TECHNICAL DRAINAGE MEMORANDUM
Red Ridge Village -Preliminary Drainage Overview

To: DF DEVELOPMENT, LLC
P.O. BOX 458
Donnelly, ID 83615

From: Kimley-Horn and Associates, Inc. (Kimley-Horn)
Tanner Chagolla, P.E.

Date: December 17, 2025

Subject: Red Ridge Village –Preliminary Drainage Overview

BACKGROUND

Red Ridge Village development (the "Project") is a long-range, master-planned residential community proposed by DF Development, LLC. It spans approximately 2,250 acres and is located west of McCall in Valley County, Idaho. The project area lies within an undeveloped open space west of W Valley Road and is surrounded by sparse residential neighborhoods.

The undeveloped portion features diverse landscape of mountainous terrain, a meadow, riverine systems, wetlands, and waterways. A notably waterway within the site is Duffner Creek, which ultimately outfalls to Blackhawk Lake (Hait Reservoir). The Planned Unit Development (PUD) concept emphasizes the protection of riparian corridors, by preserving more than 1,400 acres of open space within the development, and the implementation of best practices for water resource management and surface water protection.

PURPOSE

The purpose of this memorandum is to provide an overview of anticipated drainage, stormwater management, and watershed considerations for The Project. The Project's commitment will be to maintain historical hydrologic conditions and to protect downstream watershed resources, in accordance with Valley County requirements and best management practices (BMPs). This memorandum offers a broad engineering overview of the hydrologic setting, stormwater approach, and watershed protection measures that will inform future detailed drainage analysis and design The Project.

REGULATORY & APPLICABLE STANDARDS

It is anticipated that The Project will adhere to the Valley County Design Guidelines and Valley County Stormwater Best Practices Addendum for stormwater requirements. The addendum incorporates state-level guidelines from the Idaho Department of Environmental Quality (IDEQ) Storm Water Best Management Practices Catalog, specifically tailored to address local factors such as extended freeze-thaw conditions and significant snowmelt runoff in the spring.

The Project will also comply with hydrologic performance expectations, including maintaining pre-development peak discharge rates and protecting water quality for the proposed development site. It is anticipated that infiltration based BMPs, where feasible, will be implemented and sized according to local soil and site conditions.

Additionally, the Project will require coordination for the Idaho Pollutant Discharge Elimination System (IPDES) requirements with IDEQ, Idaho Fish and Game, and the minimum standards upheld by the Idaho Department of Water Resources (IDWR).

DRAINAGE ANALYSIS METHODOLOGY OVERVIEW

This overview of proposed analysis methodology will be revised and completed during the final design of the Project. It is anticipated that no previous studies for the area establish existing hydrologic conditions.

Existing Conditions

The existing hydrologic conditions for the Project will need to be established through a watershed-scale evaluation. The analysis begins with delineation of the Project's contributing drainage basins, establishing peak runoff and volume for the watershed. Using topographic mapping, existing contours, and field verification, natural flow divides will be identified to confirm the extents of each sub-basin. Precipitation values for the watershed will be used from National Oceanic and Atmospheric Administration (NOAA) Atlas 14. Coordination with Valley County requirements to account for seasonal runoff patterns influenced by snow accumulation and spring melt will be incorporated.

For quantitative watershed evaluation of pre-development runoff, two Valley County accepted hydrologic calculation methods may be applied depending on basin size, land cover, and modeling needs. SCS Curve Number Method and/or Rational Method. Idaho Department of Transportation (ITD) discusses use of USGS regression equations which Valley County does not prohibit use of and may be used in combination with other methods as comparison.

SCS Curve Number Method is suitable for larger sub-basins with mixed land cover, this method will estimate runoff volumes and peak discharges using curve numbers assigned to existing vegetation, native soils, and existing land conditions. Given the Project's terrain, CN values will reflect pre-disturbance conditions.

A few accepted methods for determining snowmelt runoff may be used. One method is to adjust the antecedent moisture condition of the soil to represent already saturated soils reducing soil infiltration increasing runoff. Another method is calculating snowmelt as separate constant runoff rate. Coordination with Valley County on how they prefer to reflect that value will be incorporated into analysis.

The Rational Method will be used for smaller catchments of less than 100-acres or localized drainage features, the Rational Method can supplement the SCS method by estimating peak discharge rates based on rainfall intensity, runoff coefficients, and time of concentration. This approach is useful for

evaluating concentrated flow paths or smaller tributaries especially when needed for pre vs post comparison points and for sizing proposed storm design infrastructure.

Both methods will rely on design rainfall parameters consistent with Valley County's hydrologic criteria and for stormwater BMP planning. Time of concentration calculations will incorporate local slope, roughness, and the presence of meadow or riparian corridors, which naturally attenuate and slow runoff. Particular attention will be given to the Project's outfall at existing Duffner Creek and identified wetland features, which provide natural detention, filtration, and infiltration and form an essential component of the existing watershed hydrology.

The results of the hydrologic analysis will establish the pre-development peak discharge, volumes, and drainage patterns. These conditions will serve as the historic condition. This will ensure that post-developed stormwater improvements maintain historical discharge characteristics and preserve existing watershed conditions.

Proposed Condition

The proposed hydrologic analysis will ensure that the Project maintains runoff characteristics and drainage patterns consistent with pre-development conditions. Keeping historical watershed discharge as a core design objective, the analysis will utilize an existing conditions framework, incorporating updates for grading, new impervious surfaces, roadway networks, proposed land use, and stormwater BMP implementation. This approach will ensure the development aligns with historic conditions and prevents adverse downstream impacts.

As the development plans for new residential homes, roadways, and trail systems, a refined watershed delineation will be created using the proposed grading plan. Sub-basins will be reshaped to reflect proposed conditions. The Project will aim to preserve natural drainage flow regime where feasible.

All proposed stormwater management features will be incorporated directly into the hydrologic model to demonstrate compliance with the requirement to maintain or reduce existing peak flows. Including key BMPs such as retention and detention surface basins.

The performance of each BMP will be evaluated for both peak discharge reduction and water quality enhancement, with infiltration systems sized according to geotechnical testing, soil infiltration rates, and applicable County/IDEQ requirements.

SUMMARY

The drainage and hydrologic approach for the Project is structured to preserve the natural watershed characteristics that exist today. Through careful evaluation of existing conditions using established Valley County approved hydrologic analyses, the project will establish a clear benchmark for pre-development or existing conditions particularly those influencing Duffner Creek and its associated meadow, riparian habitat, and wetland features. The proposed stormwater system will need to be intentionally designed to maintain these historic conditions.

The Project is anticipated to adhere to all applicable jurisdictional requirements, including Valley County's Design Guidelines and Stormwater Best Practices Addendum, Idaho's IPDES construction stormwater permit requirements, and the Idaho DEQ Storm Water BMP Catalog where applicable.

Overall, the hydrologic analysis and proposed stormwater strategy will demonstrate that the Project can proceed in a manner that protects watershed health, avoids adverse downstream impacts, and supports sustainable, responsible growth. The methodologies, design measures, and regulatory alignment outlined in this memo will guide the final detailed engineering phases to ensure that final construction documents continue to uphold these commitments.