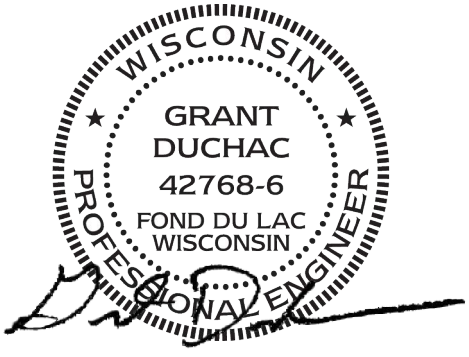
EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS

STORM WATER and EROSION CONTROL CALCULATIONS
FOR:

Water Place One, LLC
Proposed Multi-Family Condominium Development

La Crosse, WI
Excel Job # 1608430
BASED ON DSPS Plumbing Code, and SLAMM
JUNE 16, 2016



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

Table of Contents

OVERVIEW

The proposed Water Place One condominium development in La Crosse, WI is situated on a 9.53 acre parcel and located on US Hwy 14/61 on Barron Island in La Crosse, WI. The site is bounded by the Mississippi River on the west side and the US Hwy 14/16 right-of-way on the east side. The existing site consists of a currently vacant, previously developed hotel and marina site. The site was also historically home to a City sanitary treatment and lift station complex. Most of the structures on site have been removed with some pavement and remnants of previous development on site in areas. The existing site stormwater runs directly to the Mississippi River via overland flow or by underground stormwater pipes on site discharged directly to the river. During previous development, the site was mostly covered with impervious surfaces although some portions of the site are now covered with sparse lawn. The existing site can be seen in the construction plan set.

The proposed project (1st phase of re-development for the site) will include a private mulit-family condominium development consisting of duplex, triplex, and 4-unit buildings on the north half of the site. A total of ten (10) separate buildings and 25 total units are proposed on site. A private drive will loop the northern half of the site to create access to each of the condominium buildings. Each unit will have a two (2) car attached garage and driveway space for two (2) additional parking spaces. Also, eleven (11) additional off-drive parking stalls are proposed for visitor parking. Total site disturbance will be 5.43 acres. Stormwater for the proposed re-development will drain to new grassed biofiltration basins scattered throughout the site. These grassed biofiltration basins will promote stormwater treatment and infiltration on site with the use of engineered filter media and the highly infiltrateable sand soils present on site. All on-site stormwater runoff will be diverted into the proposed stormwater management facilities to maximum extent practicable. The roof areas will drain to grade to promote infiltration in all areas of the site. A small amount of untreated stormwater will leave the site near the existing driveway entrance connection. The post development site can be seen in the construction plan set and Appendix A.

SOILS (Appendix B)

Existing Soil Types: 2020 Urban Land, (Valley Trains) – No Hydraulic Rating

See soils report for in-depth soil investigation.

Infiltration testing was completed at various locations on site. Double-ring infiltrometer testing indicates a range of 32 in/hr to 190 in/hr. See Appendix B for the testing reports.

RAINFALL DATA – City of La Crosse

2-Year Storm = 2.9 Inches

WATER QUANTITY/INFILTRATION REQUIREMENTS

City of La Crosse – Infiltrate 100% of the water from a two year storm (2-yr storm = 2.9 inches over 24 hours).

Wisconsin Department of Natural Resources - This site will be exempt from having to provide infiltration because the site is a Redevelopment post-construction site per NR 151.12(6)(c).

Site Runoff Summary:

Runoff Summary Chart

Area (Basin)	S.F	Runoff per Hour (CU FT / HR)	Runoff per Hour = S.F x (2.9 inches) x (1 FT / 12 inches) x (1 / 24 hours)
1	24,900	251	
2	10,380	105	
3	12,500	113	
4	13,555	137	
5	14,920	150	
10	6,910	68	
11	15,930	160	
12	12,940	130	
13	14,580	147	
14	12,020	121	
15	14,364	145	

Infiltration Summary Chart

Area	Runoff to Area (CU FT/ HR)	Infiltration Area Req.	Infiltration Area Provided	Infiltration Area Req. = Runoff to Area (CU FT / HR) / Infiltration Rate (FT / HR)
Basin 1	251	241 S.F.	1900 S.F.	
Basin 2	105	101 S.F.	320 S.F.	
Basin 3	113	109 S.F.	280 S.F.	
Basin 4	137	132 S.F.	600 S.F.	
Basin 5	150	144 S.F.	380 S.F	
Basin 10	68	65 S.F.	170 S.F.	
Basin 11	160	154 S.F.	1800 S.F.	
Basin 12	130	125 S.F.	280 S.F.	
Basin 13	147	141 S.F.	210 S.F.	
Basin 14	121	116 S.F.	600 S.F.	
Basin 15	145	139 S.F.	280 S.F.	
Total	1257	1467 S.F.	6820 S.F.	

***Infiltration Rate of Bio Infiltration = 12.5 inches / HR (1.04 FT / HR)**
(Lowest infiltration rate tested = 32 Inches/HR → DNR Correction Factor of 2.5 = 12.5 Inches/HR)

See Appendix B for Soil Infiltration Rates (double-ring infiltrometer test)
See Appendix A for Post Development Basin Map

WATER QUALITY TO PROVIDE TSS REMOVAL:

Wisconsin Department of Natural Resources – For re-development, 40 percent reduction of total suspended solids from parking areas and roads.

The site BMP's will treat > 40% TSS removal with the use of biofiltration. SLAMM analysis was completed on a typical runoff area to show the removal rate of the proposed grassed biofiltration areas on site. Since ten (10) small grassed biofiltration areas are proposed, the largest runoff area was modeled to determine the worst case. Each biofiltration area is the same size and this typical calculation shows that each basin will treat >80% TSS removal due to the highly infiltrateable sand soils present on site. The following is a summarization of the typical biofiltration calculation:

	Particulate Solids For Area (lbs)	Particulate Solids Yield After Drainage and Controls (lbs)
Typ. Bio Area (0.45 ac)	95.00	18.64
TOTALS:	95.00	18.64

Result: Reduction in Solids (18.64 / 95.00= 0.196) 1-.196 = **80.38% TSS removal**.
The actual amount of reduction is much higher as the worst case Basin was modeled. Calculations for the sediment removal can be seen on the attached SLAMM print outs in Appendix D.

Therefore, stormwater quality requirements are met.

STORM SEWER PIPE DESIGN

All storm pipes were designed per Wisconsin Department of Safety and Professional Services (DSPS). See Appendix C for calculations and basin map.

EMERGENCY OVERFLOW ROUTE

In the event of storm sewer collection facilities becoming plugged or under a storm event exceeding the pipe capacity, overland overflow routes are available throughout the site between buildings allowing stormwater to overflow west to the Mississippi River. Additionally, the building elevations on site are 3'+ over the 100-year floodplain elevation providing flood and emergency overflow protection on site.

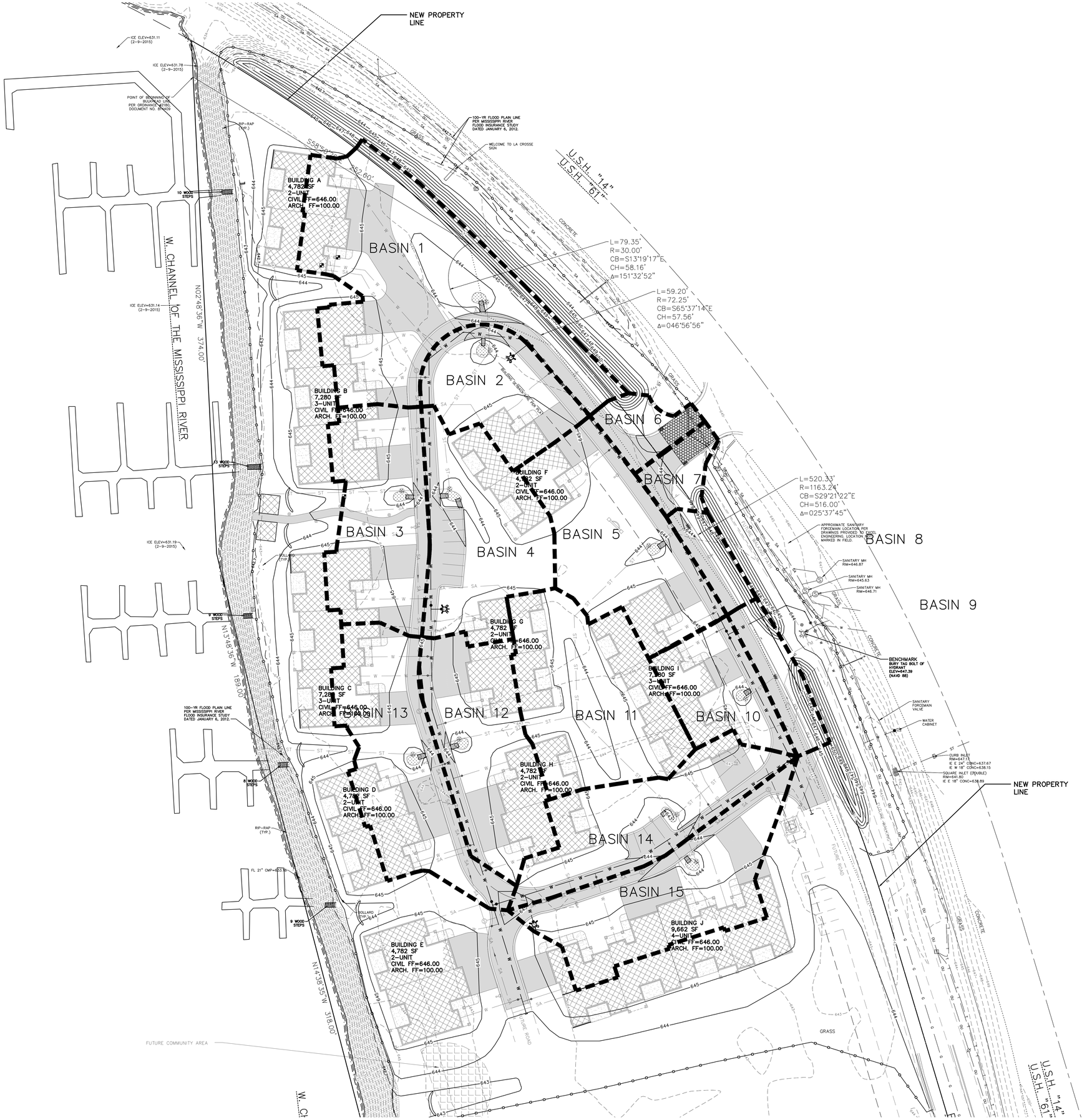
EROSION CONTROL

The following are practices that will be used to control sediment during construction:
Silt Fence – Silt fence will be placed around the perimeter of the site for perimeter control as well as downhill of any disturbed areas where sheet flow will exist.
Tracking Pads – Stone tracking pads will be placed at all construction entrances to the site to ensure dirt and soil tracked onto public roads is limited.

Inlet Protection – Inlet protection will be provided in storm inlets adjacent to the construction site.
Erosion Matting – Erosion matting will be placed on any steep slopes as well as ditch bottoms to ensure that these areas are permanently stabilized over time.
The erosion control locations, specifications, construction sequence, site stabilization notes, and seeding notes can be seen on civil sheets C1.0, C1.3, and C1.6.
See **Appendix E** for USLE calculation spreadsheet and corresponding map.

Appendix A

Post-Development Basin Map



EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
100 CAMELOT DRIVE
FOND DU LAC, WI 54935
PHONE: (920) 926-9800
WWW.EXCELENGINEER.COM

PROJECT INFORMATION

PROJECT NUMBER 1608430

PROPOSED NEW DEVELOPMENT FOR:

WATER PLACE ONE

PARK PLAZA DR. • LA CROSSE, WI 54601

PROFESSIONAL SEAL

PRELIMINARY DATES

JUNE 16, 2016

NOT FOR CONSTRUCTION

SHEET INFORMATION

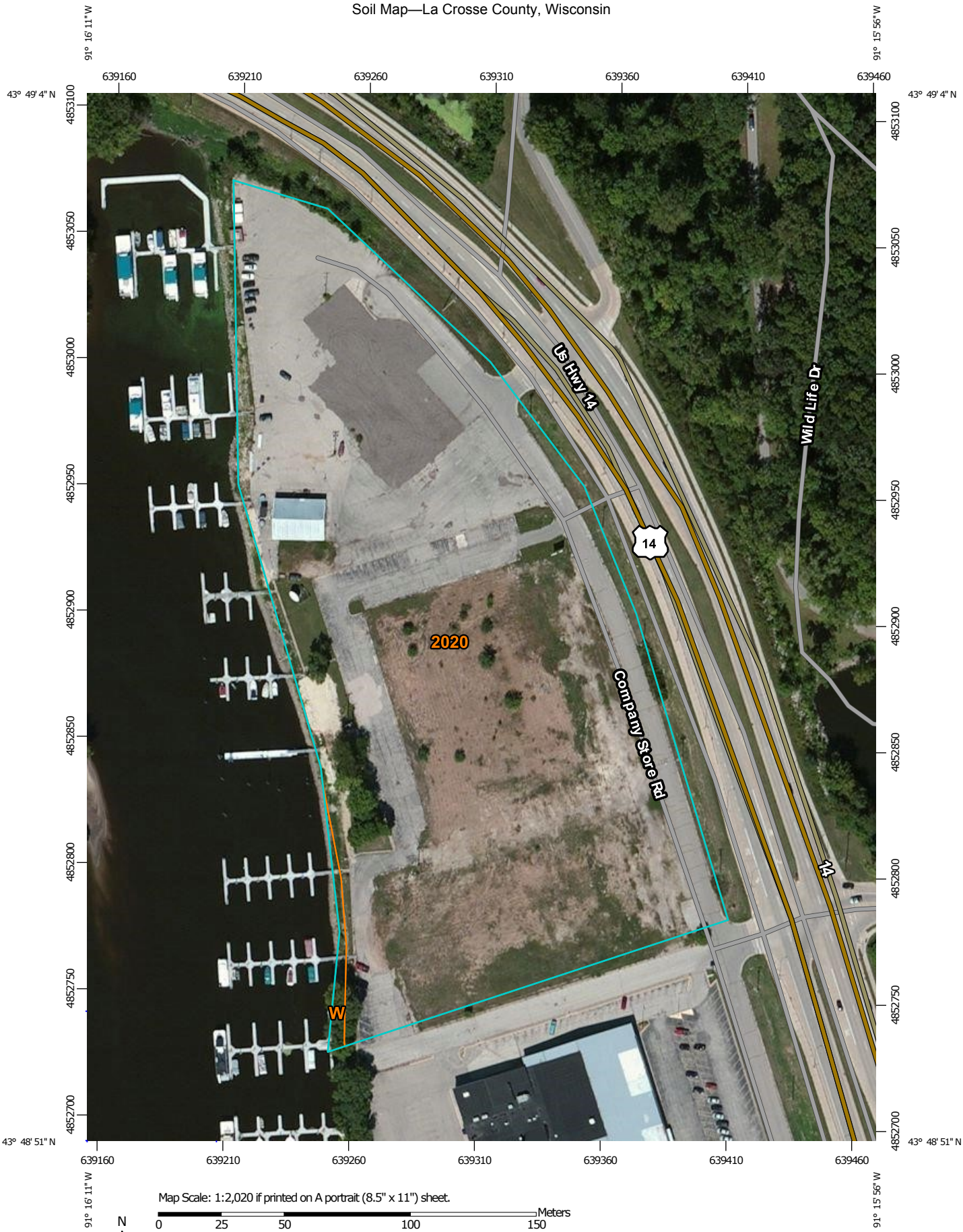
DSPS BASIN MAP PLAN

SHEET NUMBER

POST

Appendix B

Soil Maps & Data:



Map Scale: 1:2,020 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

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 1:12,000.

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: http://websoilsurvey.nrcs.usda.gov
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: La Crosse County, Wisconsin
Survey Area Data: Version 14, Sep 17, 2015

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

Date(s) aerial images were photographed: Nov 1, 2010—Sep 11, 2011

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

La Crosse County, Wisconsin (WI063)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2020	Urban land, valley trains	9.6	99.2%
W	Water	0.1	0.8%
Totals for Area of Interest		**9.7**	**100.0%**

Geotechnical Evaluation Report

Barron Island Development
529 and 621 Park Plaza Drive
La Crosse, Wisconsin

Prepared for

Wieser Brothers General Contractor

Brandon K. Wright, PE
Project Engineer
License Number: 40141
April 14, 2015

Project B1502357

Braun Intertec Corporation

BRAUN INTERTEC
The Science You Build On.

Braun Intertec Corporation
2309 Palace Street
La Crosse, WI 54603

Phone: 608.781.7277
Fax: 608.781.7279
Web: braunintertec.com

April 14, 2015 Project B1502357

Mr. Treavor Millin
Wieser Brothers General Contractor
200 Twilite Street
La Crescent, Minnesota 55947

Re: Geotechnical Evaluation
Barron Island Development
529 and 621 Park Plaza Drive
La Crosse, Wisconsin

Dear Mr. Millin:

We are pleased to present this Geotechnical Evaluation Report for the proposed Barron Island Development located at 529 and 621 Park Plaza Drive in La Crosse, Wisconsin. A summary of our results, and a summary of our recommendations in light of the geotechnical issues influencing design and construction, is presented below. More detailed information and recommendations follow.

Summary of Results

We drilled eleven standard test penetration borings and excavated four test pits across the site. Our borings and test pits indicate that the site consists of pavement, topsoil and uncontrolled fill over alluvial soils. The borings and test pits initially encountered concrete pavement, bituminous pavement, aggregate base, recycled bituminous or topsoil fill. Below the pavement materials and topsoil, the borings and test pits encountered uncontrolled fill that extended to the bottom of the test pits of a depth of 5 ½ to 18 feet or the termination depth of our borings. The uncontrolled fill was underlain with alluvial soils that extended to the termination depth of the borings.

Based on penetration resistance testing, the uncontrolled fill is considered variable and poorly compacted. The sandy alluvial soils are considered very loose to medium dense and the clayey alluvial soils are considered rather soft to medium. Groundwater was estimated to be down 9 to 15 feet, corresponding to elevations 635 to 627.

Based on infiltration testing, the uncontrolled fill has infiltration rates ranging from 32 to 190 inches per hour.

Summary of Recommendations

The geotechnical issues influencing design of the proposed building includes controlling settlement. Based on our findings in the borings (specifically the very loose sand and silt soils at depth), the expected fill needed to elevate the site, and the proposed building loads, will result in significant settlement. For this reason, the proposed building should be supported on improved subgrades or aggregate piers. Improving the subgrade, however, by means of conventional excavation and recompaction may be impractical given not only the depths to which the uncontrolled fill extends, but also the depths to which the excavations would extend below groundwater. For this reason, and based on discussions with Mr. Treavor Millin regarding our findings, we were directed to develop recommendations for installing aggregate piers. Those recommendations are presented below in Section D.

From a construction perspective, the project team should also be aware that:

- Prior to elevating the site, the subgrade should be prepared by removing, topsoil fill and pavement materials. Following the removal, the exposed subgrade should be surface-compacted.
- We recommend medium to course grained sand to be placed behind basement walls.
- Exterior slabs should be supported on at 4 inches of aggregate base and the subgrade should consist of non-frost susceptible soils.

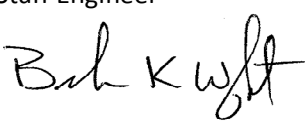
Remarks

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please call Nicole Carlson or Brandon Wright at 608.781.7277.

Sincerely,

BRAUN INTERTEC CORPORATION

Nicole A. Carlson, EIT
Staff Engineer



Brandon K. Wright, PE
Project Engineer

Table of Contents

Description **Page**

BRAUN INTERTEC

Table of Contents (continued)

Appendix

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the proposed Barron Island Development located at 529 and 621 Park Plaza Drive located in La Crosse, Wisconsin. The project will include the construction of a four-story, wood-framed apartment building with underground parking, pavement areas, storm water infiltration systems and supporting utilities. The general location of the site with adjacent street is shown on the Soil Boring Location Sketch in the Appendix.

A.2. Purpose

The purpose of our geotechnical evaluation was to characterize subsurface geologic conditions at selected exploration locations and evaluate their impact on the design and construction of the proposed footings, basement walls, basement slabs, exterior concrete slabs, pavement and utilities.

A.3. Background Information and Reference Documents

To facilitate our evaluation, we were provided with or reviewed the following information or documents:

- Geologic atlas and topographic maps of the area.
- Preliminary site layout drawing provided by Excel Engineering, dated March 26, 2015.
- Previous Preliminary Geotechnical Evaluation Reports; Braun Intertec project numbers LC-06-05666, dated March 5, 2007 and B1500607 dated February 18, 2015.

A.4. Site Conditions

Based on our referenced documents and knowledge of the area, we understand the site was previously developed, the building was demolished and backfilled, and, at the time of our investigation, was a vacant parcel. The site is also partially paved on the west side, gravel surfaced on the northern side and a vacant field to the south.

The property is known to contain petroleum impacted soil and groundwater. The site is registered with the Wisconsin Department of Natural Resources as BRRTS #03-32-000604. It is advised that a soil management plan be developed and implemented prior to any earthwork taking place in the impacted areas. The soil management plan will ensure all impacted soils are handled properly during all aspects of the redevelopment and not delay development activities.

A.5. Scope of Services

Our scope of services for this project was originally submitted as a Proposal to Mr. Treavor Millin of Wieser Brothers General Contractor who provided us authorization to proceed. Our scope of services was performed under the terms of our September 1, 2013, General Conditions. Tasks performed in accordance with our authorized scope of services included:

- Performing a reconnaissance of the site to evaluate equipment access to exploration locations.
- Staking of exploration locations and clearing of underground utilities.
- Performing seven (7) penetration test borings; extending five borings to 25 feet and two borings to 10 feet.
- Observing the excavation of four (4) test pits extended to a depth of approximately six feet, and logging soils according to Wisconsin Department of Natural Resources Technical Standard 1002.
- Completing four (4) double-ring infiltrometer tests at selected infiltration system locations.
- Performing laboratory moisture content and mechanical sieve analyses through a number 200- sieve on selected penetration test samples.
- Preparing this report containing a CAD sketch, exploration logs, a summary of the geologic materials encountered, results of laboratory tests, and recommendations for structure subgrade preparation and the design of foundations, pavements and storm water infiltration systems.

We staked exploration locations by measuring dimensions from nearby buildings or other site features with a tape or surveyor's wheel at approximate right angles from those references. Surface elevations were measured using a surveyor's level. We referenced surface elevations to the square inlet located between Highway 14 and Park Plaza Drive, whose elevation was reported to be at elevation 641.8.

B. Results

B.1. Exploration Logs

B.1.a. Log of Boring Sheets

Log of Boring sheets for our penetration test borings are included in the Appendix. The logs identify and describe the geologic materials that were penetrated, and present the results of penetration resistance and other in-situ tests performed within them, organic vapor screening, laboratory tests performed on penetration test samples retrieved from them, and groundwater measurements.

Strata boundaries were inferred from changes in the penetration test samples and the auger cuttings. Because sampling was not performed continuously, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may also occur as gradual rather than abrupt transitions.

B.1.b. Log of Test Pit Sheets

Log of Test Pit sheets and WDNR Soil Evaluation – Storm Form are also included in the Appendix. The logs classify and describe the geologic materials exposed in the sidewalls and bottoms of the pits, and present the results of laboratory tests performed on bulk samples obtained from them, and groundwater measurements.

B.1.c. Geologic Origins

Geologic origins assigned to the materials shown on the logs and referenced within this report were based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance and other in-situ testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

B.2. Material Profile

Our borings and test pits indicate that the site consists of pavement, topsoil and uncontrolled fill over alluvial soils.

B.2.a. Pavement and Topsoil

Borings ST-1 and ST-3 initially encountered 1 ½ inches of concrete over 6 inches of aggregate base. Borings ST-4 through ST-7 and Test Pit TP-3 initially encountered 2 to 3 ½ inches of bituminous over 3 to 10 inches of aggregate base. Test Pit TP-1 initially encountered 9 inches of recycled bituminous.

Borings ST-2, ST-9 and ST-10 and Test Pits TP-2 and TP-4 initially encountered topsoil or topsoil fill that extended to depths of ½ to 1 foot. The topsoil or topsoil fill consisted of poorly graded sand (SP) and poorly graded sand with silt (SP-SM) that was dark brown and frozen to moist.

B.2.b. Uncontrolled Fill

Below the pavement materials, topsoil and topsoil fill, the borings and test pits encountered uncontrolled fill that extended to the termination depth of the test pits, and to depths of 5 ½ to 18 feet in Borings ST-, and to the termination depth in Boring ST-11. The uncontrolled fill consisted of poorly graded sand (SP), poorly graded sand with silt (SP-SM), silty sand (SM) that was yellow to light brown to dark brown and moist to water bearing.

B.2.c. Alluvial Soils

The uncontrolled fill was underlain with alluvial soils that extended to the termination depth of Borings ST-1 through ST-10. The sandy alluvial soils consisted of poorly graded sand (SP), poorly graded sand with silt (SP-SM), silty sand (SM), sandy silt (ML) and silt (ML) that was grey to black or brown to dark brown and wet to waterbearing. The clayey alluvial soils consisted of sandy lean clay (CL) that was dark brown and wet.

B.2.d. Penetration Resistance Testing

The results of our penetration resistance testing are summarized below in Table 1. Comments are provided to qualify the significance of the results.

Table 1. Penetration Resistance Data

Geologic Material	Classification	Range of Penetration Resistances	Comments
Uncontrolled Fill	Sand (SP), Sand w/ Silt (SP-SM)	1 to 12 BPF	Variable and locally uncompacted to poorly compacted
Sandy and Silty Alluvial Soils	Sand (SP), Silty Sand (SM), Sandy Silt (ML), Silt (ML)	Weight of the hammer or 1 to 16 BPF	Very loose to medium dense
Clayey Alluvial Soils	Clay (CL)	4 to 6 BPF	Rather soft to medium

B.2.e. Groundwater

Groundwater was measured or estimated to be located at the depths shown below in Table 2. Corresponding groundwater elevations were determined from comparisons of the measured/estimated depths to groundwater and surface elevations, and were rounded to the highest ½-foot.

Table 2. Groundwater Summary

Location	Surface Elevation	Measured or Estimated Depth to Groundwater (ft)	Corresponding Groundwater Elevation (ft)
ST-1	641.0	13	628
ST-2	641.2	13	628
ST-3	640.6	13	628 ½
ST-4	641.0	13	628
ST-5	643.9	9	635
ST-6	643.2	13	630
ST-7	642.6	12	630 ½
ST-8	642.2	15	627
ST-9	643.5	13	630 ½

Given the range of depths/elevations in which water was observed, it appears that our borings may not have penetrated the hydrostatic groundwater surface but instead encountered perched deposits of groundwater trapped atop the more cohesive, less permeable layers or seams of alluvial silts and clays.

B.3. Laboratory Test Results

Results of our laboratory tests are presented below in Table 3.

Table 3. Laboratory Classification Test Results

Location	Sample Depth (ft)	Classification	Moisture Content (%)	Percent Passing a #200 Sieve
ST-1	12 ½	Poorly Graded Sand (SP)	18	1
ST-2	10	Poorly Graded Sand (SP)	4	1
ST-3	5	Poorly Graded Sand (SP)	4	1
ST-4	10	Poorly Graded Sand (SP)	3	1
TP-1	4 ½	Poorly Graded Sand (SP)	6	1
TP-2	5	Poorly Graded Sand (SP)	3	<1
TP-3	5	Poorly Graded Sand with Silt (SP-SM)	16	6
TP-4	4 ½	Poorly Graded Sand (SP)	4	<1

C. Basis for Recommendations

C.1. Design Details

C.1.a. Building Structure Loads

We understand the project will include the construction of a four-story, wood-framed apartment building with underground parking. We also understand the site will be elevated up to 10 feet to elevate the site above the flood plain. According to Mr. Ned Derksen of Excel Engineering, bearing wall loads will be less than 8 kips (8,000 pounds) per lineal foot (klf); column loads will be less than 275 kips.

C.1.b. Pavements and Traffic Loads

Light- and heavy-duty pavement areas will have a bituminous section. We have assumed that light-duty pavements will be subjected to no more than 30,000 equivalent 18-kip single axle loads (ESALs) over design life of 20 years. We have assumed that heavy-duty pavements will be subject to more than 300,000 ESALs over a design life of 20 years.

C.1.c. Anticipated Grade Changes

According to Mr. Treavor Millin with Wieser Brothers General Contractor, we understand the site will be filled approximately 10 feet to elevate the site above the flood plain. We understand that exterior footings will be at elevation 639, interior column pad footings will be at elevation 642 and the basement floor at elevation 644.

C.1.d. Precautions Regarding Changed Information

We have attempted to describe our understanding of the proposed construction to the extent it was reported to us by others. Depending on the extent of available information, assumptions may have been made based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, we should be notified. New or changed information could require additional evaluation, analyses and/or recommendations.

C.2. Design & Construction Considerations

The geotechnical issues influencing design of the proposed building includes controlling settlement. Based on our findings in the borings (specifically the very loose sand and silt soils at depth), the expected fill needed to elevate the site, and the proposed building loads, will result in significant settlement. For this reason, the proposed building should be supported on improved subgrades or aggregate piers. Improving the subgrade, however, by means of conventional excavation and recompaction may be impractical given not only the depths to which the uncontrolled fill extends, but also the depths to which the excavations would extend below groundwater. For this reason, and based on discussions with Mr. Treavor Millin regarding our findings, we were directed to develop recommendations for installing aggregate piers. Those recommendations are presented below in Section D.

From a construction perspective, the project team should also be aware that:

- Prior to elevating the site, the subgrade should be prepared by removing, topsoil fill and pavement materials. Following the removal, the exposed subgrade should be surface-compacted.

- We recommend medium to course grained sand to be placed behind basement walls.

- Exterior slabs should be supported on at 4 inches of aggregate base and the subgrade should consist of non-frost susceptible soils.

D. Recommendations

D.1. Building and Pavement Subgrade Preparation

D.1.a. Subgrade Preparations

Prior to placing fill to elevate the site, we recommend removing the topsoil, topsoil fill and pavement materials from site. This includes concrete pavement, bituminous pavement and recycled bituminous or aggregate base. Following the initial removal, we recommend the exposed subgrade be surface-compacted. The surface compaction should be completed with a large vibratory compactor with a minimum dynamic force of 50,000 pounds. The purpose of the compaction is to reduce potential settlement of floor slabs. A minimum of four passes should be completed, with two of the passes perpendicular to the other two. We recommend that the excavation bottoms be compacted to a minimum of 98 percent of their standard Proctor maximum dry densities (ASTM International Test Method D 698).

D.1.b. Selecting Excavation Backfill and Additional Required Fill

On-site soils free of organic soil and debris can be considered for reuse as backfill and fill. The buried topsoil, silt and clay soils, however, should not be used under the foundation, pavements or exterior slabs.

We recommend that imported material needed to replace excavation spoils or balance cut and fill quantities, consist of sand having less than 20 percent of the particles by weight passing a #200 sieve.

D.1.c. Placement and Compaction of Backfill and Fill

We recommend spreading backfill and fill in loose lifts of approximately 12 inches. We recommend compacting backfill and fill in accordance with the criteria presented below in Table 4. The relative compaction of utility backfill should be evaluated based on the structure below which it is installed, and vertical proximity to that structure.

Table 4. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D 698 – standard Proctor)	Moisture Content Variance from Optimum, percentage points
Below foundations	98	No requirement for sand ±3 for silty sand
Below slabs	95	No requirement for sand ±3 for silty sand
Below pavements, within 3 feet of subgrade elevations	98	No requirement for sand ±3 for silty sand
Below pavements, more than 3 feet below subgrade elevations	95	No requirement for sand ±3 for silty sand
Below landscaped surfaces	90	No requirement

D.2. Aggregate Piers

D.2.a. Aggregate Piers

Based on the soil conditions, and discussions with Mr. Millin, it is our opinion that the proposed building should be supported with rammed aggregate piers. The aggregate piers would be required under the footings and column pads. Aggregate piers are constructed using a few installation techniques including (1) drilling a shaft to remove soft soils and replacing it with compacted gravel, (2) displacement method by inserting the devise in the soft soil, displacing the soft soil, and in-filling the created shaft with compacted gravel.

High-capacity side friction is developed in the aggregate pier foundation elements, caused by a buildup of lateral soil stresses during compaction of the aggregate. In addition to the side friction provided by the undulating sides of the aggregate piers and the increased lateral soil stresses, the bottom of the aggregate piers are supported by a combination of pre-stressing and densification of the subsoil at the bottom of the aggregate pier cavities during compaction. This develops aggregate bulbs at the bottom of the aggregate piers.

This process creates a series of very stiff, very dense foundation elements that reduce settlement from structural loads. Conventional spread footing foundations and ground supported floor slabs constructed over the reinforced soil accomplished the load transfer.

The aggregate piers should extend through the existing fill and soft alluvial silt and clay soils and in to the underlying alluvial sand soils. Based on the soil borings completed within the proposed building locations, we anticipate that the aggregate pier embedment elevations will vary depending on installation method and approaches being considered to limit settlement.

D.2.b. Embedment Depth

For frost protection, we recommend embedding perimeter footings 48 inches below the lowest exterior grade. Interior footings may be placed directly below floor slabs. We recommend embedding building footings not heated during winter construction, and other unheated footings associated with canopies, stoops or sidewalks 60 inches below the lowest exterior grade.

D.2.c. Net Allowable Bearing Pressure

An allowable bearing pressure for foundation support and an estimate of settlement of the proposed building will be provided by the rammed aggregate pier designer.

D.3. Basement Walls

D.3.a. Drainage Control

We recommend installing subdrains behind the retaining walls, adjacent to the wall footings, below the slab elevation. Preferably the subdrains should consist of perforated pipes embedded in washed gravel, which in turn is wrapped in filter fabric. Perforated pipes encased in a filter “sock” and embedded in washed gravel, however, may also be considered.

We recommend routing the subdrains to a sump and pump capable of routing any accumulated groundwater to a storm sewer or other suitable disposal site.

General waterproofing of retaining walls surrounding occupied or potentially occupied areas is recommended even with the use of free-draining backfill because of the potential cost impacts related to seepage after construction is complete.

D.3.b. Selection, Placement and Compaction of Backfill

Unless a drainage composite is placed against the back of the exterior perimeter below-grade walls, we recommend that backfill be placed within a minimum of 2 horizontal feet of those walls consist of sand having less than 50 percent of the particles by weight passing a #40 sieve and less than 5 percent of the particles by weight passing a #200 sieve. We recommend that the balance of the backfill placed against exterior perimeter walls also consist of sand; although that the sand may contain up to 10 percent of the particles by weight passing a #200 sieve.

We recommend a walk behind compactor be used to compact the backfill placed within about 5 feet of the basement walls. Further away than that, a self-propelled compactor can be used. Compaction criteria for below-grade walls should be determined based on the compaction recommendations provided above in Section D.1.

Exterior backfill not capped with slabs or pavement should be capped with a low-permeability soil to limit the infiltration of surface drainage into the backfill. The finished surface should also be sloped to divert water away from the walls.

D.3.c. Configuring and Resisting Lateral Loads

For the basement walls, we recommend designing for an at-rest condition. Based on use of the recommend soils above, we recommend designing for an equivalent fluid pressure of 55-psf/ft (pounds per square foot per foot of height).

Our recommended design values are based on a wet unit backfill weight for sand of 120 pcf, an internal friction angle of 32 degrees, and assume a level backfill with no surcharge. Our design values will need to be revised for sloping backfill or other dead or live loads that are placed within a horizontal distance behind the walls that is equal to the height of the walls. Our design values also assume that the walls are drained so that water cannot accumulate behind the walls.

Resistance to lateral earth pressures will be provided by passive resistance against the retaining wall footings, and by sliding resistance along the bottoms of the wall footings. We recommend assuming a passive pressure of 360-psf/ft and a coefficient of sliding friction of 0.5. These values are un-factored.

D.4. Interior Slabs

D.4.a. Subgrade Modulus

We recommend using a modulus of subgrade reaction, k, of 175 pounds per square inch per inch of deflection (pci) to design the slabs.

D.4.b. Moisture Vapor Protection

If floor coverings or coatings less permeable than the concrete slab will be used, consideration should be given to placing a vapor retarder or vapor barrier immediately beneath the slab. Some contractors prefer to bury the vapor retarder or barrier beneath a layer of sand to reduce curling and shrinkage, but this practice risks trapping water between the slab and vapor retarder or barrier.

Regardless of where the vapor retarder or barrier is placed, floor covering manufacturers should be consulted regarding the appropriate type, use and installation of the vapor retarder or barrier to preserve warranty assurances.

D.5. Exterior Slabs

Exterior slabs will be underlain with non- to slightly- frost-susceptible soils. This being the case, it is our opinion that special subgrade improvements in excess of topsoil stripping in advance of slab construction will typically not be required. Any frost susceptible soils such as lean clays, clayey sands or silty sands should be removed to a depth of 5 feet below proposed bottom of slab elevation. We recommend sloping exterior slabs to drain away from the proposed building.

We recommend sidewalks and other exterior concrete slabs be constructed with a minimum of 4 inches of aggregate base meeting the requirements of WisDOT Specification Section 305.2.2.1 for 1 ¼ inch Dense Graded Base. We also recommend exterior slabs consist of at least 4 ½-inches of concrete.
We recommend specifying concrete for pavements that has a minimum 28-day compressive strength of 4,000 psi, and a modulus of rupture (Mr) of at least 600 psi. We also recommend Type I cement meeting the requirements of ASTM International C 150. We recommend specifying 5 to 7 percent entrained air for exposed concrete to provide resistance to freeze-thaw deterioration.

D.6. Pavements

D.6.a. Pavement Subgrade Compaction

We recommend compacting excavation backfill (including utility backfill) and additional required fill placed within 3 feet of pavement subgrade elevations to at least 98 percent of their maximum standard Proctor dry densities (ASTM International D 698). Backfill and fill placed more than 3 feet below pavement subgrade elevations should be compacted to at least 95 percent.

D.6.b. Subgrade Proof-Roll

Prior to placing aggregate base material, we recommend proof-rolling pavement subgrades to determine if the subgrade materials are loose, soft or weak, and in need of further stabilization, compaction or subexcavation and recompaction or replacement. A second proof-roll should be performed after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

D.6.c. Pavement Design Sections

Laboratory tests to determine a CBR value for pavement design were not included in the scope of this project. Based upon the aforementioned traffic loads and an estimated CBR value of 10, we recommend light- and heavy-duty pavement section as shown in Table 5 below.

Table 5. Bituminous Pavement Thickness

Pavement Material	Light Duty Pavements Thickness/Preparations	Heavy Duty Pavements Thickness/Preparations
Bituminous (in.)	3	4
Aggregate Base (in.)	6	6

The above pavement designs are based upon a 20-year performance life. This is the amount of time before major reconstruction is anticipated. This performance life assumes maintenance, such as seal coating and crack sealing, is routinely performed. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

D.6.d. Pavement Materials and Compaction

We recommend specifying crushed aggregate base meeting the requirements of Wisconsin Department of Transportation (WisDOT) Specification Section 305.2.2.1 for 1 ¼ inch Dense Graded Base. We recommend utilizing an E-1 mixture for the hot mix asphalt meeting the specifications of WisDOT Section 460. We recommend utilizing a nominal 12.5 mm gradation for the base courses and a nominal 9.5 mm gradation for the surface courses as defined in Table 460-1 in Section 460.2.2.3. We recommend the Performance Graded Asphalt cement be a PG 64-28.

We recommend that the aggregate base be compacted to a minimum of 95 percent of its maximum standard Proctor dry density. We recommend that the bituminous pavement be compacted to at least 92 percent of the maximum theoretical density.

D.7. Storm Water Infiltration

D.7.a. Background

The purpose of our testing was to provide an estimate of the soil's infiltration rate as determined by the double-ring infiltrometer (DRI) testing and was performed in general accordance with ASTM International (ASTM) D 3385; *Standard Test Method for Infiltration Rate of Soils in Field Using a Double-Ring Infiltrometer*.

A DRI test apparatus is composed of two metal cylinders, an inner ring 12 inches in diameter and an outer ring with a diameter of 24 inches. The rings are 18 inches in height that are driven partially into the ground, filled with water. We then record the rate at which the water infiltrates into the soil. The test is performed using potable water and the flow rate is measured using a gallon meter. The infiltration rate is measured until saturation has occurred and the flow rate is relatively constant which varies based on soil type. The locations of the tests are shown on the soil boring location sketch in the Appendix.

Excavations to reach test elevation were performed using a back-hoe operated by a subcontractor. Upon completion of testing the excavation was loosely backfilled with excavated material. This material was not compacted.

D.7.b. Summary of Storm Water Test Pits

Fine sand soils are considered suitable for storm water infiltration systems. Infiltration rates in natural soils and fill materials are variable based on soil type, moisture content, void space between soil particles and discontinuities in the soil structure. Therefore, infiltration rates in disturbed soils could be either higher or lower than the values collected with our Double Ring Infiltrometer testing.

D.7.c. Double Ring Infiltrometer Test Results

We performed four double-ring infiltrometer tests, in each of the test pits. Potable water was used for testing. The tests were performed using an in-line gallon-meter and/or graduated to record the amount of infiltrated water.

Double-ring infiltrometer tests, DRI-1 through DRI-4 were performed at the location of the proposed storm water infiltration systems related to the Barron Island Development project. The soils encountered in the bottom of the test pit were classified in general accordance with Chapter 3 of the USDA "Soil Survey Manual" dated October 1993 and Wisconsin Administrative Code SPS 385.30, "Soil profile description and interpretations" and classified by a Wisconsin Certified Soil Tester.

The data sheets for the infiltration tests are located in the Appendix. The test results are summarized in the Table 6 below:

Table 6: Summary of DRI Test Results

Test Number	Test Location	Elevation of test	Soils at test location	Percent Passing #200 Sieve	Average Inner Ring Infiltration Rate (in/hr)	Average Inner Ring Infiltration Rate at last 4 Intervals (in/hr)
DRI-1	TP-1	640.1	Sand	0.5	133	162
DRI-2	TP-2	638.0	Sand	0.4	95	121
DRI-3	TP-3	637.4	Loamy Sand	5.8	32	38
DRI-4	TP-4	638.4	Sand	0.2	190	214

D.8. Utilities

D.8.a. Subgrade Stabilization

We anticipate that utilities can be installed per manufacturer bedding requirements. Due to areas of very loose- to loose-sands, we recommend the sand subgrade in utility trenches be thoroughly compacted prior to placing utilities.

D.8.b. Selection, Placement and Compaction of Backfill

We recommend compacting excavation backfill and additional required fill placed within 3 feet of pavement subgrade elevations to at least 98 percent of their maximum standard Proctor dry densities (ASTM International D 698). Backfill and fill placed more than 3 feet below pavement subgrade elevations should be compacted to at least 95 percent.

D.9. Construction Quality Control

D.9.a. Excavation Observations

We recommend having a geotechnical engineer observe all excavations related to subgrade preparation and spread footing, slab-on-grade and pavement construction. The purpose of the observations is to evaluate the competence of the geologic materials exposed in the excavations, and the adequacy of required excavation oversizing.

D.9.b. Materials Testing

We recommend density tests be taken in excavation backfill and additional required fill placed below spread footings, slab-on-grade construction, beside foundation walls behind basement walls, and below pavements.

D.9.c. Pavement Subgrade Proof-Roll

We recommend that proof-rolling of the pavement subgrades be observed by a geotechnical engineer to determine if the results of the procedure meet project specifications, or delineate the extent of additional pavement subgrade preparation work.

D.9.d. Cold Weather Precautions

If site grading and construction is anticipated during cold weather, all snow and ice should be removed from cut and fill areas prior to additional grading. No fill should be placed on frozen subgrades. No frozen soils should be used as fill.

Concrete delivered to the site should meet the temperature requirements of ASTM C 94. Concrete should not be placed on frozen subgrades. Concrete should be protected from freezing until the necessary strength is attained. Frost should not be permitted to penetrate below footings.

E. Procedures

E.1. Penetration Test Borings

The penetration test borings were drilled with a truck-mounted core and auger drill equipped with hollow-stem auger. The borings were performed in accordance with ASTM D 1586. Penetration test samples were taken at 2 ½- or 5-foot intervals. Actual sample intervals and corresponding depths are shown on the boring logs.

E.2. Exploratory Test Pits

Test pits were excavated with a backhoe, under the direction and observation of our staff. Logs of the test pits were made by visually examining the sidewalls of the test pits and classifying the materials brought to the surface by the backhoe bucket. Strata boundary depths were measured with a cloth tape and generally rounded to the nearest ½-foot.

E.3. Material Classification and Testing

E.3.a. Visual and Manual Classification

The geologic materials encountered were visually and manually classified in accordance with ASTM Standard Practice D 2488. A chart explaining the classification system is attached. Samples were placed in jars or bags and returned to our facility for review and storage.

E.3.b. Laboratory Testing

The results of the laboratory tests performed on geologic material samples are noted on or follow the appropriate attached exploration logs. The tests were performed in accordance with ASTM or AASHTO procedures.

E.4. Groundwater Measurements

The drillers checked for groundwater as the penetration test borings were advanced, and again after auger withdrawal. The boreholes were then backfilled or allowed to remain open for an extended period of observation as noted on the boring logs.

F. Qualifications

F.1. Variations in Subsurface Conditions

F.1.a. Material Strata

Our evaluation, analyses and recommendations were developed from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth, and therefore strata boundaries and thicknesses must be inferred to some extent. Strata boundaries may also be gradual transitions, and can be expected to vary in depth, elevation and thickness away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until additional exploration work is completed, or construction commences. If any such variations are revealed, our recommendations should be re-evaluated. Such variations could increase construction costs, and a contingency should be provided to accommodate them.

F.1.b. Groundwater Levels

Groundwater measurements were made under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. It should be noted that the observation periods were relatively short, and groundwater can be expected to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

F.2. Continuity of Professional Responsibility

F.2.a. Plan Review

This report is based on a limited amount of information, and a number of assumptions were necessary to help us develop our recommendations. It is recommended that our firm review the geotechnical aspects of the designs and specifications, and evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs and specifications.

F.2.b. Construction Observations and Testing

It is recommended that we be retained to perform observations and tests during construction. This will allow correlation of the subsurface conditions encountered during construction with those encountered by the borings, and provide continuity of professional responsibility.

F.3. Use of Report

This report is for the exclusive use of the Wieser Brothers General Contractor and their design and construction teams. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

F.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

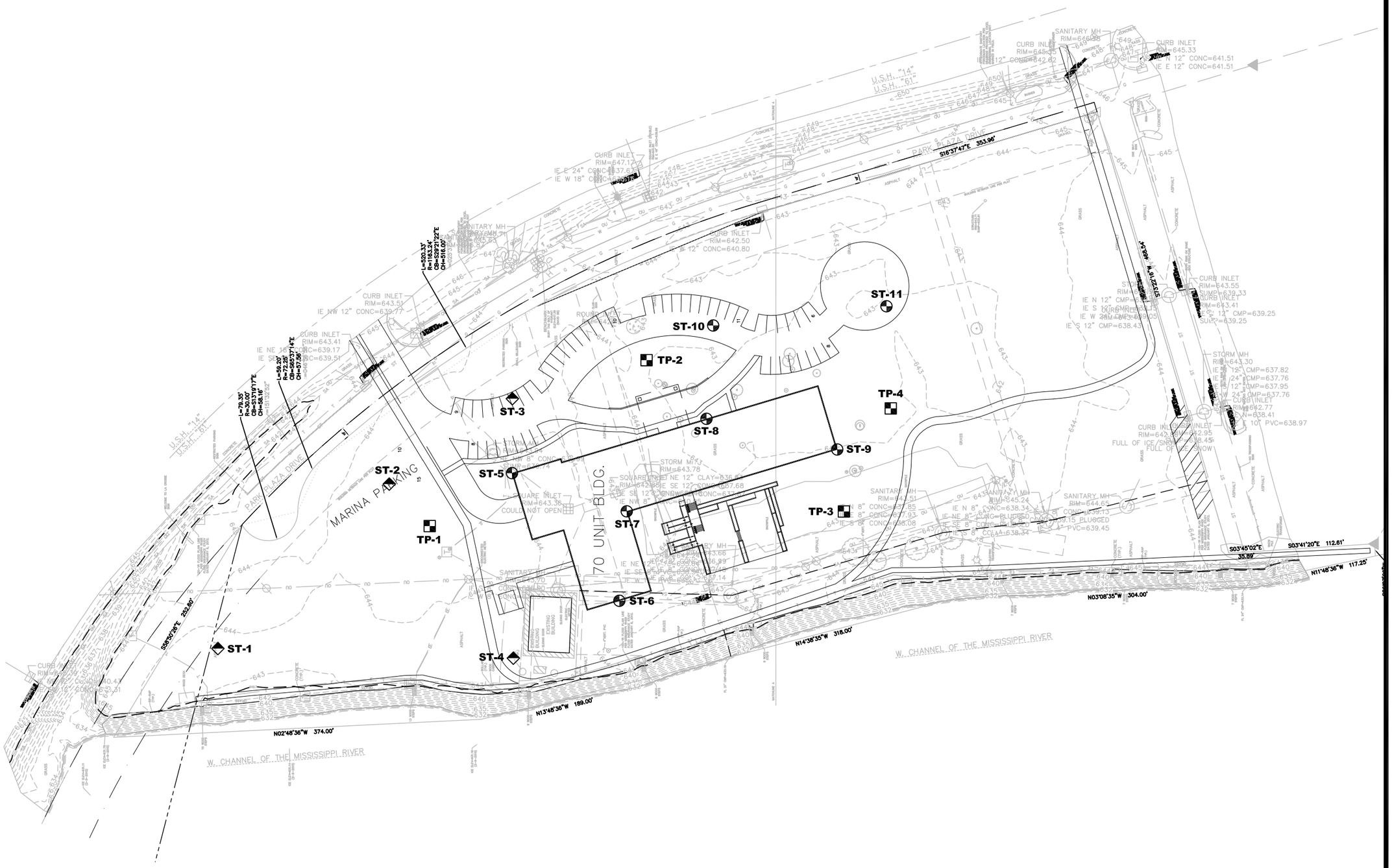
Appendix

BRAUN INTERTEC

BRAUN
INTERTEC
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
BARRON ISLAND DEVELOPMENT
621 PARK PLAZA DRIVE
LA CROSSE, WISCONSIN



DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

DENOTES APPROXIMATE LOCATION OF TEST PIT

DENOTES APPROXIMATE LOCATION OF PREVIOUSLY PERFORMED SOIL BORING

50' 0 100'

SCALE: 1"= 100'

Project No:	B1502357
Drawing No:	B1502357
Scale:	1"= 100'
Drawn By:	JAG
Date Drawn:	4/14/15
Checked By:	NC
Last Modified:	4/14/15
Sheet: of	Fig:

F:\2015\B1502357.dwg,Geotech,4/14/2015 6:55:28 AM

BRAUN INTERTEC

LOG OF BORING

Braun Project B15-00607
GEOTECHNICAL EVALUATION
Barron Island Development
Highway 14 & 61
La Crosse, Wisconsin

BORING: **ST-1**

LOCATION: See attached Boring Location Sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **2/8/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
641.0	0.0					
640.4	0.6	CONC	1 1/2-inches of Concrete over 6-inches of Aggregate Base.			
		FILL	FILL: Silty Sand, with Gravel, fine- to medium-grained, brown, damp to wet.	45		
				18		An open triangle in the water level (WL) column indicates the depth at which groundwater was first observed while drilling. Groundwater levels fluctuate.
632.0	9.0			7		
		FILL	FILL: Poorly Graded Sand, fine- to medium-grained, brown, moist.			
630.5	10.5			6		
		CL	SANDY LEAN CLAY, dark brown, wet, medium. (Alluvium)			
629.0	12.0					
		SP	POORLY GRADED SAND, fine- to medium-grained, brown, waterbearing, medium dense. (Alluvium)	6	▽	MC=18% P200=1%
627.0	14.0					
		ML	SANDY SILT, dark gray, waterbearing, loose. (Alluvium)			
625.5	15.5			8		
		SP	POORLY GRADED SAND, fine- to medium-grained, gray, waterbearing, loose. (Alluvium)			
623.0	18.0					
		SP	POORLY GRADED SAND, fine-grained, gray-brown, waterbearing, medium dense. (Alluvium)			
				16		
618.0	23.0					
		SP	POORLY GRADED SAND, fine- to medium-grained, gray-brown, waterbearing, loose. (Alluvium)			
				8		
615.0	26.0					
			END OF BORING.			Benchmark (BM): We referenced surface elevations to the square inlet located between Hwy 14 and Park Plaza Dr. The BM has a know elevation of 641.8.
			Water observed at 13 feet while drilling.			
			Water not observed to cave-in depth of 10 feet immediately after withdrawal of auger.			
			Boring then grouted.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF BORING N:\GINT\PROJECTS\LACROSSE\2015\B15-00607.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:14

BRAUN INTERTEC

LOG OF BORING

Braun Project B15-00607
GEOTECHNICAL EVALUATION
Barron Island Development
Highway 14 & 61
La Crosse, Wisconsin

BORING: **ST-2**

LOCATION: See attached Boring Location Sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **2/7/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
641.2	0.0	TS	FILL: Poorly Graded Sand with Silt, fine-grained, trace of Gravel, dark brown, frozen.			
639.2	2.0	FILL	FILL: Poorly Graded Sand, fine- to medium-grained, brown, frozen to waterbearing.	9		
				3		
				3		
				3		MC=4% P200=1%
627.2	14.0			7	▽	
		SP	POORLY GRADED SAND, fine- to medium-grained, gray, waterbearing, very loose. (Alluvium)	2		
623.2	18.0	ML	SILT, with Sand, black, waterbearing, very loose. (Alluvium)			
				2		
618.2	23.0	SP	POORLY GRADED SAND, fine- to medium-grained, gray, waterbearing, loose. (Alluvium)			
615.2	26.0			7		
			END OF BORING. Water observed at 13 feet while drilling. Boring then grouted.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF BORING N:\GINT\PROJECTS\LACROSSE\2015\B15-00607.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:14

BRAUN INTERTEC

LOG OF BORING

Braun Project B15-00607
GEOTECHNICAL EVALUATION
Barron Island Development
Highway 14 & 61
La Crosse, Wisconsin

BORING: **ST-3**

LOCATION: See attached Boring Location Sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **2/8/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
640.6	0.0					
640.0	0.6	CONC	1 1/2-inches of Concrete over 6-inches of Aggregate Base.			
		FILL	FILL: Silty Sand, fine- to medium-grained, brown, frozen.	15		
636.6	4.0	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.	6		MC=4% P200=2%
				6		
631.6	9.0	FILL	FILL: Poorly Graded Sand with Gravel, fine-grained, gray-brown, moist. (Alluvium)	2		*Stong Fuel Oil/Diesel Fuel odor.
628.1	12.5	ML	SILT, black, waterbearing, very loose. (Alluvium)	3	▽	
626.6	14.0	SP	POORLY GRADED SAND, fine-grained, gray, waterbearing, loose. (Alluvium)	5		
622.6	18.0	SP	POORLY GRADED SAND, fine- to medium-grained, gray, waterbearing, loose. (Alluvium)	6		
614.6	26.0			9		
			END OF BORING. Water observed at 13 feet while drilling. Water not observed to cave-in depth of 10 feet immediately after withdrawal of auger. Boring then grouted.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF BORING N:\GINT\PROJECTS\LACROSSE\2015\B15-00607.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:14

BRAUN INTERTEC

LOG OF BORING

Braun Project B15-00607
GEOTECHNICAL EVALUATION
Barron Island Development
Highway 14 & 61
La Crosse, Wisconsin

BORING: **ST-4**

LOCATION: See attached Boring Location Sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **2/8/15** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
641.0	0.0					
640.0	1.0	BIT	2 1/2-inches of Bituminous over 10-inches of Aggregate Base.			
639.0	2.0	FILL	FILL: Silty Sand, with Gravel, tan, moist.			
		FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.	17		
				2		
634.0	7.0	FILL	FILL: Poorly Graded Sand, fine- to medium-grained, brown, moist.	5		
632.0	9.0	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist to waterbearing.	7		MC=3% P200=1%
				2	▽	
627.0	14.0	SP	POORLY GRADED SAND, fine- to medium-grained, gray-brown, waterbearing, very loose to loose. (Alluvium)	1		
				5		
615.0	26.0			9		
			END OF BORING. Water observed at 13 feet while drilling. Water not observed to cave-in depth of 10 feet immediately after withdrawal of auger. Boring then grouted.			

LOG OF BORING N:\GINT\PROJECTS\LACROSSE\2015\B15-00607.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:14

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-05**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
643.9	0.0					
643.3	0.6	PAV	2 inches of bituminous over 6 inches of aggregate base.	13		
		FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.	9		
				9		
636.9	7.0	FILL	FILL: Poorly Graded Sand, medium-grained, trace Gravel, brown, moist.	3		
634.9	9.0	FILL	FILL: Poorly Graded Sand, fine-grained, trace Gravel, brown, waterbearing to wet.	8	▽	An open triangle in the water level (WL) column indicates the depth at which groundwater was first observed while drilling. Groundwater levels fluctuate.
				5		
				2		
625.9	18.0	SP	POORLY GRADED SAND, fine-grained, gray, wet, loose to medium dense. (Alluvium)	8		
				11		
617.9	26.0		END OF BORING.			
			Water observed at a depth of 9 feet while drilling.			
			Water not observed to cave-in depth of 12 feet immediately after withdrawal of auger.			
			Boring then grouted.			

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-06**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
643.2	0.0					
642.8	0.4	PAV / FILL	2 inches of bituminous over 3 inches of aggregate base. POORLY GRADED SAND, fine-grained, brown, moist.	6		
				5		
				11		
				5		
				5	▽	
631.2	12.0					
		SP-SM	POORLY GRADED SAND with SILT, fine-grained, dark gray, wet to waterbearing, very loose. (Alluvium)	3		
629.2	14.0					
		ML	SANDY SILT, black, waterbearing, loose. (Alluvium)	5		
625.2	18.0					
		SP	POORLY GRADED SAND, fine-grained, gray, wet medium dense to loose.	12		
				9		
617.2	26.0					
			END OF BORING. Water observed at a depth of 13 feet while drilling. Water not observed to cave-in depth of 11 feet immediately after withdrawal of auger. Boring then grouted.			

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-07**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
642.6	0.0					
641.9	0.7	PAV	2 inches of bituminous over 6 inches of aggregate base.	12		
		FILL	FILL: Poorly Graded Sand, fine-grained, trace Gravel, brown, moist.			
640.6	2.0	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.	9		
				7		
				2		
				6		
630.6	12.0				▽	
		SP	POORLY GRADED SAND, fine-grained, dark gray, waterbearing, loose. (Alluvium)	6		
628.6	14.0	ML	SILT, black, wet, very loose. (Alluvium)	WH		
624.6	18.0	SP	POORLY GRADED SAND, fine-grained, trace Gravel, dark gray, waterbearing to wet, medium dense to loose. (Alluvium)	12		
616.6	26.0			9		
			END OF BORING.			
			Water observed at a depth of 12 feet while drilling.			
			Water not observed to cave-in depth of 12 feet immediately after withdrawal of auger.			
			Boring then grouted.			

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-08**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
642.2	0.0	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist to wet.	3		
				4		
				4		
				3		
				4		
630.2	12.0	FILL	FILL: Poorly Graded Sand, fine- to medium-grained, brown, wet.	4		
629.2	13.0	SP	POORLY GRADED SAND, fine- to medium-grained, gray, wet.			
627.2	15.0	ML	SILT with SAND, black, waterbearing, very loose. (Alluvium)	3	▽	
624.2	18.0	SP	POORLY GRADED SAND, fine-grained, gray, wet, loose. (Alluvium)	9		
616.2	26.0		END OF BORING.	10		
			Water observed at a depth of 15 feet while drilling.			
			Water not observed to cave-in depth of 8 feet immediately after withdrawal of auger.			
			Boring then grouted.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-09**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
643.5	0.0					
642.5	1.0	TS	FILL: Poorly Graded Sand, fine-grained, dark brown, moist.	4		
		FILL	(Topsoil)			
			FILL: Poorly Graded Sand, fine-grained, brown, moist.	7		
				7		
635.5	8.0			3		
634.5	9.0	FILL	FILL: Poorly Graded Sand with Silt, fine-grained, brown, moist.			
		FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.	4		
631.5	12.0					
629.5	14.0	SP	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, brown, waterbearing.	1	▽	
		SM	SILTY SAND, fine- to medium-grained, black, waterbearing, loose.	7		
625.5	18.0		(Alluvium)			
		SP	POORLY GRADED SAND, fine-grained, gray, wet, medium dense.			
			(Alluvium)	8		
617.5	26.0			10		
			END OF BORING.			
			Water observed at a depth of 13 feet while drilling.			
			Water not observed to cave-in depth of 10 feet immediately after withdrawal of auger.			
			Boring then grouted.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-10**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

(See Descriptive Terminology sheet for explanation of abbreviations)

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
642.6	0.0					
642.4	0.3	TS	3 inches of Topsoil.			
		FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.	9		
				10		
638.6	4.0					
		FILL	FILL: Silty Sand, fine-grained, dark brown, moist, very loose. (Alluvium)	4		
637.1	5.5					
		CL	LEAN CLAY, dark brown, wet, rather soft. (Alluvium)			
635.6	7.0					
		ML	SILT, dark brown, wet, very loose. (Alluvium)	4		
				3		
631.6	11.0					
			END OF BORING.			
			Water not observed to cave-in depth of 8 feet immediately after withdrawal of auger.			
			Boring then grouted.			

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF BORING

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
621 Park Plaza Drive
La Crosse, Wisconsin

BORING: **ST-11**

LOCATION: See attached sketch.

DRILLER: GDC | METHOD: 3 1/4" HSA, Autohammer | DATE: **4/8/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	Symbol	Description of Materials (Soil-ASTM D2488 or D2487, Rock-USACE EM1110-1-2908)	BPF	WL	Tests or Notes
642.4	0.0	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.			
638.4	4.0	FILL	FILL: Silty Sand, fine-grained, dark brown, moist.			
635.4	7.0	FILL	FILL: Poorly Graded Sand, fine-grained, trace roots, brown, moist.			
634.4	8.0	FILL	FILL: Silty Sand, fine-grained, brown, moist.			
633.4	9.0	FILL	FILL: Poorly Graded Sand with Silt, fine-grained, brown, moist.			
631.4	11.0		END OF BORING. Water not observed to cave-in depth of 6 feet immediately after withdrawal of auger. Boring then grouted.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF BORING N:\GINT\PROJECTS\AX PROJECTS\2015\02357.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:25

BRAUN INTERTEC

LOG OF TEST PIT

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
See attached sketch.
La Crosse, Wisconsin

TEST PIT: **TP-01**

LOCATION: See attached sketch.

DRILLER: Nicole Carlson | METHOD: Backhoe | DATE: **4/1/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	Tests or Notes
644.4	0.0					
643.7	0.8	BIT	9 inches of Recycled Bituminous.			
		FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.			
642.4	2.0					
641.9	2.5	FILL	FILL: Poorly Graded Sand, fine-grained, yellow, moist.			
640.9	3.5	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist.			
640.4	4.0	FILL	FILL: Poorly Graded Sand, light brown, moist.			
639.9	4.5	FILL	FILL: Poorly Graded Sand, medium- to coarse-grained, brown, moist.			
		FILL	FILL: Poorly Graded Sand, light brown, moist.			
636.4	8.0		BOTTOM OF TEST PIT. Water not observed.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF TEST PIT N:\GINT\PROJECTS\AX PROJECTS\2015\02357 - TEST PIT LOGS.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:28

BRAUN INTERTEC

LOG OF TEST PIT

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
See attached sketch.
La Crosse, Wisconsin

TEST PIT: **TP-02**

LOCATION: See attached sketch.

DRILLER: Nicole Carlson | METHOD: Backhoe | DATE: **4/1/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	Tests or Notes
643.3	0.0					
642.8	0.5	TS	SILTY SAND, dark brown, moist. (Topsoil)			
		FILL	FILL: Poorly Graded Sand, fine-grained, light brown, moist.			
640.8	2.5	FILL	FILL: Poorly Graded Sand with Gravel, fine- to medium-grained, brown, moist.			
639.8	3.5	FILL	FILL: Poorly Graded Sand, fine-grained, light brown, moist.			
637.3	6.0					
636.8	6.5	FILL	FILL: Silty Sand, dark brown, moist. (Alluvium)			
			BOTTOM OF TEST PIT.			
			Water not observed.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF TEST PIT N:\GINT\PROJECTS\AX PROJECTS\2015\02357 - TEST PIT LOGS.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:28

BRAUN INTERTEC

LOG OF TEST PIT

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
See attached sketch.
La Crosse, Wisconsin

TEST PIT: **TP-03**

LOCATION: See attached sketch.

DRILLER: Nicole Carlson | METHOD: Backhoe | DATE: **4/1/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	Tests or Notes
642.2	0.0					
641.6	0.6	PAV	3 1/2 inches of bituminous over 4 inches of aggregate base.			
		FILL	FILL: Poorly Graded Sand, fine-grained, trace Gravel, brown, moist.			
639.7	2.5					
639.2	3.0	FILL	FILL: Organic Clay, with roots, dark gray, wet. (Buried Topsoil)			
		FILL	FILL: Poorly Graded Sand with Silt, fine-grained, brown, moist.			
637.7	4.5					
637.2	5.0	FILL	FILL: Silt, trace roots, dark gray, wet. (Buried Topsoil)			
636.2	6.0	FILL	FILL: Poorly Graded Sand, fine- to medium-grained, brown, moist.			
635.2	7.0	FILL	FILL: Poorly Graded Sand with Silt, fine- to medium-grained, brown, moist.			
633.2	9.0		FILL: Poorly Graded Sand, brown, moist.			
			BOTTOM OF TEST PIT.			
			Water not observed.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF TEST PIT N:\GINT\PROJECTS\AX PROJECTS\2015\02357 - TEST PIT LOGS.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:28

BRAUN INTERTEC

LOG OF TEST PIT

Braun Project B1502357
Geotechnical Evaluation
Barron Island Development
See attached sketch.
La Crosse, Wisconsin

TEST PIT: **TP-04**

LOCATION: See attached sketch.

DRILLER: Nicole Carlson | METHOD: Backhoe | DATE: **4/1/15** | SCALE: **1" = 4'**

Elev. feet	Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	Tests or Notes
642.9	0.0					
642.7	0.3	TS	POORLY GRADED SAND with GRAVEL and roots, dark brown, moist. (Topsoil)			
		FILL	FILL: Poorly Graded Sand, fine-grained, trace Gravel, brown, moist.			
634.9	8.0		BOTTOM OF TEST PIT. Water not observed.			

(See Descriptive Terminology sheet for explanation of abbreviations)

LOG OF TEST PIT N:\GINT\PROJECTS\AX PROJECTS\2015\02357 - TEST PIT LOGS.GPJ BRAUN_V8_CURRENT.GDT 4/13/15 13:28

SOIL EVALUATION – STORM

in accordance with Comm. 82.365 & 85, Wis. Adm. Code

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), direct 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	
La Crosse County	
Parcel I.D. 17-20246-30	
Reviewed by	Date

Property Owner				Property Location					
Water Place One LLC				Gov. Lot	NE1/4	NW1/4	S 13	T 104N	R 04
Property Owner's Mailing Address				Lot #	Block #	Subd. Name or CSM#			
920 10th Street									
City	State	Zip Code	Phone Number	☒ City ☐ Village ☐ Town		Nearest Road			
Onalaska	WI	54650		La Crosse		Pettibone Drive			

Drainage Area _____ ☐ sq. ft. ☐ acres

Optional:

Test Site Suitable for (Check all that apply)

☐ Irrigation ☐ Bio-retention trench ☐ Trench(es)
☐ Rain Garden ☐ Grassed swale ☐ Reuse
☐ Infiltration Trench ☐ SDS (>15' wide) ☐ Other

Hydraulic Application Test Method:

☒ Morphological Evaluation
☒ Double-Ring Infiltrometer
☐ Other (specify)

TP-1 Obs. # ☐ Boring ☒ Test Pit Ground Surface Elev. 644.4 Ft. Depth to limiting factor _____ in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
FILL	0"-9"	Recycled Bituminous							
FILL	9"-20"	7.5YR 5/4		f.s.	0.f.sg.	mvfr	c.s.	10	0.5
FILL	20"-25"	7.5YR 7/8		f.s.	0.f.sg.	mvfr	c.s.	0	0.5
C	25"-40½"	7.5YR 4/4		f.s.	0.f.sg.	mvfr	g.s.	0	0.5
C	40½"-49"	10YR 5/4		f.s.	0.f.sg.	mvfr	a.s.	0	0.5
C	49"-53	7.5YR 4/4		m.s.	0.m.sg.	mvfr	a.s.	0	3.6
C	53"-96"	10YR 5/6		f.s.	0.f.sg.	mvfr	c.s.	0	162.4

TP-2 Obs. # ☐ Boring ☒ Test Pit Ground Surface Elev. 643.3 Ft. Depth to limiting factor 74 in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
FILL	0"-6"	10YR 3/2		sl.	0.f.sg.	mfr	c.s.	20	0.5
C	6"-28"	10YR 5/4		f.s.	0.f.sg.	mvfr	c.s.	5	0.5
C	28"-43"	10YR 4/4		m.s.	0.m.sg.	mvfr	c.s.	10	3.6
C	43"-74"	10YR 6/6		f.s.	0.f.sg.	mvfr	c.s.	0	120.6
C	74"-79"	10YR 3/2		scl.	0.f.sg.	mfi	c.s.	0	0.11

CST/PSS Name (Please Print)	Signature	CST/PSS Number
Nicole A. Carlson	Nicole A. Carlson	1279073
Address	**Date Evaluation Conducted**	**Telephone Number**
2309 Palace Street, La Crosse, Wisconsin 54601	April 4, 2015	608.781.7277

TP-3 Obs. # ☐ Boring ☒ Test Pit Ground Surface Elev. 642.2 Ft. Depth to limiting factor 75 in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
PAV	3”-7½“	Pavement Materials							
FILL	7½“-30½“	7.5YR 5/5		f.s.	0.f.sg.	mvfr	a.w.	0	0.5
E	30½“-32½“	7.5YR 5/6	Roots 2.co.	c.	2.f.abk.	mfi	c.w.	0	0.07
C	32½“-53”	10YR 4/1	Roots 2.f.	f.ls.	1.f.sg.	mfr	g.w.	0	0.5
C	53”-57”	10YR 3/2	Roots 1.f.	sil.	1.m.gr.	mfi	g.w.	0	0.13
C	57”-75”	7.5YR 5/4		f.s.	0.f.sg.	mvfr	d.w.	0	0.5
C	75”-82”	7.5YR 5/4		ls.	1.f.sg.	mfr	d.w.	0	37.5
C	82”-108”	7.5YR 6/4		f.s.	0.f.sg.	mvfr	d.w.	0	0.5

TP-4 Obs. # ☐ Boring ☒ Test Pit Ground Surface Elev. 642.9 Ft. Depth to limiting factor _____ in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
E	0”-3”	7.5YR 5/5	Roots 3.f.	f.s.	0.f.sg.	mvfr	d.s.	10	0.5
FILL	3”-96”	7.5 YR 5/5		f.s.	0.f.sg.	mvfr	d.s.	10	214.3

Results of Double Ring Infiltrometer Testing - Gallon Meter Method

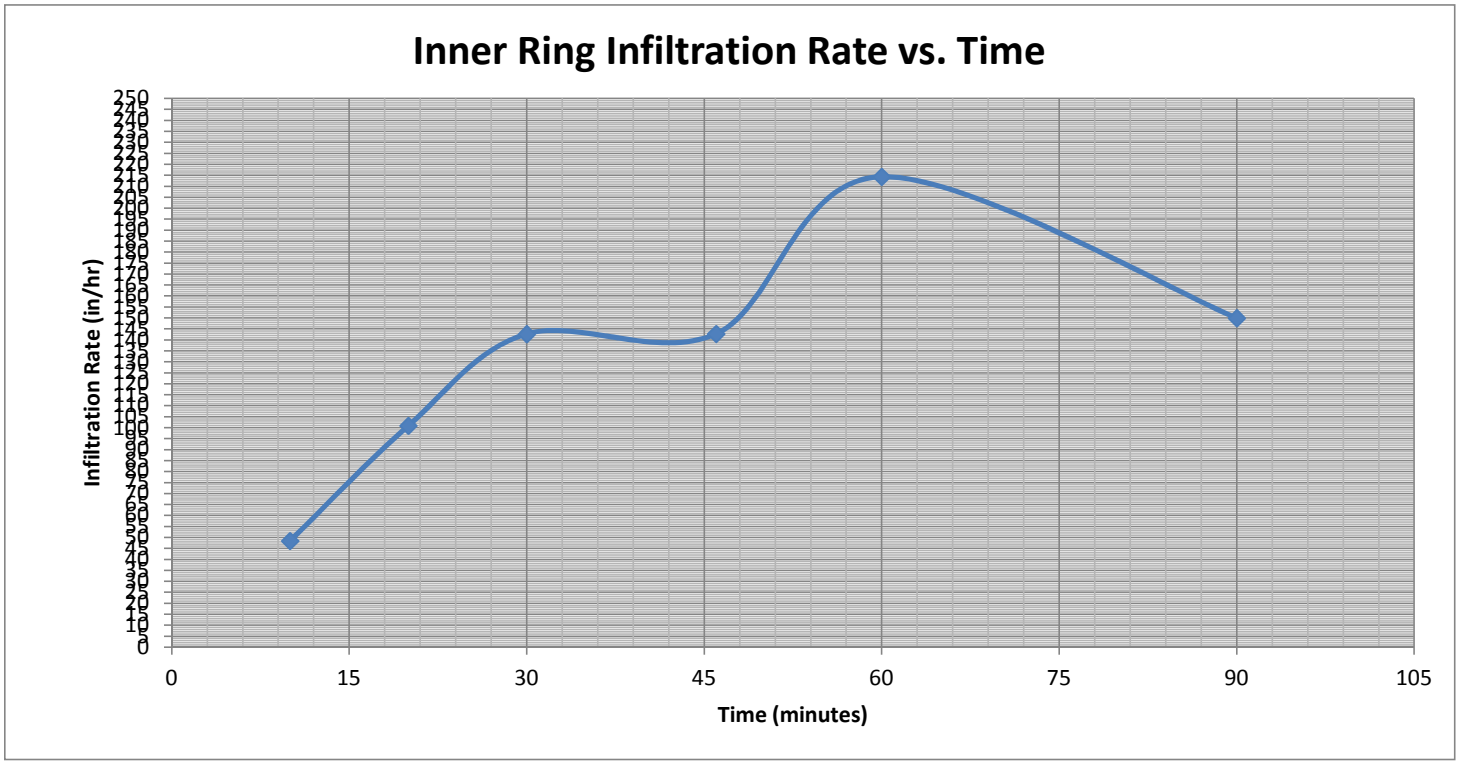
Test Number:	DRI-1
Project Description:	Barron Island, La Crosse, WI
Project Number:	B1502357
Date:	April 2, 2015
Liquid used:	Potable water
Inner Ring Area:	113 square inches
Outer Ring Area:	452 square inches
Test performed by:	Nicole Carlson
Weather:	60s and Sunny

Test Location:	TP-1
Test Elevation	640.1
Ground Temperature F°:	57
Water Temperature F°:	58
Moisture Content of soil at test depth before test:	6%
Percent Fines passing a 200 sieve on soil at test depth:	0.5%

Time	Infiltration Rate (in/hr)
10	48.406
20	100.856
30	142.644
46	142.690
60	214.281
90	149.915

Depth below bottom of test	Soil Profile
0-6 inches	
6-12 inches	
12-18 inches	
18-24 inches	
24-30 inches	
30-36 inches	
Groundwater depth	

Average Infiltration Rate of Inner Ring Over Entire Test (in/hr)	**133.132**
Steady State Infiltration Rate of Inner Ring Over Last 4 intervals (in/hr)	**162.383**



Test performed by Braun Intertec personnel in general accordance with test method ASTM D 3385.

Results of Double Ring Infiltrometer Testing - Gallon Meter Method

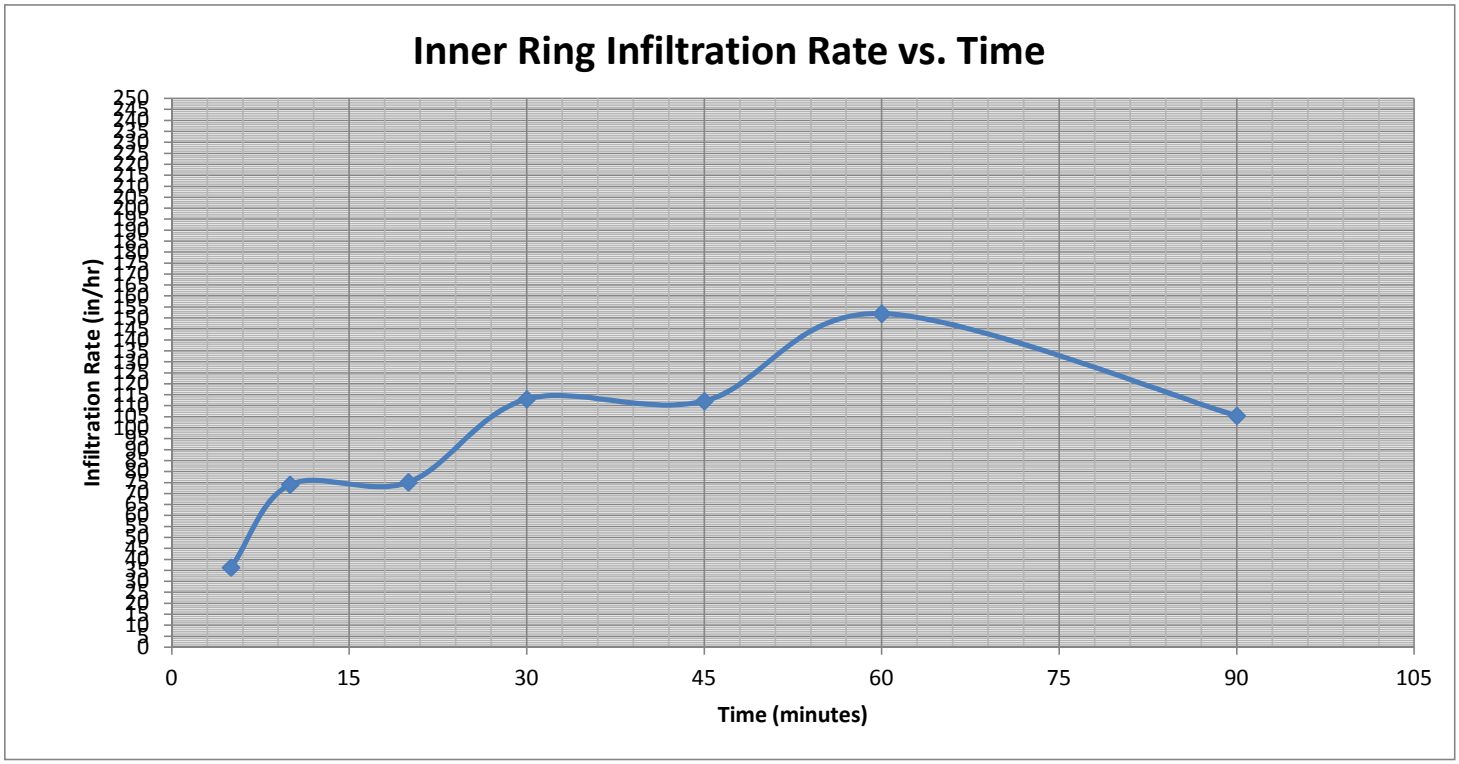
Test Number:	DRI-2
Project Description:	Barron Island, La Crosse, WI
Project Number:	B1502357
Date:	April 1, 2015
Liquid used:	Potable water
Inner Ring Area:	113 square inches
Outer Ring Area:	452 square inches
Test performed by:	Nicole Carlson
Weather:	70s and Sunny

Test Location:	TP-2
Test Elevation	638.2
Ground Temperature F°:	44
Water Temperature F°:	56
Moisture Content of soil at test depth before test:	3%
Percent Fines passing a 200 sieve on soil at test depth:	0.4%

Time	Infiltration Rate (in/hr)
5	36.274
10	74.018
20	75.121
30	112.988
45	112.089
60	151.958
90	105.390

Depth below bottom of test	Soil Profile
0-6 inches	
6-12 inches	
12-18 inches	
18-24 inches	
24-30 inches	
30-36 inches	
Groundwater depth	

Average Infiltration Rate of Inner Ring Over Entire Test (in/hr)	**95.405**
Steady State Infiltration Rate of Inner Ring Over Last 4 intervals (in/hr)	**120.606**



Test performed by Braun Intertec personnel in general accordance with test method ASTM D 3385.

Results of Double Ring Infiltrometer Testing - Gallon Meter Method

Test Number:	DRI-3
Project Description:	Barron Island, La Crosse, WI
Project Number:	B1502357
Date:	April 2, 2015
Liquid used:	Potable water
Inner Ring Area:	113 square inches
Outer Ring Area:	452 square inches
Test performed by:	Nicole Carlson
Weather:	60s and Sunny

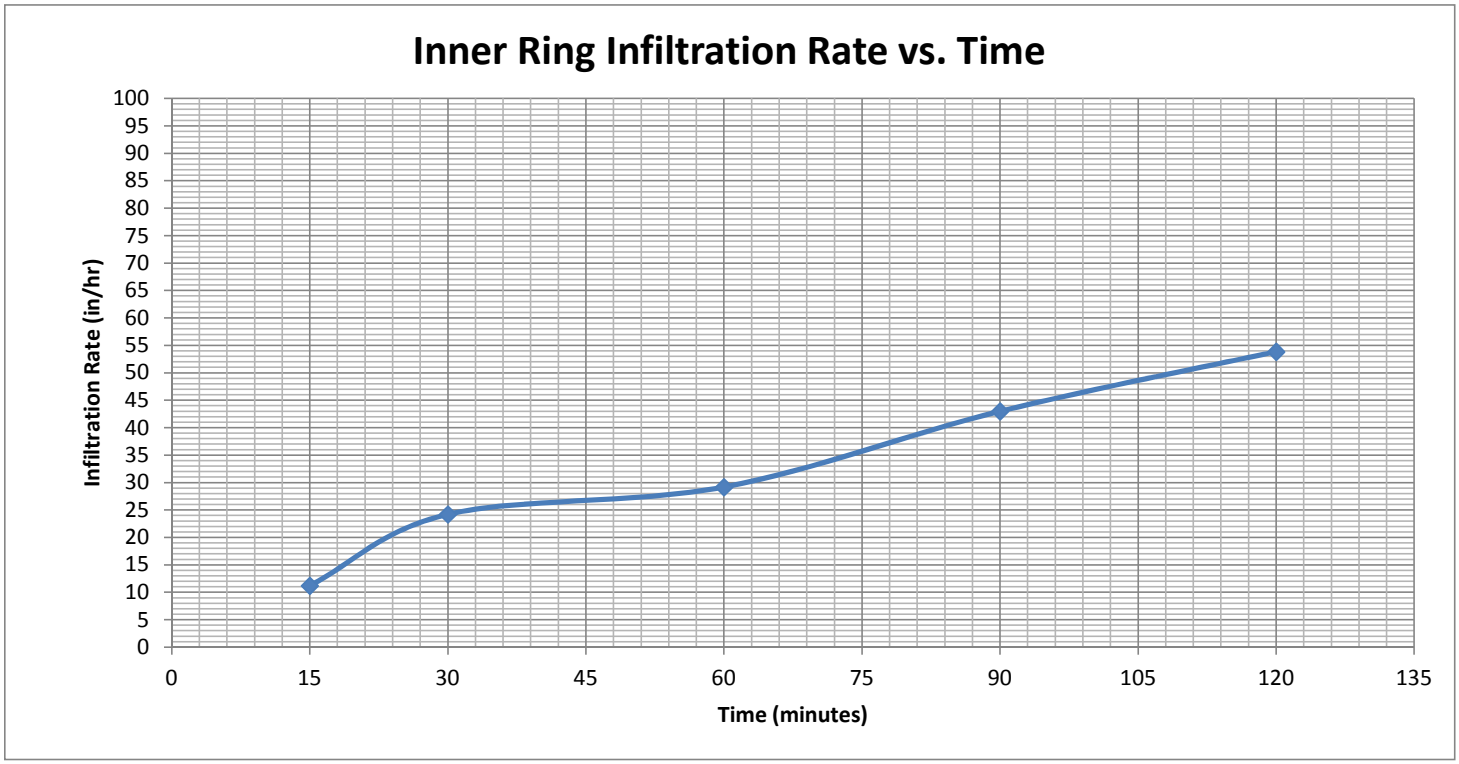
Test Location:	TP-3
Test Elevation	637.4
Ground Temperature F°:	50
Water Temperature F°:	57
Moisture Content of soil at test depth before test:	16%
Percent Fines passing a 200 sieve on soil at test depth:	5.8%

Time	Infiltration Rate (in/hr)
15	11.193
30	24.182
60	29.166
90	42.973
120	53.839

Depth below bottom of test	Soil Profile
0-6 inches	
6-12 inches	
12-18 inches	
18-24 inches	
24-30 inches	
30-36 inches	
Groundwater depth	

Average Infiltration Rate of Inner Ring Over Entire Test (in/hr)	**32.271**

Steady State Infiltration Rate of Inner Ring Over Last 4 intervals (in/hr)	**37.540**



Test performed by Braun Intertec personnel in general accordance with test method ASTM D 3385.

Results of Double Ring Infiltrometer Testing - Gallon Meter Method

Test Number:	DRI-4
Project Description:	Barron Island, La Crosse, WI
Project Number:	B1502357
Date:	April 2, 2015
Liquid used:	Potable water
Inner Ring Area:	113 square inches
Outer Ring Area:	452 square inches
Test performed by:	Nicole Carlson
Weather:	60s and Sunny

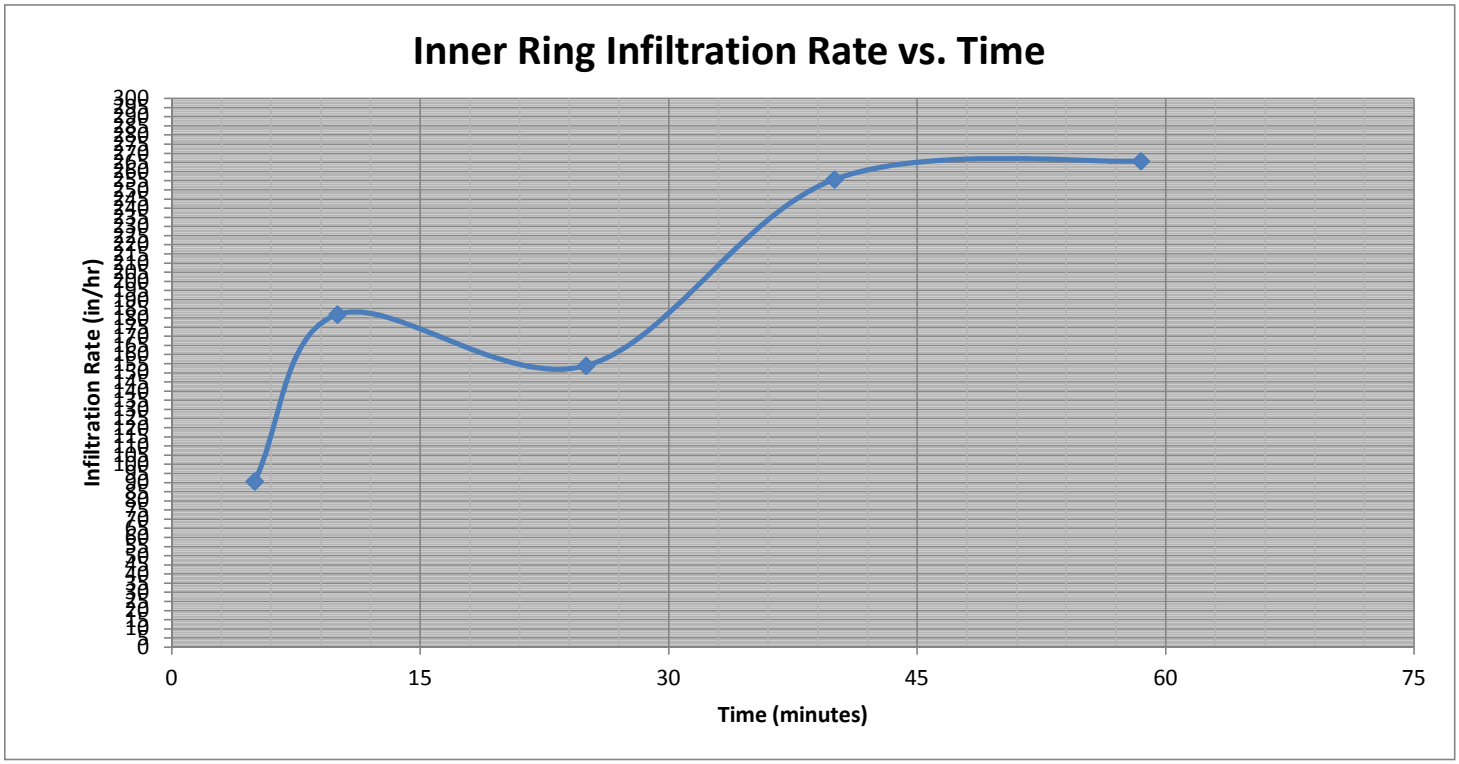
Test Location:	TP-4
Test Elevation	638.4
Ground Temperature F°:	53
Water Temperature F°:	59
Moisture Content of soil at test depth before test:	4%
Percent Fines passing a 200 sieve on soil at test depth:	0.2%

Time	Infiltration Rate (in/hr)
5	90.684
10	181.859
25	153.837
40	255.714
58.5	265.760

Depth below bottom of test	Soil Profile
0-6 inches	
6-12 inches	
12-18 inches	
18-24 inches	
24-30 inches	
30-36 inches	
Groundwater depth	

Average Infiltration Rate of Inner Ring Over Entire Test (in/hr)	**189.571**

Steady State Infiltration Rate of Inner Ring Over Last 4 intervals (in/hr)	**214.292**



Test performed by Braun Intertec personnel in general accordance with test method ASTM D 3385.

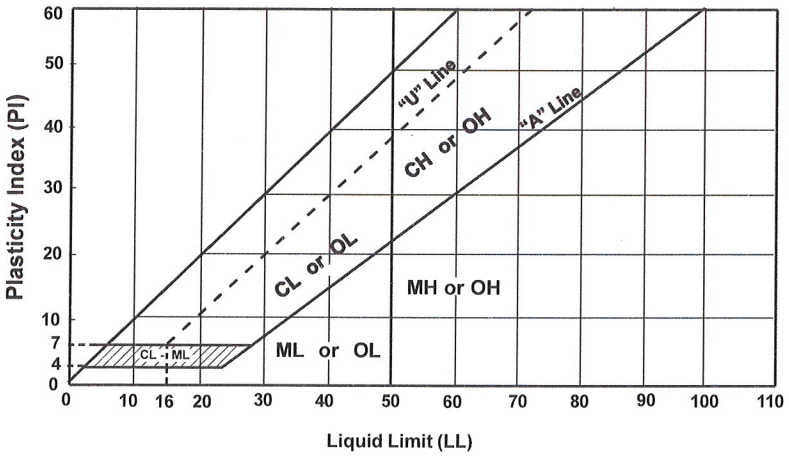
BRAUN INTERTEC

Descriptive Terminology of Soil

Standard D 2487 - 00
Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [a]				Soils Classification	
				Group Symbol	Group Name [b]
Coarse-grained Soils more than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels 5% or less fines [e]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [c]	GW	Well-graded gravel [d]
			$C_u < 4$ and/or $1 > C_c > 3$ [c]	GP	Poorly graded gravel [d]
		Gravels with Fines More than 12% fines [e]	Fines classify as ML or MH	GM	Silty gravel [d f g]
			Fines classify as CL or CH	GC	Clayey gravel [d f g]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands 5% or less fines [i]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [c]	SW	Well-graded sand [h]
			$C_u < 6$ and/or $1 > C_c > 3$ [c]	SP	Poorly graded sand [h]
		Sands with Fines More than 12% [i]	Fines classify as ML or MH	SM	Silty sand [f g h]
			Fines classify as CL or CH	SC	Clayey sand [f g h]
Fine-grained Soils 50% or more passed the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line [j]	CL	Lean clay [k l m]
			PI < 4 or plots below "A" line [j]	ML	Silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [k l m n]
				OL	Organic silt [k l m o]
	Silts and clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [k l m]
			PI plots below "A" line	MH	Elastic silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [k l m p]
				OH	Organic silt [k l m q]
Highly Organic Soils		Primarily organic matter, dark in color and organic odor		PT	Peat

a. Based on the material passing the 3-in (75mm) sieve.
b. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name.
c. $C_u = D_{60} / D_{10}$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
d. If soil contains ≥15% sand, add "with sand" to group name.
e. Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
f. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
g. If fines are organic, add "with organic fines" to group name.
h. If soil contains ≥ 15% gravel, add "with gravel" to group name.
i. Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 10 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI < 4 or plots below "A" line.
p. PI plots on or above "A" line.
q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**OC**	Organic content, %
WD	Wet density, pcf	**S**	Percent of saturation, %
MC	Natural moisture content, %	**SG**	Specific gravity
LL	Liqiuid limit, %	**C**	Cohesion, psf
PL	Plastic limit, %	**∅**	Angle of internal friction
PI	Plasticity index, %	**qu**	Unconfined compressive strength, psf
P200	% passing 200 sieve	**qp**	Pocket penetrometer strength, tsf

Particle Size Identification

Boulders	over 12"
Cobbles	3" to 12"
Gravel	
Coarse	3/4" to 3"
Fine	No. 4 to 3/4"
Sand	
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Silt	< No. 200, PI < 4 or below "A" line
Clay	< No. 200, PI ≥ 4 and on or above "A" line

Relative Density of Cohesionless Soils

Very loose	0 to 4 BPF
Loose	5 to 10 BPF
Medium dense	11 to 30 BPF
Dense	31 to 50 BPF
Very dense	over 50 BPF

Consistency of Cohesive Soils

Very soft	0 to 1 BPF
Soft	2 to 3 BPF
Rather soft	4 to 5 BPF
Medium	6 to 8 BPF
Rather stiff	9 to 12 BPF
Stiff	13 to 16 BPF
Very stiff	17 to 30 BPF
Hard	over 30 BPF

Drilling Notes

Standard penetration test borings were advanced by 3 1/4" or 6 1/4" ID hollow-stem augers unless noted otherwise, Jetting water was used to clean out auger prior to sampling only where indicated on logs. Standard penetration test borings are designated by the prefix "ST" (Split Tube). All samples were taken with the standard 2" OD split-tube sampler, except where noted.

Power auger borings were advanced by 4" or 6" diameter continuous-flight, solid-stem augers. Soil classifications and strata depths were inferred from disturbed samples augered to the surface and are, therefore, somewhat approximate. Power auger borings are designated by the prefix "B."

Hand auger borings were advanced manually with a 1 1/2" or 3 1/4" diameter auger and were limited to the depth from which the auger could be manually withdrawn. Hand auger borings are indicated by the prefix "H."

BPF: Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments and added to get BPF. Where they differed significantly, they are reported in the following form: 2/12 for the second and third 6" increments, respectively.

WH: WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

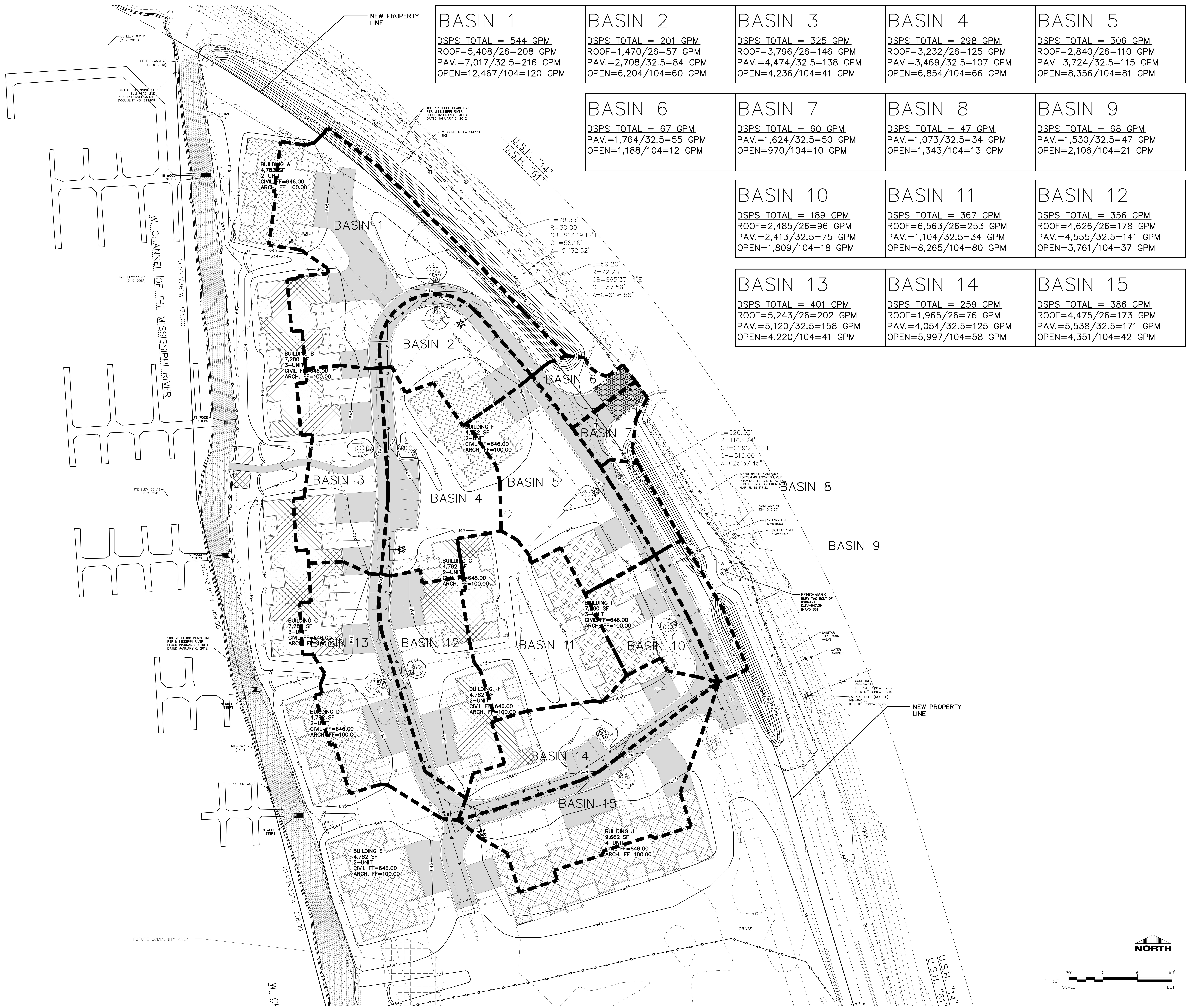
WR: WR indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

TW indicates thin-walled (undisturbed) tube sample.

Note: All tests were run in general accordance with applicable ASTM standards.

Appendix C

DSPS Basin Map:



BASIN 1	BASIN 2	BASIN 3	BASIN 4	BASIN 5
DSPS TOTAL = 544 GPM	DSPS TOTAL = 201 GPM	DSPS TOTAL = 325 GPM	DSPS TOTAL = 298 GPM	DSPS TOTAL = 306 GPM
ROOF=5,408/26=208 GPM	ROOF=1,470/26=57 GPM	ROOF=3,796/26=146 GPM	ROOF=3,232/26=125 GPM	ROOF=2,840/26=110 GPM
PAV.=7,017/32.5=216 GPM	PAV.=2,708/32.5=84 GPM	PAV.=4,474/32.5=138 GPM	PAV.=3,469/32.5=107 GPM	PAV. 3,724/32.5=115 GPM
OPEN=12,467/104=120 GPM	OPEN=6,204/104=60 GPM	OPEN=4,236/104=41 GPM	OPEN=6,854/104=66 GPM	OPEN=8,356/104=81 GPM

BASIN 6	BASIN 7	BASIN 8	BASIN 9
DSPS TOTAL = 67 GPM	DSPS TOTAL = 60 GPM	DSPS TOTAL = 47 GPM	DSPS TOTAL = 68 GPM
PAV.=1,764/32.5=55 GPM	PAV.=1,624/32.5=50 GPM	PAV.=1,073/32.5=34 GPM	PAV.=1,530/32.5=47 GPM
OPEN=1,188/104=12 GPM	OPEN=970/104=10 GPM	OPEN=1,343/104=13 GPM	OPEN=2,106/104=21 GPM

BASIN 10	BASIN 11	BASIN 12
DSPS TOTAL = 189 GPM	DSPS TOTAL = 367 GPM	DSPS TOTAL = 356 GPM
ROOF=2,485/26=96 GPM	ROOF=6,563/26=253 GPM	ROOF=4,626/26=178 GPM
PAV.=2,413/32.5=75 GPM	PAV.=1,104/32.5=34 GPM	PAV.=4,555/32.5=141 GPM
OPEN=1,809/104=18 GPM	OPEN=8,265/104=80 GPM	OPEN=3,761/104=37 GPM

BASIN 13	BASIN 14	BASIN 15
DSPS TOTAL = 401 GPM	DSPS TOTAL = 259 GPM	DSPS TOTAL = 386 GPM
ROOF=5,243/26=202 GPM	ROOF=1,965/26=76 GPM	ROOF=4,475/26=173 GPM
PAV.=5,120/32.5=158 GPM	PAV.=4,054/32.5=125 GPM	PAV.=5,538/32.5=171 GPM
OPEN=4.220/104=41 GPM	OPEN=5,997/104=58 GPM	OPEN=4,351/104=42 GPM

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
100 CAMELOT DRIVE
FOND DU LAC, WI 54935
PHONE: (920) 926-9800
WWW.EXCELENGINEER.COM

PROJECT INFORMATION
PROJECT NUMBER 1608430

PROPOSED NEW DEVELOPMENT FOR:
WATER PLACE ONE
PARK PLAZA DR. • LA CROSSE, WI 54601

PROFESSIONAL SEAL

PRELIMINARY DATES
JUNE 16, 2016

NOT FOR CONSTRUCTION

SHEET INFORMATION
DSPS BASIN MAP PLAN
SHEET NUMBER
DSPS

Appendix D

SLAMM Input/Output Information:

SLAMM for Windows Version 10.2.0

Data file name: \\EXCEL-FILE1\Data\Job Files\1608430 Water Place One - La Crosse, WI\1608434 Civil\storm water report and calculations\Typ Grass Depression.mdb
Data file description: Water Place One La Crosse
Rain file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\Freeway Dec06.std
Pollutant Relative Concentration file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_GEO03.ppdx
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: 06-15-2016 Time of run: 14:34:45
Total Area Modeled (acres): 0.450
Years in Model Run: 1.00

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	11702	-	130.1	95.00	-
Outfall Total with Controls:	2295	80.39%	130.1	18.64	80.38%
Annualized Total After Outfall Controls:	2301			18.69	

Data file name: \\EXCEL-FILE1\Data\Job Files\1608430 Water Place One - La Crosse, WI\1608434 Civil\storm water report and calculations\Typ Grass Depression.mdb
WinSLAMM Version 10.2.0
Rain file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name:
F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name:
F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name:
F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File:
F:\Programs\civil\WinSLAMM\v10.2.0\Parameter Files\NURP Source Area PSD Files.csv
Cost Data file name:
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: 06-15-2016 Time: 14:35:20
Site information:
Water Place One La Crosse
LU# 1 - Residential: Typ. Basin Area Total area (ac): 0.450
    1 - Roofs 1: 0.150 ac. Pitched Disconnected Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
    13 - Paved Parking 1: 0.150 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
    45 - Large Landscaped Areas 1: 0.150 ac. Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 80
2. Bottom aea (square feet) = 50
3. Depth (ft): 3.25
4. Biofilter width (ft) - for Cost Purposes Only: 8
5. Infiltration rate (in/hr) = 12.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 12.5
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.38
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program

18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Sands 1.000

Saturation water content percent (Porosity) = 0

Field capacity (%) = 0

Permanent Wilting Point (%) = 0

Infiltration rate (in/hr) = 12.5

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 5
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 3

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 3
2. Stand pipe height above datum (ft): 2.5

Appendix E
USLE Spreadsheet & Map:

Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Official Version 1.0 (05-15-2015)

WISCONSIN DEPT. OF NATURAL RESOURCES

YEAR 1

Developer: Water Place One

Project: Water Place One Condominium Development

Date: 6/16/2016

County: La Crosse

Version 1.0

Activity	Begin Date	End Date	Period % R	Annual R Factor	Sub Soil Texture	Soil Erodibility K Factor	Slope (%)	Slope Length (feet)	LS Factor	Land Cover C Factor	Soil loss A (tons/acre)	Sediment Control Practice	Sediment Discharge (tons/acre)
Bare Ground	9/1/2016	11/1/2016	16.6%	160	Sand	0.15	15.0%	30	1.43	1.00	5.7	Silt Fence	1.9
Seed with Mulch or Er	11/1/2016	4/1/2017	7.1%	160	Sand	0.15	15.0%	30	1.43	0.10	0.2	Silt Fence	0.0
End	4/1/2017	-----	-----	-----	-------	-----	15.0%	30	1.43	------	-----		0.0
		-----	-----	-----	-------	-----	15.0%	30	1.43	-----	-----		0.0
		-----	-----	-----	-------	-----	15.0%	0	-----	-----	-----		0.0
		-----	-----	-----	-------	-----	0.0%	0	-----	-----	-----		0.0
										TOTAL	**5.9**	**TOTAL**	**1.9**
												% Reduction Required	**NONE**

Notes:

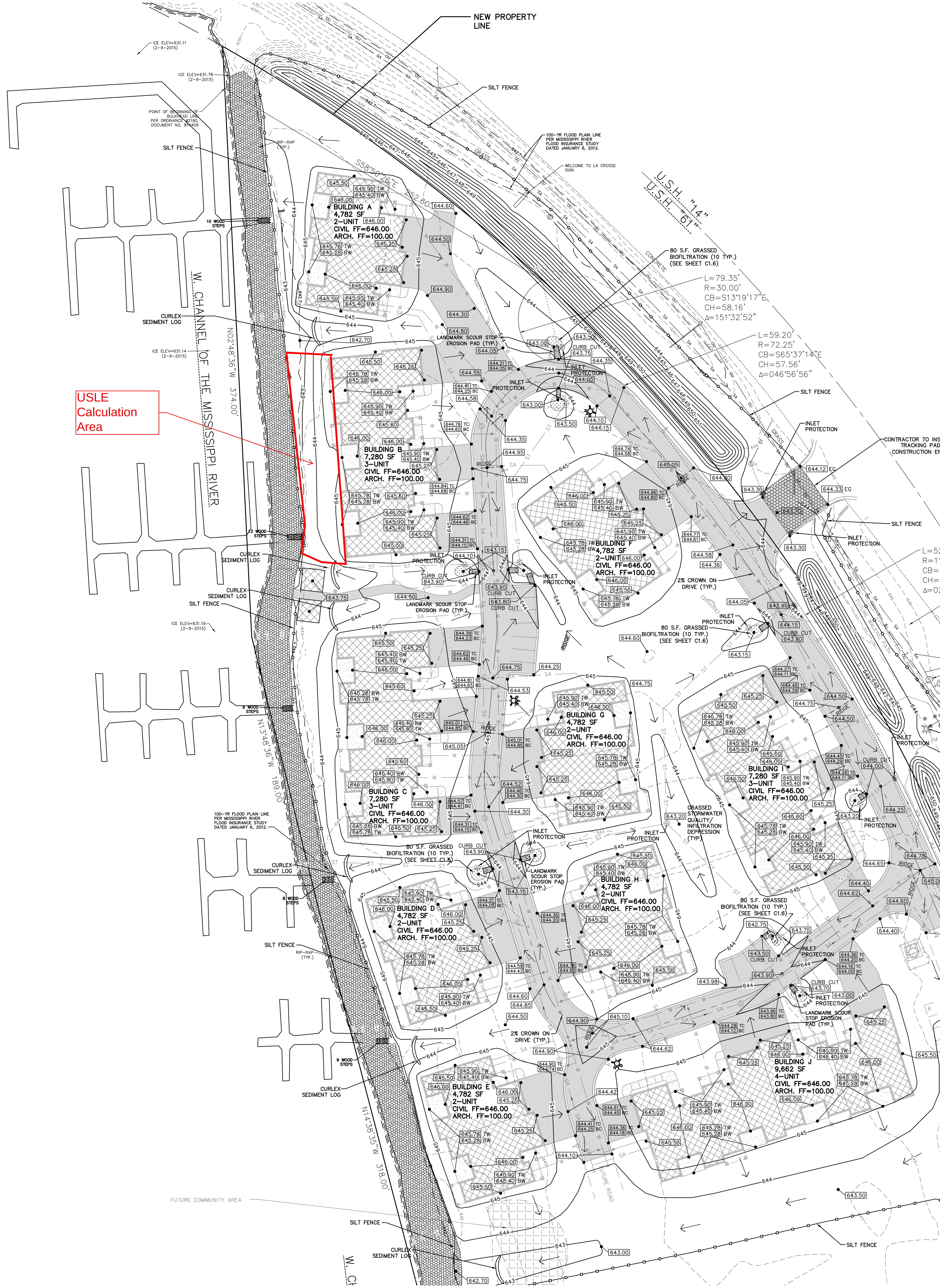
See Help Page for further descriptions of variables and items in drop-down boxes.
The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
For periods of construction that exceed 12 months, please demonstrate that 5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

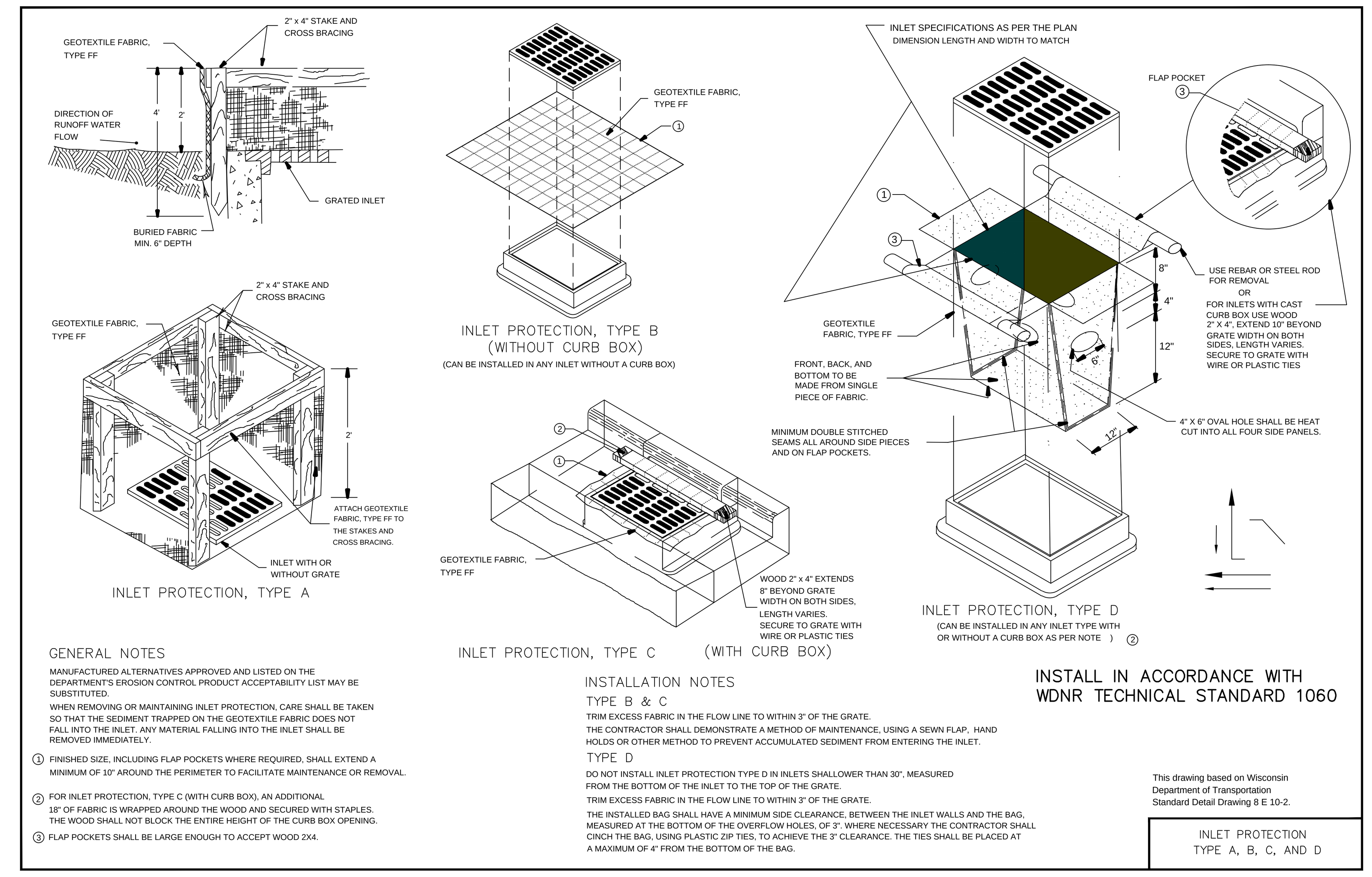
NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/15-6/1	and	8/1-8/21	Turf, introduced grasses and legumes
Thaw-6/30			Native Grasses, forbs, and legumes

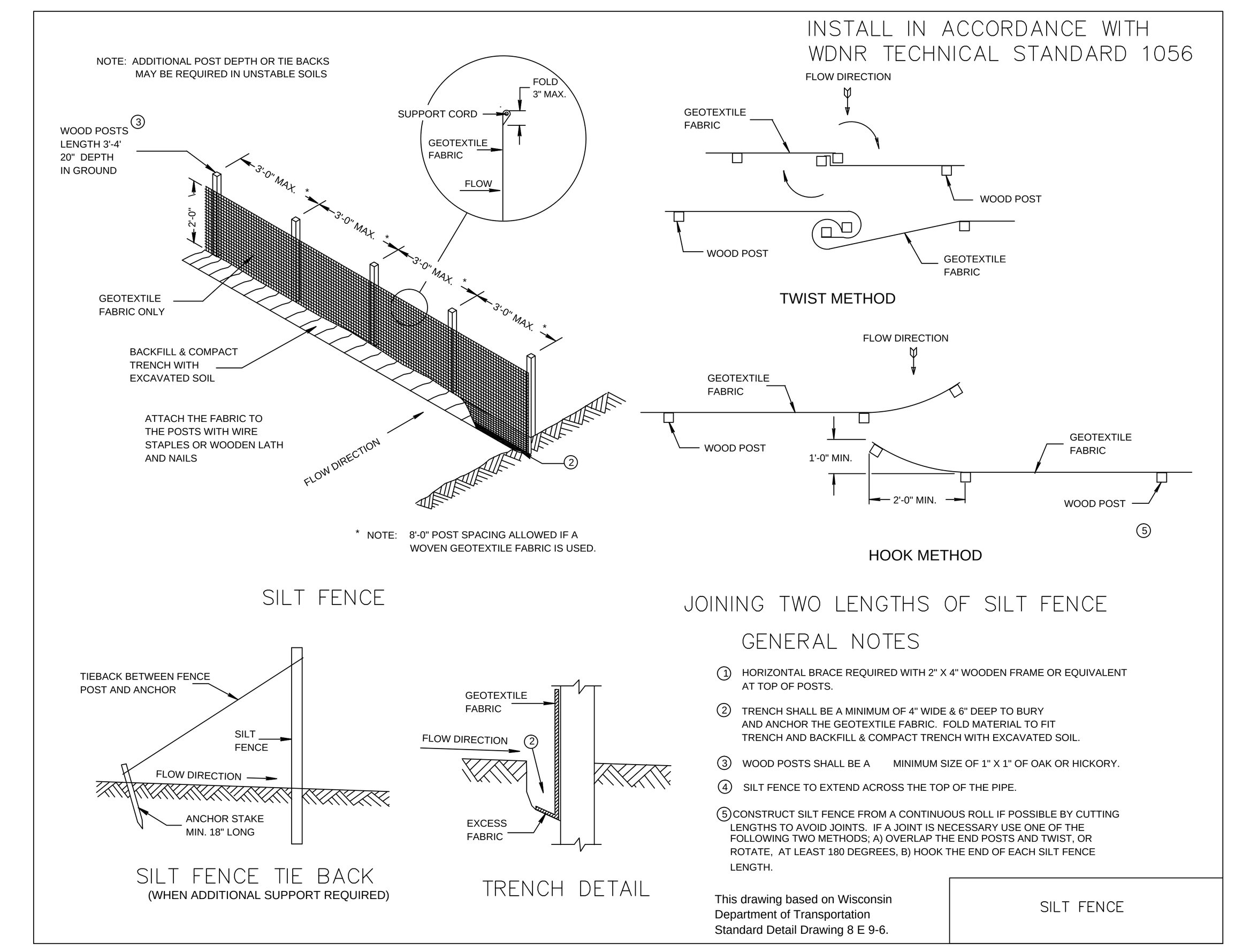
Designed By:	GJD
Date	6/16/2016





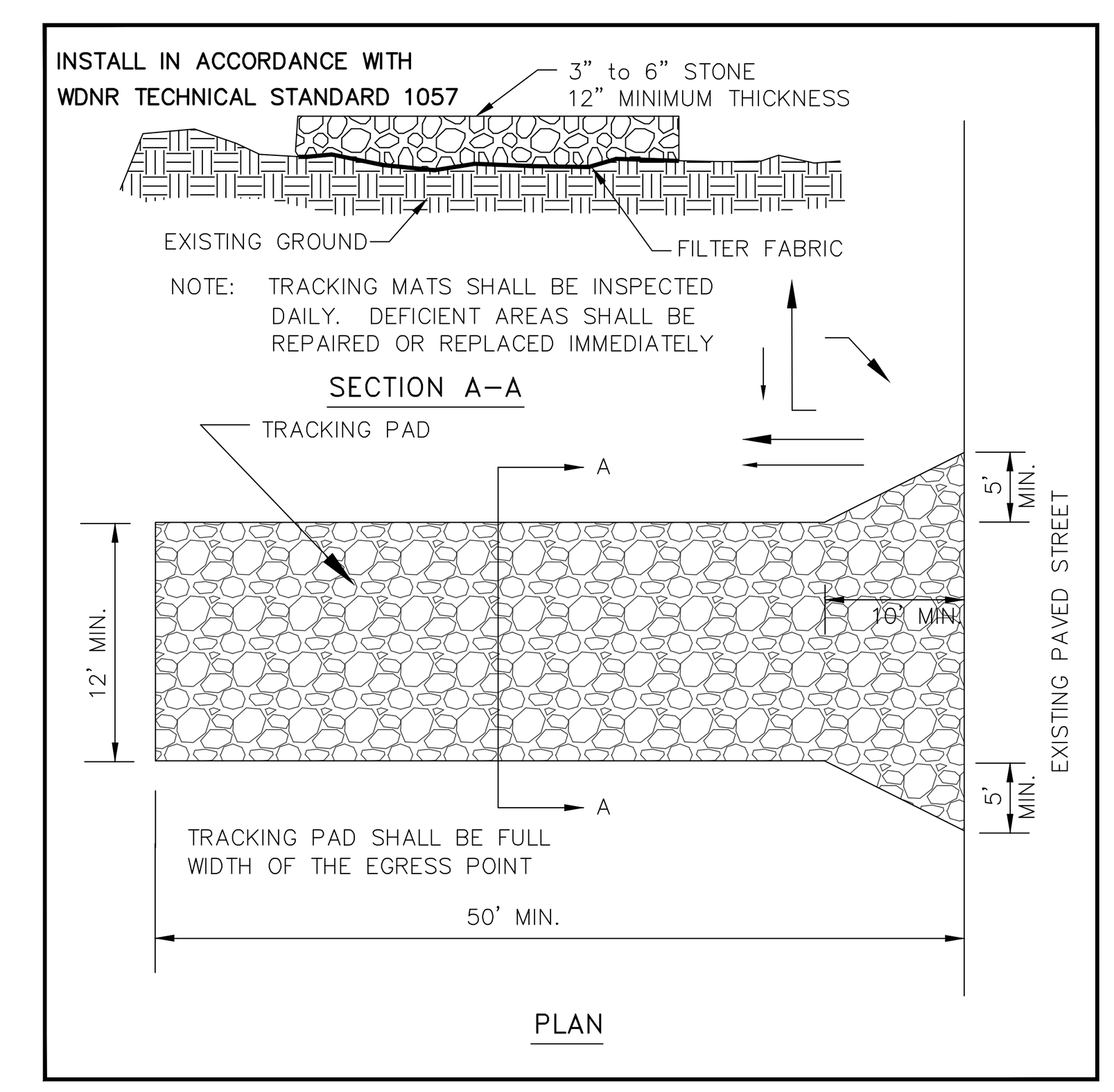
INLET PROTECTION DETAILS

NO SCALE



SILT FENCE – INSTALLATION DETAIL

NO SCALE



TRACKPAD DETAILS

NO SCALE

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
100 CAMELOT DRIVE
FOND DU LAC, WI 54935
PHONE: (920) 926-9800
WWW.EXCELENGINEER.COM

PROJECT INFORMATION

PROJECT NUMBER 1608430

PROPOSED NEW DEVELOPMENT FOR:

WATER PLACE ONE

PARK PLAZA DR. • LA CROSSE, WI 54601

PROFESSIONAL SEAL

PRELIMINARY DATES

JUNE 2, 2016

JUNE 16, 2016

NOT FOR CONSTRUCTION

SHEET INFORMATION

GRADING AND EROSION CONTROL PLAN

SHEET NUMBER

C1.3