Permit Application Review

Applicant:	Dan Walsh; Raspberry Ridge Limited Partnership
Consultant:	Nathan Bruno; LHB, Inc.
Project:	Raspberry Ridge I Multi-family Housing Site Improvements
Location:	27 14 th Avenue North: Hopkins
Rule(s):	4, 5
Reviewer(s):	LLH/BCO

General Background & Comments

The project proposes site improvements at Raspberry Ridge I Apartments located at 27 14th Ave in Hopkins. The 5.3-acre site is occupied by two three-story apartment buildings and eight two-story townhome-style buildings with associated site elements and surface parking. The Hopkins Historical Society Activity Center is located within the site on a 0.3-acre parcel owned by the City of Hopkins. The area owned by the City of Hopkins is excluded from the project site information identified below and the stormwater management analysis.

Site improvements include landscaping, removal and replacement of concrete and bituminous pavement, retaining wall installation, and construction of three stormwater management facilities are proposed.

The project site information is:

- Total Site Area: 232,627 square feet
- Disturbed Site Area: 21,607 square feet
- Existing Site Impervious Area: 139,442 square feet
- Proposed Site Impervious Area: 140,108 square feet
- An increase of 666 square feet in site impervious area (<1% increase)
- Disturbed and Reconstructed Impervious Area: 2,843 square feet
- 2.0% of the existing site impervious area is to be disturbed and reconstructed
- Net Additional, Disturbed and Reconstructed Impervious Area: 3,509 square feet

The Nine Mile Creek Watershed District's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on the site or will increase the imperviousness of the site by more than 50%, stormwater management will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed, replaced and net additional impervious surface on the project site. Since the project will disturb less than 50% of the existing site impervious surface (2.0% to be disturbed) and will not increase the impervious surface at the site by more than 50% (<1% increase

proposed), applicable stormwater management criteria is required for the 21,607 square feet of disturbed area, including the 3,509 square feet of disturbed, replaced and net additional impervious surface.

The District's requirements for both stormwater management and erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 4.2.1a and b and 5.2.1a and b.

Exhibits

- 1. Completed Permit Application dated March 24, 2021.
- 2. Plans dated March 3, 2021, revised March 19, 2021 and April 19, 2021, prepared by LHB, Inc.
- 3. Stormwater Management Plan dated March 26, 2021, revised May 13, 2021, prepared by LHB, Inc. including the following supplemental items
 - a. HydroCAD report printed May 12, 2021
 - b. MIDS Calculator report dated March 25, 2021
 - c. Drainage Area Plan dated April 19, 2021
- 4. Phase I Environmental Site Assessment dated August 10, 2016, prepared by LJM Group, Inc.
- 5. Email correspondence dated April 22, 2021 outlining ten items required for the application to be considered complete.

The application with the submittal items above is complete.

4.0 Stormwater Management

Stormwater management for compliance with Rule 4.3.1 will be provided by two infiltration basins (Basins) and a permeable pavement system located south of the existing apartment buildings. The three stormwater management facilities will provide rate control, volume retention and water quality management for the regulated disturbed surfaces. The stormwater management facilities will capture a portion of runoff from the courtyard, landscaping and sidewalks south of the existing apartment buildings. The stormwater management facilities' overflow will be graded to direct runoff overland towards the Mainstreet roadway.

Rule 4.3.1b requires the 2-, 10-, and 100-year post development peak runoff rates be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates. The existing and proposed 2-, 10- and 100-year frequency discharges from the site are:

	Existing Cond	itions	
Drainage Area	2 year (c.f.s.)	10 year (c.f.s.)	100 year (c.f.s.)
To North	0.5	0.7	1.4
To South	4.2	6.4	12.2
To East	3.8	5.7	10.5
To West	4.1	6.2	11.2
Total	12.6	19.0	35.3

	Proposed Cond	litions	
Drainage Area	2 year (c.f.s.)	10 year (c.f.s.)	100 year (c.f.s.)
To North	0.5	0.7	1.4
To South	4.0	6.0	11.8
To East	3.8	5.7	10.6
To West	4.1	6.2	11.2
Total	12.4	18.6	35.0

Rule 4.3.1b is met.

A Phase I Environmental Site Assessment (ESA) was completed by LJM Group, Inc. to evaluate the possibility for potential environmental impacts associated with hazardous substances or chemicals from on and off-site sources. Based on the findings of the Phase I ESA report dated August 10, 2016, including site observations, historical information review, and federal and state regulatory information, the applicant determined that no additional evaluation is needed at the site, and infiltration is feasible. We have reviewed the findings of the Phase I ESA, which conclude that there are no recognized environmental conditions (RECs) on the property. The Minnesota Stormwater Manual states that a properly conducted Phase I may be used in place of the screening assessment for contamination at potential stormwater infiltration sites. We are in agreement with the findings that infiltration is feasible at the site.

Natural Resources Conservation Service (NRCS) Web Soils Survey soil information was utilized for a preliminary desktop review of on-site soils. The Stormwater Management Report dated May 13, 2021 indicates the native soils in the area consist of glacial material and till deposits of the Des Moines Lobe of the Late Wisconsin Glaciation. A design infiltration rate of 0.8 inches per hour has been used in stormwater analysis.

A retention volume of 322 cubic feet is required from the proposed 3,509 square feet of new and reconstructed impervious area, Rule 4.3.1a. A HydroCAD hydrologic model was used to identify the volume retention achieved by the stormwater management facilities below the overflow elevations. The stormwater management facilities provide a total volume of 571 cubic feet (322 cubic feet required) with an area of 1,236 square feet. The volume retention depth, footprint and volume retention provided by each system includes the following:

Stormwater Management Facility	Volume Retention Depth Provided (Feet)	Footprint Provided (Square Feet)	Volume Retention Provided (cubic feet)
Infiltration Bain 1 (West)	0.8	407	225
Infiltration Basin 2 (East)	0.7	356	176
Permeable Paver System	1.9	473	170
Total	3.4	1,236	571

Rule 4.3.1a is met. With the design infiltration rate of 0.8 inches per hour and the system depths noted above, the Basins and permeable paver system will drawdown within the required 48 hours. Rule 4.3.1a (ii) is met.

The District's water quality criteria requires 60% annual removal efficiency for total phosphorus and 90% annual removal efficiency for total suspended solids. The site runoff load reductions required from the disturbed area is approximately 40.5 lbs. for total suspended solids and approximately 0.2 lbs. for total phosphorus. The MIDS Calculator results provided show that the Basins, permeable paver system, sump manholes, and pervious surface (swale) adjacent to impervious surfaces will provide an annual removal efficiency of 86% for total phosphorus (0.2 lbs.) and 90% for total suspended solids (40.5 lbs.). We are in agreement with the modeling results. Rule 4.3.1c is met.

Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow of a constructed facility. Rule 4.3.3 also states, a stormwater management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. Additionally, no opening where surface flow can enter the structure may be less than 2- feet above the 100-year high water elevation of an adjacent facility or waterbody.

The low opening elevation of the existing apartment buildings adjacent to the stormwater management facilities is 946.0 M.S.L. The HydroCAD modeling provided shows a calculated 100-year high water elevation of 939.4 M.S.L. for the Basins. A separation of 6.6 feet will be provided between the 100-year high-water elevation of the Basins and where surface water could enter the existing apartment buildings. The HydroCAD modeling provided shows a calculated 100-year high water elevation of 938.9 M.S.L. for the permeable paver system. A separation of 7.1 feet will be provided between the 100-year high-water could enter the existing apartment buildings.

The low floor elevation of the apartment buildings is 932.7 M.S.L. With the low floor elevation of the buildings (932.7 M.S.L.) and a calculated 100-year frequency flood elevations of the facilities ranging from 938.9-939.4 M.S.L., the plots in Appendix 4a as described in Rule 4.3.3a, must be used to determine compliance with this requirement. Appendix 4a evaluation requires the knowledge of the groundwater table from geotechnical evaluation at the site. As a geotechnical evaluation was not provided by the applicant, compliance with the Rule 4.3.3 low floor requirements will be required as a condition of the permit.

Rule 4.5.4d (i) requires at least three feet of separation between the bottom of a stormwater management facility and groundwater. A geotechnical evaluation was not provided by the applicant. In accordance with Rule 4.5.4d, soil borings at the stormwater management facilities identifying the three feet of separation between the bottom of an infiltration area and groundwater will be required as a condition of the permit. Alternately, stormwater management redesign is required.

In accordance with Rule 4.3.1a (i), where infiltration facilities, practices or systems are proposed, pre-treatment of runoff must be provided. A 4-foot wide vegetative filter strip will provide pretreatment for runoff entering the Basins. Geotextile fabric above the base course

within the permeable paver system will provide pretreatment for runoff entering the permeable paver system. Rule 4.3.1a (i) is met.

In accordance with Rule 4.3.4, a post-project chloride management plan must be provided that will, 1) designate an individual authorized to implement the chloride-use plan and 2) designate a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

5.0 Erosion and Sediment Control

The submitted erosion and sediment control plan utilizes storm drain inlet protection and sediment control log for erosion and sediment control. Permanent stabilization methods include seeding. The project contact is Nathan Bruno, LHB, Inc.

11.0 Fees

Fees for the project are:	
Rules 4.0 and 5.0	\$2,000
12.0 Financial Assurances	
Financial Assurances for the project are:	
Rule 4: Volume Retention: 1,266 sq. ft. x \$12/sq. ft. = \$15,192	\$15,192
Chloride Management:	\$5,000
Rule 5: Perimeter control: 250 L.F. x \$2.50/L.F.= \$625	
Inlet Control: 2 x \$100/each = \$200	
Site restoration: 0.5 acres x \$2,500/acre = \$1,250	\$2,075
Contingency and Administration	\$7,433

Findings

- 1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
- 2. Rule 5 is met. Rule 4 will be met with the fulfilment of the conditions identified below.
- 3. The proposed stormwater management facilities will provide volume retention, water quality management, and attenuate discharge rates from the site in accordance with Rules 4.3.1 a, c and b, respectively. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity and functionality of the stormwater management facility.

Recommendation

Approval, contingent upon:

1. General Conditions

- 2. Financial Assurance in the amount of \$29,700, \$24,700 for stormwater management, erosion control and site restoration, and \$5,000 for compliance with the chloride management requirements.
- 3. A receipt showing recordation of a maintenance declaration for the on-site stormwater management facilities. A draft of the declaration must be approved by the District prior to recordation.
- 4. The plans are required to be amended to identify the following:
 - a. a method for controlling sediment from leaving the site
 - b. the low floor and low opening elevations of the existing on-site apartment buildings
- 5. District Rule 4.5.4 requires soil borings at the proposed stormwater management facility location(s) and data showing no evidence of groundwater within 3 feet of the bottom of the proposed facility or system must be provided. Additionally, the design infiltration rates used for stormwater analysis (0.8 inches per hour) at the three proposed stormwater management facilities are required to reflect the on-site soil classifications aligning with Hydrologic Soil Group (HSG) Type A soils, based on Minnesota Stormwater Manual design infiltration rates. Soil borings and geotechnical evaluation to confirm that design infiltration rates reflect the underlying soil conditions, the required separation between the bottom of the infiltration areas and groundwater, and no soil contamination within the infiltration areas is required to be provided. Alternatively, if geotechnical evaluation results in non-compliance with the requirements identified above, stormwater management redesign is required.
- 6. Rule 4.3.3 requirements state, a stormwater management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. Additionally, no opening where surface flow can enter the structure may be less than 2- feet above the 100-year high water elevation of an adjacent facility or waterbody. With the low floor elevation of the apartment buildings (932.7 M.S.L.) and calculated 100-year frequency flood elevations of the facilities ranging from 938.9-939.4 M.S.L., the plots in Appendix 4a as described in Rule 4.3.3a, must be used to determine compliance with this requirement. Appendix 4a evaluation requires the elevation of the groundwater table from geotechnical evaluation. Geotechnical information and Appendix 4a analysis is required to be provided to meet the requirements of Rule 4.3.3. Alternatively, if geotechnical evaluation results in non-compliance with the requirements identified above, stormwater management redesign is required.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

- 1. Per Rule 4.5.8, an as-built drawing of the stormwater management facility conforming to the design specifications, including a stage volume relationship in tabular form for the three facilities.
- 2. Submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site. The release of the \$5,000 of the financial assurance required for the chloride-management plan

requires that chloride-management plan has been provided and approved by the District's Administrator.

3. For the release of the \$24,700 financial assurance required, Rule 12.4.1b requires demonstration and confirmation that the stormwater management facilities have been constructed or installed and is functioning as designed and permitted. Verification, through daily observation logs and photographs, must be provided showing the stormwater facilities used for volume retention have drawn down within 48 hours from the completion of two 1-inch (approximate) separate rainfall events.



- NOTE
- ANTICIPATED) AND LOCATIONS IN FIELD WITH OWNER. SEE 3/C400 AND 4/C400 IN FIELD WITH OWNER. SEE 5/C402
- 6/C400

WARNING LOCATION OF ALL UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR. CALL BEFORE DIGGING MINNESOTA ONE-CALL SYSTEM 1-800-252-1166 REQUIRED BY MN STATUTE 216D

1. REPLACE CRACKED, HEAVED, OR DAMAGED SIDEWALK PANELS. VERIFY PANEL QUANTITY (15 PANELS) 2. REPLACE DAMAGED STAIR AT TOWNHOMES. VERIFY QUANTITY AND LOCATIONS (5 LOCATIONS ANTICIPATED) 3. REPLACE DAMAGED CURB AND GUTTER. VERIFY QUANTITY AND LOCATIONS IN FIELD WITH OWNER. SEE



PERFORMANCE **DRIVEN DESIGN.** LHBcorp.com

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614 NORTH 1ST STREET, SUITE 100 MINNEAPOLIS, MN 55401

> THIS SQUARE APPEARS 1/2" x 1/2" ON FULL SIZE SHEETS.

2	04/19/2021	CONFORMED SET
1	03/03/2021	ISSUED FOR BIDDING
NO	DATE	ISSUED FOR

2	04/19/2021	POSTBID ADDENDUM 1
1	03/19/2021	ADDENDUM 2
NO	DATE	REVISION

I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota.

SIGNATURE: Jui Mi

TYPED OR PRINTED NAME: LYDIA MAJOR

DATE: <u>03/03/2021</u> REG. NO.: <u>46911</u>

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PROJECT NAME: RASPBERRY RIDGE **BID PACKAGE 1**

RASPBERRY RIDGE 1 27 14TH AVENUE NORTH HOPKINS, MN 55343

DRAWING TITLE: SURFACING AND LAYOUT PLAN

DRAWN BY: RMJ CHECKED BY: LAM PROJ. NO: 190468 DRAWING NO:



