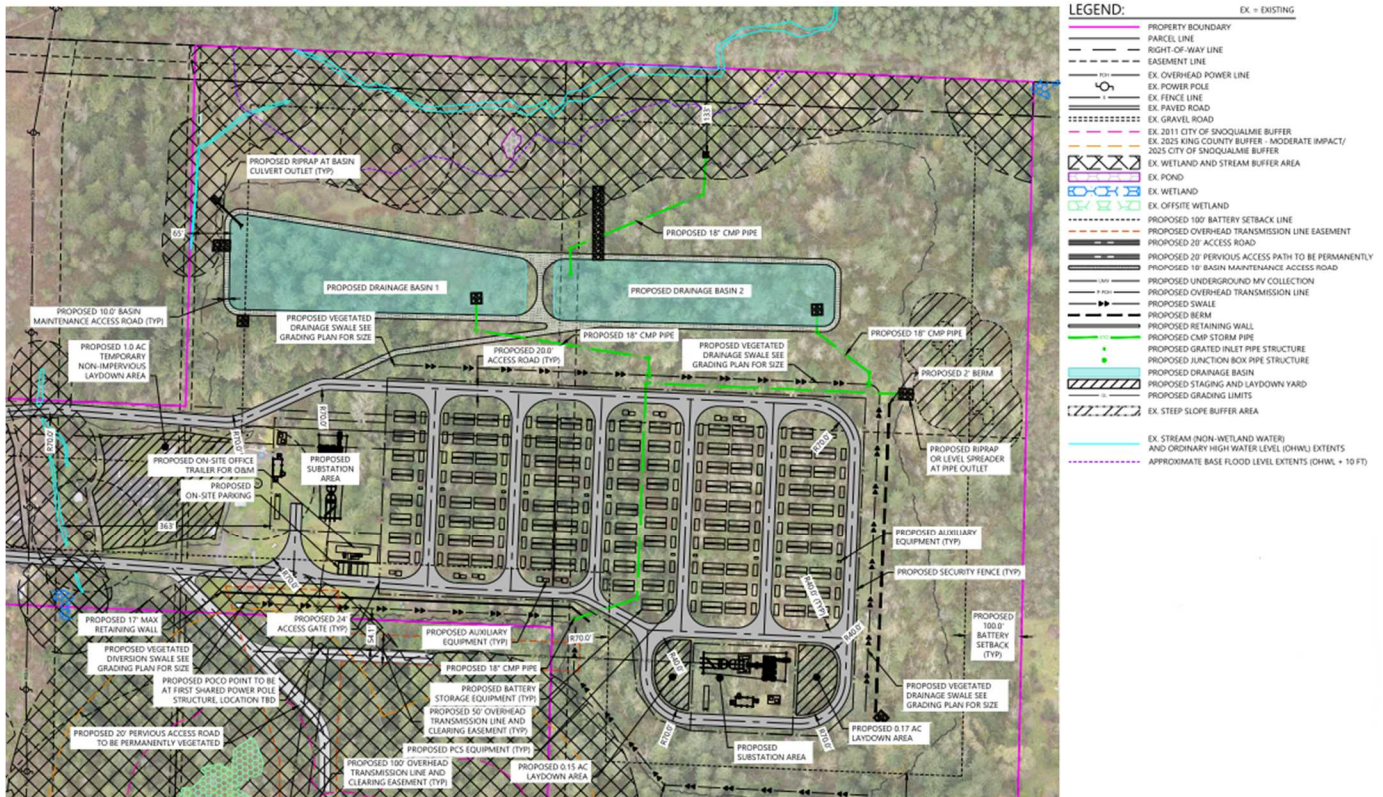


Approximate Floodplain Study Narrative

Cascadia Ridge Energy Storage Project (BESS)



Parcel Number: 3624079101, 3624079103, 3624079039, 3624079100, and 3624079093

Site Address: Unincorporated King County, Washington

Applicant: Jupiter Power

Prepared By: Westwood Professional Services

Date: July 22, 2026

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1. Purpose and Scope

This Approximate Floodplain Study has been prepared for the Cascadia Ridge Energy Storage Project, a proposed utility-scale energy storage facility located in unincorporated King County, Washington, near the Puget Sound Energy Mount Si Substation. The project site consists of parcels 3624079101, 3624079103, 3624079039, 3624079100, and 3624079093, located in Section 36, Township 24 North, Range 7 East. The project site is approximately 45.5 acres and is centered near coordinates 47.527496°N, 121.861655°W.

This study has been prepared under Section 4.4.2.2 of the King County Surface Water Design Manual to evaluate the approximate floodplain and approximate base flood elevation associated with Stream 1, a Type F perennial stream located along the northern portion of the project site. King County allows an Approximate Floodplain Study when the proposed project site is at least 10 feet above the ordinary high-water level or at least 2 feet above the downstream overflow elevation of a water feature for which the floodplain has not been delineated under KCC 21A.24. The intent of this study type is to reduce the level of analysis where a project is adjacent to a flood hazard area but is clearly separated from flood risk due to significant topographic relief.

Based on the current project layout, available topographic information, and the approximate base flood elevation developed for this study, the proposed project improvements are located completely outside of the flood hazard area and approximate floodplain associated with Stream 1.

2. Basis for Approximate Floodplain Study

The project site is predominantly forested with coniferous and mixed deciduous trees. The site occurs primarily on a terrace and slopes generally downward to the north in the northern half of the property. Two existing residences are located on parcels 3624079101 and 3624079103. The remaining portions of the site generally consist of mature forest with dense understory, with additional disturbed areas associated with existing residential clearings, abandoned outbuildings, and an existing powerline corridor.

The project site is located within the Patterson Creek-Snoqualmie River Sub-watershed, HUC-12 171100100404. The entire project site drains north and northeast toward Stream 1, which is located along the northern boundary of the site. Onsite elevations range from approximately 638 feet to 830 feet above mean sea level, with the lowest elevation in the far northeast corner and the highest elevation in the far southeast corner. The entire project site and vicinity are mapped as an Area of Minimal Flood Hazard by FEMA.

The Wetland Delineation Report identifies two wetlands and five non-wetland waters within the project site: Wetland 1, Wetland 2, Stream 1, Stream 2, Stream 3, Stream 4, and Pond 1. Stream 1 is identified

as a Type F perennial stream, while Streams 2, 3, and 4 are identified as Type O ephemeral waters and Pond 1 is identified as a Type O open water feature. Only Stream 1 (Type F perennial stream) is included in this study.

3. Site Setting and Existing Conditions

Stream 1 is the primary water feature evaluated for this Approximate Floodplain Study. Stream 1 is located along the northern portion of the project site and enters the site from the north and west through parcel 3624079100. The stream exits the project site at the northeast corner. The Wetland Delineation Report identifies approximately 821 linear feet of Stream 1 within the project site and classifies the stream as a Type F perennial water.

Stream 1 is a tributary to the creek that traverses Fisher Creek Park. Stream 1 flows to Kimball Creek, which then flows to the Snoqualmie River. The stream is described as approximately 8 feet wide, with strong flow observed during the November 17, 2025, site visit and light flow observed during the June 4, 2025, site visit. Ordinary high water level indicators observed for Stream 1 included a well-defined bed and bank, vegetation destruction, sediment/substrate differentiation, and pool/riffle complexes.

The King County Permitting Division finalized a critical areas designation for Stream 1 on an adjacent parcel under CADS25-0076 and assigned Stream 1 a 115-foot buffer as a Type F stream. The Wetland Delineation Report also identifies Stream 1 as subject to a 115-foot aquatic area buffer.

4. Water Feature Description

Section 4.4.2.2 of the King County Surface Water Design Manual provides that an Approximate Floodplain Study may be used where the proposed project site is at least 10 feet above the ordinary high-water level or at least 2 feet above the downstream overflow elevation of a water feature for which the floodplain has not been delineated in accordance with KCC 21A.24. Use of an Approximate Floodplain Study requires an engineering plan showing the proposed project site is at least 10 feet above the ordinary high-water elevation of the water feature, or at least 2 feet above the downstream overflow elevation, whichever is less.

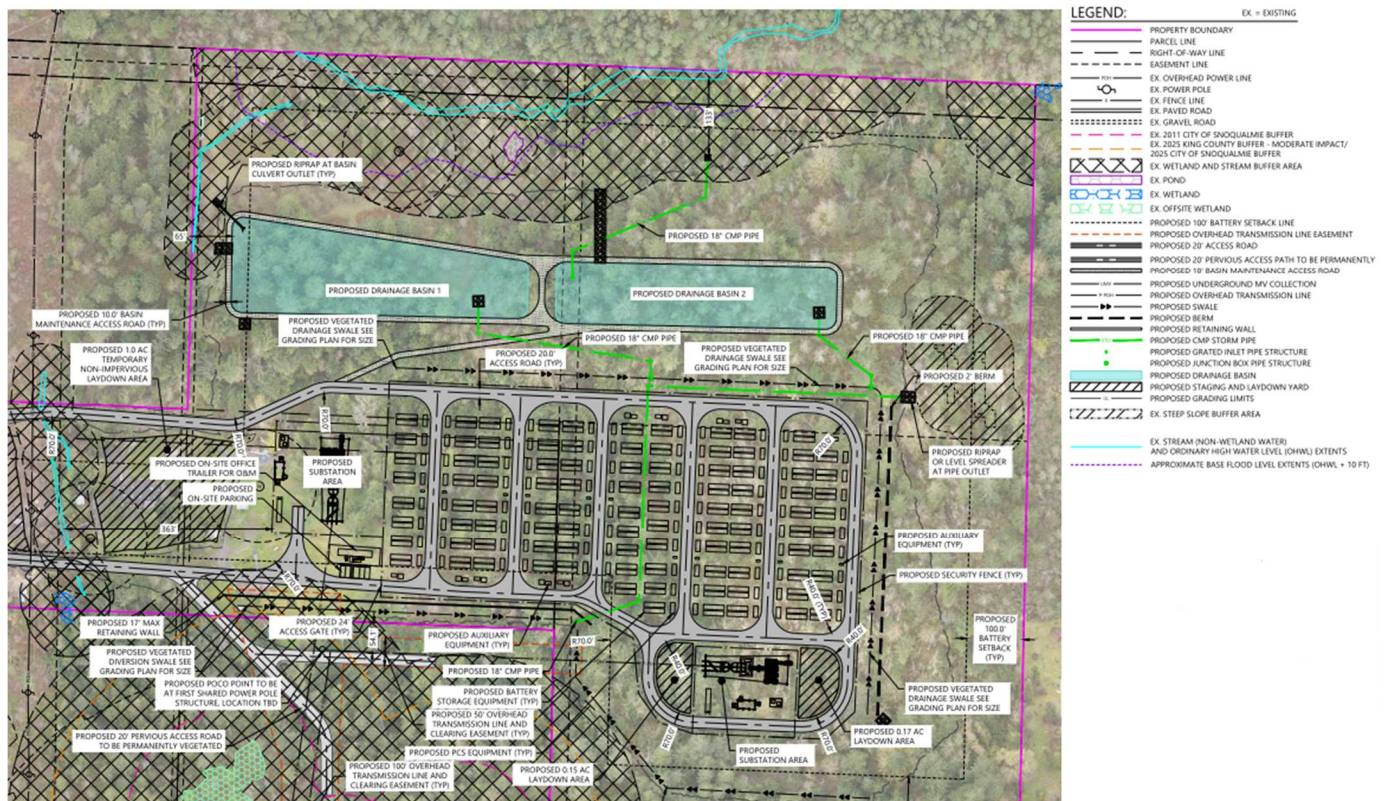


Figure 1. Approximate Buffer Overlay

Feature	Preliminary Jurisdictional Determination? (Y/N)		Length (Linear Feet) ^a	Area (Acres) ^a	King County Classification	Classification of Wetland (Cowardin ^b /HGM ^c) or Water (Flow Duration ^d)
	USACE	ECY				
Wetlands						
WET-1	N	Y	60	0.02	IV	Palustrine scrub-shrub/Slope
WET-2	N	Y	129	0.01 on site (0.05 off site)	IV	Palustrine scrub-shrub/Slope
Total wetland area				0.03		
Non-Wetland Waters						
Stream 1	Y	Y	821	0.20	Type F	Perennial
Stream 2	N	Y	354	0.03	Type O	Ephemeral
Stream 3	N	Y	56	0.01	Type O	Ephemeral
Stream 4	N	Y	184	0.02	Type O	Ephemeral
Pond 1	N	Y	44	0.02	Type O	Open Water
Total non-wetland waters			1,459	0.28		

Notes: Y/N = yes/no; USACE = U.S. Army Corps of Engineers; ECY = Washington Department of Ecology; HGM = hydrogeomorphic.

^a Area and length as identified within the project site.

^b Cowardin et al. 1979.

^c Smith et al. 1995.

^d Nadeau 2015.

Figure 2. Summary of Aquatic Resources Within the Project Site

The proposed project improvements are located outside of the approximate floodplain/flood hazard area associated with Stream 1. Based on the engineering plan prepared for this project, the proposed project improvements are located at elevations above the approximate base flood elevation and meet the applicable vertical separation threshold under Section 4.4.2.2.

The engineering plan identifies:

- Stream 1 and its ordinary high water level extents;
- The approximate base flood level extents;
- Existing and proposed contours;
- The proposed limits of disturbance;
- The limits of proposed project improvements

Based on this information, the proposed project qualifies for review under the Approximate Floodplain Study provisions of the King County Surface Water Design Manual.

5. Approximate Base Flood Elevation

The approximate base flood elevation for Stream 1 is estimated to be between 677 to 715 feet, [Washington State Planes, North Zone, US Foot], based on assuming 10 feet above ordinary high water levels performed by Dudek Corp. See reference #1.

The approximate base flood elevation is shown on the engineering plan prepared for this project. Based on the approximate base flood elevation and available topographic information, the proposed project improvements are located completely outside of the approximate floodplain/flood hazard area. No proposed structures, grading, access improvements, stormwater facilities, or other project-related disturbance are located at or below the assumed base flood elevation.⁷⁴⁶

The proposed infrastructure is located approximately 41-79 feet above the ordinary high water elevation of Stream 1 and approximately 31-69 feet above the approximate base flood elevation. This vertical separation demonstrates that the proposed project is not located within the flood hazard area associated with Stream 1.

Acceptance of the approximate base flood elevation is at the sole discretion of King County. If King County determines that the approximate base flood elevation is not acceptable, a Minor Floodplain Study or Major Floodplain/Floodway Study may be required.

6. Level of Confidence in Approximate Base Flood Elevation

The level of confidence in the approximate base flood elevation is moderate. This determination is based on the available site survey, topographic information, observed ordinary high water indicators, FEMA flood hazard mapping, field observations, and the relative elevation difference between Stream 1 and the proposed project improvements.

Several site-specific factors support the approximate base flood elevation used in this study. The project site has substantial topographic relief, with elevations ranging from approximately 638 feet to 830 feet above mean sea level. The proposed project improvements are located outside of the approximate floodplain/flood hazard area and above the assumed base flood elevation. The project site and vicinity are also mapped by FEMA as an Area of Minimal Flood Hazard.

Based on these factors, the approximate base flood elevation is considered appropriate for evaluating the proposed project under Section 4.4.2.2 of the King County Surface Water Design Manual.

7. Potential Backwater Effects

Potential backwater effects were evaluated as part of this Approximate Floodplain Study. Section 4.4.2.2 requires the narrative to include an assessment of potential backwater effects, including those that may result from nearby river flooding.

Stream 1 flows to Kimball Creek, which then flows to the Snoqualmie River. Potential backwater effects could occur if downstream conveyance restrictions, road crossings, culverts, wetlands, closed depressions, or river flooding caused water surface elevations to rise within Stream 1. Based on the available topographic information, site conditions, and the relative elevation of the proposed project improvements, backwater effects are not anticipated to raise water surface elevations to the elevation of the proposed project area.

The proposed project improvements are located completely outside of the approximate floodplain/flood hazard area and above the assumed base flood elevation. No downstream controls have been identified that would reasonably cause backwater elevations to extend into the proposed project area. Therefore, backwater effects are not anticipated to affect the proposed development.

8. Observations and Anecdotal Information Regarding Prior Flood Events

Available field observations and site information were reviewed to identify evidence of prior flood events. Dudek conducted field visits on June 4, 2025 and November 17, 2025. During those visits, Stream 1 had light flow in June 2025 and strong flow in November 2025. Precipitation conditions during the November 17, 2025 delineation were within the normal range following heavier-than-normal rainfall in the days and weeks preceding the fieldwork.

No evidence has been identified indicating that prior floodwaters have extended into the proposed project area. The Wetland Delineation Report identifies ordinary high water level indicators within Stream 1, including a well-defined bed and bank, vegetation destruction, sediment/substrate differentiation, and pool/riffle complexes, but does not identify high-water levels, debris lines, sediment deposits, or other flood indicators within the proposed project improvement area.

No anecdotal information has been provided indicating that the proposed project area has been inundated during previous flood events. Based on the available information, prior flood observations do not indicate that the proposed project area is subject to flooding from Stream 1.

9. Potential for Higher Future Flows at Basin Buildout

The potential for significantly higher future flows at basin buildout was evaluated as part of this Approximate Floodplain Study. Section 4.4.2.2 requires the narrative to assess the potential for significantly higher future flows at basin buildout.

The project site is located within the Patterson Creek-Snoqualmie River Sub-watershed and drains north and northeast toward Stream 1. Existing site conditions are predominantly forested, with existing residential clearings, abandoned outbuildings, and an existing powerline corridor. The proposed project will include stormwater facilities designed to meet applicable King County Surface Water Design Manual requirements.

Future developed conditions associated with the proposed project are not anticipated to increase water surface elevations in Stream 1 to an elevation that would affect the proposed project improvements. The proposed project improvements are located outside of the approximate floodplain/flood hazard area and above the assumed base flood elevation. Based on the available site information, proposed project layout, and required stormwater controls, future basin buildout is not anticipated to result in flood elevations reaching the proposed project area.

10. Level 1 Downstream Analysis

A Level 1 downstream analysis has not been prepared for this project based on the ordinary water level data. Based on the available topographic information, site conditions, and proposed project layout, the proposed project improvements are located outside of the approximate floodplain/flood hazard area and above the assumed base flood elevation. Therefore, the absence of a Level 1 downstream analysis does not change the conclusion that the proposed project improvements are outside of the flood hazard area associated with Stream 1.

11. Approximate Floodplain Delineation and Notice on Title

The approximate floodplain/flood hazard area associated with Stream 1 is shown on the engineering plan prepared for this study. Section 4.4.2.2 requires that any portion of the site at or below the assumed base flood elevation be delineated and designated as floodplain on the engineering plan. The same section also states that a notice on title must be recorded for the site to notify future property owners of the approximate floodplain and base flood elevation.

12. Conclusion

This Approximate Floodplain Study has been prepared to evaluate the Cascadia Ridge Energy Storage Project under Section 4.4.2.2 of the King County Surface Water Design Manual. The project site is located in unincorporated King County, Washington, on parcels 3624079101, 3624079103, 3624079039, 3624079100, and 3624079093.

Stream 1, a Type F perennial stream, is located along the northern portion of the project site and flows to Kimball Creek and then to the Snoqualmie River. Based on the approximate base flood elevation developed for this study, the proposed project improvements are located completely outside of the flood hazard area and approximate floodplain associated with Stream 1.

The proposed project meets the criteria for review under the Approximate Floodplain Study provisions of Section 4.4.2.2 because the project improvements are located at least 10 feet above the ordinary high-water elevation of Stream 1 / at least 2 feet above the downstream overflow elevation, as shown on the engineering plan.

Potential backwater effects, prior flood event information, and potential future flows at basin buildout were reviewed and are not anticipated to result in flood elevations reaching the proposed project area. The approximate base flood elevation, approximate floodplain/flood hazard area, and supporting engineering plan are submitted for King County review. Acceptance of the approximate base flood elevation is at the sole discretion of King County.

Engineer's Certification and Stamp

I hereby certify that this Approximate Floodplain Study and the accompanying engineering plan were prepared by me or under my direct supervision in accordance with Section 4.4.2.2 of the King County Surface Water Design Manual. The approximate base flood elevation, floodplain/flood hazard area determination, and supporting information presented herein are based on available site survey, topographic information, field observations, mapped flood hazard information, and engineering judgment.

Based on my review, the proposed project improvements for the Cascadia Ridge Energy Storage Project are located outside of the approximate floodplain/flood hazard area associated with Stream 1 and are above the assumed approximate base flood elevation, as shown on the accompanying engineering plan.

I understand that acceptance of the approximate base flood elevation and approximate floodplain/flood hazard area determination is at the sole discretion of King County. If King County determines that the approximate base flood elevation is not acceptable, additional analysis, including a Minor Floodplain Study or Major Floodplain/Floodway Study, may be required.

Prepared by:

Name: Alexandra Knicker

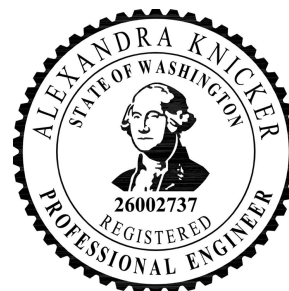
Title: Senior Engineer

Firm: Westwood Professional Services

Washington PE License No.: 26002737

Date: 07/22/2026

Engineer's Stamp



Signature: _____

A handwritten signature in black ink, appearing to read "Alex Knicker", written over a horizontal line.

References

- 1- Dudek. (2026). Cascadia Ridge Energy Storage Project wetland delineation report. Prepared for the Cascadia Ridge Energy Storage Project.
- 2- King County. (2024). 2021 King County Surface Water Design Manual, amended 2024: Chapter 4, Conveyance system analysis and design. King County Department of Natural Resources and Parks.

Disclaimer

- Westwood Professional Services performed the proposed base flood elevation analysis on Dudek Corporation site visit capture of ordinary water elevation data.