PRELIMINARY NO-RISE CERTIFICATION FOR LAND USE SUBMITTAL

Herzog-Meier Volkswagen-Volvo New Service Building
4275 SW 139th Way
Beaverton, OR 97005

July 2024

Prepared By:

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I. OBJECTIVE

The objective of this report is to document the no-rise analysis completed as part of the stormwater management plan for this project.

II. METHODOLOGY

City of Beaverton and Clean Water Services design manuals were used in the design of proposed stormwater facilities. HydroCAD is used to model runoff and proposed stormwater management facilities for design of the stormwater system. AutoCAD Civil3D is used for 3-dimensional modeling and surface analysis. A site topographic survey for this project was performed by S&F Land Services dated Jan. 2020; the existing surface used in this analysis is from the XML file of the surveyed surface provided to FDG by AXIS Design Group on May 6, 2020. A proposed finish grade surface was developed by Firwood Design Group as part of the site design. The two surfaces were compared to the Base Flood Elevation to certify the designed improvements have a net increase in flood storage in the floodplain.

III. REFERENCES:

City of Beaverton Engineering Design Manual (COB EDM)
City of Beaverton Development Code (COB DC)
Beaverton City Code (BCC)
Clean Water Services Design and Construction Standards (CWS DCS)
USDA NRCS Web Soil Survey Soil Map

IV. SITE DESCRIPTION:

The proposed project consists of the redevelopment of approximately 1.45 acres of the Herzog Meier Volkswagen-Volvo facility at 4275 SW 139th Way. A new service building will be constructed in the northeast corner of the property, and a portion of the parking/vehicle storage area will be re-graded and re-paved. The property straddles Erickson Creek, which is piped. Much of the project is located within the Erickson Creek floodplain.

V. CUT-FILL ANALYSIS:

Floodway and floodplain data are from the FEMA Flood Insurance Study for Washington County, Oregon and Incorporated Areas, Flood Insurance Study Number 41067CV001B, revised October 19, 2018.

The FEMA FIRM map 41067CO527F, revised October 19, 2018, shows Section J of Erickson Creek at the property site with a 100-year flood elevation of 187.7 (NAVD 88). The FIRMette map is included in the appendix for reference. As the project vertical datum is NGVD 29, the flood elevation has to be converted to NGVD 29. The National Geodetic Survey VERTCON datum conversion tool was used.

Vertical datum conversion: https://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl

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Latitude:       45 29 25.000

Longitude: 122 49 12.500

NAVD 88 height:

Datum shift(NAVD 88 minus NGVD 29):     1.069 meter
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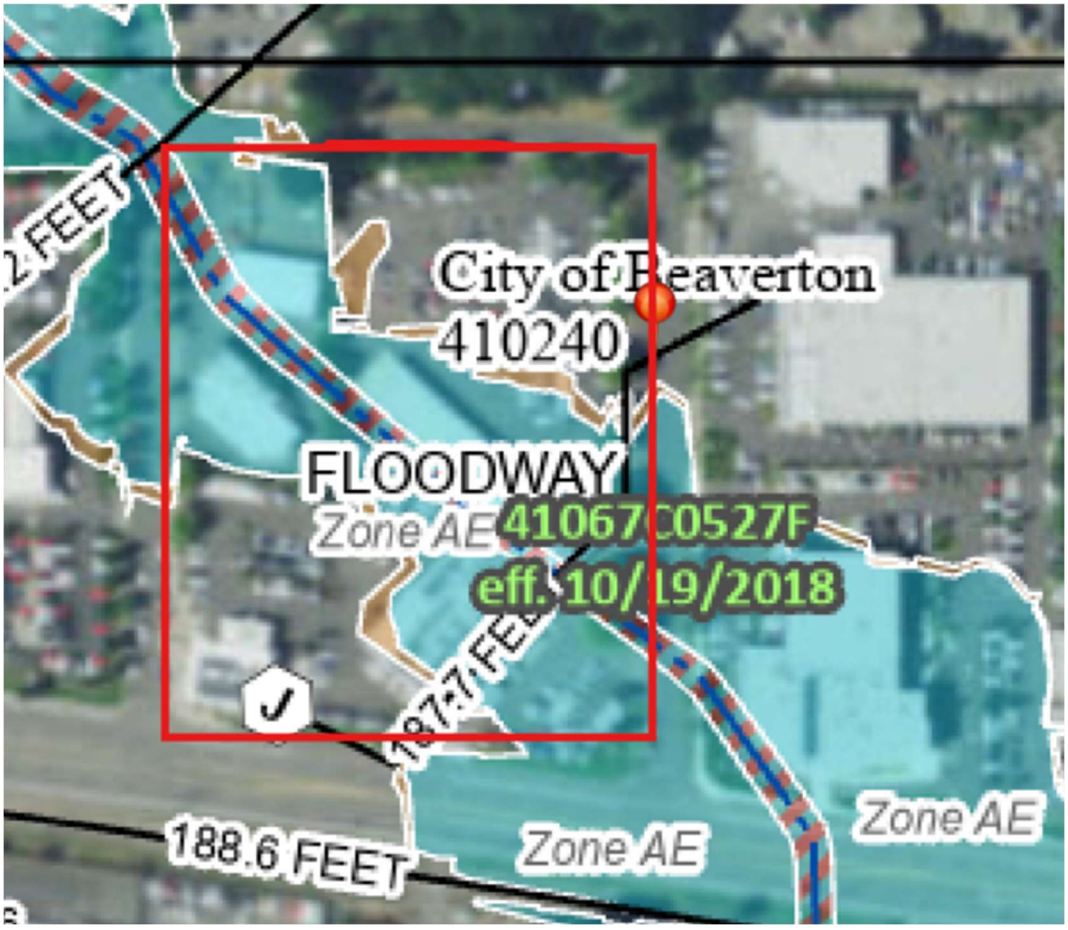
1.069 meters = 3.507 feet

Therefore, the NGVD 100-year flood elevation is 184.2.

Special Flood Hazard Zone:

Much of the proposed site is situated within the 100-year floodplain of Erickson Creek, see excerpt from FEMA Firmette below. The floodway data and flood profiles for Erickson Creek are included in the appendix for reference. Due to proposed work within the 100-year floodplain, a no-rise analysis is required for this project.

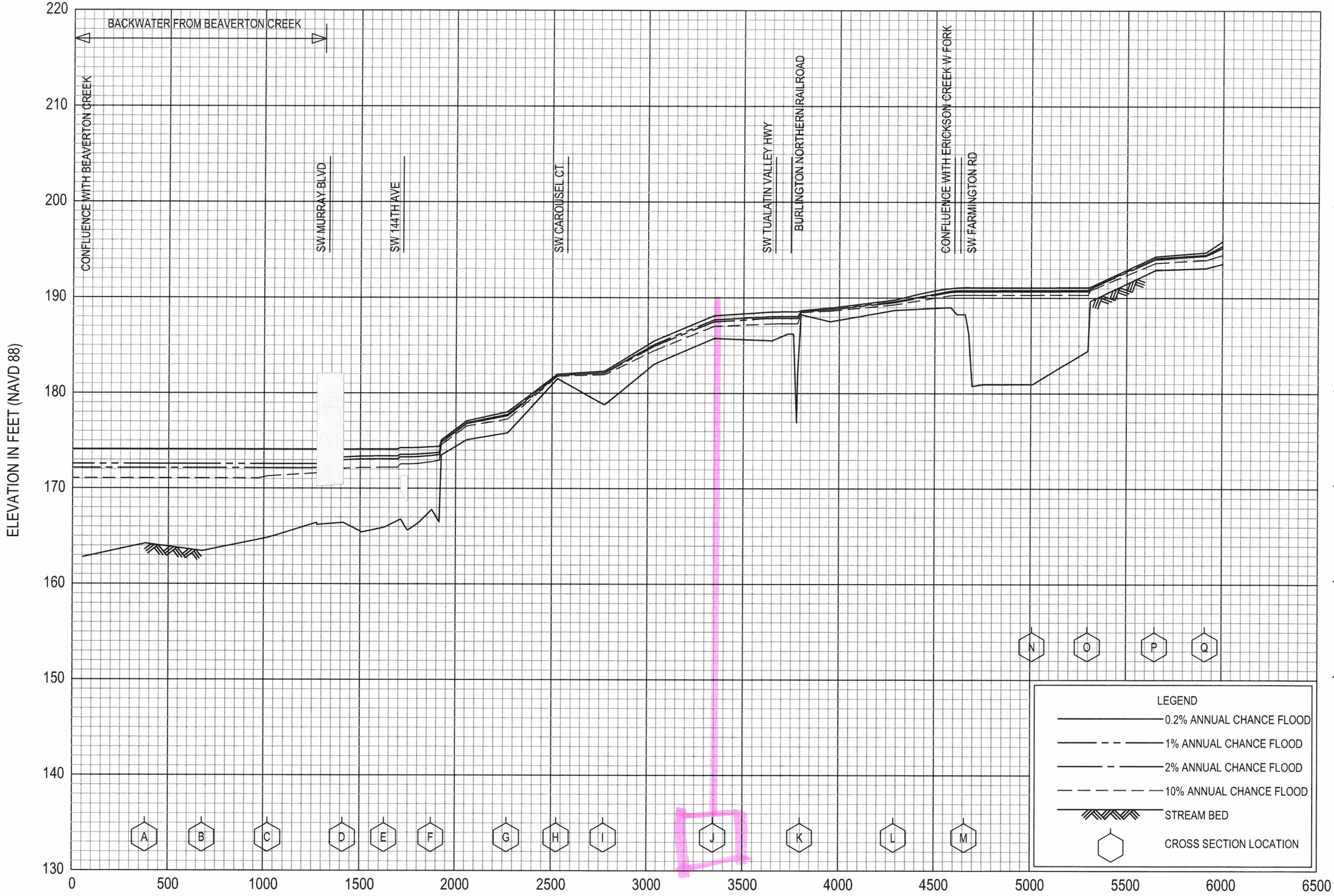


To meet local jurisdiction (Beaverton and CWS) detention and hydromodification standards, the grading of proposed work within the floodplain is designed to have a net cut from existing grade. Refer to the Preliminary Floodplain Cut-Fill Plan in the appendix for a detailed comparison of existing and proposed surfaces. The design approach is to increase flood storage by the difference in volume between the total runoff of the pre-development 25-year 24-hour storm event and the post-development 25-year 24-hour storm event. However, the 2019 CWS standards requires existing impervious surfaces to be modeled with a CN of 75 rather than the standard engineering practice of using a CN of 98. This significantly reduces the modeled pre-development runoff volume used in the comparison, which results in a very conservative sizing of the increase in floodplain storage. Refer to the "Preliminary Stormwater Management Report for Land Use Submittal" for additional information on the CWS standards, runoff modeling, and the design approach.

In summary, the proposed finish grade has a net cut of 82 cubic yards from the existing grade below the base flood elevation. The floodplain storage is increased by a volume equal to that modeled using Beaverton/CWS standards. Therefore, the project causes no rise to the flood elevation within the floodplain.

APPENDIX A

FEMA Flood Insurance Study Floodway Data and Flood Profiles



FLOOD PROFILES

ERICKSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WASHINGTON COUNTY, OR
AND INCORPORATED AREAS

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
ERICKSON CREEK								
A	379	34	122	4.3	172.6	168.9[2]	169.4[2]	0.5
B	680	27	91	5.3	172.6	170.4[2]	170.7[2]	0.3
C	1,023	17	90	4.4	172.6	172.0[2]	172.5[2]	0.5
D	1,412	28	209	1.9	173.3	173.3	174.0	0.7
E	1,626	26	156	2.8	173.4	173.4	174.2	0.8
F	1,874	67	235	2.2	173.7	173.7	174.4	0.7
G	2,270	31	69	2.7	177.8	177.8	178.3	0.5
H	2,527	40	35	5.4	181.9	181.9	182.4	0.5
I	2,773	40	148	1.3	182.2	182.2	183.0	0.8
J	3,346	24	46	4.1	187.7	187.7	187.7	0.0
K	3,799	41	35	5.4	188.6	188.6	189.1	0.5
L	4,289	39	58	3.2	189.6	189.6	190.2	0.6
M	4,658	35	96	2.0	190.8	190.8	191.0	0.2
N	5,009	21	143	1.5	190.8	190.8	191.1	0.3
O	5,297	19	67	3.1	190.8	190.8	191.2	0.4
P	5,650	10	18	1.3	194.1	194.1	194.8	0.7
Q	5,914	9	22	1.0	194.5	194.5	195.5	1.0
R	6,215	5	18	1.7	197.3	197.3	198.0	0.7
S	6,452	7	10	5.9	198.0	198.0	198.9	0.9
T	6,781	34	204	0.8	198.9	198.9	199.9	1.0
U	6,897	33	178	1.0	198.9	198.9	199.9	1.0
V	7,086	52	220	0.7	199.0	199.0	200.0	1.0
W	7,410	39	155	1.0	199.1	199.1	200.0	0.9
X	7,617	40	147	1.2	199.2	199.2	200.1	0.9
Y	7,993	24	74	1.8	199.6	199.6	200.3	0.7
Z	8,330	15	41	3.9	200.2	200.2	200.8	0.6
AA	8,637	16	32	4.3	202.8	202.8	202.8	0.0

[1]Feet above confluence with Beaverton Creek

[2]Elevations computed without consideration of backwater effects from Beaverton Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

WASHINGTON COUNTY, OR

AND INCORPORATED AREAS

FLOODWAY DATA

ERICKSON CREEK

APPENDIX B

Preliminary Floodplain Cut-Fill Plan

CUT AND FILL ANALYSIS FOR ON-SITE AREA

	CUT AREA (CY)	FILL AREA (CY)	NET CUT / FILL (CY)
NEW BUILDING	55	160	105 (FILL)
ON-SITE DEVELOPMENT	15	222	207 (FILL)
SITE GENERATED CUT: STORAGE BELOW 183.87	246	0.0	246 (CUT)
TOTAL	316	382	66 NET FILL

The volume of fill above the BFE of 184.2' is 148 CY. The effective fill below the BFE is 164 CY and the effective cut below BFE is 246 CY for a net cut of 82 CY.

LEGEND

- 0.16 — CUT
- 0.13 — FILL
- CUT/FILL LINE
- FLOODPLAIN ZONE AE PER FEMA FIRM MAP (APPROX.)
- EXISTING SURVEYED FLOODPLAIN CONTOUR (184.2 NGVD29)
- PROPOSED FLOODPLAIN CONTOUR (184.2 NGVD29)
- DERIVED 25-YEAR FLOOD ELEVATION (183.87 NGVD29)

SW TUALITAN VALLEY HWY

SITE GENERATED CUT: STORAGE BELOW 183.87

ON-SITE DEVELOPMENT

NEW BUILDING

SW WHITNEY WAY

SW 139TH WAY

EXIST SW

SCALE IN FEET

S:\Project Files\Projects\E20-030 Herzog Meier Volkswagen\CAD\Sheets\E20-030 Const - CUT FILL ANALYSIS.dwg @ Plot Date: Jul 29 24 @ Time: 4:07 PM

REGISTERED PROFESSIONAL ENGINEER
67149PE
PRELIMINARY
OREGON
Jan. 14, 2003
KELLI A. GROVER

EXPIRES: 06/30/25
SIGNATURE DATE:

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(503) 668-3737

HERZOG MEIER VOLKSWAGEN-VOLVO NEW SERVICE BUILDING

4275 SW 139TH WAY
BEAVERTON, OR 97005

REVISIONS

No.	Description	Date
1		
2		
3		
4		
5		
6		

DRAWN BY: BB
CHECKED BY: KG
JOB NO: E20-030

DATE: 6/14/2024

ISSUED FOR: LAND USE REVIEW

SHEET TITLE
25 YEAR FLOODPLAIN STORAGE

SHEET NO.
C105