511



625 EAST SLIFER STREET
BOX 373, PORTAGE, WI 53901
PORTAGE: (608) 742-7788; SAUK: (608) 644-8877
WWW.GROTHMAN.COM; Surveying@Grothman.com

CLIENT ADDRESS:
N2494 THUNDER HILLS ROAD
LODI, WI 53555

PRELIMINARY

PROJECT NAME:
FNB PROPERTIES SITE IMPROVEMENTS

PROJECT LOCATION:
1200 WAKOKA STREET AND
1202 WAKOKA STREET
WATERTOWN, WI 53094

SHEET NAME:
PROPOSED SITE LAYOUT DETAIL

G&A PROJECT NO.: 526-31

SHEET NO. _____

C3.1



MINIMUM SETBACKS (PROPOSED LOT 1)

PROPOSED ZONING DISTRICT (PROPOSED LOT 1):
GENERAL BUSINESS (GB) DISTRICT

FRONT OR STREET SIDE LOT LINE: 25 FEET
40 FEET FOR A LOT ADJACENT TO A
STREET WITH AN OFFICIALLY MAPPED
RIGHT-OF-WAY EQUAL TO OR
EXCEEDING 100 FEET

RESIDENTIAL SIDE LOT LINE: 12 FEET

RESIDENTIAL REAR LOT LINE: 25 FEET

NONRESIDENTIAL SIDE LOT LINE: 12 FEET OR
ZERO FEET ON ZERO LOT LINE SIDE

NONRESIDENTIAL REAR LOT LINE: 25 FEET

PAVED SURFACE: SETBACK 5 FEET FROM
SIDE OR REAR: 10 FEET FROM STREET

PARKING NOTES

1. REQUIRED PARKING STALLS:
GROSS FLOOR AREA: 11,160 SQ.FT.
1 SPACE PER 300 SQ.FT. OF GROSS FLOOR AREA
37 SPACES REQUIRED
2. PROPOSED PARKING STALLS:
39 STANDARD STALLS
1 HANDICAP STALL WITH 5' WIDE ACCESS AISLE
3. PARKING STALL SIZE:
PERPENDICULAR STALL SIZE: 9'WX18.5'L
45° ANGLED STALL SIZE: 9' STALL WIDTH
24.7' STALL LENGTH
75° ANGLED STALL SIZE: 9' STALL WIDTH
20.2' STALL LENGTH

GREEN SPACE/IMPERVIOUS AREA

PROPOSED GREEN SPACE = 7,097 SQ.FT. ±
PROPOSED IMPERVIOUS SURFACE = 39.067 SQ.FT.

SITE AREA = 46,807 SQ.FT.

PROPOSED PERCENTAGE OF GREEN SPACE = 15.16%
PROPOSED PERCENTAGE OF IMPERVIOUS SURFACE = 82.42%



625 EAST SULFER STREET
BOX 373, PORTAGE, WI 53901
PORTAGE: (608) 742-7788; SAUK: (608) 644-8877
WWW.GROTHMAN.COM; Surveying@Grothman.com

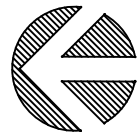
CLIENT ADDRESS:
N2494 THUNDER HILLS ROAD
LODI, WI 53555

PRELIMINARY

PROJECT NAME:
FNB PROPERTIES SITE IMPROVEMENTS

SHEET NAME:
PROPOSED GRADING PLAN

C4.0



SCALE: 1" = 60'



A horizontal scale bar with a black top line and a white bottom line. The top line has tick marks at 0, 30, 60, and 120 feet. The bottom line has tick marks at 0, 30, 60, and 120 feet. The text '0', '30', '60', and '120'' is written below the bottom line. The text '0', '30', '60', and '120'' is written below the bottom line.

DIGGERS  **HOTLINE**
TOLL FREE: 800-242-8511

APPENDIX 4

JEFFERSON COUNTY SOIL SURVEY





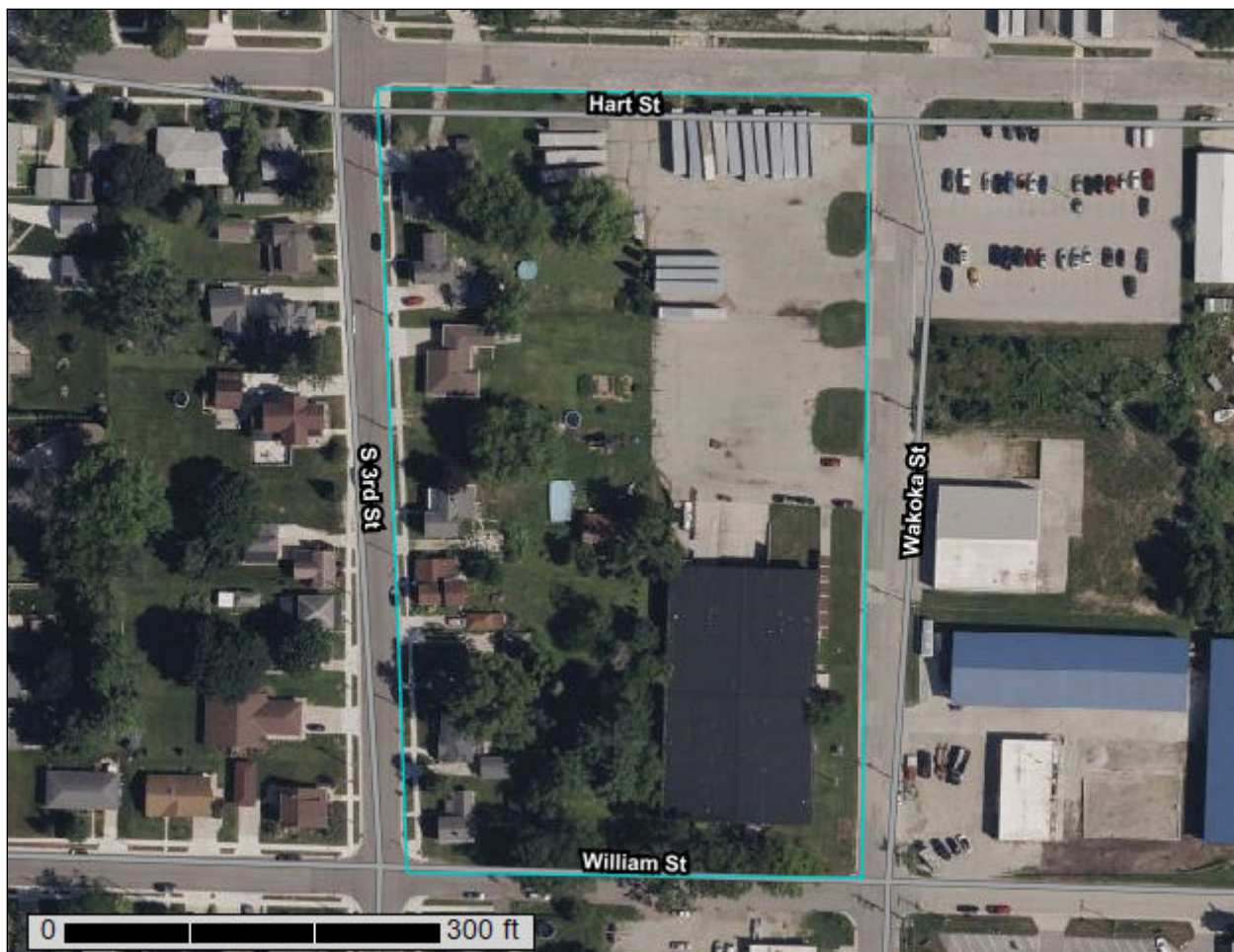
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Jefferson County, Wisconsin**



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

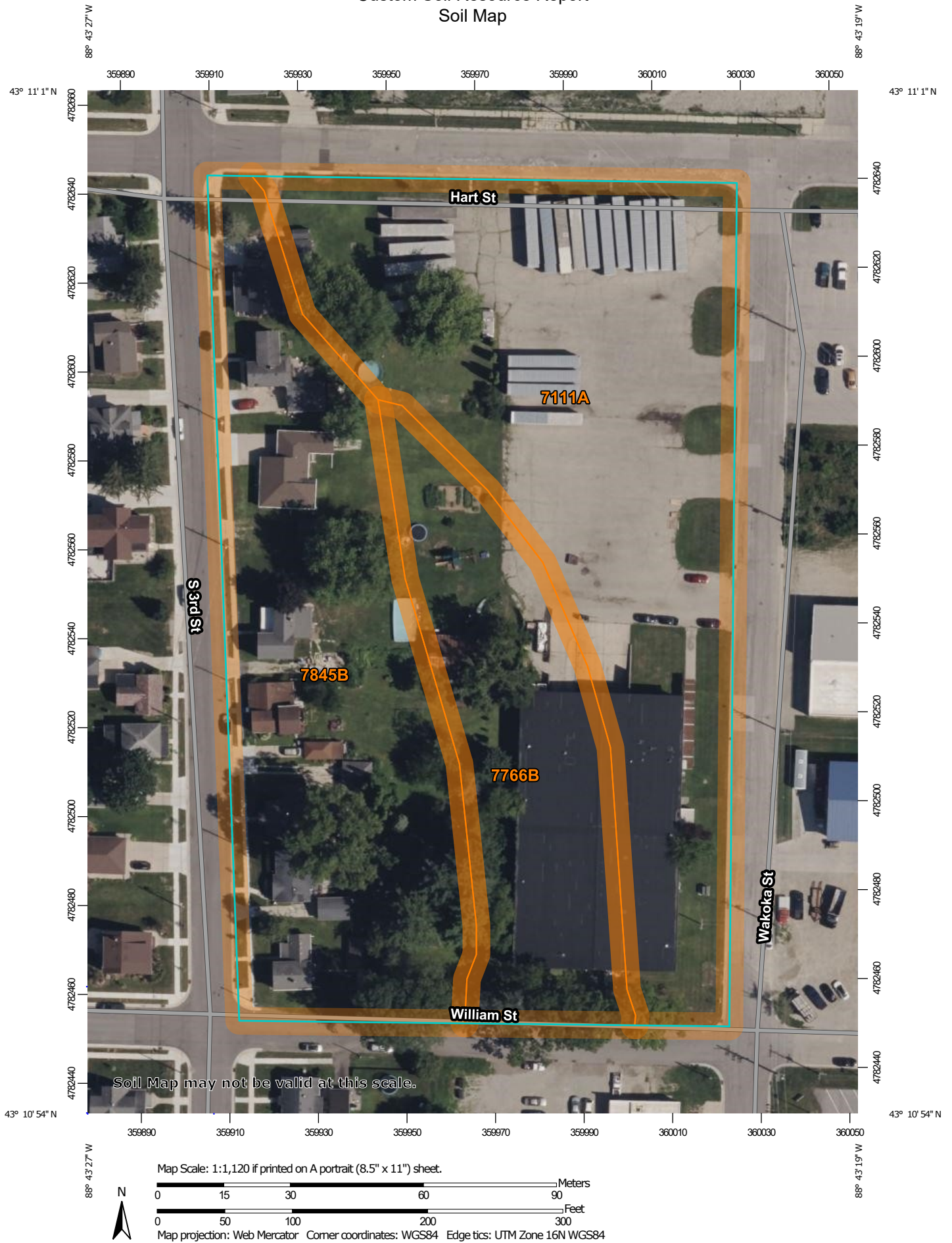
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jefferson County, Wisconsin
Survey Area Data: Version 24, Sep 10, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7111A	Sebewa silt loam, 0 to 2 percent slopes	2.5	45.6%
7766B	Lamartine silt loam, 2 to 6 percent slopes	1.1	19.5%
7845B	Theresa silt loam, 2 to 6 percent slopes	1.9	34.9%
Totals for Area of Interest		5.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Jefferson County, Wisconsin

7111A—Sebewa silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2szfk
Landscape: Outwash plains
Elevation: 780 to 1,140 feet
Mean annual precipitation: 29 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 124 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Sebewa and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sebewa

Setting

Landscape: Outwash plains
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy outwash over sandy and gravelly outwash

Typical profile

Ap - 0 to 11 inches: silt loam
Btg - 11 to 27 inches: clay loam
2Cg - 27 to 79 inches: coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 24 to 30 inches to strongly contrasting textural stratification
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)

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Hydric soil rating: Yes

Minor Components

Adrian

Percent of map unit: 6 percent
Landscape: Outwash plains
Landform: Lakebeds (relict)
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F095XB001WI - Mucky Swamp
Hydric soil rating: Yes

Ionia

Percent of map unit: 3 percent
Landscape: Outwash plains
Landform: Rises
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Fox

Percent of map unit: 1 percent
Landscape: Outwash plains
Landform: Rises
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

7766B—Lamartine silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2tjw4
Landscape: Drumlin fields
Elevation: 590 to 1,240 feet
Mean annual precipitation: 28 to 36 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 135 to 194 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Lamartine and similar soils: 85 percent

Custom Soil Resource Report

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamartine

Setting

Landscape: Drumlin fields

Landform: Drumlins

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Loess over loamy till

Typical profile

Ap - 0 to 8 inches: silt loam

Bt1 - 8 to 20 inches: silty clay loam

2Bt2 - 20 to 28 inches: clay loam

2C - 28 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 12 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 30 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B/D

Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland

Forage suitability group: High AWC, high water table (G095BY007WI)

Other vegetative classification: High AWC, high water table (G095BY007WI)

Hydric soil rating: No

Minor Components

Theresa

Percent of map unit: 9 percent

Landscape: Drumlin fields

Landform: Drumlins

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F095XB007WI - Loamy Upland with Carbonates

Hydric soil rating: No

Pella

Percent of map unit: 6 percent
Landscape: Drumlin fields
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

7845B—Theresa silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2szd9
Landscape: Drumlin fields
Elevation: 700 to 1,240 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Theresa and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Theresa

Setting

Landscape: Drumlin fields
Landform: Drumlins
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 14 inches: silt loam
Bt1 - 14 to 18 inches: silty clay loam
2Bt2 - 18 to 34 inches: clay loam
2Cd - 34 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 32 to 35 inches to densic material
Drainage class: Well drained

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Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Forage suitability group: Mod AWC, adequately drained with limitations (G095BY006WI)
Other vegetative classification: Mod AWC, adequately drained with limitations (G095BY006WI)
Hydric soil rating: No

Minor Components

Hochheim

Percent of map unit: 10 percent
Landscape: Drumlin fields
Landform: Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XB006WI - Shallow Upland
Hydric soil rating: No

Lamartine

Percent of map unit: 5 percent
Landscape: Drumlin fields
Landform: Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Hydric soil rating: No

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APPENDIX 5

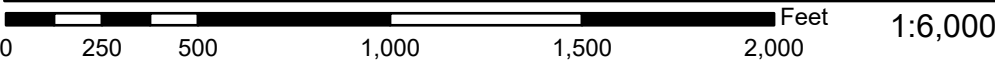
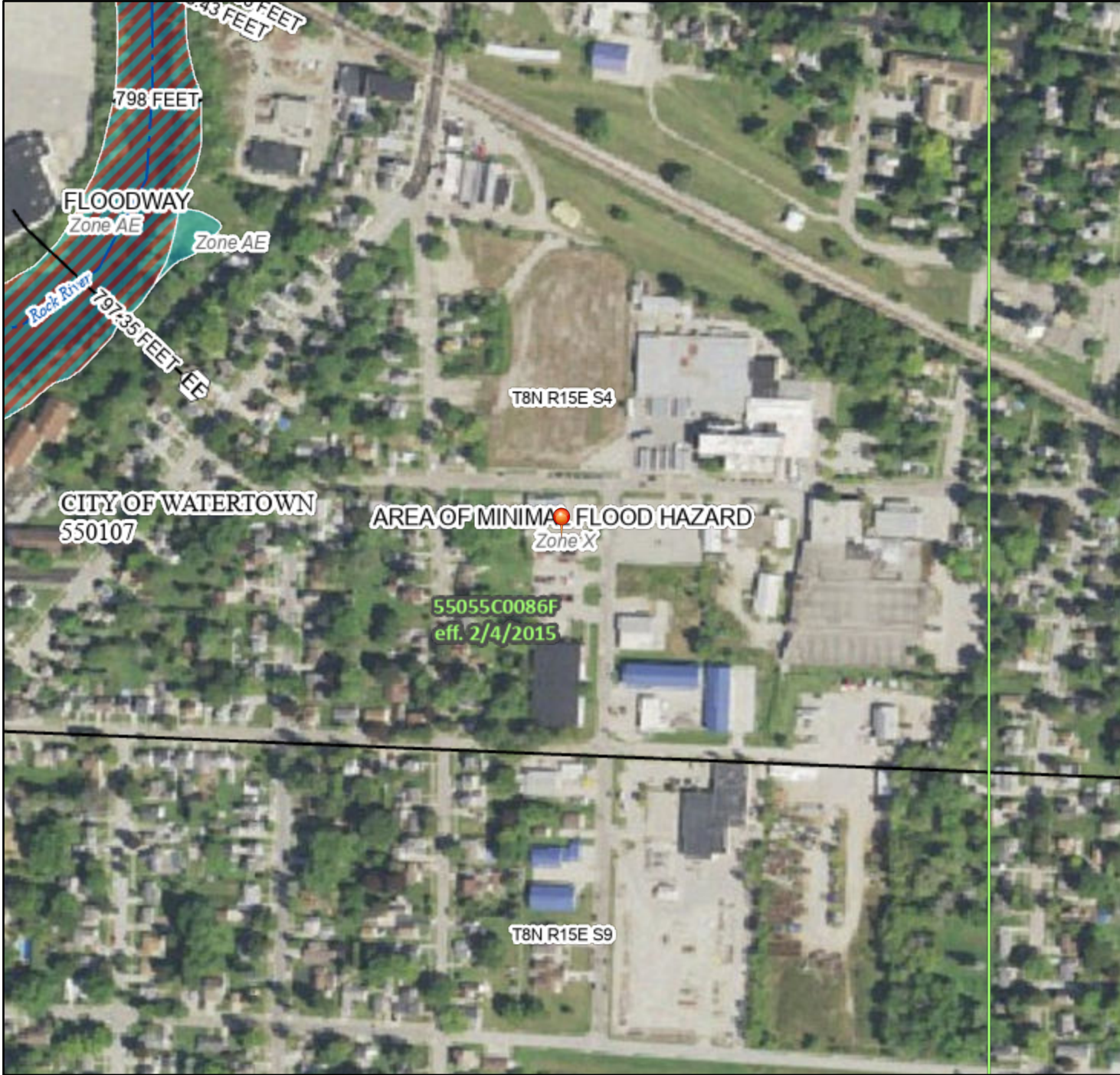
FEMA FLOOD INSURANCE RATE MAP



National Flood Hazard Layer FIRMette



88°43'41"W 43°11'13"N



1:6,000

88°43'3"W 43°10'47"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

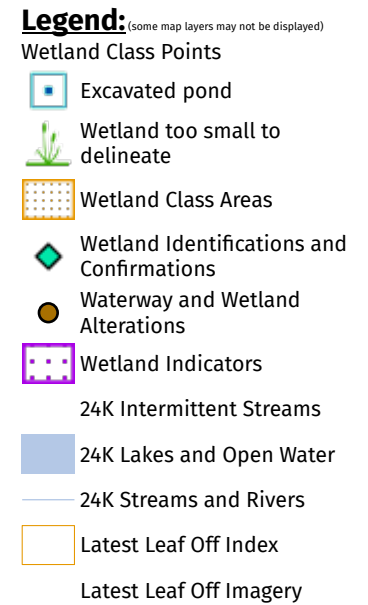
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/28/2026 at 4:43 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

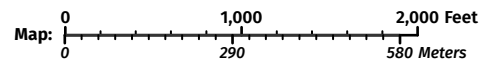
APPENDIX 6

DNR WETLAND INVENTORY MAP





Notes:



Service Layer Credits:
 Latest Leaf Off: DNR Detailed Feature VTL (WTM); Wetland Inventory NWI: Calvin Lawrence, Dennis Weise,
 Nina Rihn, Wetlands - Additional Data: Surface Water Data Viewer Team

Map projection: NAD 1983 HARN Wisconsin TM

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This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: <https://dnr.wisconsin.gov/legal>

Date Printed: 8/28/2026 11:55 AM

APPENDIX 7

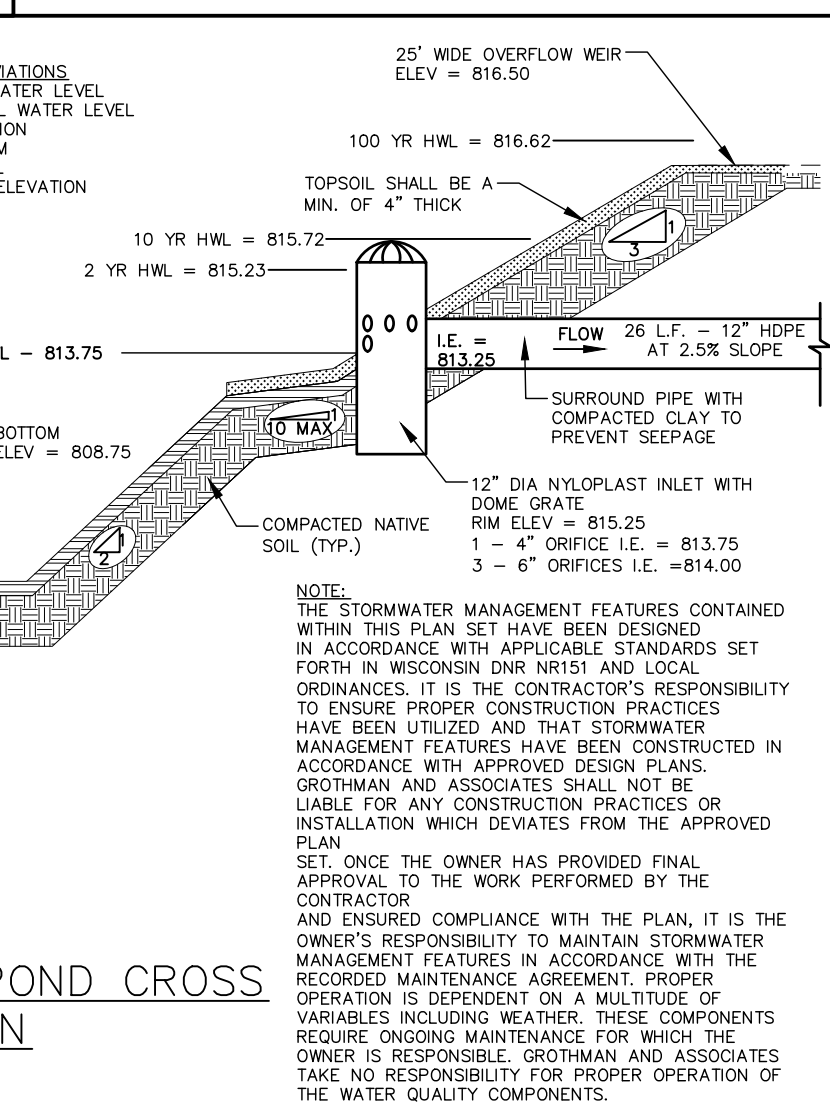
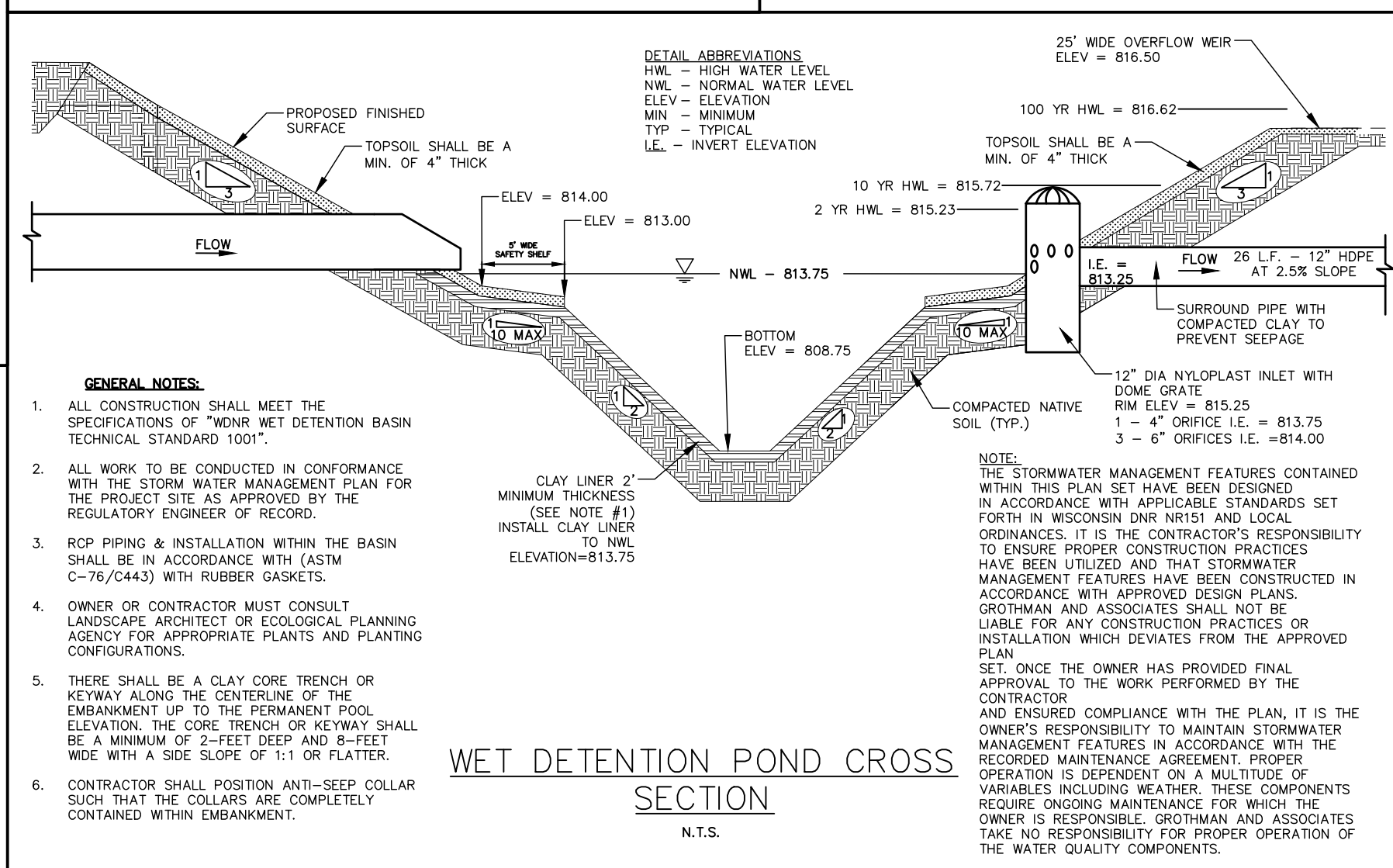
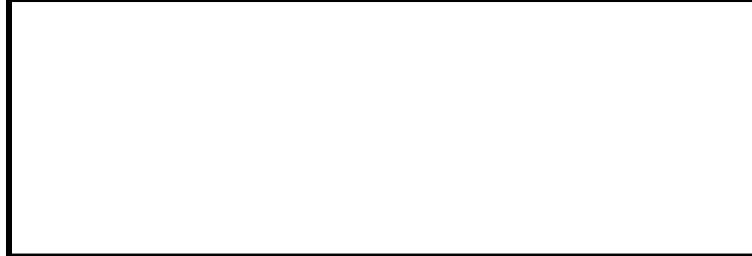
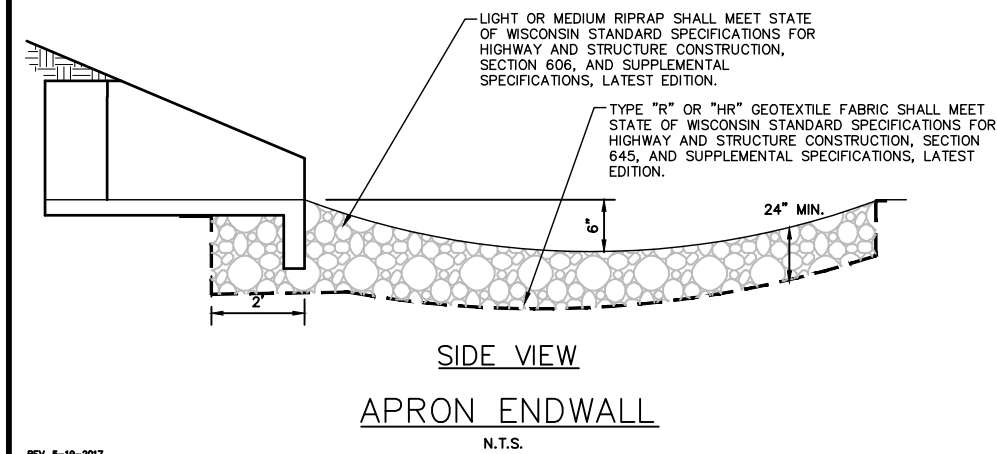
SEDIMENT & EROSION CONTROL PLAN



APPENDIX 8

DRAINAGE & EROSION CONTROL DETAILS



[illegible]

APPENDIX 9

PROPOSED DRAINAGE AREA MAP





**GROTHMAN
& ASSOCIATES, S.C.**

PROFESSIONAL SERVICES

625 EAST SLIFER STREET
BOX 373, PORTAGE, WI 53901

PORTAGE: (608) 742-7788; SAUK: (608) 644-887

CLIENT:
FRED BACHMANN

CLIENT ADDRESS:
N2494 THUNDER HILLS ROAD
LODI, WI 53555

[illegible]

DESIGNED/DRAWN: A
APPROVED: T
DRAWING ISSUE DATE: 9/1/20

PROJECT NAME:
FNB PROPERTIES SITE IMPROVEMENTS

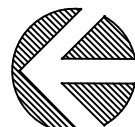
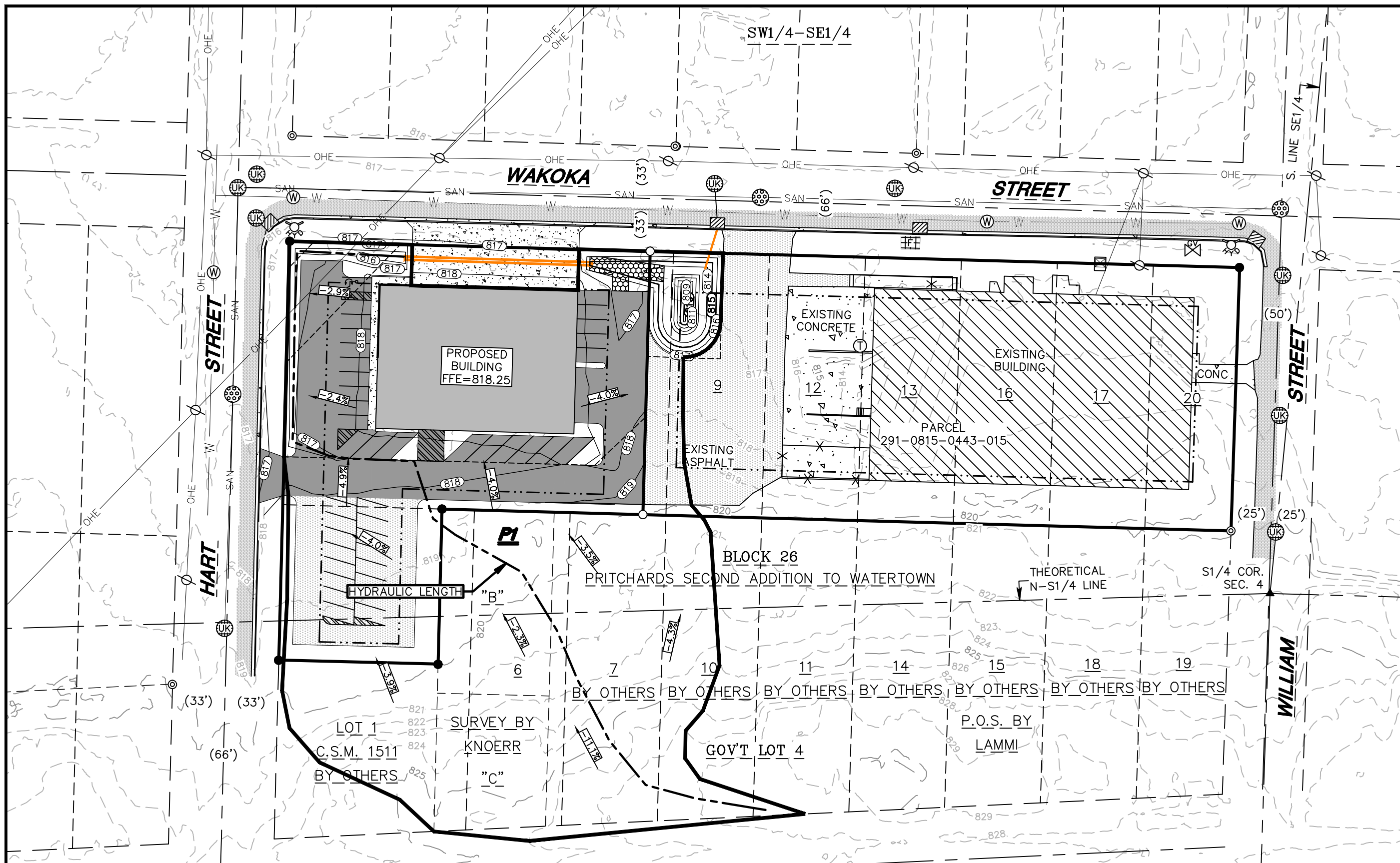
PROJECT LOCATION:
1200 WAKOKA STREET AND
1202 WAKOKA STREET
WATERTOWN, WI 53094

SHEET NAME:
PROPOSED CONDITIONS
WATERSHED MAP

G&A PROJECT NO.: 526-3

SHEET NO. _____

WSI.0



NORTH

SCALE: 1" = 60'



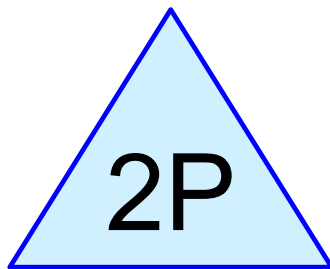
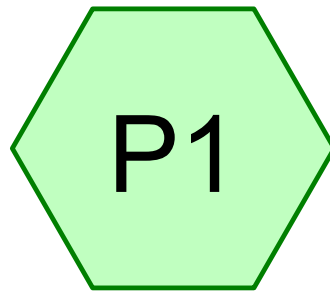
A horizontal scale bar with alternating black and white segments. The segments are labeled 0, 30, 60, and 120, representing feet. The total length of the bar is 120 feet.

DIGGERS HOTLINE
TOLL FREE: 800-242-8511

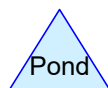
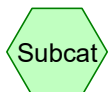
APPENDIX 10

HYDROCAD CALCULATION PRINTOUTS





WET POND



Routing Diagram for 526-317 PRO

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1YR	MSE 24-hr	3	Default	24.00	1	2.46	2
2	2YR	MSE 24-hr	3	Default	24.00	1	2.79	2
3	10YR	MSE 24-hr	3	Default	24.00	1	3.93	2
4	25YR	MSE 24-hr	3	Default	24.00	1	4.75	2
5	100YR	MSE 24-hr	3	Default	24.00	1	6.19	2

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Page 3

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.256	98	Building - N (P1)
0.013	98	Concrete - N (P1)
0.998	78	Grass HSG D (P1)
0.159	98	Offsite Buildings - Ex (P1)
0.273	98	Pavement - Ex (P1)
0.355	98	Pavement - N (P1)
0.028	100	Pond (P1)
2.083	88	TOTAL AREA

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.256	0.256	Building - N	P1
0.000	0.000	0.000	0.000	0.013	0.013	Concrete - N	P1
0.000	0.000	0.000	0.998	0.000	0.998	Grass	P1
0.000	0.000	0.000	0.000	0.159	0.159	Offsite Buildings - Ex	P1
0.000	0.000	0.000	0.000	0.273	0.273	Pavement - Ex	P1
0.000	0.000	0.000	0.000	0.355	0.355	Pavement - N	P1
0.000	0.000	0.000	0.000	0.028	0.028	Pond	P1
0.000	0.000	0.000	0.998	1.085	2.083	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	2P	813.25	812.60	26.0	0.0250	0.013	0.0	12.0	0.0

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FNB Properties
MSE 24-hr 3 1YR Rainfall=2.46"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP1:

Runoff Area=90,725 sf 52.09% Impervious Runoff Depth=1.35"
Flow Length=600' Slope=0.0447 '/' Tc=7.6 min CN=88 Runoff=4.84 cfs 0.234 af

Pond 2P: WET POND

Peak Elev=815.01' Storage=3,705 cf Inflow=4.84 cfs 0.234 af
Primary=2.91 cfs 0.234 af Secondary=0.00 cfs 0.000 af Outflow=2.91 cfs 0.234 af

Total Runoff Area = 2.083 ac Runoff Volume = 0.234 af Average Runoff Depth = 1.35"
47.91% Pervious = 0.998 ac 52.09% Impervious = 1.085 ac

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FNB Properties
MSE 24-hr 3 1YR Rainfall=2.46"

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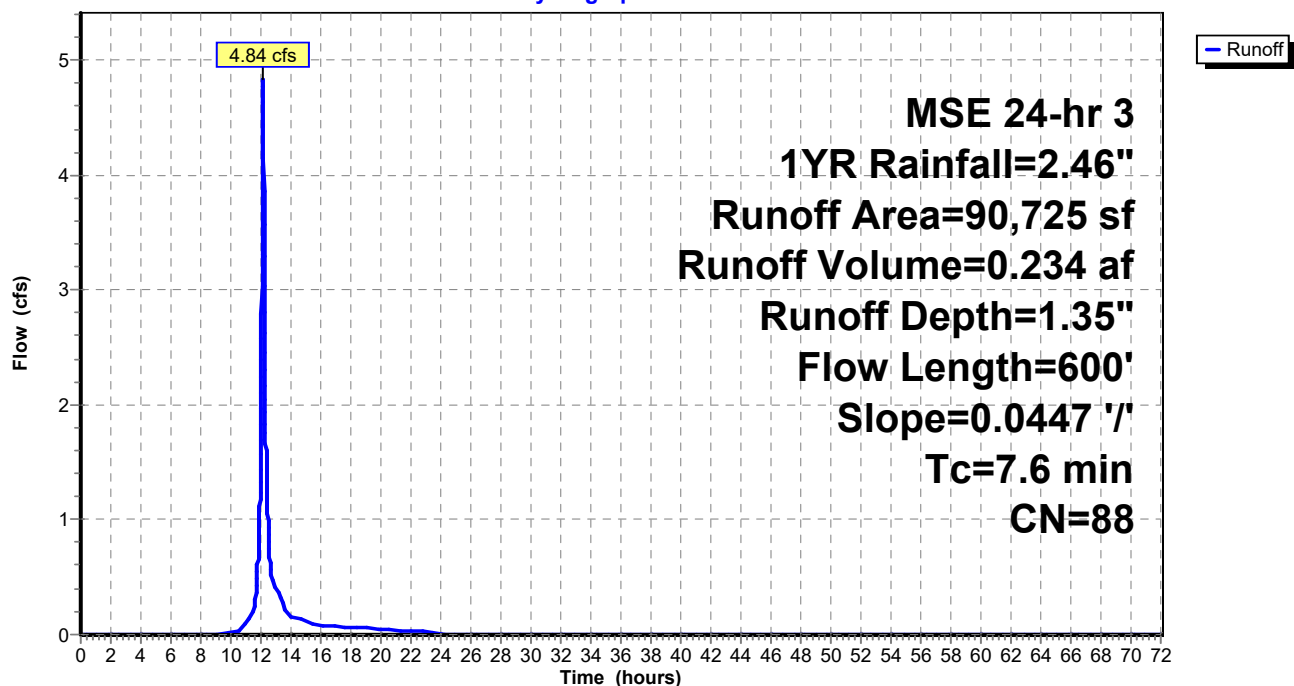
Summary for Subcatchment P1:

Runoff = 4.84 cfs @ 12.15 hrs, Volume= 0.234 af, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1YR Rainfall=2.46"

	Area (sf)	CN	Description
*	11,160	98	Building - N
*	15,451	98	Pavement - N
*	579	98	Concrete - N
*	11,910	98	Pavement - Ex
*	6,925	98	Offsite Buildings - Ex
*	43,463	78	Grass HSG D
*	1,237	100	Pond
	90,725	88	Weighted Average
	43,463		47.91% Pervious Area
	47,262		52.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	600	0.0447	1.32		Lag/CN Method,

Subcatchment P1:**Hydrograph**

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FNB Properties
MSE 24-hr 3 1YR Rainfall=2.46"

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Summary for Pond 2P: WET POND

Inflow Area = 2.083 ac, 52.09% Impervious, Inflow Depth = 1.35" for 1YR event
 Inflow = 4.84 cfs @ 12.15 hrs, Volume= 0.234 af
 Outflow = 2.91 cfs @ 12.24 hrs, Volume= 0.234 af, Atten= 40%, Lag= 5.2 min
 Primary = 2.91 cfs @ 12.24 hrs, Volume= 0.234 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Automatic Starting Elev= 813.75' Surf.Area= 1,089 sf Storage= 1,755 cf
 Peak Elev= 815.01' @ 12.24 hrs Surf.Area= 2,038 sf Storage= 3,705 cf (1,950 cf above start)

Plug-Flow detention time= 108.0 min calculated for 0.193 af (83% of inflow)
 Center-of-Mass det. time= 24.9 min (829.1 - 804.2)

Volume	Invert	Avail.Storage	Storage Description
#1	809.00'	9,362 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	27	45.1	0	0	27
810.00	131	59.3	72	72	156
811.00	264	73.6	194	266	321
812.00	425	87.9	341	607	522
813.00	615	102.2	517	1,125	758
814.00	1,277	155.8	926	2,051	1,866
815.00	2,033	235.5	1,640	3,691	4,356
816.00	2,765	255.1	2,390	6,081	5,159
816.50	3,156	265.8	1,479	7,560	5,621
817.00	4,073	328.9	1,802	9,362	8,611

Device	Routing	Invert	Outlet Devices
#1	Primary	813.25'	12.0" Round Culvert L= 26.0' Ke= 0.500 Inlet / Outlet Invert= 813.25' / 812.60' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	813.75'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	814.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	815.25'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	816.50'	25.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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FNB Properties
MSE 24-hr 3 1YR Rainfall=2.46"
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Primary OutFlow Max=2.91 cfs @ 12.24 hrs HW=815.01' (Free Discharge)

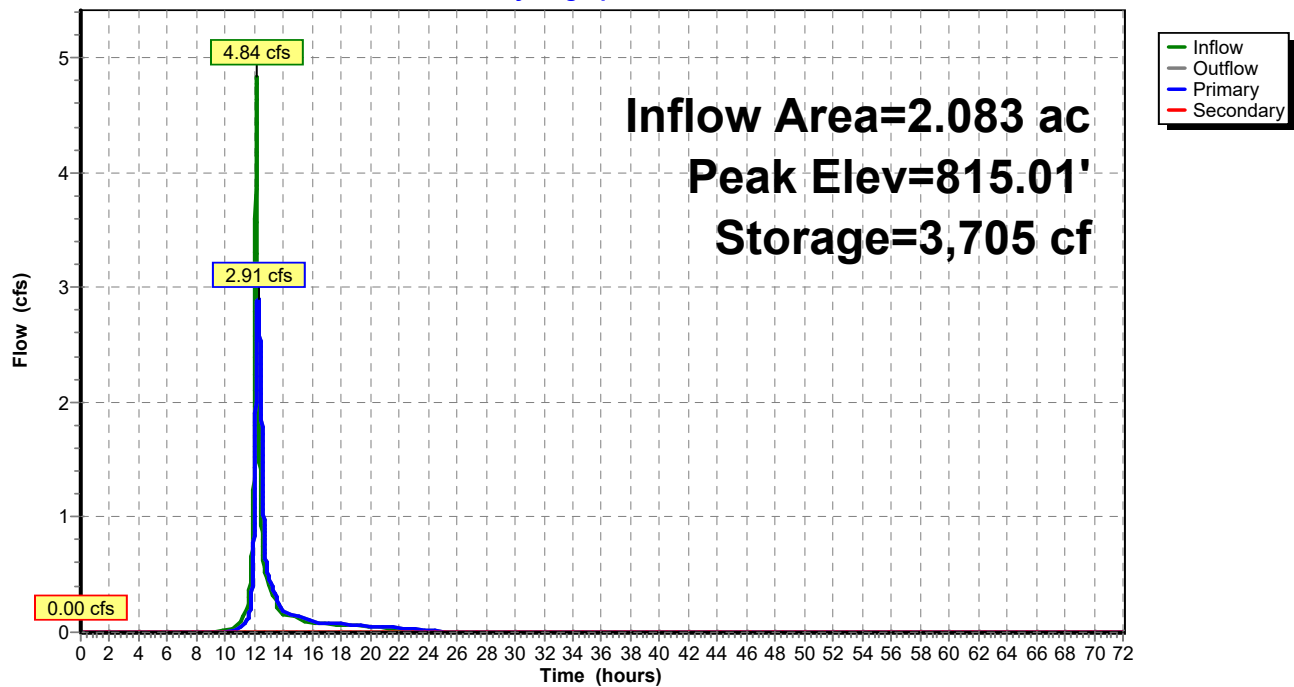
- 1=Culvert (Passes 0.44 cfs of 4.24 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.44 cfs @ 5.03 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)
- 3=Orifice/Grate (Orifice Controls 2.47 cfs @ 4.19 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=813.75' (Free Discharge)

- 5=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 2P: WET POND

Hydrograph



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FNB Properties
MSE 24-hr 3 2YR Rainfall=2.79"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP1:

Runoff Area=90,725 sf 52.09% Impervious Runoff Depth=1.63"
Flow Length=600' Slope=0.0447 '/' Tc=7.6 min CN=88 Runoff=5.83 cfs 0.283 af

Pond 2P: WET POND

Peak Elev=815.23' Storage=4,177 cf Inflow=5.83 cfs 0.283 af
Primary=3.29 cfs 0.283 af Secondary=0.00 cfs 0.000 af Outflow=3.29 cfs 0.283 af

Total Runoff Area = 2.083 ac Runoff Volume = 0.283 af Average Runoff Depth = 1.63"
47.91% Pervious = 0.998 ac 52.09% Impervious = 1.085 ac

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FNB Properties
MSE 24-hr 3 2YR Rainfall=2.79"

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Summary for Subcatchment P1:

Runoff = 5.83 cfs @ 12.15 hrs, Volume= 0.283 af, Depth= 1.63"

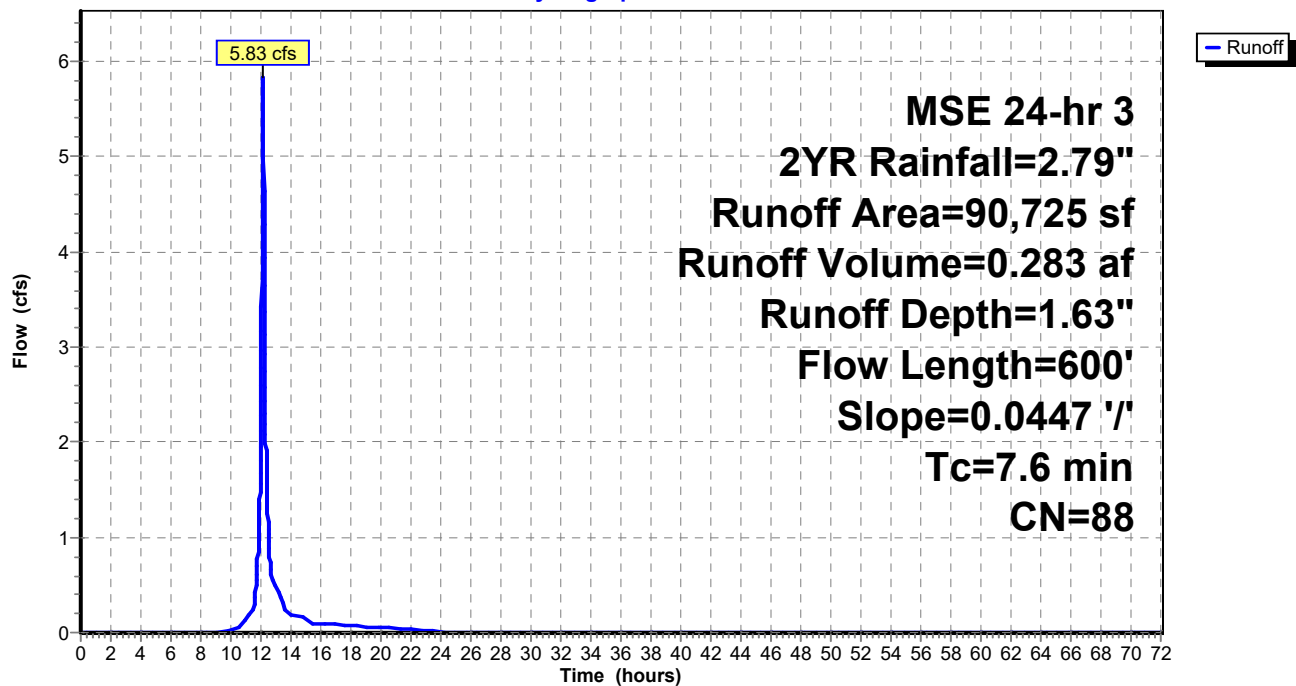
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2YR Rainfall=2.79"

	Area (sf)	CN	Description
*	11,160	98	Building - N
*	15,451	98	Pavement - N
*	579	98	Concrete - N
*	11,910	98	Pavement - Ex
*	6,925	98	Offsite Buildings - Ex
*	43,463	78	Grass HSG D
*	1,237	100	Pond
	90,725	88	Weighted Average
	43,463		47.91% Pervious Area
	47,262		52.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	600	0.0447	1.32		Lag/CN Method,

Subcatchment P1:

Hydrograph



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FNB Properties
MSE 24-hr 3 2YR Rainfall=2.79"

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Summary for Pond 2P: WET POND

Inflow Area = 2.083 ac, 52.09% Impervious, Inflow Depth = 1.63" for 2YR event
 Inflow = 5.83 cfs @ 12.15 hrs, Volume= 0.283 af
 Outflow = 3.29 cfs @ 12.24 hrs, Volume= 0.283 af, Atten= 44%, Lag= 5.6 min
 Primary = 3.29 cfs @ 12.24 hrs, Volume= 0.283 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Automatic Starting Elev= 813.75' Surf.Area= 1,089 sf Storage= 1,755 cf
 Peak Elev= 815.23' @ 12.24 hrs Surf.Area= 2,192 sf Storage= 4,177 cf (2,422 cf above start)

Plug-Flow detention time= 95.7 min calculated for 0.243 af (86% of inflow)
 Center-of-Mass det. time= 23.4 min (823.7 - 800.3)

Volume	Invert	Avail.Storage	Storage Description
#1	809.00'	9,362 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	27	45.1	0	0	27
810.00	131	59.3	72	72	156
811.00	264	73.6	194	266	321
812.00	425	87.9	341	607	522
813.00	615	102.2	517	1,125	758
814.00	1,277	155.8	926	2,051	1,866
815.00	2,033	235.5	1,640	3,691	4,356
816.00	2,765	255.1	2,390	6,081	5,159
816.50	3,156	265.8	1,479	7,560	5,621
817.00	4,073	328.9	1,802	9,362	8,611

Device	Routing	Invert	Outlet Devices
#1	Primary	813.25'	12.0" Round Culvert L= 26.0' Ke= 0.500 Inlet / Outlet Invert= 813.25' / 812.60' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	813.75'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	814.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	815.25'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	816.50'	25.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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FNB Properties

MSE 24-hr 3 2YR Rainfall=2.79"

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Primary OutFlow Max=3.29 cfs @ 12.24 hrs HW=815.23' (Free Discharge)

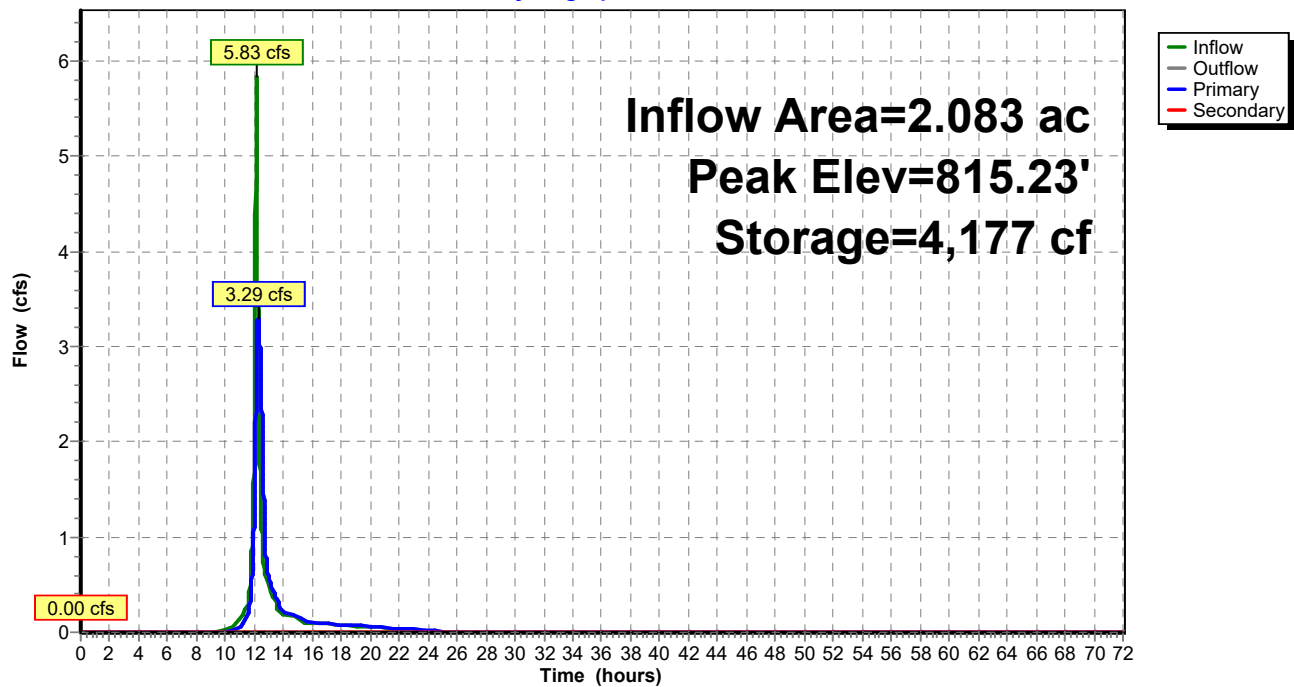
- 1=Culvert (Passes 0.48 cfs of 4.60 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.48 cfs @ 5.52 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)
- 3=Orifice/Grate (Orifice Controls 2.81 cfs @ 4.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=813.75' (Free Discharge)

- 5=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 2P: WET POND

Hydrograph



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FNB Properties
MSE 24-hr 3 10YR Rainfall=3.93"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP1:

Runoff Area=90,725 sf 52.09% Impervious Runoff Depth=2.66"
Flow Length=600' Slope=0.0447 '/' Tc=7.6 min CN=88 Runoff=9.33 cfs 0.462 af

Pond 2P: WET POND

Peak Elev=815.72' Storage=5,337 cf Inflow=9.33 cfs 0.462 af
Primary=6.60 cfs 0.462 af Secondary=0.00 cfs 0.000 af Outflow=6.60 cfs 0.462 af

Total Runoff Area = 2.083 ac Runoff Volume = 0.462 af Average Runoff Depth = 2.66"
47.91% Pervious = 0.998 ac 52.09% Impervious = 1.085 ac

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FNB Properties

MSE 24-hr 3 10YR Rainfall=3.93"

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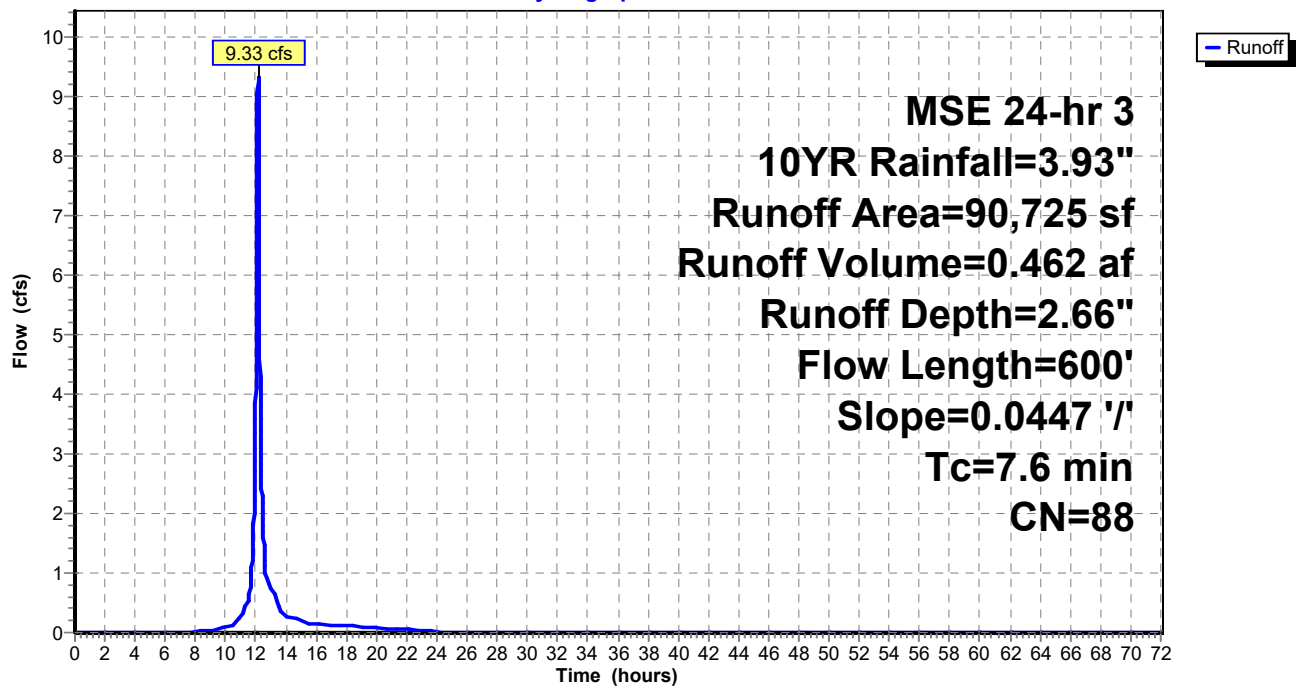
Summary for Subcatchment P1:

Runoff = 9.33 cfs @ 12.15 hrs, Volume= 0.462 af, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10YR Rainfall=3.93"

	Area (sf)	CN	Description
*	11,160	98	Building - N
*	15,451	98	Pavement - N
*	579	98	Concrete - N
*	11,910	98	Pavement - Ex
*	6,925	98	Offsite Buildings - Ex
*	43,463	78	Grass HSG D
*	1,237	100	Pond
	90,725	88	Weighted Average
	43,463		47.91% Pervious Area
	47,262		52.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	600	0.0447	1.32		Lag/CN Method,

Subcatchment P1:**Hydrograph**

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FNB Properties

MSE 24-hr 3 10YR Rainfall=3.93"

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Summary for Pond 2P: WET POND

Inflow Area = 2.083 ac, 52.09% Impervious, Inflow Depth = 2.66" for 10YR event
 Inflow = 9.33 cfs @ 12.15 hrs, Volume= 0.462 af
 Outflow = 6.60 cfs @ 12.21 hrs, Volume= 0.462 af, Atten= 29%, Lag= 3.9 min
 Primary = 6.60 cfs @ 12.21 hrs, Volume= 0.462 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Automatic Starting Elev= 813.75' Surf.Area= 1,089 sf Storage= 1,755 cf
 Peak Elev= 815.72' @ 12.21 hrs Surf.Area= 2,549 sf Storage= 5,337 cf (3,582 cf above start)

Plug-Flow detention time= 70.8 min calculated for 0.422 af (91% of inflow)
 Center-of-Mass det. time= 19.5 min (810.0 - 790.5)

Volume	Invert	Avail.Storage	Storage Description
#1	809.00'	9,362 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	27	45.1	0	0	27
810.00	131	59.3	72	72	156
811.00	264	73.6	194	266	321
812.00	425	87.9	341	607	522
813.00	615	102.2	517	1,125	758
814.00	1,277	155.8	926	2,051	1,866
815.00	2,033	235.5	1,640	3,691	4,356
816.00	2,765	255.1	2,390	6,081	5,159
816.50	3,156	265.8	1,479	7,560	5,621
817.00	4,073	328.9	1,802	9,362	8,611

Device	Routing	Invert	Outlet Devices
#1	Primary	813.25'	12.0" Round Culvert L= 26.0' Ke= 0.500 Inlet / Outlet Invert= 813.25' / 812.60' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	813.75'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	814.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	815.25'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	816.50'	25.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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FNB Properties

MSE 24-hr 3 10YR Rainfall=3.93"

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Primary OutFlow Max=6.59 cfs @ 12.21 hrs HW=815.72' (Free Discharge)

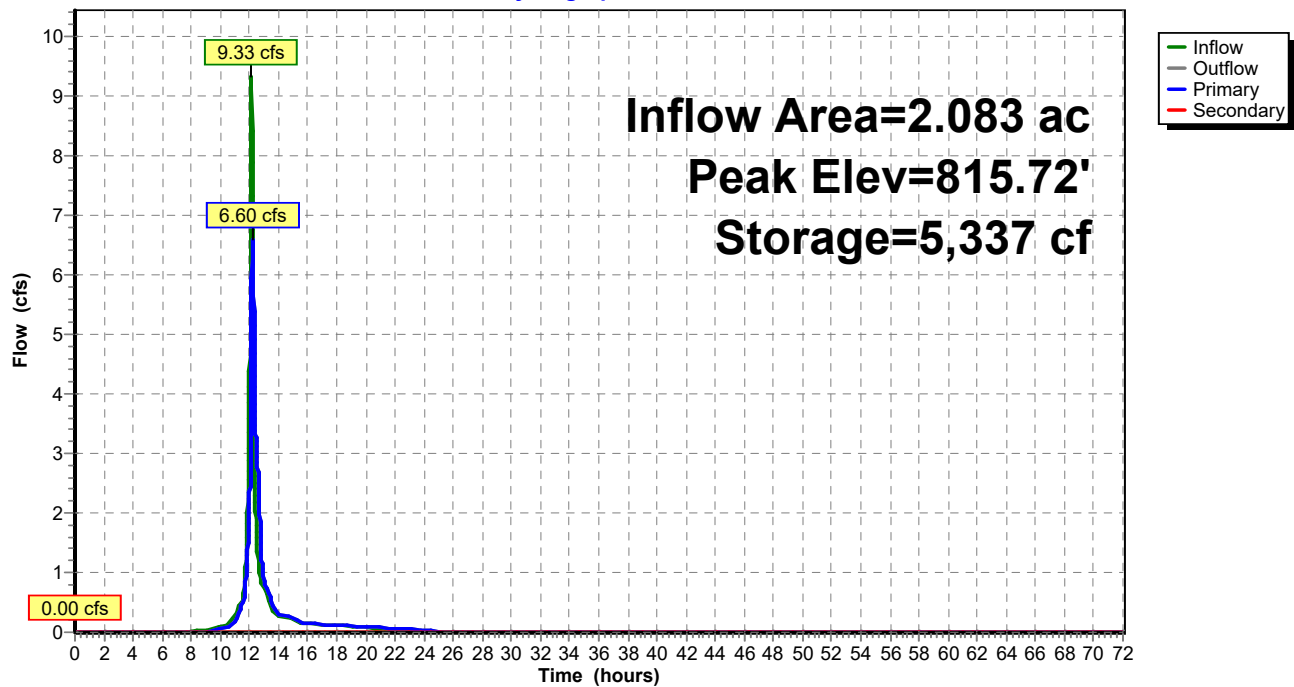
- 1=Culvert (Passes 3.15 cfs of 5.31 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.56 cfs @ 6.46 fps)
- 4=Orifice/Grate (Orifice Controls 2.59 cfs @ 3.30 fps)
- 3=Orifice/Grate (Orifice Controls 3.44 cfs @ 5.84 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=813.75' (Free Discharge)

- 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: WET POND

Hydrograph



526-317 PRO

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FNB Properties

MSE 24-hr 3 25YR Rainfall=4.75"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP1:

Runoff Area=90,725 sf 52.09% Impervious Runoff Depth=3.43"

Flow Length=600' Slope=0.0447 '/' Tc=7.6 min CN=88 Runoff=11.87 cfs 0.596 af

Pond 2P: WET POND

Peak Elev=816.08' Storage=6,303 cf Inflow=11.87 cfs 0.596 af

Primary=7.90 cfs 0.596 af Secondary=0.00 cfs 0.000 af Outflow=7.90 cfs 0.596 af

Total Runoff Area = 2.083 ac Runoff Volume = 0.596 af Average Runoff Depth = 3.43"**47.91% Pervious = 0.998 ac 52.09% Impervious = 1.085 ac**

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MSE 24-hr 3 25YR Rainfall=4.75"

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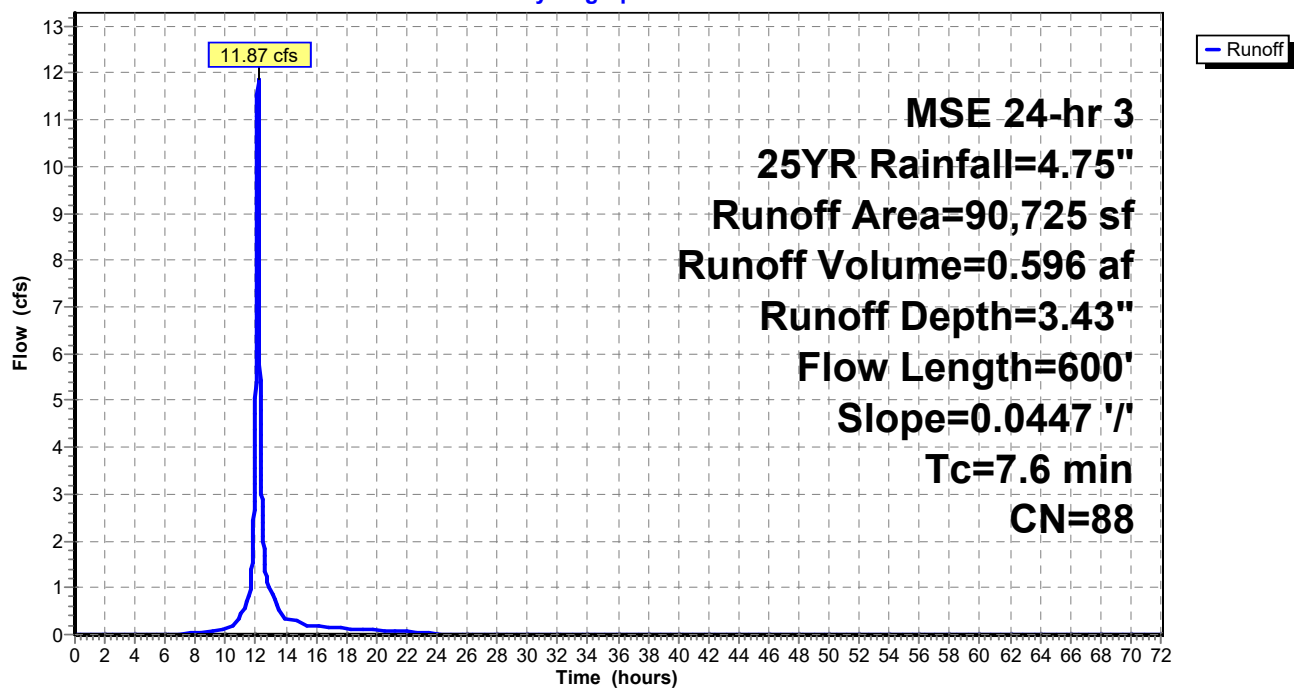
Summary for Subcatchment P1:

Runoff = 11.87 cfs @ 12.15 hrs, Volume= 0.596 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 25YR Rainfall=4.75"

	Area (sf)	CN	Description
*	11,160	98	Building - N
*	15,451	98	Pavement - N
*	579	98	Concrete - N
*	11,910	98	Pavement - Ex
*	6,925	98	Offsite Buildings - Ex
*	43,463	78	Grass HSG D
*	1,237	100	Pond
	90,725	88	Weighted Average
	43,463		47.91% Pervious Area
	47,262		52.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	600	0.0447	1.32		Lag/CN Method,

Subcatchment P1:**Hydrograph**

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MSE 24-hr 3 25YR Rainfall=4.75"

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Summary for Pond 2P: WET POND

Inflow Area = 2.083 ac, 52.09% Impervious, Inflow Depth = 3.43" for 25YR event
 Inflow = 11.87 cfs @ 12.15 hrs, Volume= 0.596 af
 Outflow = 7.90 cfs @ 12.22 hrs, Volume= 0.596 af, Atten= 33%, Lag= 4.3 min
 Primary = 7.90 cfs @ 12.22 hrs, Volume= 0.596 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Automatic Starting Elev= 813.75' Surf.Area= 1,089 sf Storage= 1,755 cf
 Peak Elev= 816.08' @ 12.22 hrs Surf.Area= 2,825 sf Storage= 6,303 cf (4,548 cf above start)

Plug-Flow detention time= 61.1 min calculated for 0.555 af (93% of inflow)
 Center-of-Mass det. time= 17.9 min (803.4 - 785.5)

Volume	Invert	Avail.Storage	Storage Description
#1	809.00'	9,362 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	27	45.1	0	0	27
810.00	131	59.3	72	72	156
811.00	264	73.6	194	266	321
812.00	425	87.9	341	607	522
813.00	615	102.2	517	1,125	758
814.00	1,277	155.8	926	2,051	1,866
815.00	2,033	235.5	1,640	3,691	4,356
816.00	2,765	255.1	2,390	6,081	5,159
816.50	3,156	265.8	1,479	7,560	5,621
817.00	4,073	328.9	1,802	9,362	8,611

Device	Routing	Invert	Outlet Devices
#1	Primary	813.25'	12.0" Round Culvert L= 26.0' Ke= 0.500 Inlet / Outlet Invert= 813.25' / 812.60' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	813.75'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	814.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	815.25'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	816.50'	25.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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FNB Properties

MSE 24-hr 3 25YR Rainfall=4.75"

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Primary OutFlow Max=7.90 cfs @ 12.22 hrs HW=816.08' (Free Discharge)

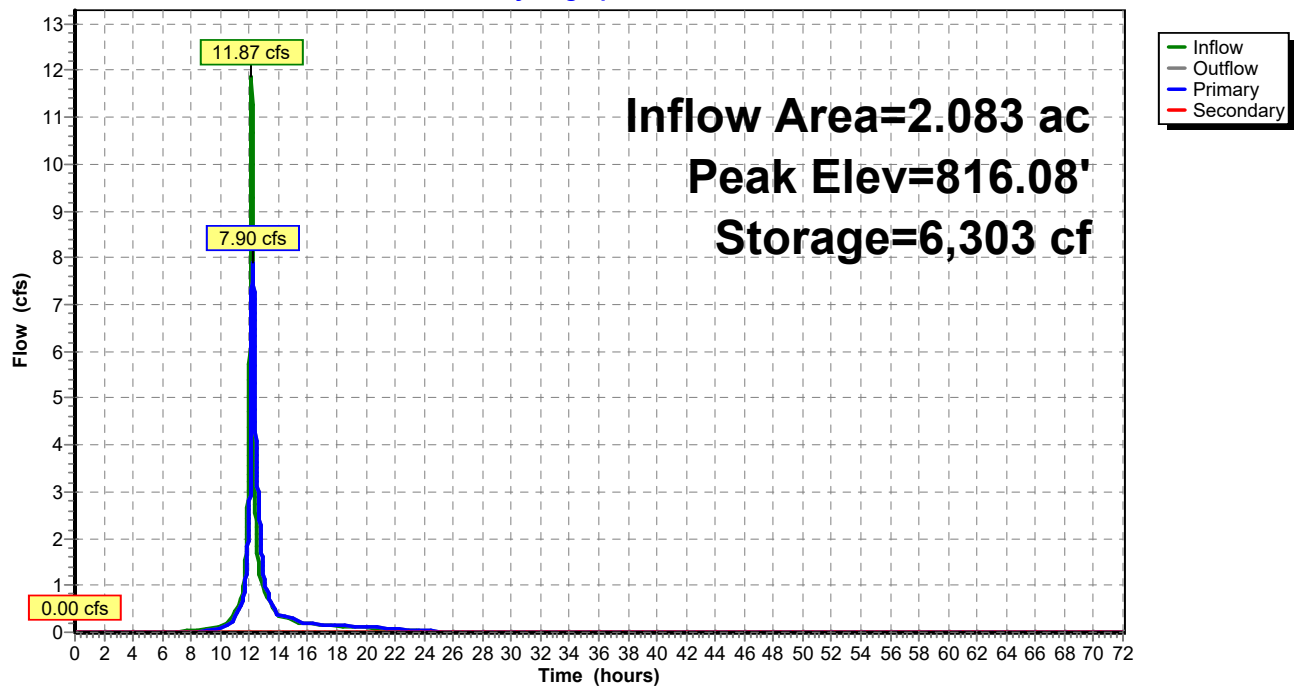
- 1=Culvert (Passes 4.06 cfs of 5.77 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.62 cfs @ 7.08 fps)
- 4=Orifice/Grate (Orifice Controls 3.44 cfs @ 4.38 fps)
- 3=Orifice/Grate (Orifice Controls 3.84 cfs @ 6.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=813.75' (Free Discharge)

- 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: WET POND

Hydrograph



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FNB Properties

MSE 24-hr 3 100YR Rainfall=6.19"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP1:

Runoff Area=90,725 sf 52.09% Impervious Runoff Depth=4.81"

Flow Length=600' Slope=0.0447 '/' Tc=7.6 min CN=88 Runoff=16.30 cfs 0.835 af

Pond 2P: WET POND

Peak Elev=816.62' Storage=7,955 cf Inflow=16.30 cfs 0.835 af

Primary=9.49 cfs 0.821 af Secondary=2.83 cfs 0.014 af Outflow=12.31 cfs 0.835 af

Total Runoff Area = 2.083 ac Runoff Volume = 0.835 af Average Runoff Depth = 4.81"**47.91% Pervious = 0.998 ac 52.09% Impervious = 1.085 ac**

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FNB Properties

MSE 24-hr 3 100YR Rainfall=6.19"

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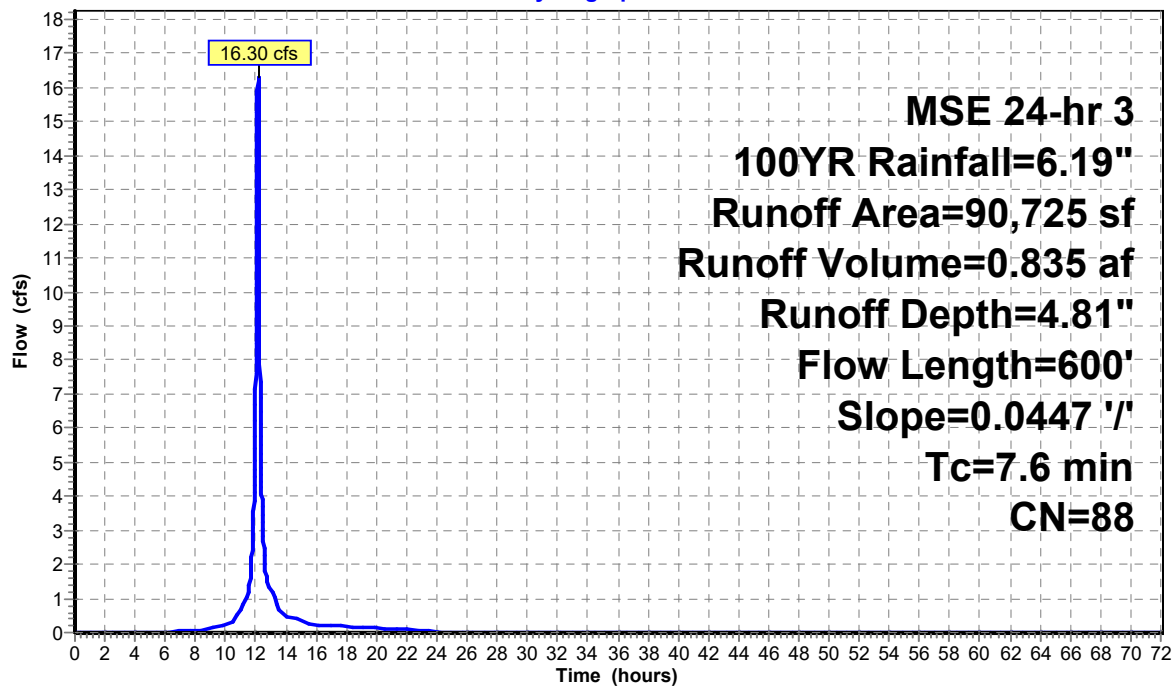
Summary for Subcatchment P1:

Runoff = 16.30 cfs @ 12.15 hrs, Volume= 0.835 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100YR Rainfall=6.19"

	Area (sf)	CN	Description
*	11,160	98	Building - N
*	15,451	98	Pavement - N
*	579	98	Concrete - N
*	11,910	98	Pavement - Ex
*	6,925	98	Offsite Buildings - Ex
*	43,463	78	Grass HSG D
*	1,237	100	Pond
	90,725	88	Weighted Average
	43,463		47.91% Pervious Area
	47,262		52.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	600	0.0447	1.32		Lag/CN Method,

Subcatchment P1:**Hydrograph**

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FNB Properties

MSE 24-hr 3 100YR Rainfall=6.19"

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Summary for Pond 2P: WET POND

Inflow Area = 2.083 ac, 52.09% Impervious, Inflow Depth = 4.81" for 100YR event
 Inflow = 16.30 cfs @ 12.15 hrs, Volume= 0.835 af
 Outflow = 12.31 cfs @ 12.20 hrs, Volume= 0.835 af, Atten= 24%, Lag= 3.5 min
 Primary = 9.49 cfs @ 12.20 hrs, Volume= 0.821 af
 Secondary = 2.83 cfs @ 12.20 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Automatic Starting Elev= 813.75' Surf.Area= 1,089 sf Storage= 1,755 cf
 Peak Elev= 816.62' @ 12.20 hrs Surf.Area= 3,368 sf Storage= 7,955 cf (6,200 cf above start)

Plug-Flow detention time= 50.7 min calculated for 0.794 af (95% of inflow)
 Center-of-Mass det. time= 16.2 min (795.0 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	809.00'	9,362 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	27	45.1	0	0	27
810.00	131	59.3	72	72	156
811.00	264	73.6	194	266	321
812.00	425	87.9	341	607	522
813.00	615	102.2	517	1,125	758
814.00	1,277	155.8	926	2,051	1,866
815.00	2,033	235.5	1,640	3,691	4,356
816.00	2,765	255.1	2,390	6,081	5,159
816.50	3,156	265.8	1,479	7,560	5,621
817.00	4,073	328.9	1,802	9,362	8,611

Device	Routing	Invert	Outlet Devices
#1	Primary	813.25'	12.0" Round Culvert L= 26.0' Ke= 0.500 Inlet / Outlet Invert= 813.25' / 812.60' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	813.75'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	814.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	815.25'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	816.50'	25.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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FNB Properties

MSE 24-hr 3 100YR Rainfall=6.19"

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Primary OutFlow Max=9.48 cfs @ 12.20 hrs HW=816.62' (Free Discharge)

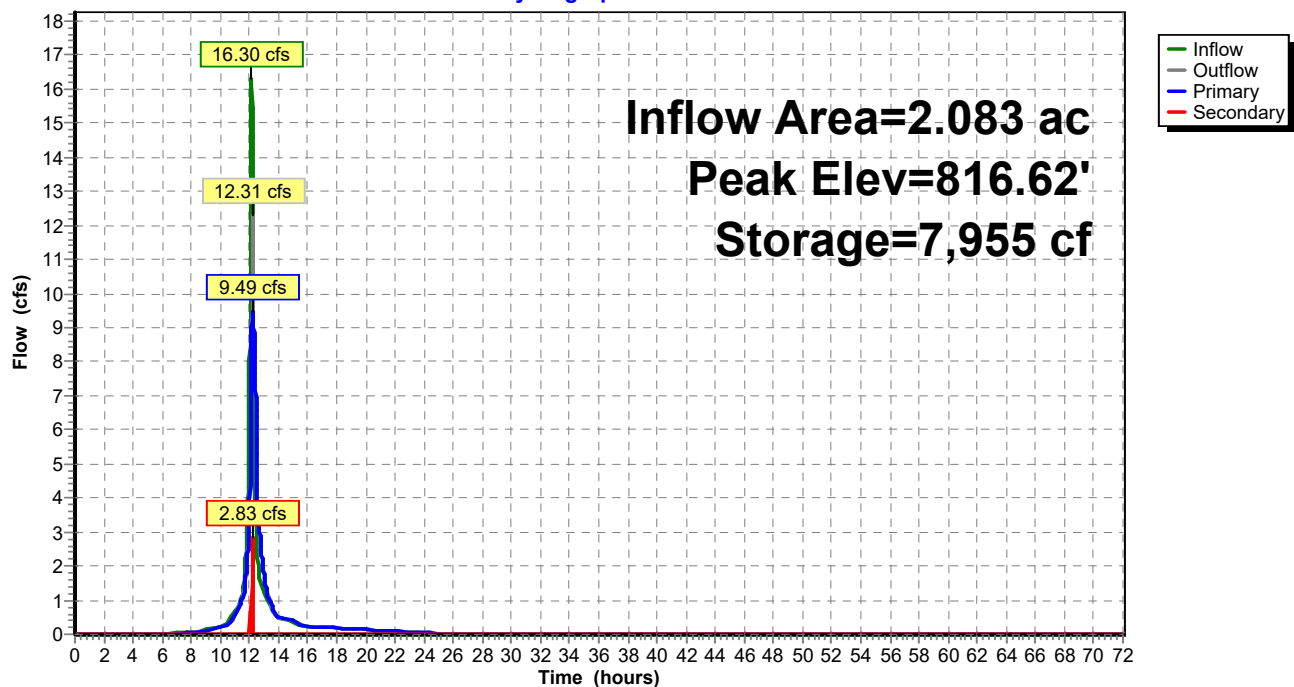
- 1=Culvert (Passes 5.12 cfs of 6.41 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.69 cfs @ 7.92 fps)
- 4=Orifice/Grate (Orifice Controls 4.43 cfs @ 5.64 fps)
- 3=Orifice/Grate (Orifice Controls 4.37 cfs @ 7.41 fps)

Secondary OutFlow Max=2.77 cfs @ 12.20 hrs HW=816.62' (Free Discharge)

- 5=Broad-Crested Rectangular Weir (Weir Controls 2.77 cfs @ 0.93 fps)

Pond 2P: WET POND

Hydrograph



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Multi-Event Tables

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Events for Subcatchment P1:

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1YR	2.46	4.84	0.234	1.35
2YR	2.79	5.83	0.283	1.63
10YR	3.93	9.33	0.462	2.66
25YR	4.75	11.87	0.596	3.43
100YR	6.19	16.30	0.835	4.81

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FNB Properties
Multi-Event Tables

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Events for Pond 2P: WET POND

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1YR	4.84	2.91	2.91	0.00	815.01	3,705
2YR	5.83	3.29	3.29	0.00	815.23	4,177
10YR	9.33	6.60	6.60	0.00	815.72	5,337
25YR	11.87	7.90	7.90	0.00	816.08	6,303
100YR	16.30	12.31	9.49	2.83	816.62	7,955

APPENDIX 11

WINSLAMM INPUT AND OUTPUT DATA FILES
(TSS REMOVAL)

Input Data 526-317

Data file name: G:\2026\2605\526-317\03 ENGINEERING\03 STORMWATER\02
WinSLAMM\526-317.mdb
WinSLAMM Version 10.4.1
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.ppd
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
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 09-01-2026 Time: 13:55:32
Site information:

LU# 1 - Commercial: Commercial 1 Total area (ac): 0.967
1 - Roofs 1: 0.256 ac. Pitched Connected Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.355 ac. Connected Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
14 - Paved Parking 2: 0.273 ac. Connected Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.013 ac. Connected Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.042 ac. Normal Silty Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.028 ac. Source Area PSD File:

LU# 2 - Residential: Residential (Offsite) Total area (ac): 1.119
1 - Roofs 1: 0.159 ac. Pitched Disconnected Normal Silty Source
Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.960 ac. Normal Silty Source Area PSD

File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Grass Swale CP# 1 (DS) - DS Grass Swale # 1

Total drainage area (acres)= 0.967
Fraction of drainage area served by swales (ac) = 0.80
Swale density (ft/ac) = 245.61
Total swale length (ft) = 190
Average swale length to outlet (ft)= 95
Typical bottom width (ft) = 0.0
Typical swale side slope (_H:1V) = 3.0
Typical longitudinal slope (ft.H/ft.V) = 0.008
Swale retardance factor: C
Typical grass height (in) = 4.0
Swale dynamic infiltration rate (in/hr)= 0.065
Typical swale depth (ft) for cost analysis (optional) = 0.0
Particle size distribution file name: Not needed - calculated by program
Use total swale length instead of swale density for infiltration

calculations: True

Control Practice 2: Wet Detention Pond CP# 1 (DS) - DS Wet Pond # 1

Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 5
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): 0.33
2. Number of orifices: 1
3. Invert elevation above datum (ft): 5

Outlet type: Orifice 2

1. Orifice diameter (ft): 0.5
2. Number of orifices: 3
3. Invert elevation above datum (ft): 5.25

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 25
2. Weir crest width (ft): 15
3. Height from datum to bottom of weir opening: 7.75

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 1
2. Stand pipe height above datum (ft): 6.25

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	0.0001	0.00	
0.00	2	0.25	0.0006	0.00	

0.00				
	3	1.25	0.0030	0.00
0.00				
	4	2.25	0.0061	0.00
0.00				
	5	3.25	0.0098	0.00
0.00				
	6	4.25	0.0141	0.00
0.00				
	7	5.25	0.0293	0.00
0.00				
	8	6.25	0.0467	0.00
0.00				
	9	7.25	0.0635	0.00
0.00				
	10	7.75	0.0725	0.00
0.00				
	11	8.25	0.0935	0.00
0.00				

Control Practice 3: 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

526-317 Output Summary

SLAMM for Windows Version 10.4.1

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Data file name: G:\2026\2605\526-317\03 ENGINEERING\03 STORMWATER\02
WinSLAMM\526-317.mdb

Data file description:

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

Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx

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

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

Start of Winter Season: 12/02

End of Winter Season: 03/12

Model Run Start Date: 01/01/81 Model Run End Date: 12/31/81

Date of run: 09-01-2026 Time of run: 13:55:55

Total Area Modeled (acres): 2.086

Years in Model Run: 1.00

Particulate	Percent	Runoff	Percent Particulate
		Volume	Runoff
Solids Particulate		(cu ft)	Volume
Yield	Solids		Conc.
(lbs)	Reduction		Reduction
			(mg/L)
Total of all Land Uses without Controls:		83410	-
445.8	-		85.61
Outfall Total with Controls:		81544	2.24%
171.6	61.51%		33.71

Annualized Total After Outfall Controls:	81768
172.1	

Pollutant		Concentration -	Concentration -	Conc.	
Pollutant Yield	Pollutant Yield	Pol. Yield	Percent	Units	No
	No Controls	With Controls	Reduction		
Controls	With Controls	Units			
Particulate Solids	85.61	33.71		mg/L	
445.8	171.6	lbs	61.51 %		
Particulate Phosphorus	0.2407	0.06494		mg/L	
0.8603	0.3306	lbs	61.57 %		

APPENDIX 12

USLE CALCULATIONS AND MAP





Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.1 (12-05-2024)



YEAR 1

Developer: Fred Bachmann

Project: FNB Site Improvements

Date: 09/01/26

County: Jefferson

Version 2.1

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	11/09/26	11/23/26	0.9%	140	Silt Loam	0.43	3.2%	45	0.23	1.00	0.1	0.940	Sediment Trap	0.0
Directional Tracking o	11/23/26	04/01/27	5.6%	140	Silt Loam	0.43	3.2%	45	0.23	0.90	0.7	0.940	Sediment Trap	0.1
Seed with Mulch or Ei	04/01/27	06/03/27	17.6%	140	Silt Loam	0.43	3.2%	45	0.23	0.10	0.2	0.940	Sediment Trap	0.0
End	06/03/27	-----	-----	-----	-----	-----	3.2%	45	0.23	-----	-----	0.000	Sediment Trap	0.0
		-----	-----	-----	-----	-----	3.2%	0	-----	-----	-----	0.000		0.0
		-----	-----	-----	-----	-----	0.0%	0	-----	-----	-----	0.000		0.0
TOTAL											1.1		TOTAL	0.2
													% Reduction Required	NONE

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
Thaw-6/30

8/7-8/29 Turf, introduced grasses and legumes
Native Grasses, forbs, and legumes

Designed By:	Alex Jerome
Date	9/1/2026

