

Village of Menomonee Falls
W156N8480 Pilgrim Rd
Menomonee Falls WI 53051
(262) 532-4200

**Stormwater Management Facilities
Operation and Inspection Report
Porous Pavement**

Name of Business/Subdivision:

Quarter Section: SW 1/4 Sec. 26

Shecterle Commercial Properties 6

PO Box 1205

Property Tax ID Number: 0103.983

Brookfield WI 53005

Location of Device: North parking area in front of building A and B

Year Constructed: 2008

Last Certification: _ 9/15/2015

Owner Change since last Inspection? N

Owner Name, Address, Phone: 262-227-9032

Date: 05-09-16 & 05-10-16 Time: 9:30 am (5/9) & 4:30 pm (5/10) Site Conditions: sunny/clear (5/9) & Rain (5/10)

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
Signs of clogging (e.g., standing water)?	U	Test results showed failures - ReVacuum
Debris (mulch, trash) accumulation?	S	
Sediment accumulation?	S	Some seimdent from spawling
Standing water?	U	2 small areas had more than 2" during rain event
Erosion from underdrain (if present)?	S	
Exposed soil in areas discharging or adjacent to the porous pavement area?	S	
Runoff discharge from pavement area 24 to 48 hours after the end of a	S	No standing water day after rain event
Snow Removal Practices?	S	
Condition of filter media?	S	
Other (describe)?		
Hazards		
Have there been complaints from public?	S	None that we are aware of
Public hazards noted?	S	
If any of the above inspection items are UNSATISFACTORY, list corrective actions and the corresponding completion dates below:		
Corrective Action Needed	Due Date	
Vacuum areas that failed infiltration test with a suitable vacuum		
sweeper (A "pure vacuum sweeper or a high volume air blast		
vacuum sweeper")and re-test areas		

Sketch Outlet	See attached photos and test results
	Photograph of Pond

Inspection Firm: __ CJ Engineering
Phone Number: __ 414-443-1312 x 223
Address:

Inspector Name: __ Randy Bruckner
Inspection Date: __ 05-09-16 & 05-10-16

Certifying
Professional Name: Randy Bruckner, PE
Phone Number: 414-443-1312

Date: 05-13-16

Signature: _____

May 10, 2016

Brian Shecterle,
Culver's Restaurants &
Shecterle Commercial Properties
PO Box 1205
Brookfield, WI 53008

Re: Permeable Pavement Infiltration Testing at Pilgrim Spring Marketplace
MARS Project Number: 1737

VIA: EMAIL

Dear Mr. Shecterle

Montgomery Associates: Resource Solutions, LLC (MARS) has prepared this letter to summarize the results of a permeable pavement infiltration investigation at Pilgrim Spring Marketplace in the Village Menomonee Falls, Waukesha County, WI to support compliance with Menomonee Falls stormwater management requirements.

Background

Permeable pavement was installed in ten banks of parking stalls at Pilgrim Spring Marketplace to accommodate customers at commercial development on the site. Retail Building 'A' (see attached Site Grading Plan) is currently inhabited, while Retail Building 'B' has recently been constructed and is currently uninhabited.

Testing Overview

Fourteen locations in the ten parking banks at Pilgrim Spring Marketplace were investigated on Monday May 10, 2016 (See attached Site Plan). Infiltration testing was performed according to ASTM C1701. This effort involves adhering a 12-inch diameter infiltration ring to the pavement with an impermeable sealant, pre-wetting the pavement within the ring with water per the ASTM standard, and measuring the amount of time it takes for a known volume of water to pass through the pavement. Per discussions on site prior to testing, tests were abandoned if the pre-wetting portion of the test exceeded thirty minutes. Generally speaking, this indicates that the pavement surface infiltration rate, and not the infiltration capacity of the storage layer media, is the limiting factor in infiltration performance.

Testing Results

Ten of the fourteen tests performed were abandoned due to poor performance in the pre-wetting portion of the procedure. These tests were located in the parking stalls north of Retail Building 'A' (tests 1, 2, 5, 6, 9 and 10) and the parking stalls between Retail Building 'A' and Retail Building 'B' (tests 13 and 14). These tests were located in areas that generally experience high traffic. Portions of the pavement in this area showed significant spalling and portions of the pavement in this area appeared to be sealed with a cement-like surface film. In addition, the tests located in the parking stalls adjacent to Retail Building 'B' (tests 11 and 12) were abandoned due to poor pre-wetting. Abundant angular, granular particles were observed on the pavement surface in these areas.

Tests conducted in the parking stall north of Retail Building 'B' (tests 3, 4, 7 and 8) were completed and yielded a wide range of infiltration rates, varying from approximately 3.0 inches per hour to 556.7 inches per hour. Test numbers 4 and 7 yielded infiltration rates of several hundred inches per hour while test numbers 3 and 8 yielded infiltration rates less than 10 inches per hour.

Thank you for the opportunity to provide this site investigation. Please contact me at 608-839-4422 or by email (dane@ma-rs.org) with any questions.

Sincerely,

Montgomery Associates: *Resource Solutions, LLC*



Dane Wudel, EIT
Staff Engineer

Attachments: Site Grading Plan (from CJ – Engineering) w/ Test Locations
Test Results Summary Table

CC: Randy Bruckner – CJ Engineering



Montgomery Associates

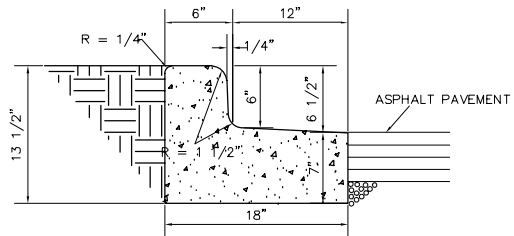
Resource Solutions, LLC

Project	Pilgrim Spring Marketplace - Permeable Pavement Infiltration Testing
Project #	1737
Date	5/9/2016
Weather	Mostly cloudy, moderate wind, 50s to 60s
Conducted by	DMW
Clock time	9:00 AM to 4:00 PM

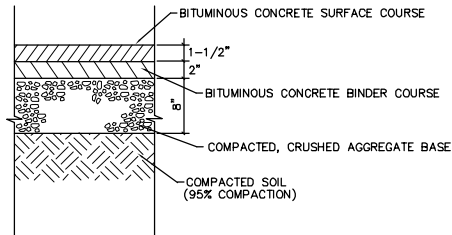
Ring Diameter	12	in
Specific Weight of Water	8.3	lbs/gal

Test number	Initial Wetting Time		Test Water Volume (gal)	Test Water Weight (lbs)	TestTime		Infiltration Rate (in/hr)	Notes
	min	sec			min	sec		
1	> 30 min.		N/A	N/A	N/A		N/A	1.6" standing after 30 min. of initial wetting
2	> 30 min.		N/A	N/A	N/A		N/A	1.5" standing after 30 min. of initial wetting
3	> 30 sec		1.0	8.3	40	31	3.0	
4	< 30 sec		5.0	41.7	1	6	556.7	
5	> 30 min.		N/A	N/A	N/A		N/A	1.4" standing after 30 min. of initial wetting
6	> 30 min.		N/A	N/A	N/A		N/A	0.7" standing after 30 min. of initial wetting
7	< 30 sec		5.0	41.7	2	9	284.8	
8	> 30 sec		1.0	8.3	12	41	9.7	
9	> 30 min.		N/A	N/A	N/A		N/A	1.8" standing after 30 min. of initial wetting
10	> 30 min.		N/A	N/A	N/A		N/A	No apparent infiltration
11	> 30 min.		N/A	N/A	N/A		N/A	No apparent infiltration
12	> 30 min.		N/A	N/A	N/A		N/A	No apparent infiltration
13	> 30 min.		N/A	N/A	N/A		N/A	No apparent infiltration
14	> 30 min.		N/A	N/A	N/A		N/A	1.3" standing after 30 min. of initial wetting

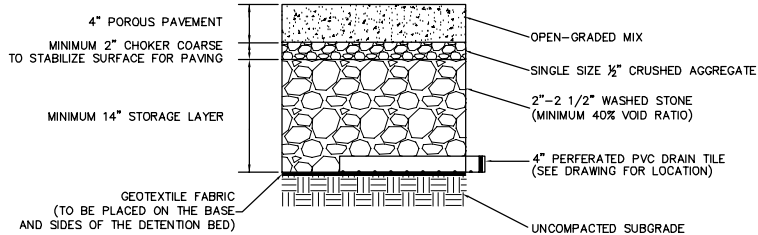
- Notes:
- Tests were conducted according to ASTM C1701
 - Tests were abandoned if initial wetting took longer than 30 minutes



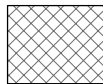
HIGH SIDE CONCRETE CURB DETAIL
NOT TO SCALE



STANDARD ASPHALT PAVEMENT (ROADS & DRIVES)
NOT TO SCALE



POROUS PAVEMENT TYPICAL DESIGN SECTION
NOT TO SCALE



PROPOSED POROUS PAVEMENT

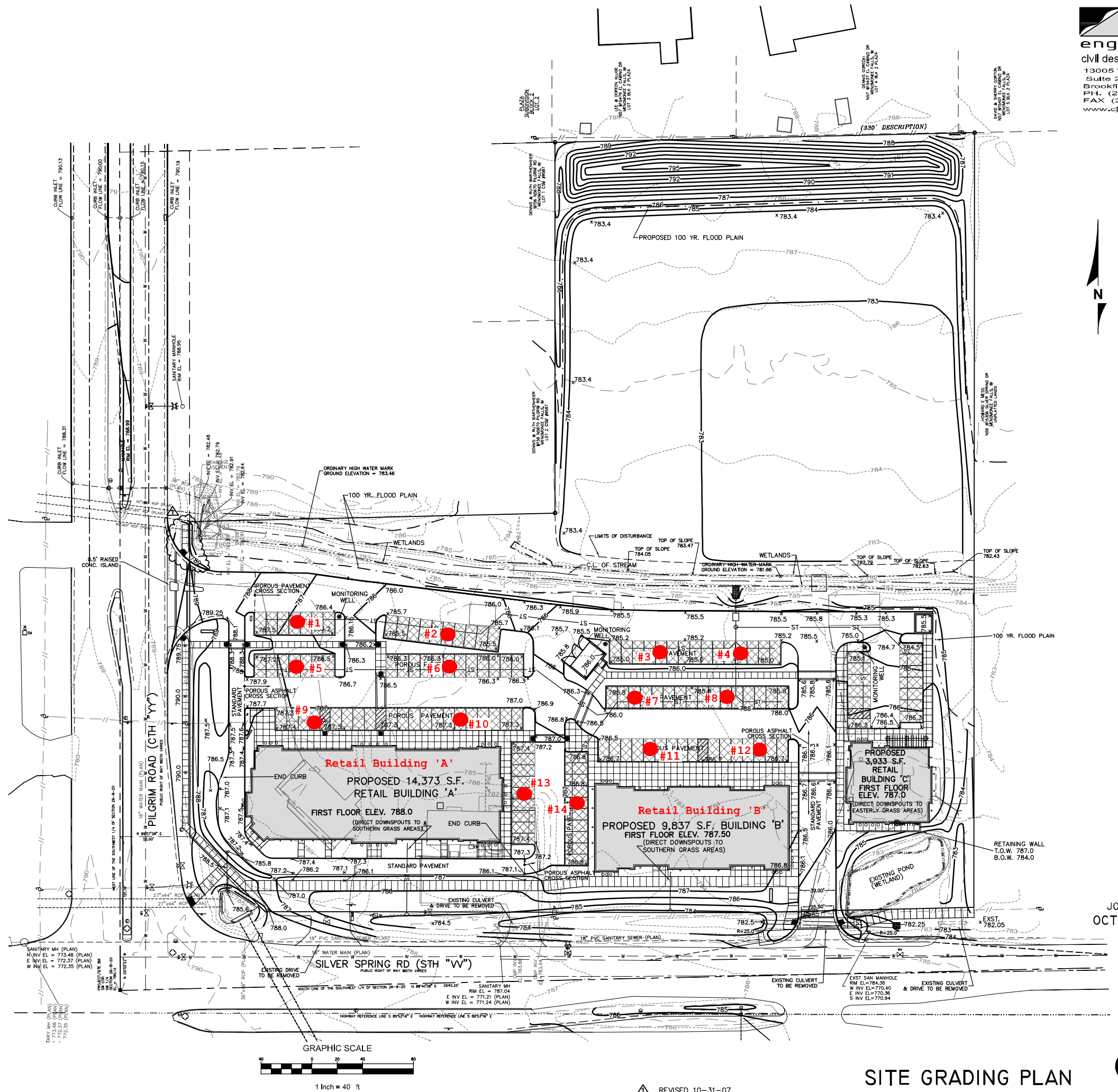
NOTES:

1. ALL PROPOSED ELEVATIONS ALONG THE PROPOSED CURB ARE AT THE BOTTOM OF THE CURB.
2. ALL EXISTING CONDITIONS PER THE SURVEY BY CAPITOL SURVEY AND ENGINEERING.
3. ALL PUBLIC HANDICAP RAMPS SHALL HAVE METADOME YELLOW METAPANEL OR APPROVED EQUIVALENT TYPE STAINLESS STEEL DETECTABLE WARNING SHIELD INSTALLED.
4. PROPOSED STORM SEWER FROM BLDG. DOWNSPOUTS SHALL BE DISCHARGED TO SILVER SPRING R.O.W. DITCH. EXACT SIZE, SLOPE AND LOCATION TO BE DETERMINED BY THE PLUMBING CONTRACTOR.



LEGEND

- 887 --- EXISTING CONTOUR
- 885 --- PROPOSED CONTOUR
- x 890.5 PROPOSED ELEVATION
- ST --- PROPOSED STORM SEWER



JOB NO. 0639-03-R7
OCTOBER 9, 2007

SITE GRADING PLAN

C1.0

SHEET 1 OF 4

