

TECHNICAL MEMORANDUM



WEST Consultants, Inc.

11400 SE 8th St
Ste 410
Bellevue, WA 98004
(425) 646-8806
www.westconsultants.com

To: Jim Lorenz
Company: Volunteers of America Western Washington
Date: August 13, 2024
From: J.Paul Rinehimer, PhD; Andreas Kammereck, PE
Subject: VOAWW North No Rise Analysis

Volunteers of America Western Washington (VOAWW) is planning to develop the property at 1724 E Rio Vista Ave, Burlington, WA 98233 (Figure 1). The new construction will include 42 residential units and fill to elevate the new buildings and reduce flood risks (Appendix A). The project site is located within the FEMA Special Flood Hazard Zone (SFHZ) A7 on Flood Insurance Rate Map (FIRM) panel 5301510250C with an effective date of January 3, 1985 (Figure 2). When the FEMA FIRMs were developed, the project site was within Unincorporated Skagit County, however, it has since been annexed to the City of Burlington. The City of Burlington Critical Area Regulations require that:

No construction, development, or substantial improvements shall be permitted if the cumulative floodwater displacement effect of the proposed development, combined with all other existing and proposed development, would cause the base flood elevation to increase by more than one foot at any location in the city. A displacement analysis, prepared by a licensed engineer, demonstrating compliance with this provision shall be submitted for any construction, development, or substantial improvement in flood zones A1-30 and AE. (Burlington Municipal Code 14.15.420 B6)

The purpose of this memorandum is to satisfy the City's requirement and document that the proposed project will have no impact of base flood elevations.

As mapped on the FIRM, the Base Flood Elevation (BFE) of the site is 39.2 ft NGVD29 or 43.0 ft NAVD88. The surrounding properties south, east, and north of the project site all contain substantially dense residential development that would slow down flood flows from the Skagit River. The project site is located within the *hydraulic* or *conveyance shadow* of the surrounding properties. Flood waters are already flowing around these and hence changes on site will have no effect on base flood elevations.

Additionally, the existing buildings on site are creating a downstream conveyance shadow under the existing conditions. An existing structure on the west end of the site blocks about 260 ft of the 357 ft of property frontage, or 72% of the length of the western edge of the property. Another structure lies along much of the eastern edge of the property. Under the existing conditions, these structures block upstream

river flows and substantially reduce conveyance downstream of the project site. Similar conditions would be expected under the new grading plan. It is our opinion that the new development would not cause an increase in flood levels during the Base Flood Discharge Event.



Figure 1: Project site boundaries in Burlington, WA.

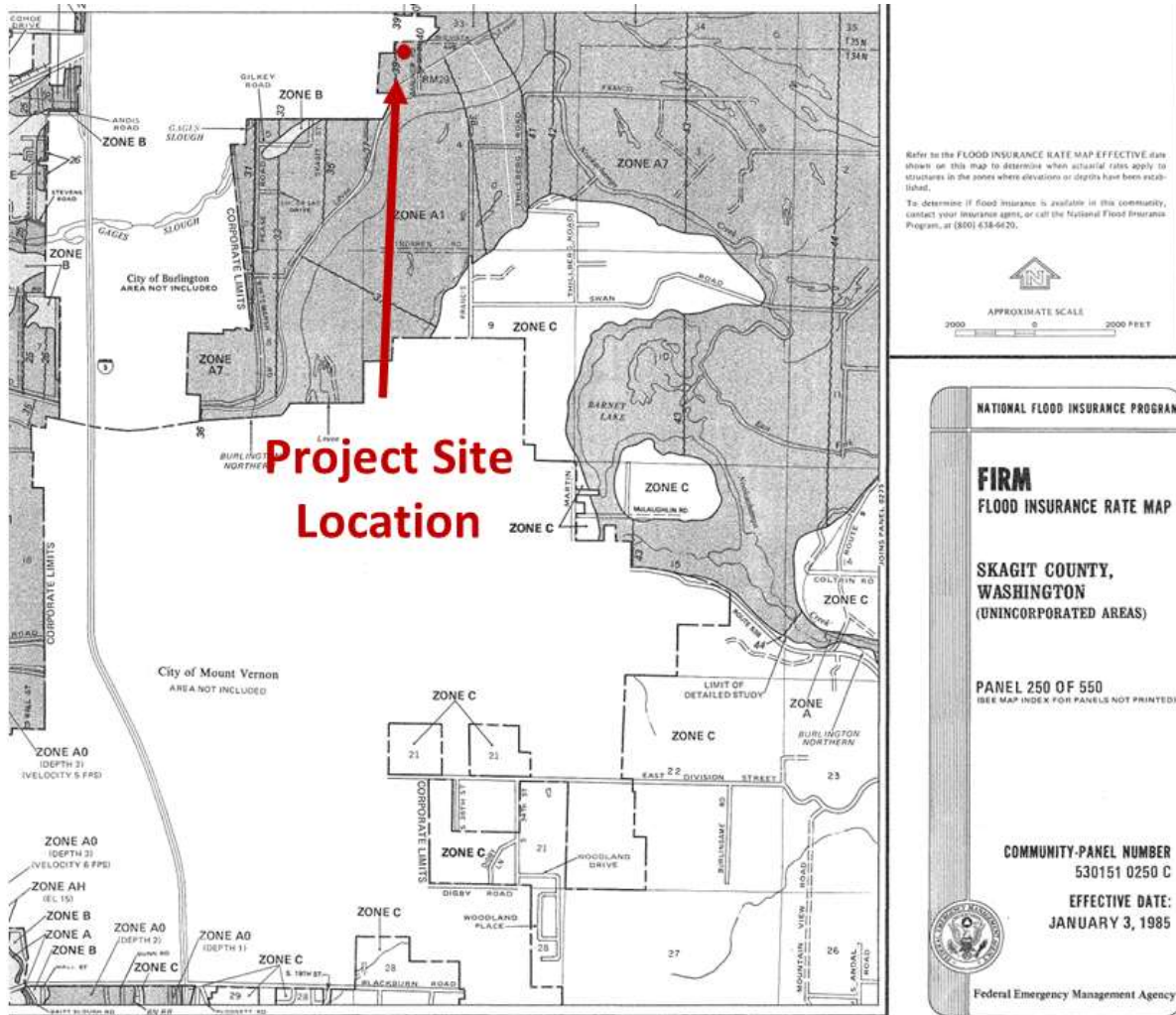
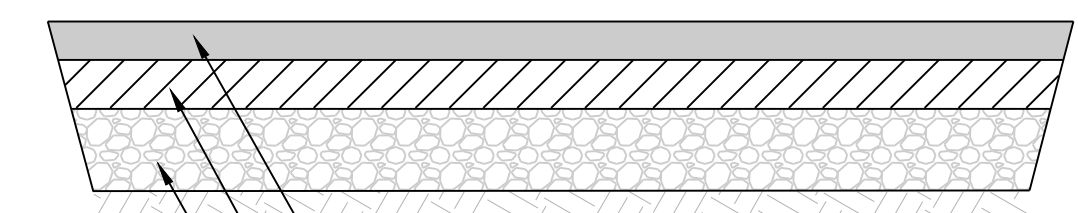
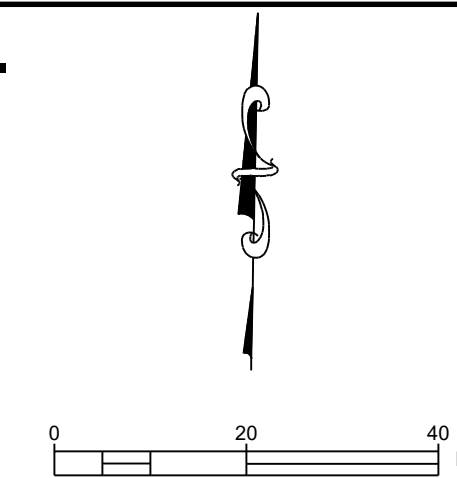
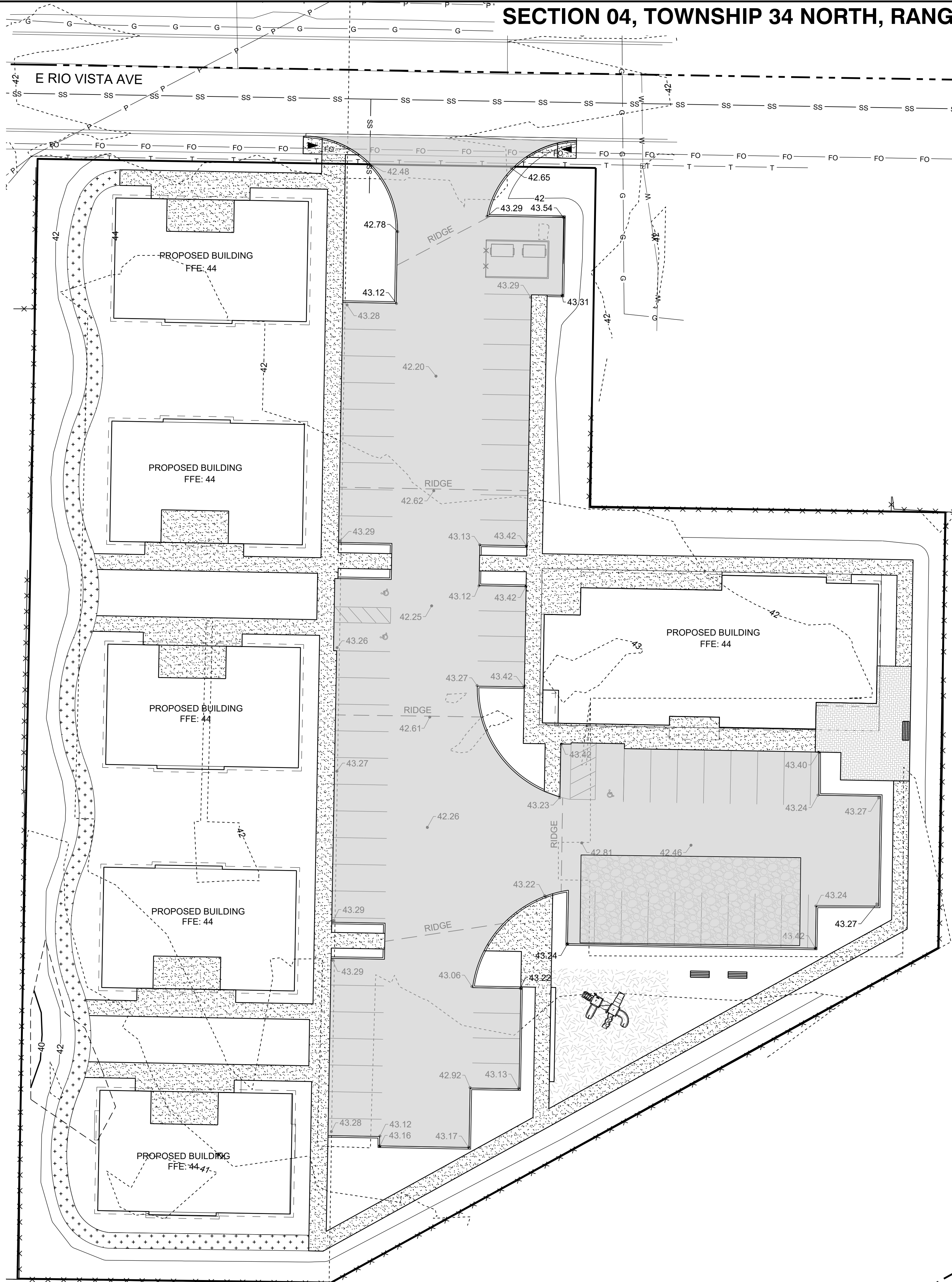


Figure 2: Annotated FIRM showing project site location.

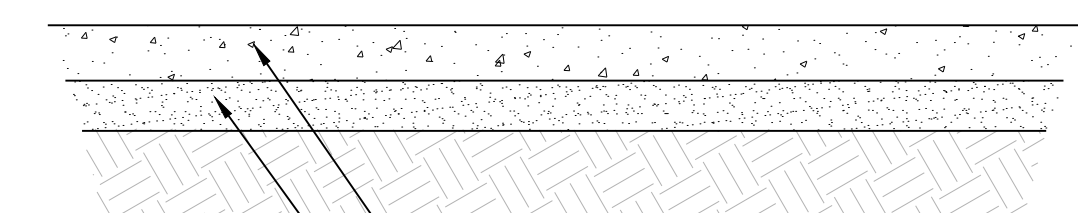
Appendix A
Site Grading Plan

SECTION 04, TOWNSHIP 34 NORTH, RANGE 04 EAST, W.M.



- 3" MINIMUM COMPACTED DEPTH HMA
- 4" MINIMUM COMPACTED DEPTH CSBC, COMPACT TO 95% OF ASTM D-1557
- 6" MINIMUM PIT RUN GRAVEL, COMPACT TO 95% OF ASTM D-1557
- COMPACT SUBGRADE TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. PLACE STRUCTURAL FILL IF REQUIRED

1 ASPHALT PAVING SECTION
SCALE: NONE



- *4" MINIMUM DEPTH CONCRETE (3,000 PSI)
- 4" MINIMUM COMPACTED DEPTH, CSBC, COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY
- SUBGRADE, COMPACTED TO 95% MODIFIED PROCTOR DENSITY
- *6" MINIMUM DEPTH CONCRETE AT DUMPSTER PADS

2 CONCRETE WALKWAY SECTION
SCALE: NONE

REVISIONS

HARMSEN ENGINEERS SURVEYORS
(425) 252-1884
(206) 343-5903

2822 COLBY AVE., SUITE 300
EVERETT, WA 98201



VOA BURLINGTON
1724 E RIO VISTA AVE
BURLINGTON, WA 98233

**SCHEMATIC DESIGN
GRADING & PAVING PLAN**

DATE: 5/23/24

JOB #: 23-322



C4.0