



Blackwell Engineering, PLC

566 East Market St. - Harrisonburg, Virginia 22801 - (540) 432-9555 - www.BlackwellEngineering.com

September 7, 2018

Alison Banks
Planning and Zoning
City of Harrisonburg, VA
409 South Main Street
Harrisonburg, VA 22801

Subject: Public Utilities Request for The Crossing-Phase 2

Dear Alison,

In response to your e-mail dated August 3, 2018, on behalf of Greendale Road, LLC, we are respectfully requesting water and sewer services for Phase 2 of The Crossing. This development will include 40 single family lots in Rockingham County and 9 single family lots in Harrisonburg. The property the City is currently zoned R-3-C. The property in the County is currently zoned R3, however, a request shall be made of to rezone this to Planned Single Family (PSF).

Contingent on application for this rezoning request is acceptance of the Public Utilities Request by the City. Harrisonburg Public Utilities Department has provided their approval.

With this letter is included a copy of the preliminary site plan.

The developer plans to begin construction 60 days after acceptance of the completed Site Plans. This could occur as early as late 2018 or early 2019.

Cordially,

 ^{Dlh}

Richard L. Blackwell, Jr., P.E.
Civil Engineer

cc: Keith May

**APPLICATION FOR PUBLIC UTILITIES
FROM CITY OF HARRISONBURG, VIRGINIA
TO FACILITIES LOCATED IN ROCKINGHAM COUNTY**

I. GENERAL INFORMATION (By Applicant)

Name of Applicant: Keith May, Greendale Road, LLC Agent: Ed Blackwell, Blackwell Engineering
 Address of Applicant: 1962 Evelyn Byrd Ave., Harrisonburg, VA 22801 566 East Market St., Harrisonburg, VA 22801
 Telephone of Applicant: 540-437-3500 540-432-9555
 Service Location ID: 124 TM A LOT 131 Parcel
 Service Location Address: South of Dorval Road in City
 Type of Utility Requested: Water Sewer
 Type of Utility Use: Residential Commercial Industrial Institutional
 Agriculture Other: _____
 Rockingham County Approval: Attachment

II. UTILITY INFORMATION (By City)

A. Average Daily Usage:
39 Equivalent Residential Connections * ³⁰260 gpd / E.R.C. = 11,700 gpd
 Other Calculations: _____
 Specific Data (describe): _____

B. Peak Daily Usage
 AWWA Fixture Units is Equivalent to 29,250 gpm
 Average Daily Demand * Peak Factor of 25 = 36,000 gpm
 Specific Data describe): _____

C. Fire Flow Demand
 Requirement 750 gpm
 Describe needs assessment: _____

*See March 27, 2018 letter
adjusted to 39 in final application*

**Request for Review of Availability for Water and/or Sewer
To Land Located in Rockingham County**

City of Harrisonburg Code of Ordinances Section 7-2-4 requires that Rockingham County (the County) acknowledge that an Applicant (as defined in such ordinance) has requested public utility service from the City of Harrisonburg (the City) for property located in the County. By signatures of the Applicant, and authorized representatives of the City and the County, the City will begin to evaluate the City's ability to provide the requested services.

APPLICANT

The signature of the Applicant is an official request to obtain City utility services and acknowledgement that Applicant has reviewed the conditions of City Code of Ordinance Section 7-2-4 (see Page 2), including the requirement to submit certain documents incidental to this application.

Services Requested:

WATER (Please Initial) KA SEWER (Please Initial) KA
Kelli A. May, Manager 3/12/18
Signature Greendale Rd, LLC Date

CITY OF HARRISONBURG

The signature of the City's Director of Public Utilities acknowledges the Applicant's request for utility services from the City. The signature does not constitute approval of services, but the City's intent to review the request and evaluate the City's ability to provide the requested services. The City will provide to the County a statement regarding the availability of requested services and the City's intent to provide such services subject to approval by the County.

Mark Lee August 8, 2018
Director of Public Utilities Date

COUNTY OF ROCKINGHAM

The signatures of the County Officials below acknowledge the Applicant's intent to use utility services of the City instead of the County. These signatures shall not imply approval by the County of the provision of said services by the City. Final approval is contingent upon the Board of Supervisors' consent pursuant to Virginia Code, Section 15.2-2143. This acknowledgement in no way implies or constitutes approval of any rezoning, special use permit or any other land use related request that requires Board or administrative approval.

Carol D. Anderson 3/13/2018
Director of Community Development Date
Phyllis A. ... 3-13-18
Director of Public Works Date

Comments: _____

APPLICATION FOR PUBLIC UTILITIES FROM CITY OF HARRISONBURG, VA
TO FACILITIES LOCATED IN ROCKINGHAM COUNTY
AUTHORIZATION OF REVIEW

City Code of Ordinance Section 7-2-4(e) states, "The Director may charge a reasonable fee to cover time and expenses of processing the application". The following policy shall be used to distribute the expenses incurred by the Department of Public Utilities.

1. **Initial Review:** There shall be no charge to execute the "Application and Acknowledgement" form used to initiate the review process by City and County officials. There shall be no charge to provide the first response to the "Application for Public Utilities From City of Harrisonburg, Virginia to Facilities Located in Rockingham County: Code of Ordinance 7-2-4". It should be recognized that the first response may be a letter of recommendation for approval or disapproval, or, it may provide stipulations for additional information or engineering evaluation.
2. **Continued Review:** Under circumstances progressing beyond the initial review, the Department shall invoice the applicant for specific cost as incurred. Upon request, the Department may provide a non-binding estimate for the applicant to consider. The costs shall include, but are not limited to: processing, consulting and support as applied directly to the management of the application.

"Processing costs" - shall only include the time of the "application officer" to handle, coordinate, evaluate, review and manage the process until the application has been closed; unit billing rate shall be \$28.55/hour.

"Consulting costs" - shall refer to contracted, or in-house, hydraulic modeling performed to evaluate the water or sewer system impact. Contracted cost shall be forwarded at invoice costs. In house engineering rate shall be at \$34.55/hour.

"Support costs" - shall refer to the collection of information by field technicians billed at the rate accepted to # person crew used.

I hereby acknowledge that I may be charged according to the above policy.

Name Keith A MAY, manager
Greendale Road, LLC

Date 3/12/18

P.O. Box; Street # 1960 Evelyn Byrd Av

City, State, Zip Harrisonburg, VA 22801



BLACKWELL ENGINEERING, PLC

566 E. MARKET ST. • HARRISONBURG, VIRGINIA 22801 • (540) 432-9555 • FAX (540) 434-7604

March 27, 2018

BE# 1852-D

Mr. Jamie Fultz, P.E.
Public Utilities Engineering
2155 Beery Road
Harrisonburg, VA 22801

Subject: Preliminary Engineering Report (PER) for The Crossings Subdivision – Phase 2.

Dear Jamie,

The following items are in response to DCSM Section 4.3.0:

- A. Introduction – This project is for the construction of a residential subdivision and the extension of Dorval Road. The site is located at the terminus of Dorval Road, Harrisonburg, VA 22801. There will be approximately 48 single family lots. Approximately 9 lots are in the City of Harrisonburg. Most of the lots will be in Rockingham County.

There are currently no water or sewer utilities that serve the property. The owner will be requesting to use the City water and sewer utilities that are existing near the project site.

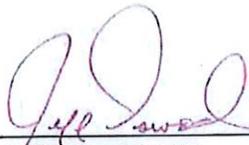
- B. Average Daily Demand (Section 4.3.3) – Based on Table 4-1:
a. 48 single family lots at 300 GPD = 14,400 GPD
b. Total Average Daily Demand (ADD) = 14,400 GPD
- C. Water Design Demand (Section 4.3.4) – $2.5 \times \text{ADD} = 36,000 \text{ GPD}$
- D. Sewer Design Demand (Section 4.3.4) – $200\% \text{ of ADD} = 28,800 \text{ GPD}$
- E. Water System Capacity (Section 4.3.5) – A 12" water main is located at Dorval Road.
a. The ISO needed fire flow is 750 gpm as stated in 4.3.4.3.1.A assuming a separation of 31'-100' between houses.
b. The flow test for hydrant 97/N near Dorval Road shows that 1,244 gpm at 85 psi and a predicted 3,500 gpm at 20 psi can be provided at the site.
- F. Sewer System Capacity (Section 4.3.6) – An 8" sewer main and manholes exist near Dorval Road. An 8" sewer main and City manhole 96/25 exist near the midpoint of the southern property line.

Jamie Fultz
Page 2
March 26, 2018

G. Maps – A preliminary site plan is enclosed.

H. Conclusion – The proposed use of the site can be accommodated by the existing infrastructure.

Please call me if you have any questions or need more information to perform your review.
Cordially,



Jeff Oswald, P.E.
Civil Engineer

$$14,400 \text{ gpd (400\%)} = 57,600 \text{ gpd} \\ = 40 \text{ gpm}$$

**THE CROSSINGS - PHASE 2
BE JOB #1852-D
RESIDENTIAL**

ISO FIRE FLOW CALCULATIONS

Chapter 7 - 1 and 2 Family Dwellings (2014 Edition)

<u>DISTANCE BETWEEN BUILDINGS:</u>	<u>NEEDED FIRE FLOW</u>
More than 30 feet	500 GPM
21 - 30 feet	750 GPM <
11 - 20 feet	1,000 GPM
0 - 10 feet	1,500 GPM

<u>AVAILABLE FIRE FLOW:</u>	HYDRANT LOCATION:	97/N at Dorval Road
	STATIC PRESSURE:	96 PSI
	AVAILABLE FIRE FLOW:	1244 GPM @ 85 PSI
		3500 GPM @ 20 PSI PREDICTED

Prepared by:
BLACKWELL ENGINEERING
566 EAST MARKET STREET
HARRISONBURG, VIRGINIA 22801
1852D ISO Calcs 2016.xlsx

HYDRANT FLOW TEST REPORT FOR →

97/N

HYDRANT FLOW TEST REPORT

Printed On 3/26/2018

Test Hydrant: 97/N Date: 3/22/2018 Time: 10:00

Location: Dorval Rd

Elevation: 1284 ft Tester: DA

Remarks:

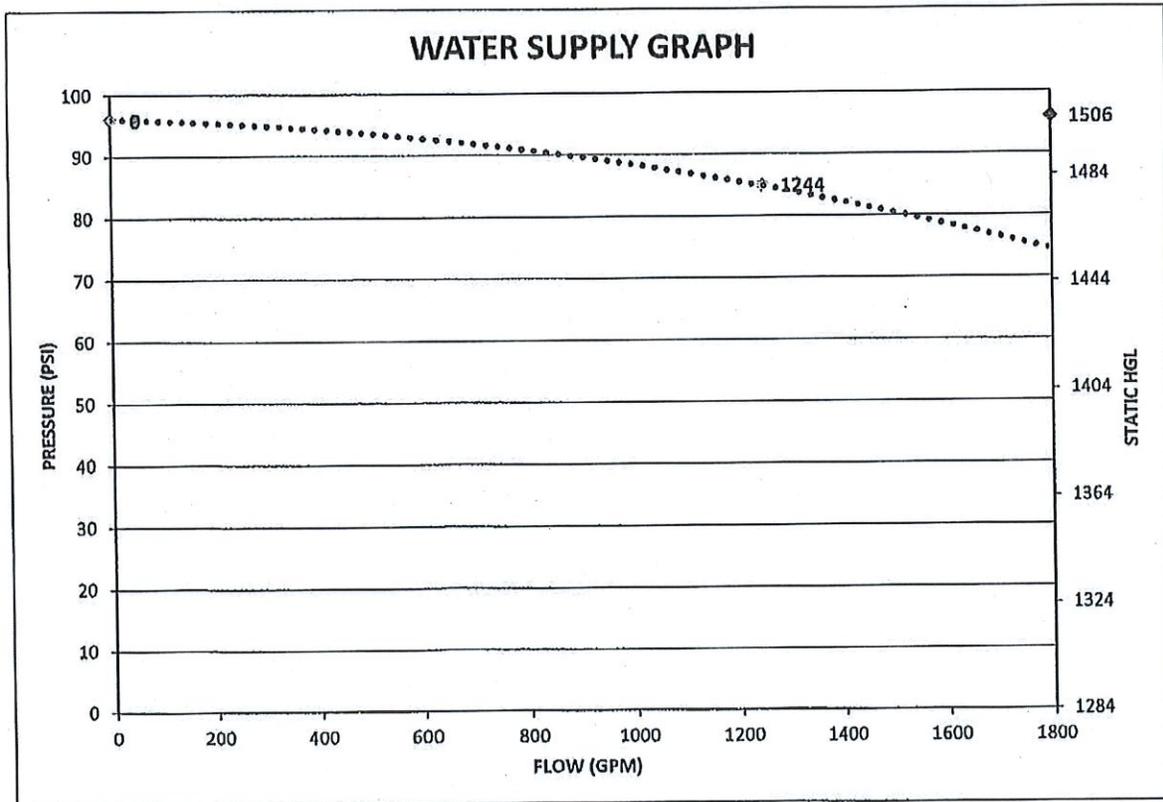
Max zone HGL: 1510 Modelled Max flow: 2738

Gage: Made in Germany Static Pressure: 96 Residual Pressure: 85
 Static HGL: 1506

-FLOW HYDRANT(S)-	-GAGE-	-DIAMETER-	-COEFFICIENT-	-PITOT-	-FLOW-
97/O	yellow diffuser	2.5	0.90	55	1244 gpm
-		2.5	0.90		0 gpm
-		2.5	0.90		0 gpm

Total Flow: 1244 gpm

Flow @ 20 psi: gpm



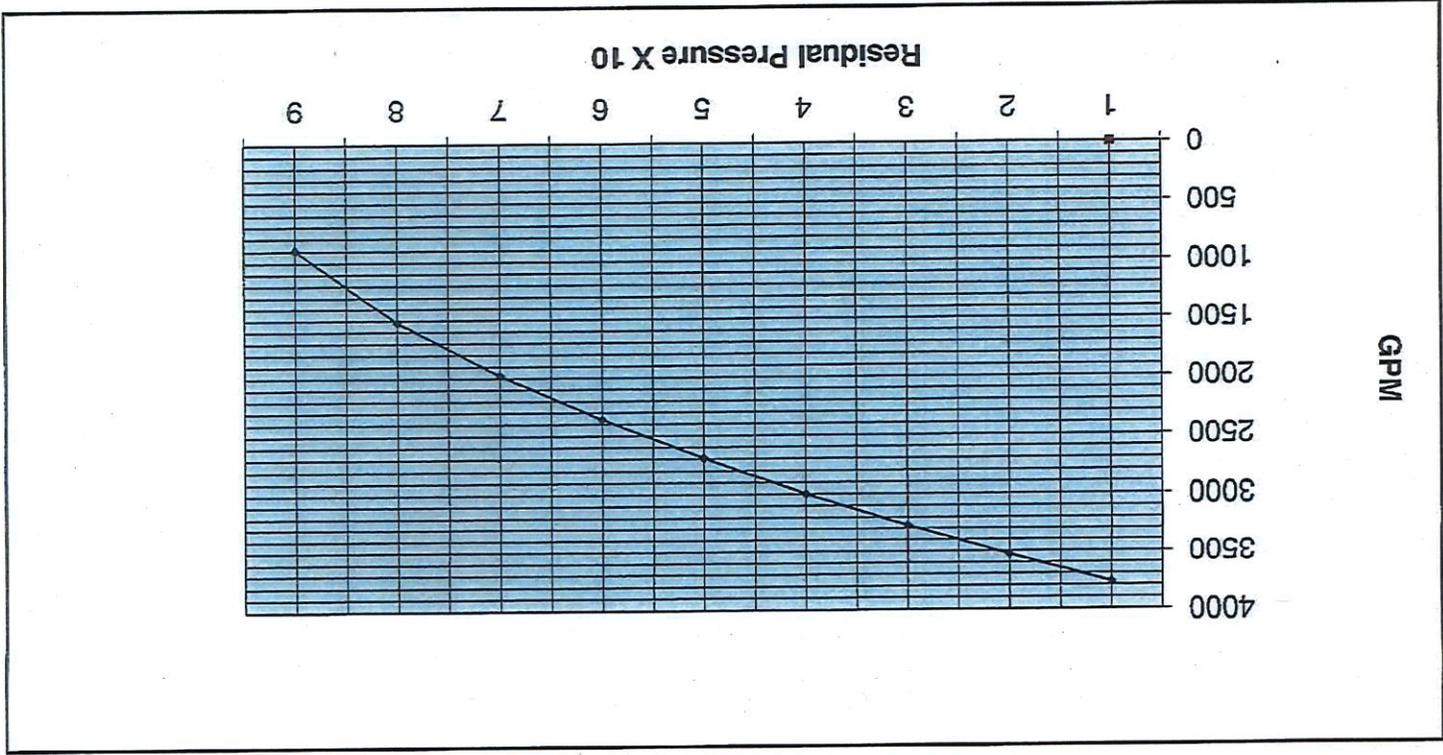
Test Location: Dorval Road
Date: 3/22/2018
Time: 10:00
Flow Hydrant: 97/O
Main Size: 12"
Performed by: City of Harrisonburg Public Utilities
Residual Hydrant: 97/N

Chart for determining the available flow from hydrant

Static	Pilot	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
96	85	55	1244	20 PSI	3.533	30 PSI	3.274	40 PSI	2.996
96	85	55	1244	10 PSI	3.777	20 PSI	3.533	30 PSI	3.274
96	85	55	1244	0 PSI	3.777	20 PSI	3.533	30 PSI	3.274

*This chart assumes the opening diameter and the C Factor shown below.

Static	Resid	Pilot	C Factor	Diameter	Flow	Flow @ 20 PSI
96	85	55	0.9	2.5	1.244	3.534



III. UTILITY ASSESSMENT COMMENTS

(By Director)

A. System Zone for Water

Zone ID: 2nd Low

Zone Transfer & Storage Issues for Daily Demand: See attached

Site Specific Delivery and Pressure Issues for Peak Demand: See attached

Fire Flow Demand: See attached

Other Issues: See attached

B. System for Sanitary Sewer

Collection System Comments: See attached

Interceptor System Comments: See attached

Treatment System Comments: See attached

Note: Comments may include the need for engineering evaluations that shall be completed prior to final evaluation of this application.

IV. RECOMMENDATION

- Recommendation for Approval -Technical Water and Sewer review
- Recommendation for Approval Subject to the Applicant Completing the following:

- Forward to Planning Commission
- Forward to City Council

Kevin O'May manager
Signature of Applicant

3/12/18
Date

Mark Ce
Signature of Director of Public Utilities

August 2, 2018
Date



City of Harrisonburg, Virginia

Water and Sewer Operations Center

2155 Beery Road

Harrisonburg, Virginia 22801

(540) 434-9959 / Fax (540) 434-9769



Technical Review for "The Crossings Section 2"; Application for rural water and sewer services

August 2, 2018

Part 1: Does the City have adequate raw water supply and treatment capacity to accommodate 11,700 gallons per day to an outside city customer?

The most recent water supply status summary was outlined in the City Raw Water Supply Management Plan as updated December 2017. Capacity for outside City customers was allocated at a maximum of 1,000,000 gallons per day with current usage at 850,000 gallons per day. The request of 11,700 gallons per day would use 7.8% of the remaining 150,000 gallons per day. Recommendation is for approval on this issue by recognizing that 1) the City has planned for the external capacity and 2) the amount of this request retains significant flexibility for future considerations.

Part 2: Does the City water infrastructure have adequate capacity in the local area of proposed development to accommodate 770 gallons per minute fire flow plus maximum daily demand?

The City performed a field flow test near the point of proposed connection which yielded a flow of 1,244 gpm at a residual pressure of 85 psi. The computerized hydraulic model at this location calculated a maximum available flow of 1,841 gpm. Both exceed the needed flows and thus indicate that the City's water system has adequate capacity to meet the needs of the proposed development. Recommendation is for approval on this issue

Part 3: Does the City have adequate sanitary sewer treatment capacity at HRRSA to accommodate 11,700 gallons per day to an outside city customer?

The most recent sewer treatment capacity status was outlined in the City Sanitary Sewer Management Plan as updated February 2018. Evaluation showed that significant infiltration and inflow will need to be abated to accommodate future City growth; therefore, no growth capacity has been allocated for outside City customers.

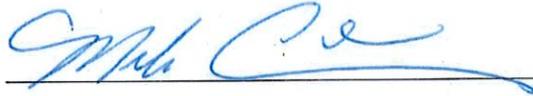
However, all future City growth and some external City growth may be accommodated with either increased capacity at HRRSA during the next expansion or with I&I abatement. The impact of rural customers upon these issues will be address in the targeted Cost of Services Study for the Harrisonburg Sewer system and rural rates will be adjusted accordingly. Given the conditions and the small volume of sewer, recommendation is for approval.

Part 4: Does the local City sewer infrastructure have adequate capacity in the local area of proposed development and to the City and HRRSA Interceptor to accommodate peak demand?

- The City's sanitary sewer collection system downstream of the proposed development was evaluated and determined to have adequate capacity to carry the design demand to the HRRSA interceptor behind 908 Greendale Road.
- The proposed request is at a location that bypasses the City interceptors.
- The HRRSA interceptor is currently under capital improvements to provide a "ten year" levels of service for plant flow expansion to 28.0 MGD. HPU will evaluate the impact of rural customers upon these issues through a targeted "Cost of Services Study" for the Harrisonburg Sewer system; rural rates will be adjusted accordingly.

Based on issues above; recommendation is for approval.

Approved by



Date

August 2, 2018