



**BARGHAUSEN**



## FLOODPLAIN ANALYSIS

---

**FREEMAN LOGISTICS**

**PREPARED BY**  
JASON MCARDEL

---

**PREPARED FOR**  
VECTOR DEVELOPMENT COMPANY

**CLIENT ADDRESS**  
11411 NE 124TH ST, SUITE 190  
KIRKLAND, WA 98034

---

**SITE ADDRESS**  
22ND AVE NW AND  
82ND AVE E,  
PUYALLUP, WA

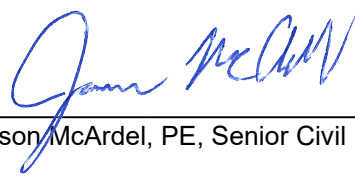
**PROJECT NO.**  
21585

**DATE**  
12/16/2024

**JURISDICTION**  
PIERCE COUNTY

### PROJECT ENGINEER'S CERTIFICATION

"I hereby state that this Floodplain Analysis for Freeman Logistics has been prepared by me or under my supervision and meets the standards of care and expertise that is usual and customary in this community for professional engineers. I understand that the City of Puyallup does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me."



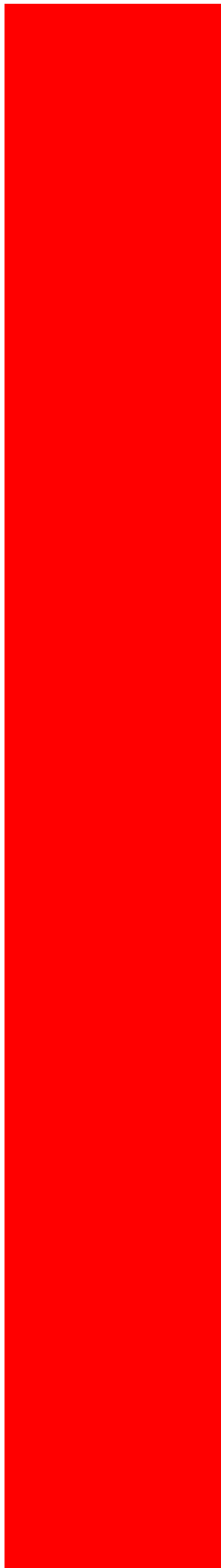
---

Jason McArdel, PE, Senior Civil Project Manager

## **TABLE OF CONTENTS**

- 1.0 PROJECT OVERVIEW
- 2.0 EXISTING CONDITIONS SUMMARY
- 3.0 COMPENSATORY FLOOD STORAGE PLAN

Tab 1.0



## **1.0 PROJECT OVERVIEW**

## 1.0 PROJECT OVERVIEW

Freeman Logistics is an approximately 24.05-acre development located in the northeast and southeast corners of the 22<sup>nd</sup> Ave NW and 82<sup>nd</sup> Ave E intersection, Puyallup, Washington, within a portion of Section 17, Township 20 North, Range 4 East, and a portion of section 20, Township 20 North, Range 4 East, Willamette Meridian, City of Puyallup, Pierce County, Washington. The project site is comprised of 15 parcels plus the right-of-way dedication to improve 22<sup>nd</sup> Ave NW to the east of 82<sup>nd</sup> Ave E. Please see the attached Vicinity Map on the following pages of the report.

### Project Parcel List

SITE ADDRESS	ASSESSOR'S PARCEL NUMBER	PARCEL AREA
4723 FREEMAN ROAD E.	042017-4075	223,187± SQ. FT. OR 5.123± ACRES
4801 FREEMAN ROAD E.	042020-1039	73,861± SQ. FT. OR 1.696± ACRES
4815 FREEMAN ROAD E.	042020-1066	16,128± SQ. FT. OR 0.370± ACRES
4823 FREEMAN ROAD E.	042020-1034	22,055± SQ. FT. OR 0.506± ACRES
4827 FREEMAN ROAD E.	042020-1052	19,821± SQ. FT. OR 0.455± ACRES
4917 FREEMAN ROAD E.	042020-1045	NO TITLE REPORT
4923 FREEMAN ROAD E.	042020-1027	49,753± SQ. FT. OR 1.142± ACRES
5117 FREEMAN ROAD E.	042020-5003	74,635± SQ. FT. OR 1.713± ACRES
5005 FREEMAN ROAD E.	042020-1036	83,200± SQ. FT. OR 1.9100± ACRES
5109 FREEMAN ROAD E.	042020-5004	30,928± SQ. FT. OR 0.7100± ACRES
8307 52ND STREET E.	042020-1101	217,704± SQ. FT. OR 4.998± ACRES
8305 49TH STREET E.	042020-1040	45,227± SQ. FT. OR 1.038± ACRES
8315 49TH STREET E.	042020-5016	43,118± SQ. FT. OR 0.990± ACRES
8218 49TH STREET E.	042020-1042	56,740± SQ. FT. OR 1.303± ACRES
8319 49TH STREET E.	042020-5017	47,539± SQ. FT. OR 1.091± ACRES

The developed site will include two commercial warehouse buildings with dock high loading, associated parking, storm drainage facilities, and frontage improvements.

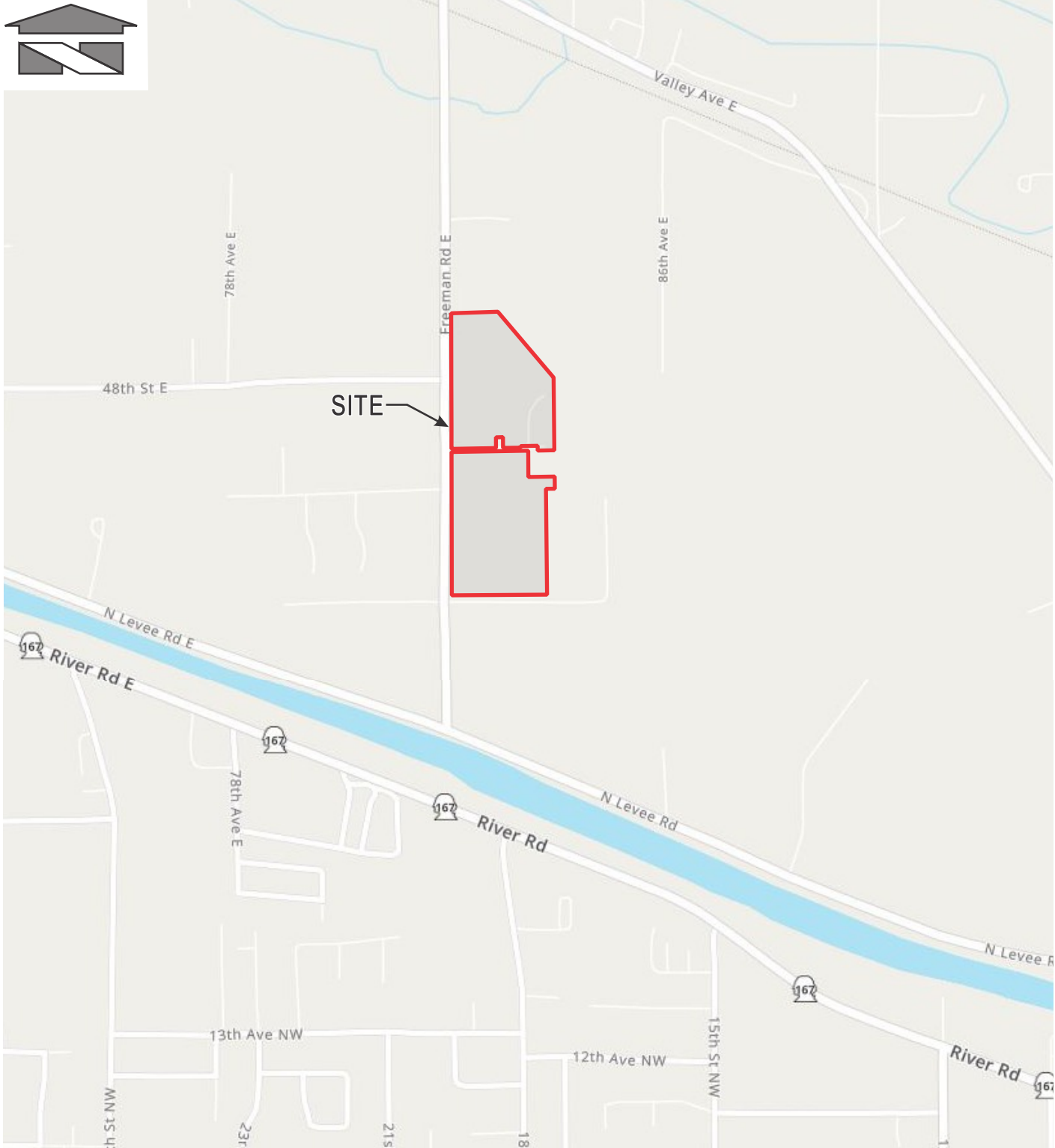
The frontage improvements along Freeman Road East are required to provide sufficient travel lanes for the anticipated traffic, and to build out the street to current city standards. Proposed improvements include widening the road pavement and installing curb & gutter, planter strip, sidewalk, street trees, and lights per City of Fife standards. Right-of-way dedication is proposed to create a 35-ft wide half street on the project side. The full road width will receive new pavement to ensure adequate road performance under expected truck traffic loads. Stormwater infrastructure is proposed along Freeman Road East to mitigate for the new and replaced impervious surfaces created by the development.

In total the site plus frontage area is 25.59 acres. The impervious coverage after development will be approximately 80%. The proposed stormwater management system is designed to mitigate the full proposed conditions and meet flow control and water quality standards in accordance with the applicable stormwater manual.

### **Summary of Land Coverage Areas**

Land Use Category	Area (square feet)	Area (acres)
New Asphalt/Concrete	450,621	10.34
New buildings	504,023	11.57
New landscape/undisturbed area	160,298	3.68
Total	1,114,942	25.59

## **VICINITY MAP**



REFERENCE: MapQuest (2022)

Scale:  
 Horizontal: N.T.S.      Vertical: N/A



**Barghausen  
 Consulting Engineers, Inc.**  
 18215 72nd Avenue South  
 Kent, WA 98032  
 425.251.6222      [barghausen.com](http://barghausen.com)

For:  
**Freeman Road Logistics  
 Fife, Washington**

Title:  
**VICINITY MAP**

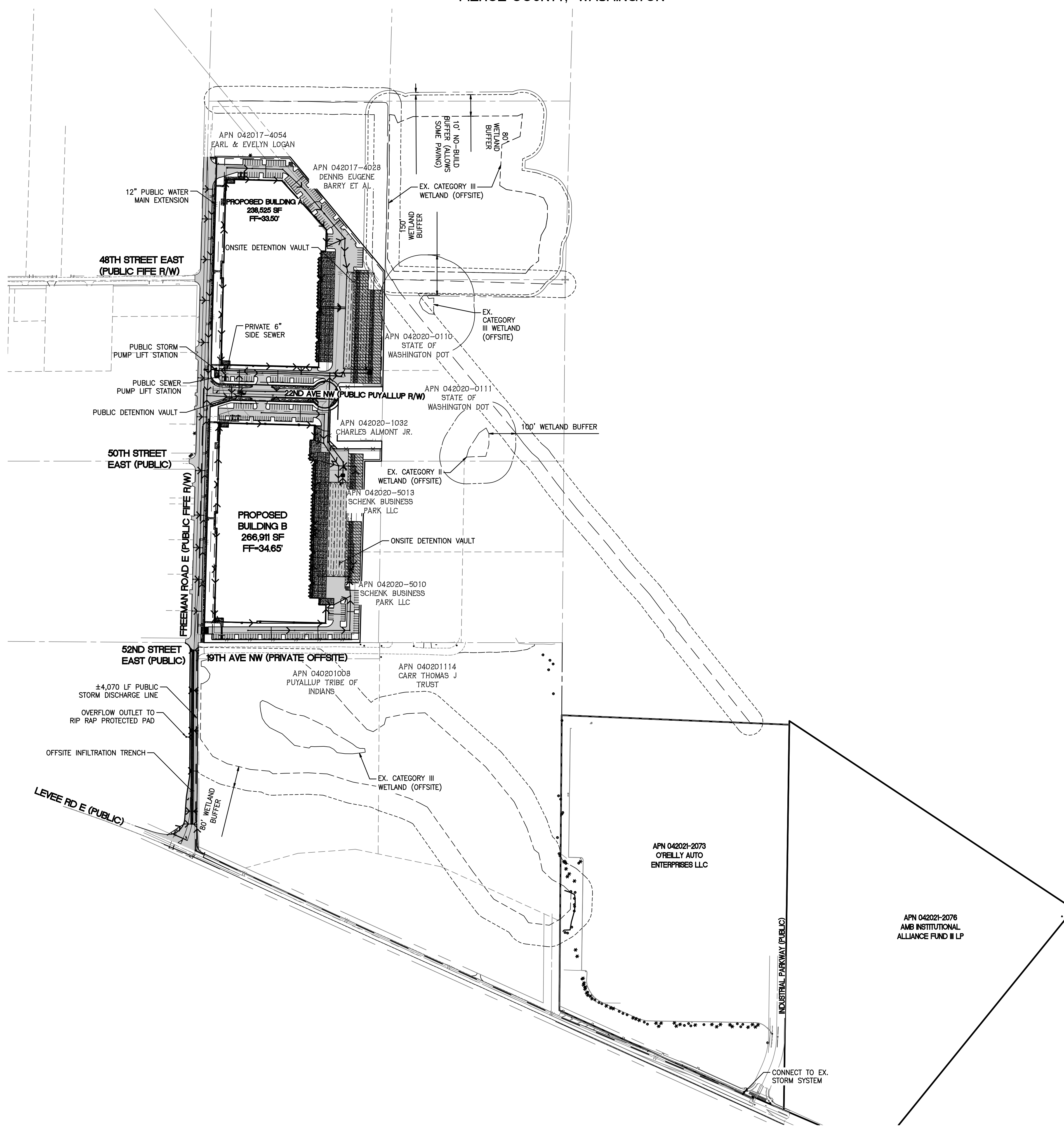
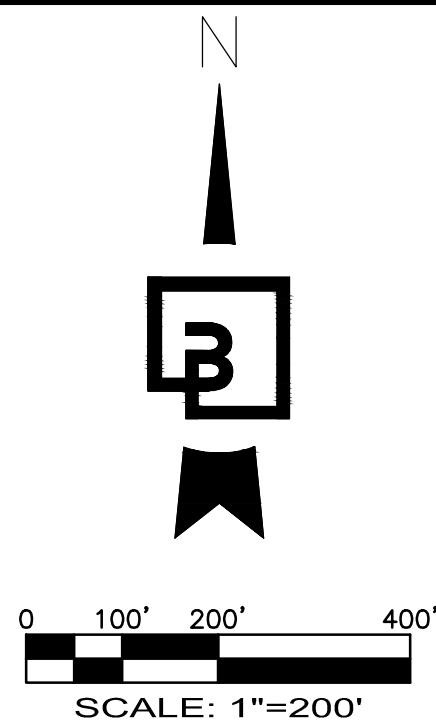
Job Number  
**21585**

DATE: 09/01/22



# **GRADING AND DRAINAGE PLAN**

**PRELIMINARY STORM DRAINAGE OVERALL PLAN**  
 OF  
**FREEMAN LOGISTICS**  
 PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
 AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
 PIERCE COUNTY, WASHINGTON



No.	Date	By	Clk.	Appr.	SEPA	RESUBMITTAL
5	12/05/24	JSM	JSM			

Title:  
**PRELIMINARY STORM DRAINAGE OVERALL PLAN**  
 FOR  
**FREEMAN LOGISTICS**

For:  
**VECTOR DEVELOPMENT COMPANY**  
 11411 NE 124TH STREET  
 SUITE 190  
 KIRKLAND, WA 98034

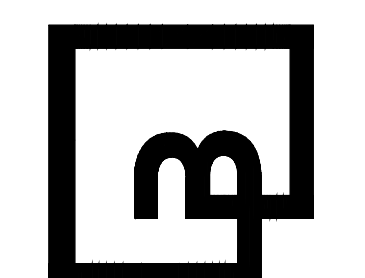


12/10/24

Scale:  
 Horizontal 1"=200'  
 Vertical N/A

Designed	Drawn	Checked	Approved	Date
JSM	JSM	JSM	JSM	12/10/24

**Barghausen Consulting Engineers, Inc.**  
 18215 72nd Avenue South  
 Kent, WA 98032  
 425.251.6222 [barghausen.com](http://barghausen.com)



Job Number  
**21585**  
 Sheet  
**C7** of **44**

**APPROVED**

BY \_\_\_\_\_  
 CITY OF PUYALLUP  
 DEVELOPMENT ENGINEERING

DATE \_\_\_\_\_

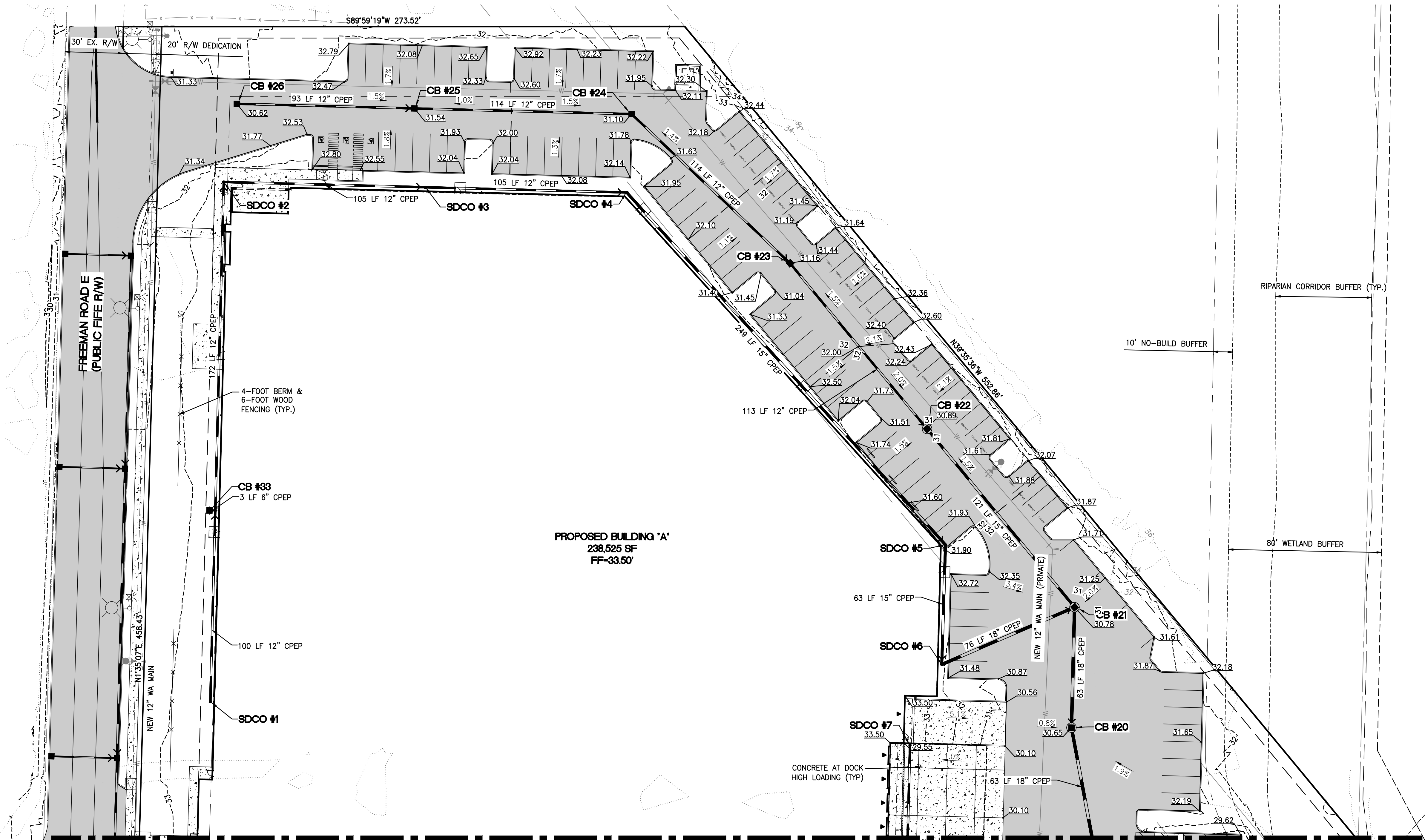
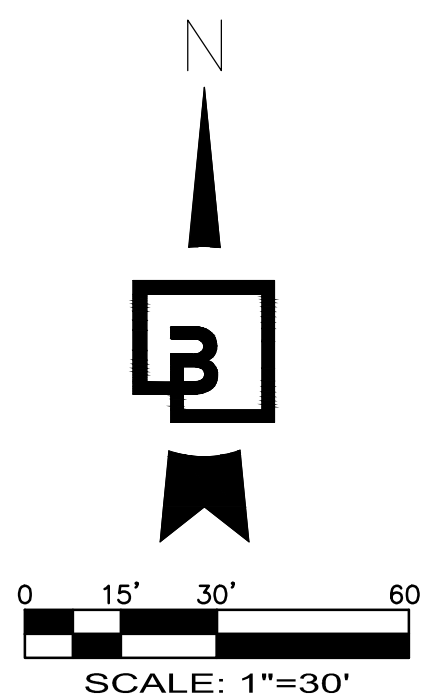
NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

**PRELIMINARY GRADING AND DRAINAGE PLAN**

OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON



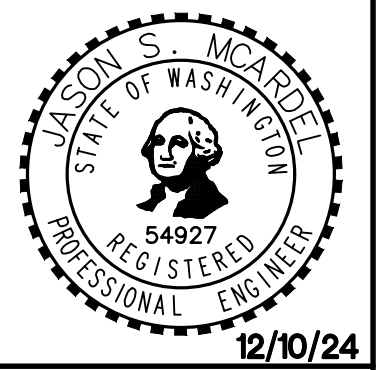
MATCHLINE- SEE SHEET C9 FOR CONTINUATION

CATCH BASINS	
CB #20, TYPE 2-48" W/STANDARD GRATE RIM=30.65 IE=24.03 (18" N) IE=24.03 (18" S)	
CB #21, TYPE 2-48" W/STANDARD GRATE RIM=30.78 IE=24.78 (15" NW) IE=24.53 (18" SW) IE=24.53 (18" S)	
CB #22, TYPE 2-48" W/STANDARD GRATE RIM=30.89 IE=25.74 (12" NW) IE=25.49 (15" SE)	
CB #23, TYPE 1, W/STANDARD GRATE RIM=31.16 IE=26.38 (12" NW) IE=26.38 (12" SE)	
CB #24, TYPE 1, W/STANDARD GRATE RIM=31.10 IE=26.95 (12" W) IE=26.95 (12" SE)	
CB #25, TYPE 1, W/STANDARD GRATE RIM=31.54 IE=27.52 (12" W) IE=27.52 (12" E)	
CB #26, TYPE 1, W/STANDARD GRATE RIM=30.62 IE=27.98 (12" E)	
CB #33, TYPE 1, W/STANDARD GRATE RIM=33.33 IE=30.90 (6" E)	
SDCO #1, 8" SDCO RIM=33.46 IE=31.00 (12" N)	
SDCO #2, 8" SDCO RIM=33.22 IE=28.98 (12" S) IE=28.98 (12" E)	
SDCO #3, 8" SDCO RIM=32.21 IE=28.19 (12" W) IE=28.19 (12" E)	
SDCO #4, 8" SDCO RIM=32.61 IE=27.41 (12" W) IE=27.16 (15" SE)	
SDCO #5, 8" SDCO RIM=31.89 IE=25.56 (15" NW) IE=25.56 (15" S)	
SDCO #6, 8" SDCO RIM=32.28 IE=25.09 (15" N) IE=24.84 (18" NE)	
SDCO #7, 8" SDCO RIM=29.58 IE=27.20 (12" S)	
SDCO #37, 8" SDCO RIM=33.43 IE=30.26 (12" S) IE=30.76 (6" W) IE=30.26 (12" N)	

Revision	By	Date	Appr.
5	JSM	12/05/24	JSM
4	JSM		JSM
3	JSM		JSM
2	JSM		JSM
1	JSM		JSM

Title: **PRELIMINARY GRADING AND DRAINAGE PLAN**  
FOR  
**FREEMAN LOGISTICS**

For: **VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034



Scale:	Horizontal	Vertical
	1"=30'	N/A
Designed: JSM	Drawn: DTC	Checked: JSM
Approved: JSM	Date: 12/10/24	

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
barghausen.com

Job Number: **21585**  
Sheet: **C8** of **44**

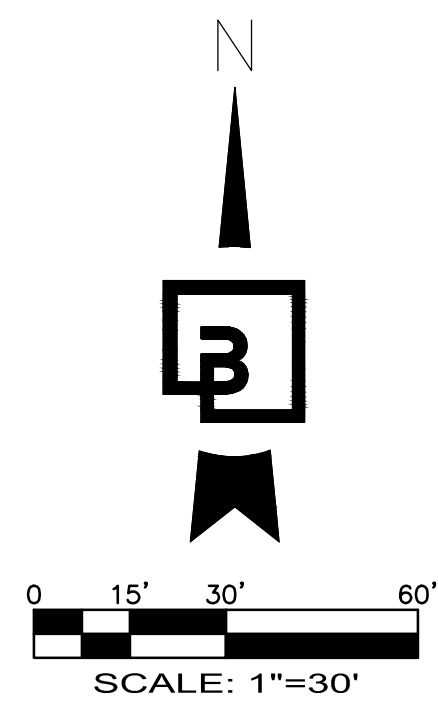
**APPROVED**  
BY: \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING  
DATE: \_\_\_\_\_  
**NOTE:** THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

**PRELIMINARY GRADING AND DRAINAGE PLAN**

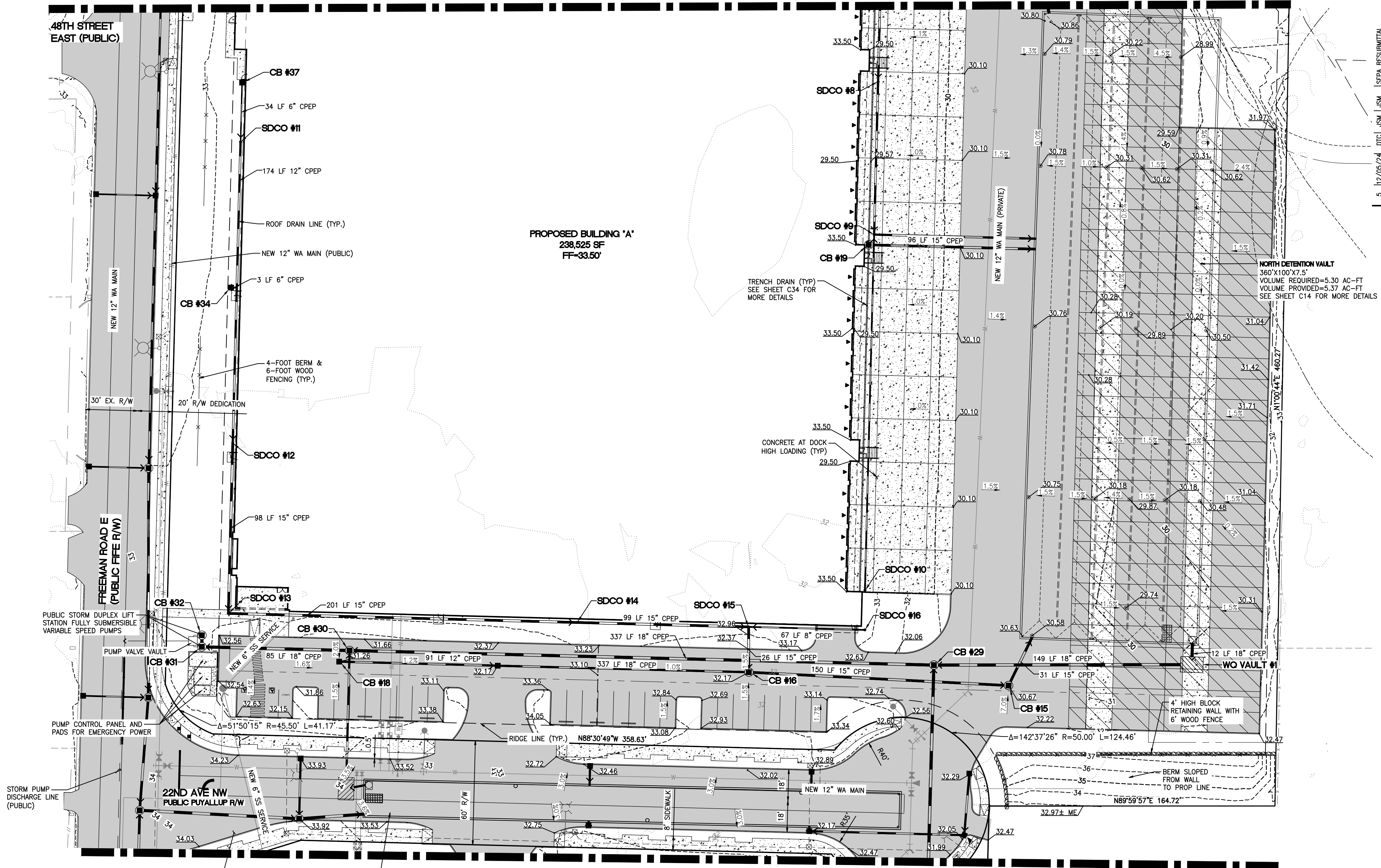
OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON



MATCHLINE- SEE SHEET C8 FOR CONTINUATION



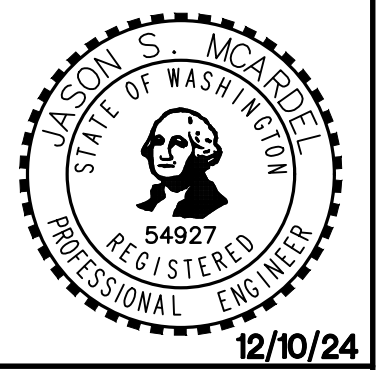
MATCHLINE- SEE SHEET C10 FOR CONTINUATION

CATCH BASINS	
CB #15, TYPE 2-48" W/STANDARD GRATE RIM=30.67 IE=24.96 (15" W) IE=24.96 (15" NE)	
CB #16, TYPE 2-48" W/STANDARD GRATE RIM=32.17 IE=27.22 (12" W) IE=26.97 (15" N) IE=26.97 (15" E)	
CB #17, TYPE 1, W/STANDARD GRATE RIM=32.17 IE=27.94 (12" W) IE=27.94 (12" E)	
CB #18, TYPE 1, W/STANDARD GRATE RIM=31.26 IE=28.40 (12" E)	
CB #19, TYPE 2-48" W/STANDARD GRATE RIM=29.52 IE=24.00 (15" E)	
CB #29, TYPE 2-48" W/SOLID LOCKING LID RIM=31.21 IE=17.18 (18" S) IE=17.18 (18" E) IE=17.18 (18" W)	
CB #30, TYPE 2-48" W/STANDARD GRATE RIM=31.45 IE=14.88 (18" E) IE=15.38 (12" S) IE=14.88 (18" W)	
CB #31, TYPE 2-54" W/SOLID LOCKING LID RIM=33.15 IE=14.30 (18" E) IE=14.30 (18" N)	
CB #32, TYPE 2-54" W/SOLID LOCKING LID RIM=33.15 IE=14.30 (18" S)	
CB #34, TYPE 1, W/STANDARD GRATE RIM=33.41 IE=31.33 (6" E)	
CB #37, TYPE 1, W/STANDARD GRATE RIM=33.46 IE=31.75 (6" S)	
SDCO #8, 8" SDCO RIM=29.57 IE=26.46 (12" N) IE=26.46 (12" S)	
SDCO #9, 8" SDCO RIM=29.57 IE=26.08 (8" S) IE=25.75 (12" N) IE=25.75 (12" E)	
SDCO #10, 8" SDCO RIM=29.59 IE=27.20 (8" N)	
SDCO #11, 8" SDCO RIM=33.41 IE=31.50 (6" N) IE=31.00 (12" S)	
SDCO #12, 8" SDCO RIM=33.48 IE=30.00 (12" N) IE=29.75 (15" S)	
SDCO #13, 8" SDCO RIM=33.26 IE=29.17 (15" N) IE=29.17 (15" E)	
SDCO #14, 8" SDCO RIM=33.36 IE=27.98 (15" W) IE=27.98 (15" E)	
SDCO #15, 8" SDCO RIM=33.33 IE=27.39 (15" W) IE=27.97 (8" E) IE=27.39 (15" S)	
SDCO #16, 8" SDCO RIM=33.33 IE=29.00 (8" W)	
WQ VAULT #1, 6'X12' VAULT RIM=30.19 IE=20.29 (18" N) IE=18.12 (18" W)	

No.	Date	By	Clk.	Appr.	SEPA	RESUBMITTAL
5	12/05/24	JSM	JSM	JSM		

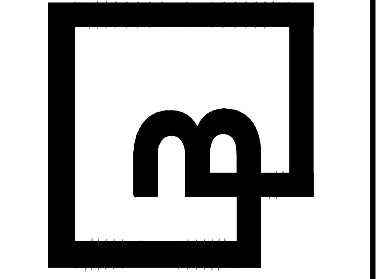
Title:  
**PRELIMINARY GRADING AND DRAINAGE PLAN**  
FOR  
**FREEMAN LOGISTICS**

For:  
**VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034



Scale:	Horizontal	Vertical
1"=30'	1"=30'	N/A

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
[barghausen.com](http://barghausen.com)



**APPROVED**

BY \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING

DATE \_\_\_\_\_

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

Job Number  
**21585**

Sheet  
**C9** of **44**

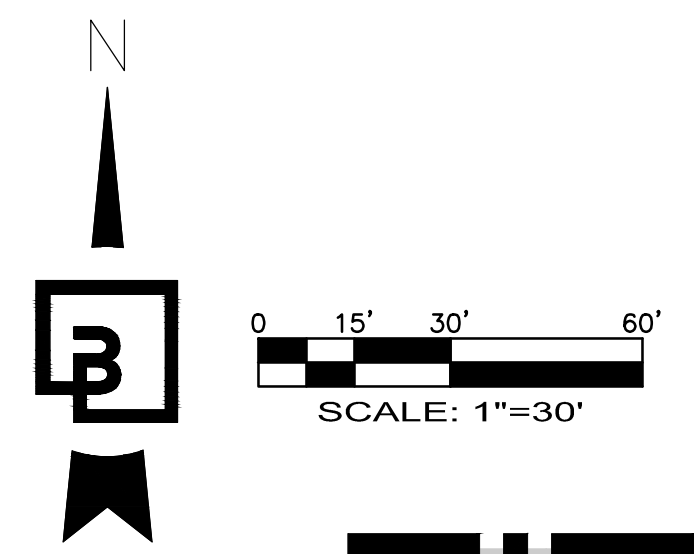
P:\21000A\21585\Engineering\SEPA SET\21585-CM.dwg 12/10/2024 12:59 PM DCASEY

**PRELIMINARY GRADING AND DRAINAGE PLAN**

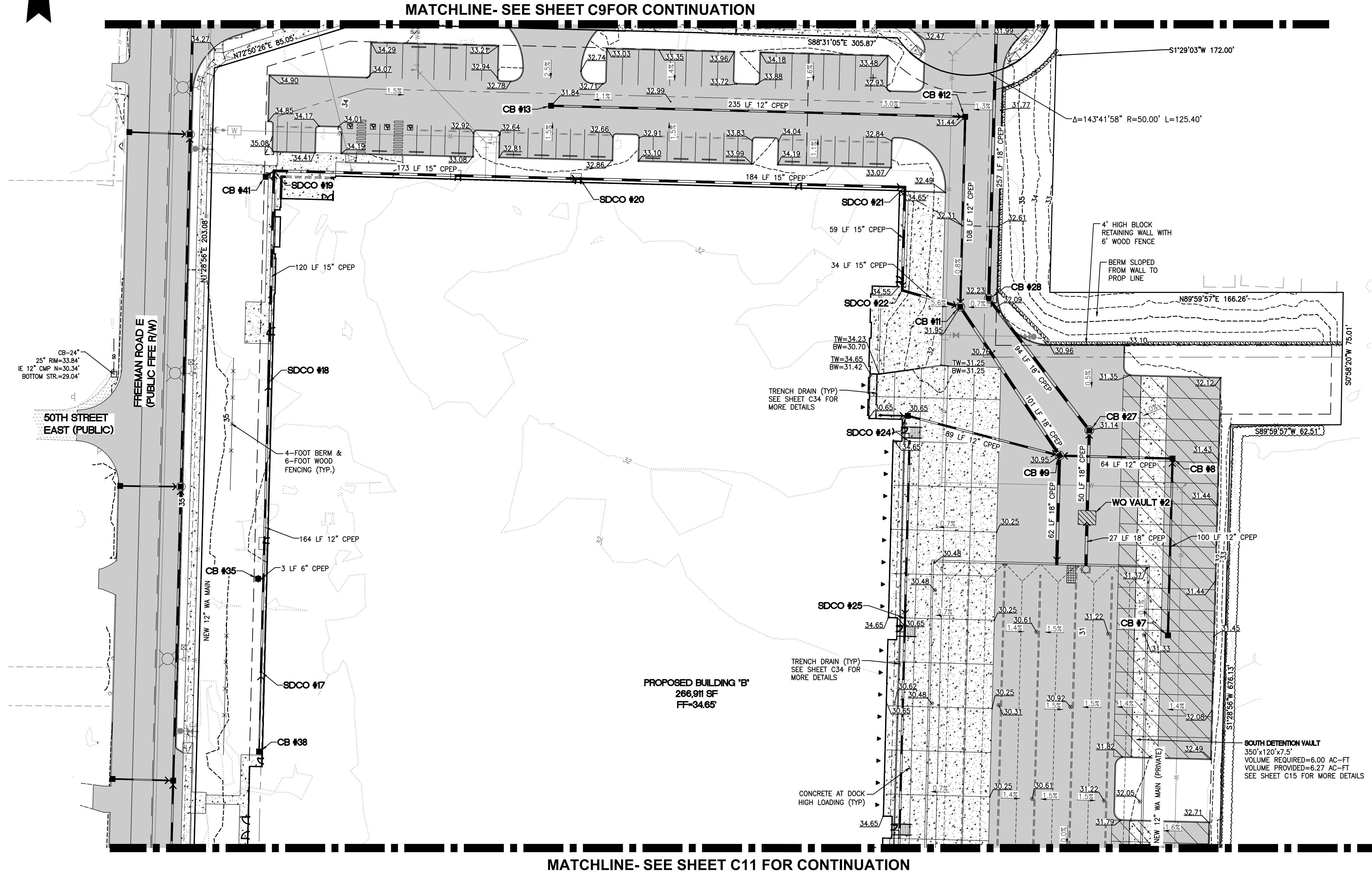
OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON



CATCH BASINS	
CB #7, TYPE 1, W/STANDARD GRATE RIM=31.06 IE=27.60 (12" N)	
CB #8, TYPE 1, W/STANDARD GRATE RIM=31.04 IE=26.85 (12" S) IE=26.85 (12" W)	
CB #9, TYPE 2-54" W/STANDARD GRATE RIM=30.95 IE=25.37 (18" NW) IE=25.98 (12" W) IE=26.06 (12" E) IE=25.37 (18" S)	
CB #10, TYPE 1, W/STANDARD GRATE RIM=30.69 IE=27.98 (6" W) IE=27.65 (12" E)	
CB #11, TYPE 2-48" W/STANDARD GRATE RIM=31.95 IE=26.48 (12" N) IE=26.23 (15" W) IE=25.98 (18" SE)	
CB #12, TYPE 1, W/STANDARD GRATE RIM=31.44 IE=27.04 (12" W) IE=27.04 (12" S)	
CB #13, TYPE 1, W/STANDARD GRATE RIM=31.84 IE=28.26 (12" E)	
CB #27, TYPE 2-48" W/SOLID LOCKING LID RIM=31.14 IE=18.65 (18" S) IE=18.65 (18" NW)	
CB #28, TYPE 2-48" W/SOLID LOCKING LID RIM=32.23 IE=18.26 (18" SE) IE=18.26 (18" N)	
CB #35, TYPE 1, W/STANDARD GRATE RIM=34.73 IE=31.33 (6" E)	
CB #38, TYPE 1, W/STANDARD GRATE RIM=34.53 IE=32.33 (6" N)	
CB #41, TYPE 1, W/STANDARD GRATE RIM=34.38 IE=31.00 (6" NE)	
SDCO #17, 8" SDCO RIM=34.61 IE=32.05 (6" S) IE=31.55 (12" N)	
SDCO #18, 8" SDCO RIM=34.47 IE=30.73 (12" S) IE=30.48 (15" N)	
SDCO #19, 8" SDCO RIM=34.42 IE=29.87 (15" S) IE=30.62 (6" SW) IE=29.87 (15" E)	
SDCO #20, 8" SDCO RIM=33.36 IE=28.56 (15" W) IE=28.56 (15" E)	
SDCO #21, 8" SDCO RIM=33.62 IE=27.18 (15" W) IE=27.18 (15" S)	
SDCO #22, 8" SDCO RIM=34.34 IE=26.74 (15" N) IE=26.74 (15" E)	
SDCO #23, 8" SDCO RIM=30.65 IE=28.50 (8" E)	
SDCO #24, 8" SDCO RIM=30.67 IE=28.30 (12" S)	
SDCO #25, 8" SDCO RIM=30.62 IE=27.02 (12" N) IE=27.02 (12" S)	
WQ VAULT #2, 6'x12' VAULT RIM=31.10 IE=21.07 (18" S) IE=18.90 (18" N)	

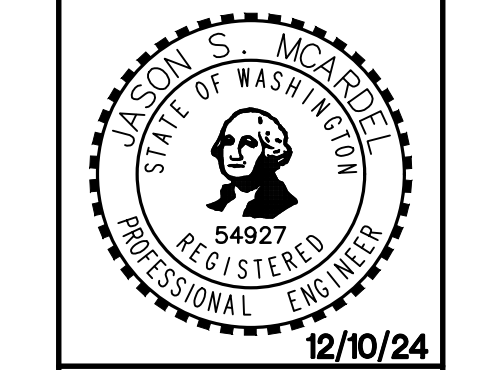


MATCHLINE- SEE SHEET C11 FOR CONTINUATION

Revision  
5 12/05/24 DTC JSM SEPA RESUBMITTAL  
No. Date By Ckd. Appr.

Title:  
**PRELIMINARY GRADING AND DRAINAGE PLAN**  
FOR  
**FREEMAN LOGISTICS**

For:  
**VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034



Scale:	Horizontal	Vertical
	1"=30'	N/A
Designed	JSM	
Drawn	DTC	
Checked	JSM	
Approved	JSM	
Date	12/10/24	

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
barghausen.com

**APPROVED**

BY \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING

DATE \_\_\_\_\_

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

Job Number  
**21585**

Sheet  
**C10** of **44**

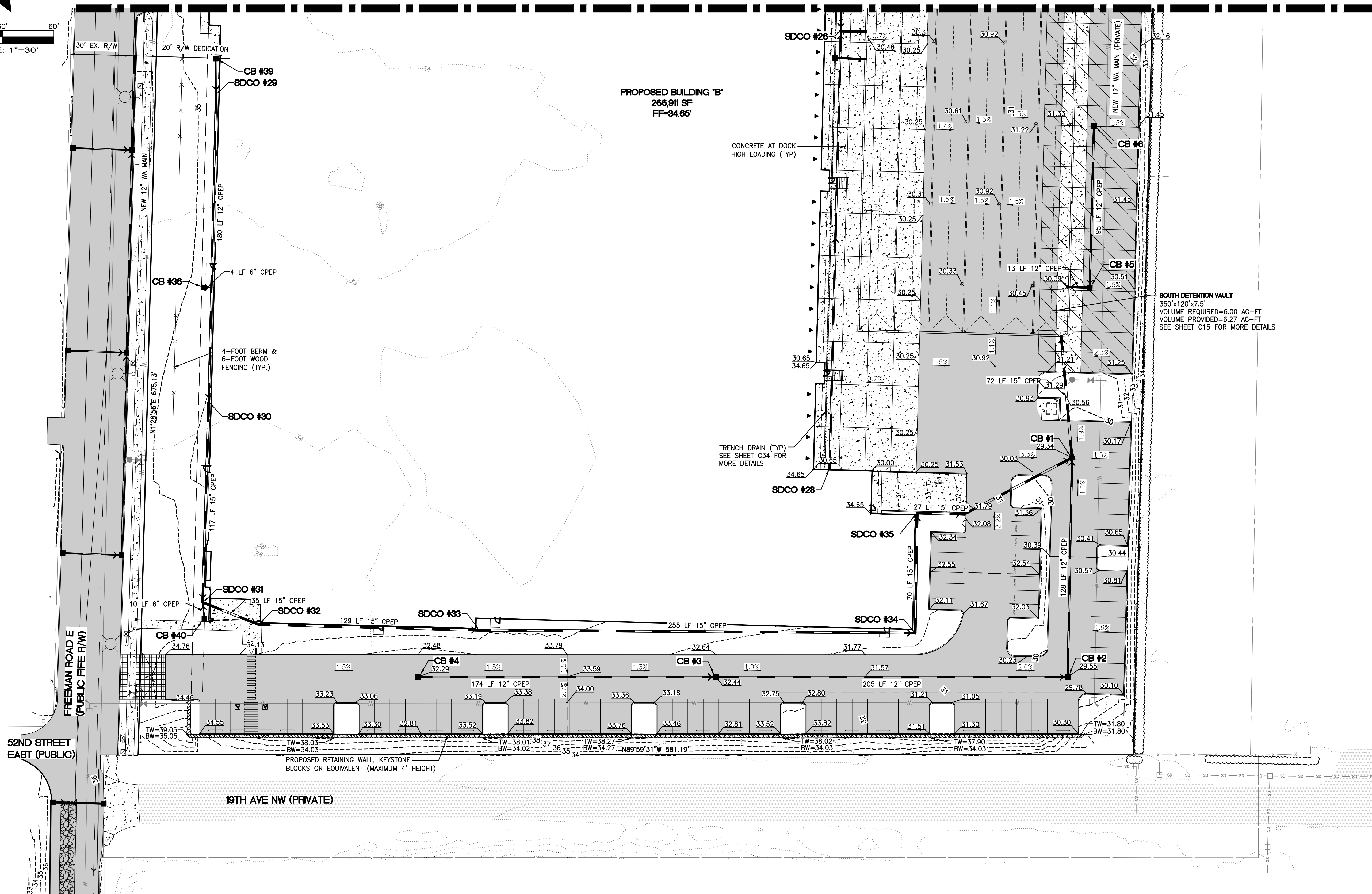
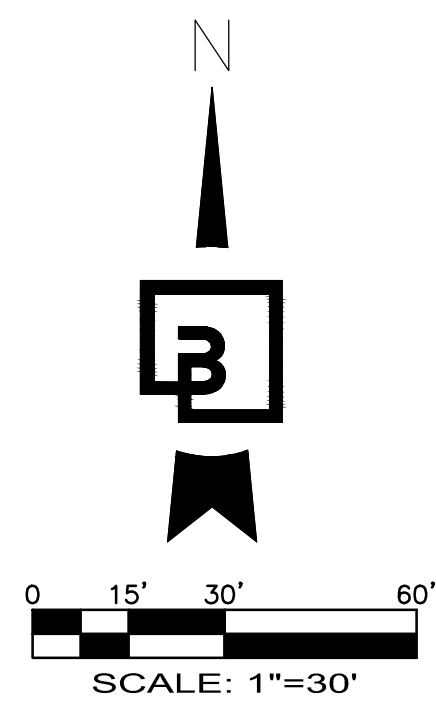
**PRELIMINARY GRADING AND DRAINAGE PLAN**

OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON

MATCHLINE- SEE SHEET C10 FOR CONTINUATION

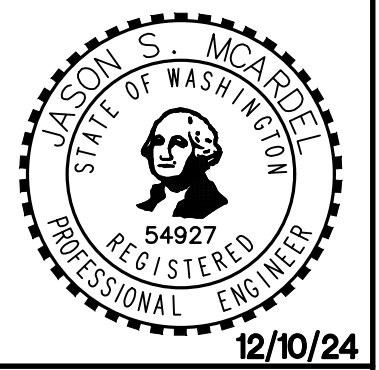


CATCH BASINS	
CB #1, TYPE 1L, W/STANDARD GRATE	RIM=29.34 IE=26.13 (12" S) IE=25.88 (15" SW) IE=25.88 (15" N)
CB #2, TYPE 1, W/STANDARD GRATE	RIM=29.55 IE=27.80 (12" W) IE=27.80 (12" N)
CB #3, TYPE 1, W/STANDARD GRATE	RIM=32.44 IE=28.83 (12" W) IE=28.83 (12" E)
CB #4, TYPE 1, W/STANDARD GRATE	RIM=32.29 IE=29.70 (12" E)
CB #5, TYPE 1, W/STANDARD GRATE	RIM=30.12 IE=26.31 (12" N) IE=26.31 (12" W)
CB #6, TYPE 1, W/STANDARD GRATE	RIM=31.06 IE=28.50 (12" S)
CB #14, TYPE 1, W/STANDARD GRATE	RIM=30.61 IE=27.70 (12" E)
CB #36, TYPE 1, W/STANDARD GRATE	RIM=34.74 IE=31.33 (6" E)
CB #39, TYPE 1, W/STANDARD GRATE	RIM=34.53 IE=32.63 (6" S)
CB #40, TYPE 1, W/STANDARD GRATE	RIM=34.54 IE=31.00 (6" N)
SDCO #26, 8" SDCO	RIM=30.59 IE=25.19 (12" S) IE=25.19 (12" N) IE=24.94 (15" E)
SDCO #27, 8" SDCO	RIM=30.59 IE=26.63 (12" S) IE=26.63 (12" N)
SDCO #28, 8" SDCO	RIM=30.47 IE=28.30 (12" N)
SDCO #29, 8" SDCO	RIM=34.60 IE=32.50 (6" N) IE=32.00 (12" S)
SDCO #31, 8" SDCO	RIM=34.77 IE=29.73 (15" N) IE=30.48 (6" S) IE=29.73 (15" E)
SDCO #32, 8" SDCO	RIM=34.51 IE=29.50 (15" W) IE=29.50 (15" E)
SDCO #33, 8" SDCO	RIM=34.44 IE=28.65 (15" W) IE=28.65 (15" E)
SDCO #34, 8" SDCO	RIM=32.34 IE=26.98 (15" W) IE=26.98 (15" N)
SDCO #35, 8" SDCO	RIM=33.03 IE=26.52 (15" S) IE=26.52 (15" E)
SDCO #36, 8" SDCO	RIM=32.33 IE=26.37 (15" W) IE=26.37 (15" NE)

No.	Date	By	Clk.	Appr.
5	12/05/24	DTC	JSM	JSM

Revision  
Title:  
**PRELIMINARY GRADING AND DRAINAGE PLAN**  
FOR  
**FREEMAN LOGISTICS**

For:  
**VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034



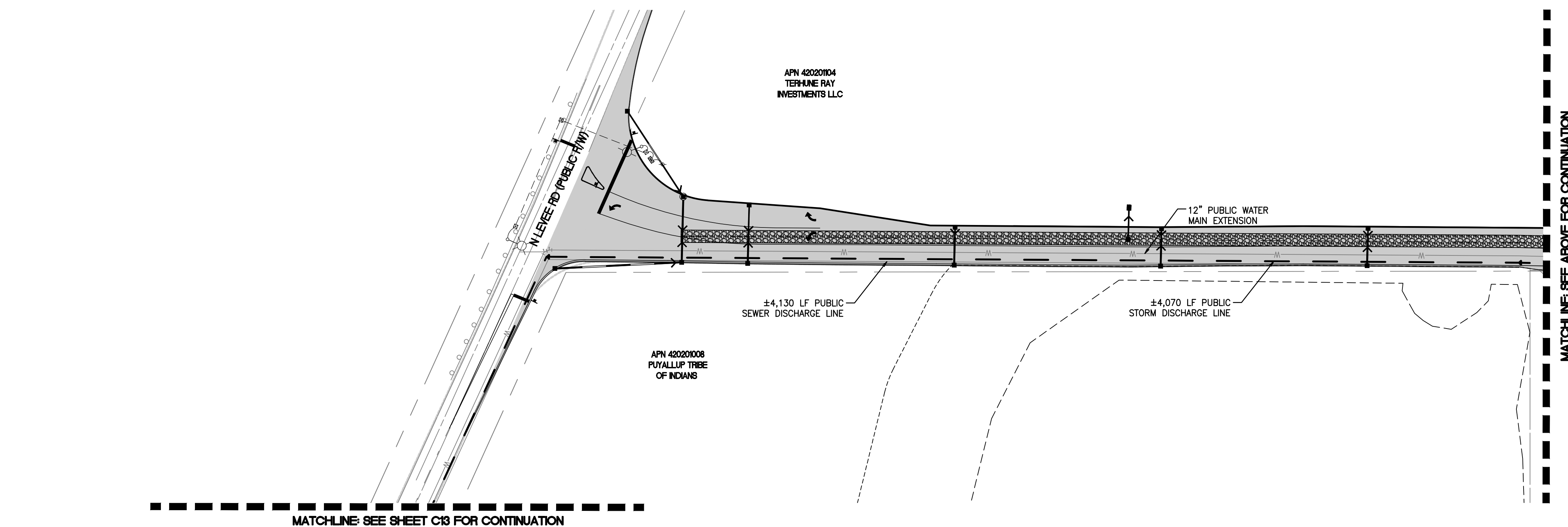
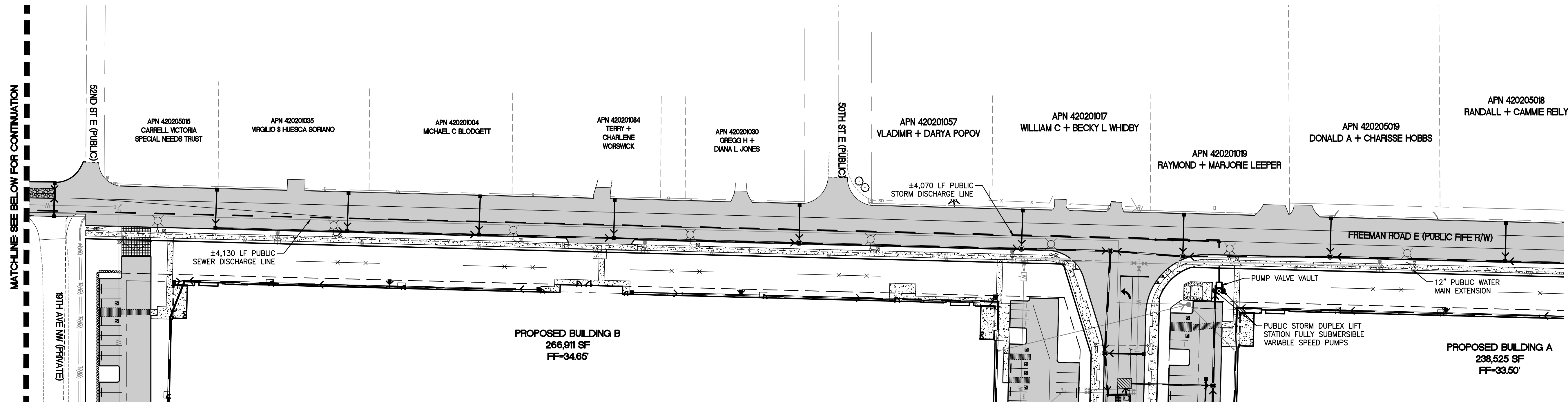
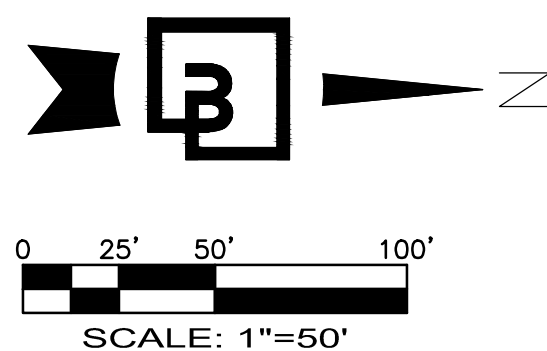
Scale:	Horizontal	Vertical
Horizontal	1"=30'	N/A
Vertical	N/A	N/A

Designed: JSM  
Drawn: DTC  
Checked: JSM  
Approved: JSM  
Date: 12/10/24

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
barghausen.com

**APPROVED**  
BY: \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING  
DATE: \_\_\_\_\_  
NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

**PRELIMINARY DRAINAGE OUTLET PLAN**  
 OF  
**FREEMAN LOGISTICS**  
 PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
 AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
 PIERCE COUNTY, WASHINGTON



No.	Date	By	Check	Appr.	SEPA	RESUBMITTAL
5	12/05/24	JSM	JSM			

Title: **PRELIMINARY DRAINAGE OUTLET PLAN**  
 FOR  
**FREEMAN LOGISTICS**

For: **VECTOR DEVELOPMENT COMPANY**  
 11411 NE 124TH STREET  
 SUITE 190  
 KIRKLAND, WA 98034

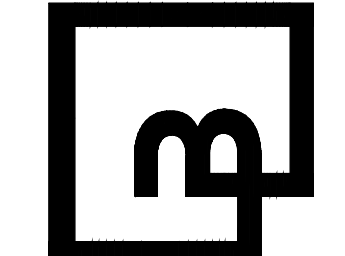


12/10/24

Scale:  
 Horizontal: 1"=50'  
 Vertical: N/A

Designed	Drawn	Checked	Approved	Date
JSM	JSM	JSM	JSM	12/10/24

**Barghausen Consulting Engineers, Inc.**  
 18215 72nd Avenue South  
 Kent, WA 98032  
 425.251.6222 [barghausen.com](http://barghausen.com)



Job Number: **21585**  
 Sheet: **C12** of **44**

**ENGINEER'S REVIEW**  
 APPROVED  
 APPROVED AS CORRECTED  
 REVISE AND RESUBMIT  
 REJECTED  
 FOR INFORMATION ONLY

THE CITY'S REVIEW IS NOT A CONFIRMATION OF ANY DIMENSION OR QUANTITIES SHOWN IN THE PLANS AND WILL NOT RELIEVE THE DEVELOPER OR ENGINEER FROM RESPONSIBILITY FOR PLANS ERRORS. NO CHANGES SHALL BE MADE TO THE PLANS EXCEPT WITH THE CONSENT OF THE CITY ENGINEER. IF CONSTRUCTION HAS NOT COMMENCED WITHIN A REASONABLE PERIOD OF THE APPROVAL DATE, PLANS WILL REQUIRE RE-APPROVAL BY THE CITY.

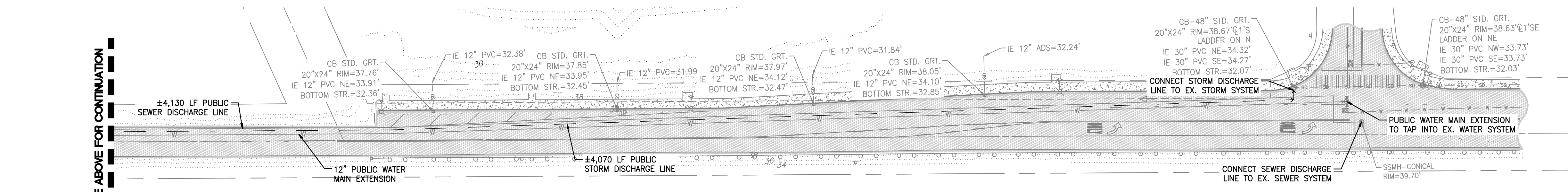
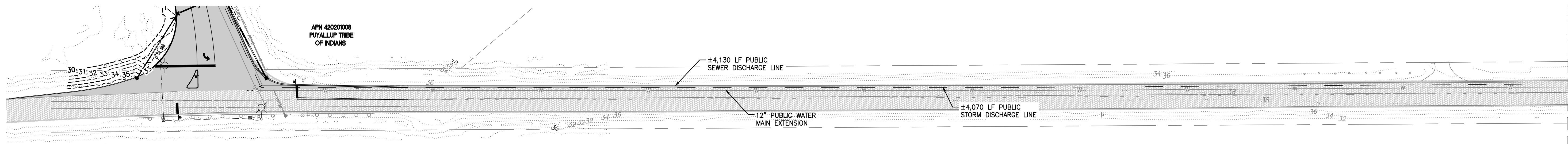
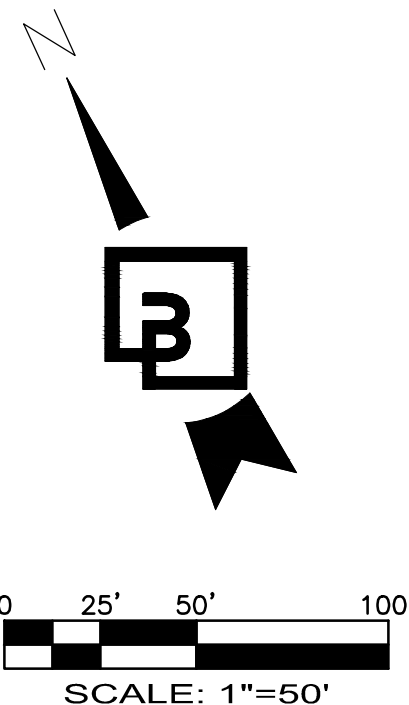
**APPROVED**

BY: \_\_\_\_\_  
 CITY OF PUYALLUP  
 DEVELOPMENT ENGINEERING

DATE: \_\_\_\_\_

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

**PRELIMINARY DRAINAGE OUTLET PLAN**  
 OF  
**FREEMAN LOGISTICS**  
 PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
 AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
 PIERCE COUNTY, WASHINGTON



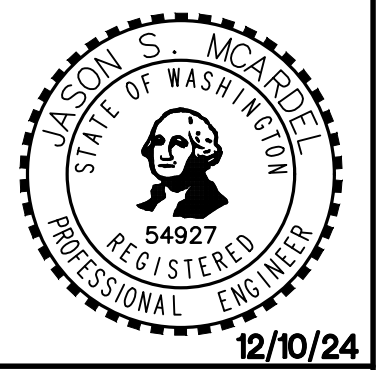
--- MATCHLINE: SEE BELOW FOR CONTINUATION ---

--- MATCHLINE: SEE ABOVE FOR CONTINUATION ---

No.	Date	By	Clk.	Appr.	SEPA	RESUBMITTAL
5	12/05/24	DTC	JSM	JSM	SEPA	RESUBMITTAL

Title: **PRELIMINARY DRAINAGE OUTLET PLAN**  
 FOR  
**FREEMAN LOGISTICS**

For: **VECTOR DEVELOPMENT COMPANY**  
 11411 NE 124TH STREET  
 SUITE 190  
 KIRKLAND, WA 98034



Scale:	Horizontal	Vertical
	1"=50'	N/A
Designed	Drawn	Checked
JSM	DTC	JSM
Approved	Date	
JSM	12/10/24	

**Barghausen Consulting Engineers, Inc.**  
 18215 72nd Avenue South  
 Kent, WA 98032  
 425.251.6222 [barghausen.com](http://barghausen.com)

**APPROVED**

BY \_\_\_\_\_  
 CITY OF PUYALLUP  
 DEVELOPMENT ENGINEERING

DATE \_\_\_\_\_

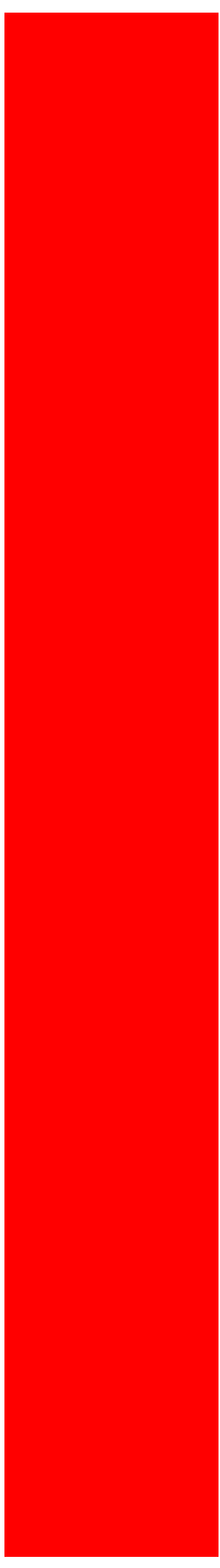
NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

Job Number  
**21585**

Sheet  
**C13** of **44**



Tab 2.0



## **2.0 EXISTING CONDITIONS SUMMARY**

## 2.0 EXISTING CONDITIONS SUMMARY

Under existing conditions, the project site consists of farmland and scattered single-family houses. The site is generally flat with a gradual sheet flow toward the northwest corner. Per the USSC Soil Survey, the underlying soils are mainly comprised of Sultan silt loam and Puyallup fine sandy loam, see attached exhibit within this section.

A wetland is located on an adjacent parcel (0420201008) to the south. A riparian corridor has been indicated to the east of the site, with associated buffers extending to the project. Critical areas reports are prepared which address these issues.

The project site is shown on FEMA Flood Insurance Rate Map (FIRM), map number 53053C0329E panel 0329E, effective March 7<sup>th</sup>, 2017. The project area is considered Zone X, which indicates that the area is “determined to be outside of the 0.2% annual chance floodplain.” See exhibits within this section for more details.

The City of Puyallup has indicated that there is historic evidence of flooding at this site and requires proposed buildings to be designed as “reasonably safe from flooding” in accordance with PMC 21.07 flood plain regulations. The regulatory flood elevation governing protection shall be the Base Flood Elevation designated on the floodplain maps published by Pierce County.

Pierce County has determined that the project area is within a regulatory flood plain, zone AE, which indicates that the base flood elevation is determined. The discrepancy between the FEMA FIRM mapping and Pierce County can be attributed to the seclusion of a non-accredited levee during the FEMA map update in 2017. Pierce County Public GIS information indicates that the project site is within a regulatory flood plain, with base flood elevations ranging from 33.7’ along the southern extent of the site to 32.0’ near the northwest corner of the project. See Base Flood Elevation Exhibit included within this section for more information. The flood boundary and elevation information were determined directly from the Pierce County Open Geospatial Data Portal.

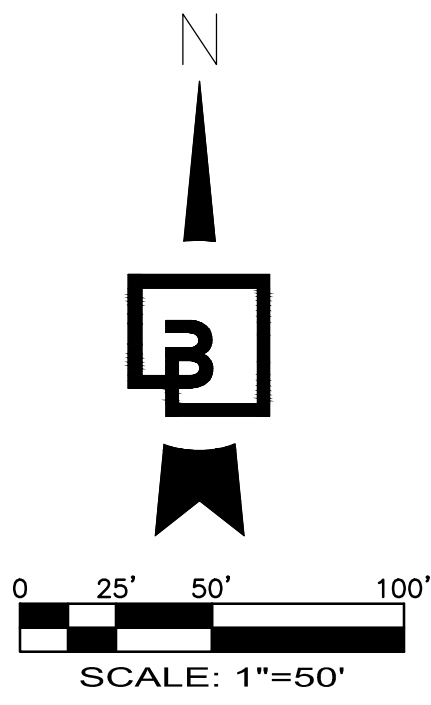
# **EXISTING CONDITIONS MAP**

**EXISTING CONDITIONS**

OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON



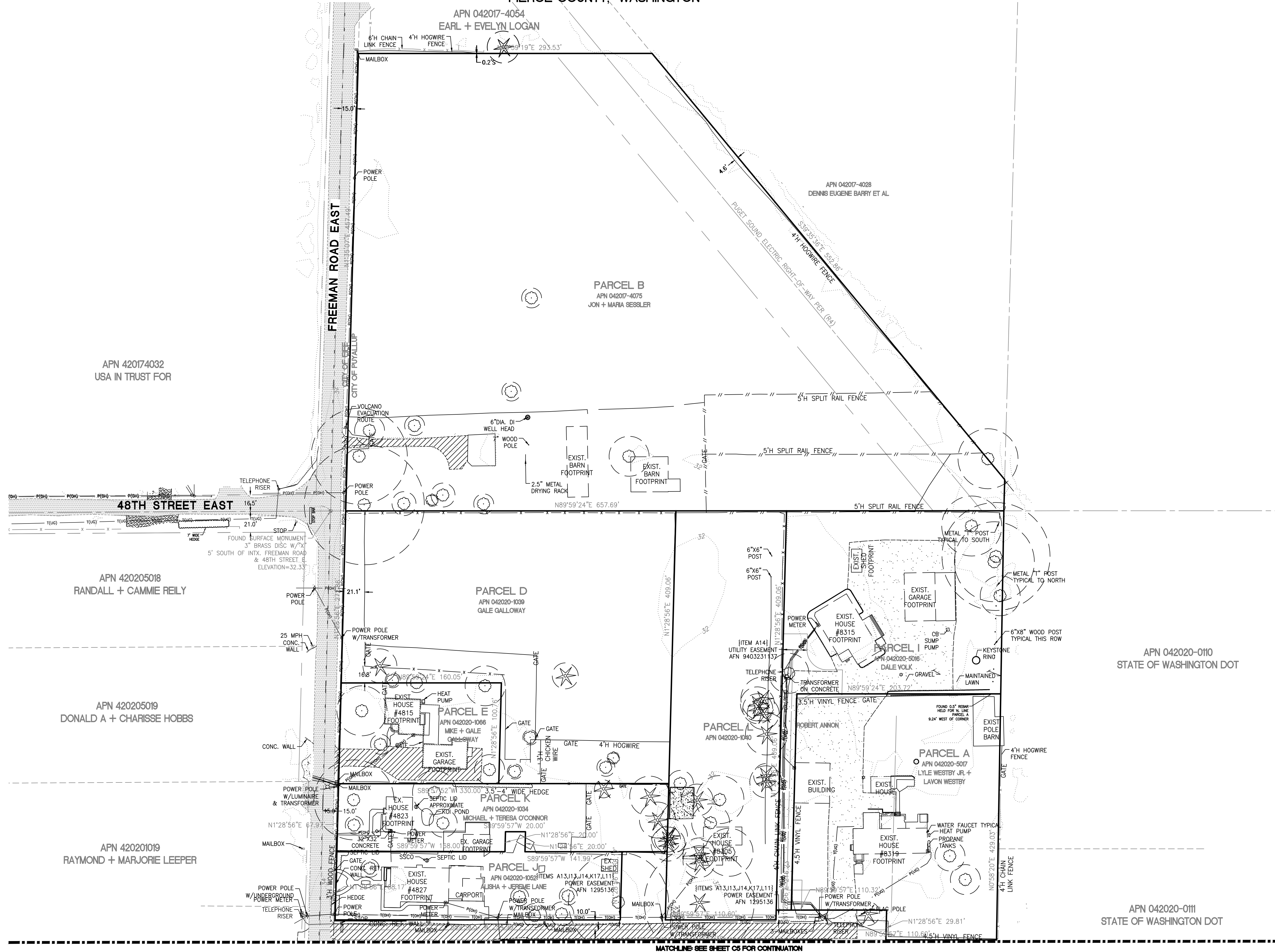
**LEGEND**

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- SURVEY MONUMENT (AS NOTED)
- SECTION CORNER (AS NOTED)
- SET REBAR/CAP (LS#45789 OR #41282)
- FOUND REBAR/CAP (AS NOTED)
- SET 2"x2" HUB/TACK LINE STAKE
- MAG/WASHER OR LEAD/TACK (AS NOTED)
- LUMINAIRE (LUM.)
- YARD LIGHT
- ORNAMENTAL LIGHT
- POWER METER (PM)
- POWER POLE (PP)
- JUNCTION BOX (AS NOTED)
- TELEPHONE MANHOLE (TM)
- TELEPHONE RISER (TR)
- CATCH BASIN (CB)
- STORM MANHOLE (SDMH)
- SANITARY SEWER MANHOLE (SSMH)
- GAS METER (GM)
- GAS VALVE (GV)
- WATER VALVE (WV)
- FAUCET
- FIRE HYDRANT (FH)
- WATER MANHOLE
- WATER METER (WM)
- WELL
- SIGN
- IRRIGATION VALVE (IV)
- DIRECTIONAL ARROW
- MAILBOX (MB)
- CHAIN LINK FENCE
- WOOD FENCE
- HOGWIRE FENCE
- VINYL FENCE
- WATER LINE
- GAS LINE
- TELEPHONE LINE (OH) OR (UG)
- POWER LINE (OH) OR (UG)
- STORM LINE
- SEWER LINE
- ROCKERY
- KEYSTONE WALL
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE DRILINE
- CONCRETE
- GRAVEL/SAND (AS NOTED)
- ASPHALT
- BUILDING LINE
- ROCK
- MATCH LINE

**ABBREVIATIONS**

- (RF) REFERENCE SURVEYS
- (OH) OVERHEAD
- (UG) UNDERGROUND
- (TYP) TYPICAL
- (C) CALCULATED
- (M) MEASURED
- (GIS) GEOGRAPHICAL INFORMATION SYSTEMS
- (REF) PER REFERENCE INFORMATION
- (H) HIGH
- (V) IRRIGATION VALVE



No.	Date	By	Clk.	Appr.	SEPA	RESUBMITTAL
5	11/20/24	DTC	JSM	JSM		

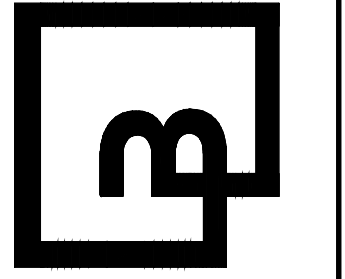
Title:  
**EXISTING CONDITIONS**  
FOR  
**FREEMAN LOGISTICS**

For:  
**VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034

Scale:	Horizontal	Vertical
	1"=50'	N/A

Designed: JSM  
Drawn: DTC  
Checked: JSM  
Approved: JSM  
Date: 12/10/24

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
[barghausen.com](http://barghausen.com)



Job Number: **21585**  
Sheet: **C4** of **44**

**APPROVED**  
BY: \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING  
DATE: \_\_\_\_\_

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

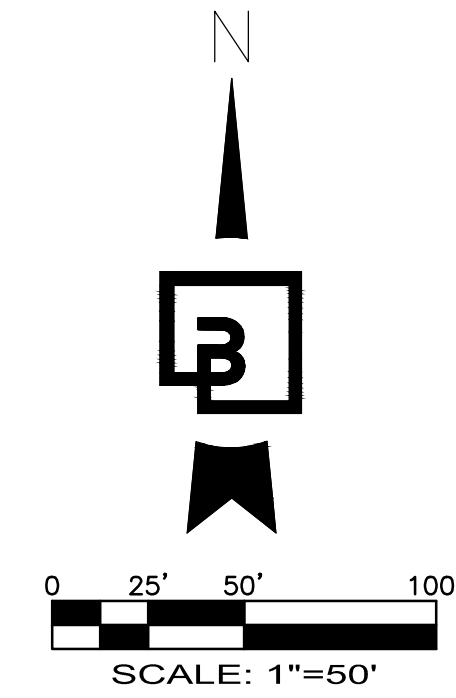
**EXISTING CONDITIONS**

OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON

MATCHLINES SEE SHEET C4 FOR CONTINUATION



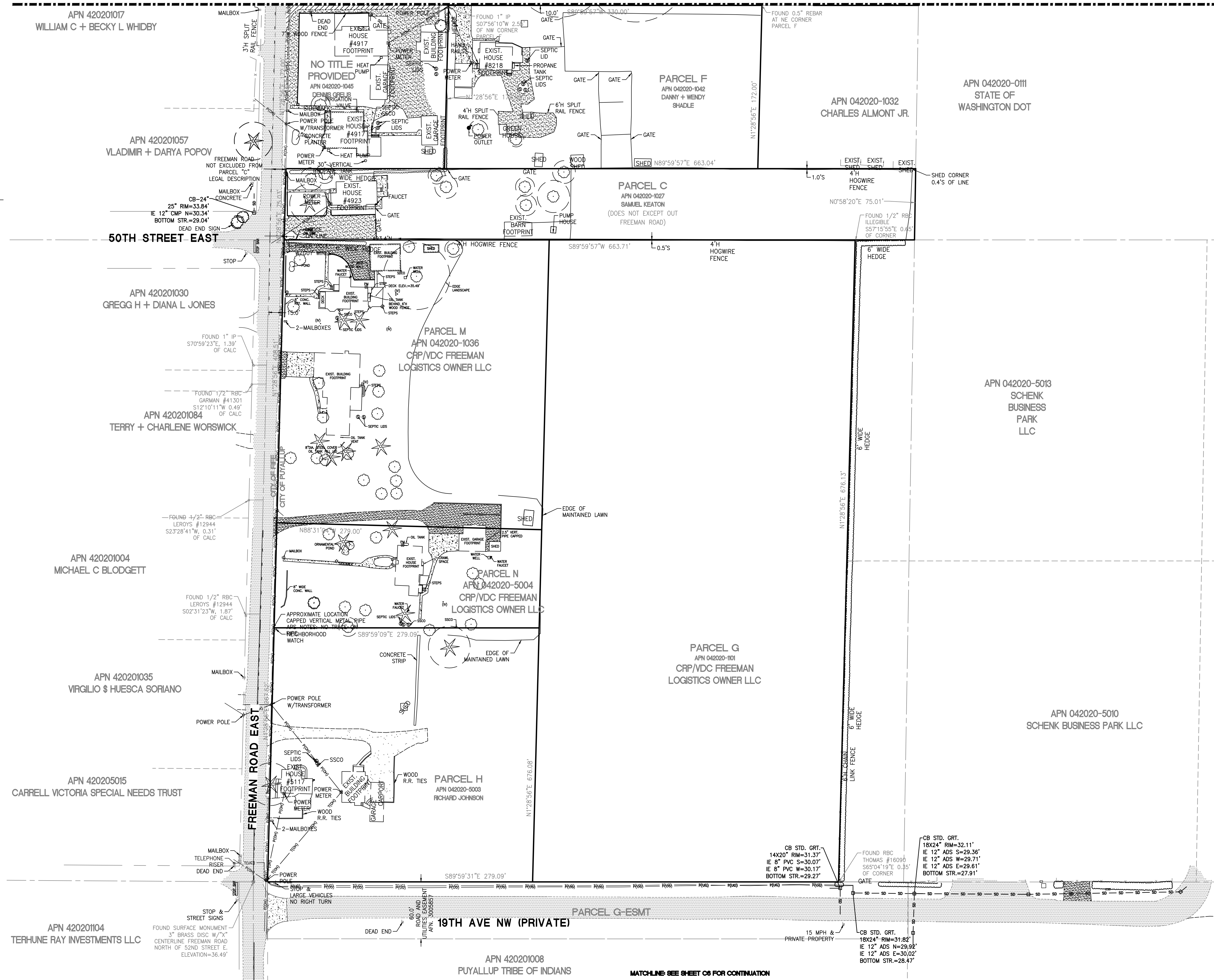
**LEGEND**

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- SURVEY MONUMENT (AS NOTED)
- SECTION CORNER (AS NOTED)
- SET REBAR/CAP (LS#45789 OR #41282)
- FOUND REBAR/CAP (AS NOTED)
- SET 2"x2" HUB/TACK LINE STAKE
- MAG/WASHER OR LEAD/TACK (AS NOTED)
- LUMINAIRE (LUM.)
- YARD LIGHT
- ORNAMENTAL LIGHT
- POWER METER (PM)
- POWER POLE (PP)
- JUNCTION BOX (AS NOTED)
- TELEPHONE MANHOLE (TM)
- TELEPHONE RISER (TR)
- CATCH BASIN (CB)
- STORM MANHOLE (SDMH)
- SANITARY SEWER MANHOLE (SSMH)
- GAS METER (GM)
- GAS VALVE (GV)
- WATER VALVE (WV)
- FAUCET
- FIRE HYDRANT (FH)
- WATER MANHOLE
- WATER METER (WM)
- WELL
- SIGN
- IRRIGATION VALVE (IV)
- DIRECTIONAL ARROW
- MAILBOX (MB)
- CHAIN LINK FENCE
- WOOD FENCE
- HOGWIRE FENCE
- VINYL FENCE
- WATER LINE
- GAS LINE
- TELEPHONE LINE (OH) OR (UG)
- POWER LINE (OH) OR (UG)
- STORM LINE
- SEWER LINE
- ROCKERY
- KEYSTONE WALL
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE DRILINE
- CONCRETE
- GRAVEL/SAND (AS NOTED)
- ASPHALT
- BUILDING LINE
- ROCK
- MATCH LINE

**ABBREVIATIONS**

- (R#) REFERENCE SURVEYS
- (OH) OVERHEAD
- (UG) UNDERGROUND
- (TYP) TYPICAL
- (C) CALCULATED
- (M) MEASURED
- (GIS) GEOGRAPHICAL INFORMATION SYSTEMS
- (REF) PER REFERENCE INFORMATION
- (H) HIGH
- (V) IRRIGATION VALVE



**APPROVED**

BY \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING

DATE \_\_\_\_\_

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

Revision	
No.	Date
5	11/20/24
By	JSM
Clkd.	JSM
Appr.	JSM
SEPA RESUBMITTAL	

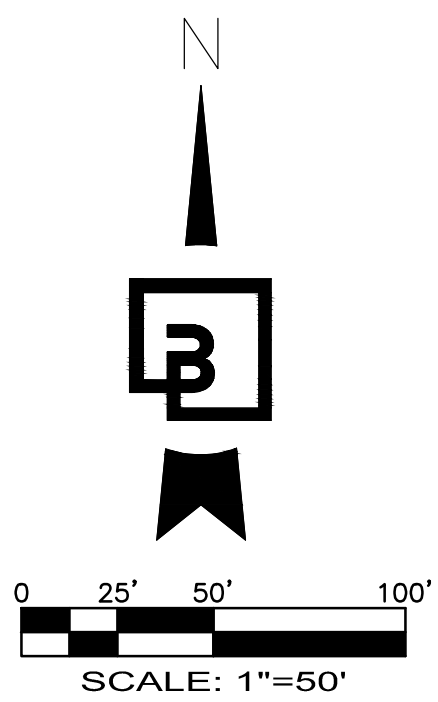
Title:  
**EXISTING CONDITIONS**  
FOR  
**FREEMAN LOGISTICS**

For: **VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
[barghausen.com](http://barghausen.com)

Job Number: **21585**  
Sheet: **C5** of **44**

P:\21000A\21585\Engineering\SEPA SET\21585-EX.dwg 12/5/2024 9:41 AM DCASEY

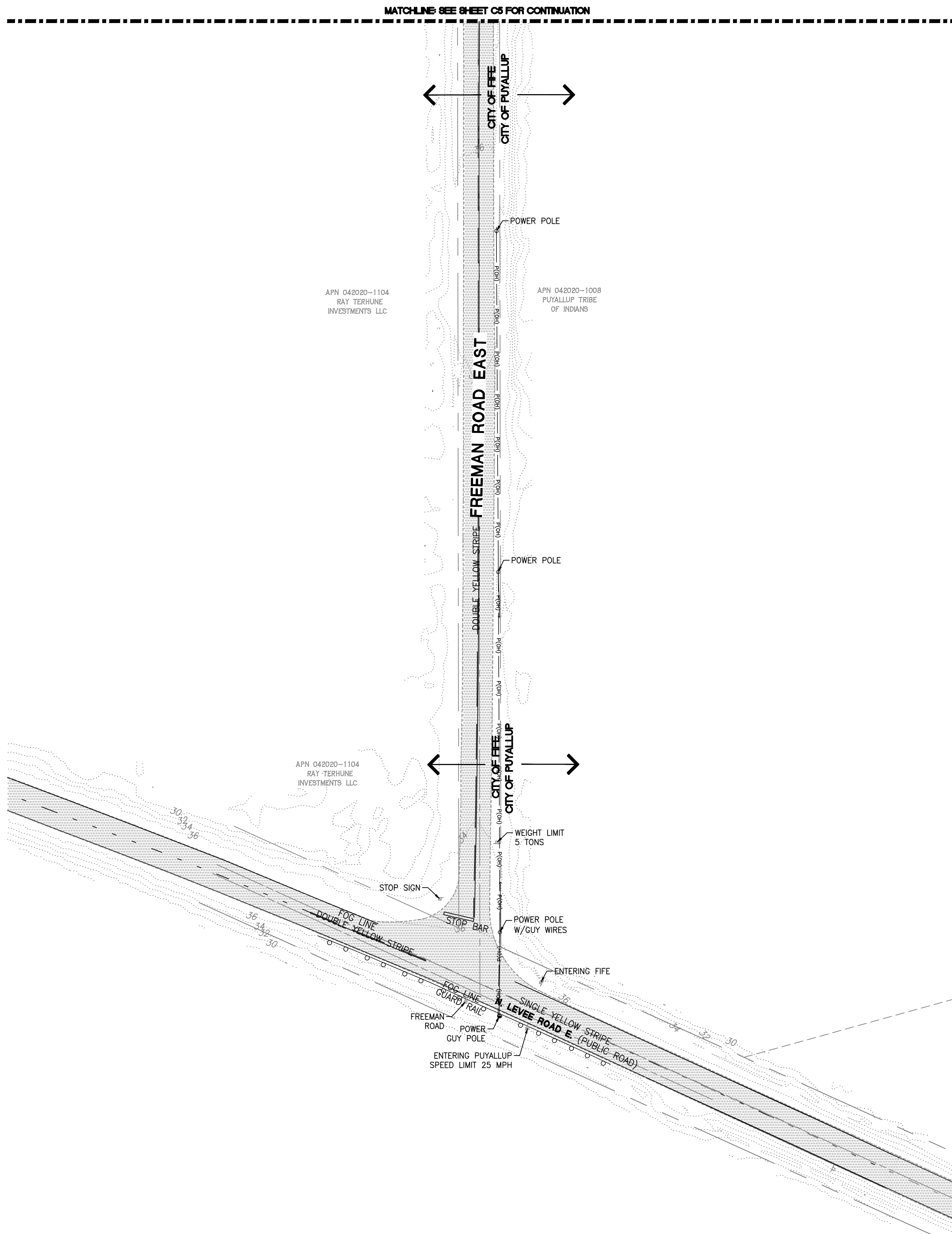


**EXISTING CONDITIONS**

OF

**FREEMAN LOGISTICS**

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.  
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.  
PIERCE COUNTY, WASHINGTON



**LEGEND**

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- ⊕ SURVEY MONUMENT (AS NOTED)
- ⊕ SECTION CORNER (AS NOTED)
- ⊕ SET REBAR/CAP (LS#45789 OR #41282)
- ⊕ FOUND REBAR/CAP (AS NOTED)
- ⊕ SET 2"x2" HUB/TACK LINE STAKE
- ⊕ NAG/WASHER OR LEAD/TACK (AS NOTED)
- ⊕ LUMINAIRE (LUM.)
- ⊕ YARD LIGHT
- ⊕ ORNAMENTAL LIGHT
- ⊕ POWER METER (PM)
- ⊕ POWER POLE (PP)
- ⊕ JUNCTION BOX (AS NOTED)
- ⊕ TELEPHONE MANHOLE (TM)
- ⊕ TELEPHONE RISER (TR)
- ⊕ CATCH BASIN (CB)
- ⊕ STORM MANHOLE (SDMH)
- ⊕ SANITARY SEWER MANHOLE (SSMH)
- ⊕ GAS METER (GM)
- ⊕ GAS VALVE (GV)
- ⊕ WATER VALVE (WV)
- ⊕ FAUCET
- ⊕ FIRE HYDRANT (FH)
- ⊕ WATER MANHOLE
- ⊕ WATER METER (WM)
- ⊕ WELL
- ⊕ SIGN
- ⊕ IRRIGATION VALVE (IV)
- ⊕ DIRECTIONAL ARROW
- ⊕ MAILBOX (MB)
- ⊕ CHAIN LINK FENCE
- ⊕ WOOD FENCE
- ⊕ HOGWIRE FENCE
- ⊕ VINYL FENCE
- ⊕ WATER LINE
- ⊕ GAS LINE
- ⊕ TELEPHONE LINE (OH) OR (UG)
- ⊕ POWER LINE (OH) OR (UG)
- ⊕ STORM LINE
- ⊕ SEWER LINE
- ⊕ ROCKERY
- ⊕ KEYSTONE WALL
- ⊕ DECIDUOUS TREE
- ⊕ CONIFEROUS TREE
- ⊕ TREE DRIPLINE
- ⊕ CONCRETE
- ⊕ GRAVEL/SAND (AS NOTED)
- ⊕ ASPHALT
- ⊕ BUILDING LINE
- ⊕ ROCK
- ⊕ MATCH LINE

**ABBREVIATIONS**

- (R#) REFERENCE SURVEYS
- (OH) OVERHEAD
- (UG) UNDERGROUND
- (TYP) TYPICAL
- (C) CALCULATED
- (M) MEASURED
- (GIS) GEOGRAPHICAL INFORMATION SYSTEMS
- (REF) PER REFERENCE INFORMATION
- (H) HIGH
- (V) IRRIGATION VALVE

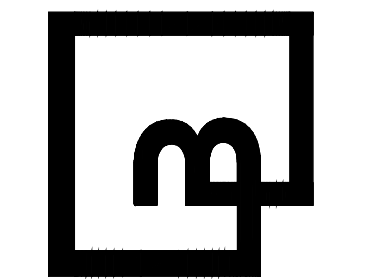
No.	Date	By	Clkd.	Appr.	SEPA	RESUBMITTAL	Revision
5	12/05/24	DTC	JSM	JSM			

For: **EXISTING CONDITIONS**  
FOR  
**FREEMAN LOGISTICS**

For: **VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH STREET  
SUITE 190  
KIRKLAND, WA 98034

Designed	JSM	Scale:	Horizontal
Drawn	DTC		1"=50'
Checked	JSM		Vertical
Approved	JSM		N/A
Date	12/10/24		

**Barghausen Consulting Engineers, Inc.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222 [barghausen.com](http://barghausen.com)



Job Number  
**21585**  
Sheet  
**C6** of **44**

**APPROVED**

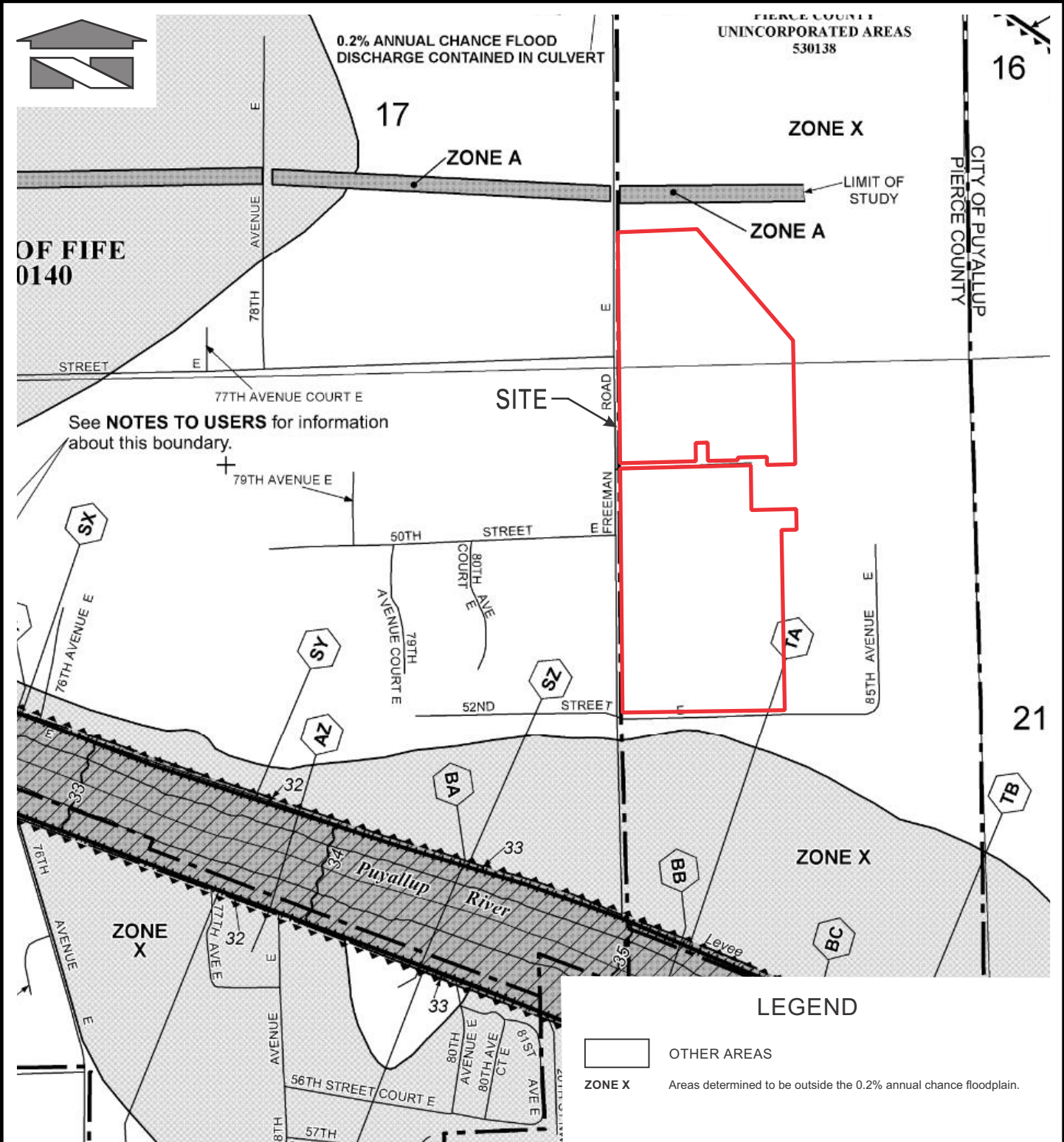
BY \_\_\_\_\_  
CITY OF PUYALLUP  
DEVELOPMENT ENGINEERING

DATE \_\_\_\_\_


NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

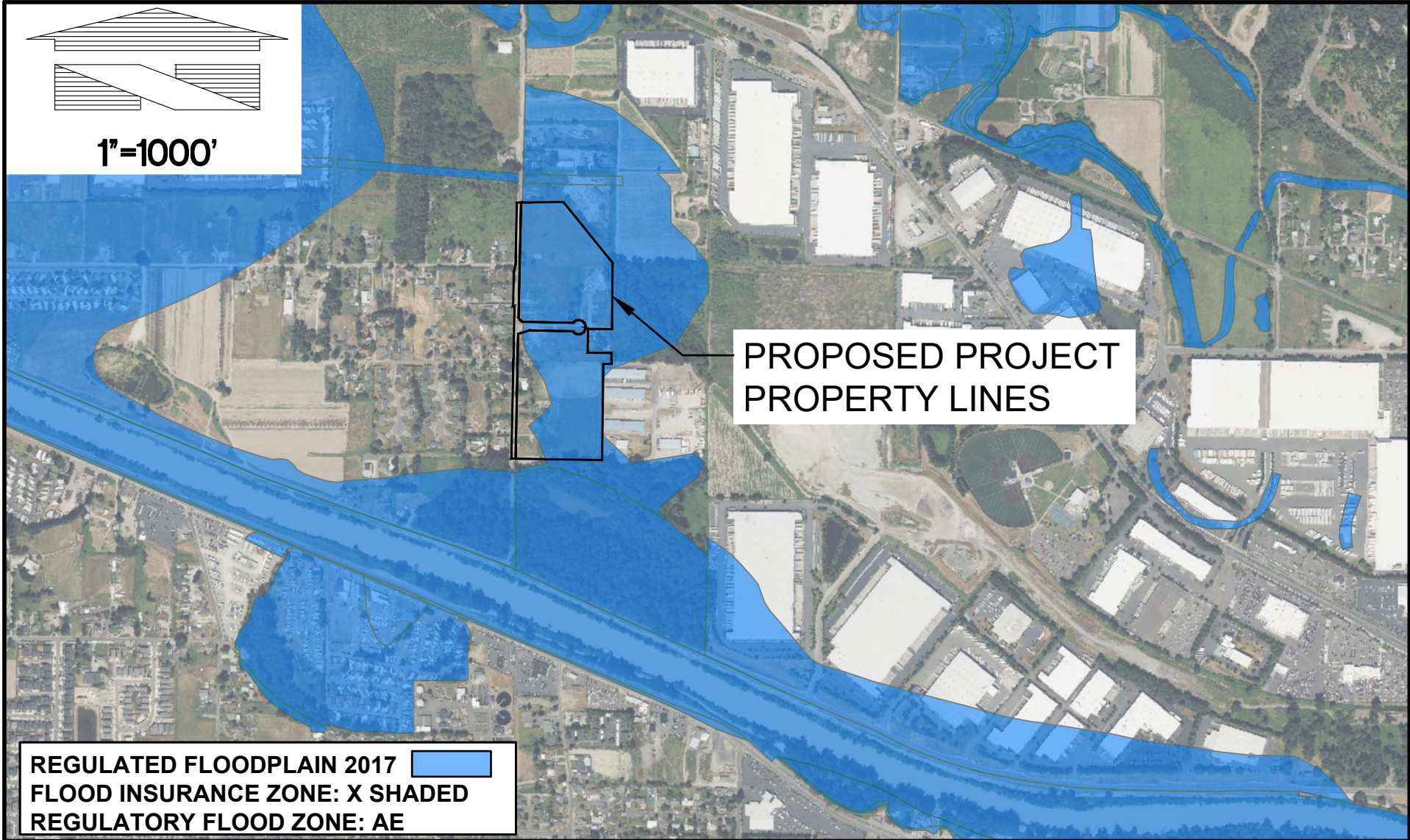
# **FEMA FIRM MAP**





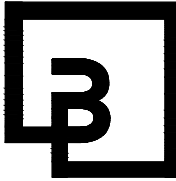
REFERENCE: Federal Emergency Management Agency (Portion of Map 53053C0329E, March 2017)

<p>Scale:</p> <p>Horizontal: N.T.S.      Vertical: N/A</p>	<p>For:</p> <p>Freeman Road Logistics Fife, Washington</p>	<p>Job Number</p> <p>21585</p>
 <p><b>Barghausen Consulting Engineers, Inc.</b> 18215 72nd Avenue South Kent, WA 98032 425.251.6222      <a href="http://barghausen.com">barghausen.com</a></p>	<p>Title:</p> <p>FEMA MAP</p>	<p>DATE: 09/01/22</p>



**PROPOSED PROJECT  
PROPERTY LINES**

**REGULATED FLOODPLAIN 2017**   
**FLOOD INSURANCE ZONE: X SHADED**  
**REGULATORY FLOOD ZONE: AE**

Designed <u>JSM</u> Drawn <u>DTC</u> Checked <u>JSM</u> Approved _____ Date <u>12/13/24</u>	Scale: Horizontal 1"=1000' Vertical N/A	 <p><b>Barghausen Consulting Engineers, Inc.</b>          18215 72nd Avenue South          Kent, W 98032          425.251.6222 <a href="http://barghausen.com">barghausen.com</a></p>	For: <b>FREEMAN LOGISTICS</b>	Job Number <b>21585</b>
			Title: <b>PIERCE COUNTY BFE EXHIBIT</b>	Sheet <b>1 of 1</b>

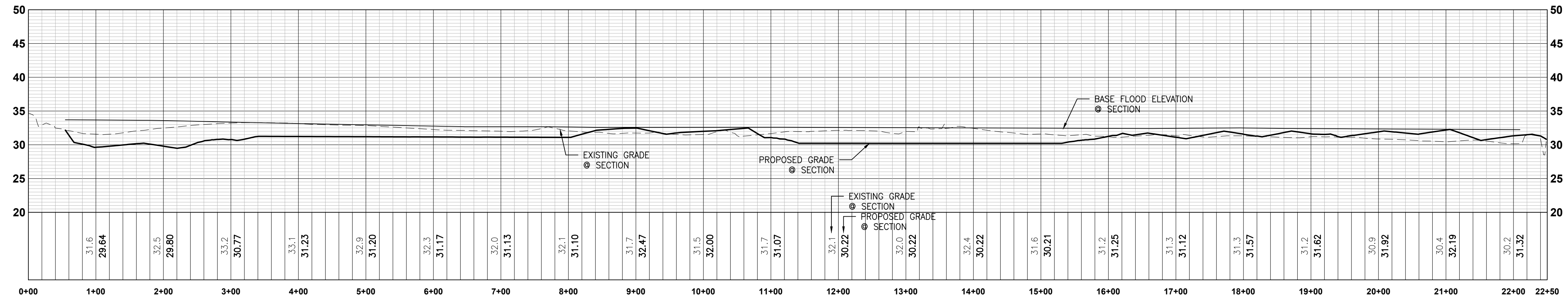
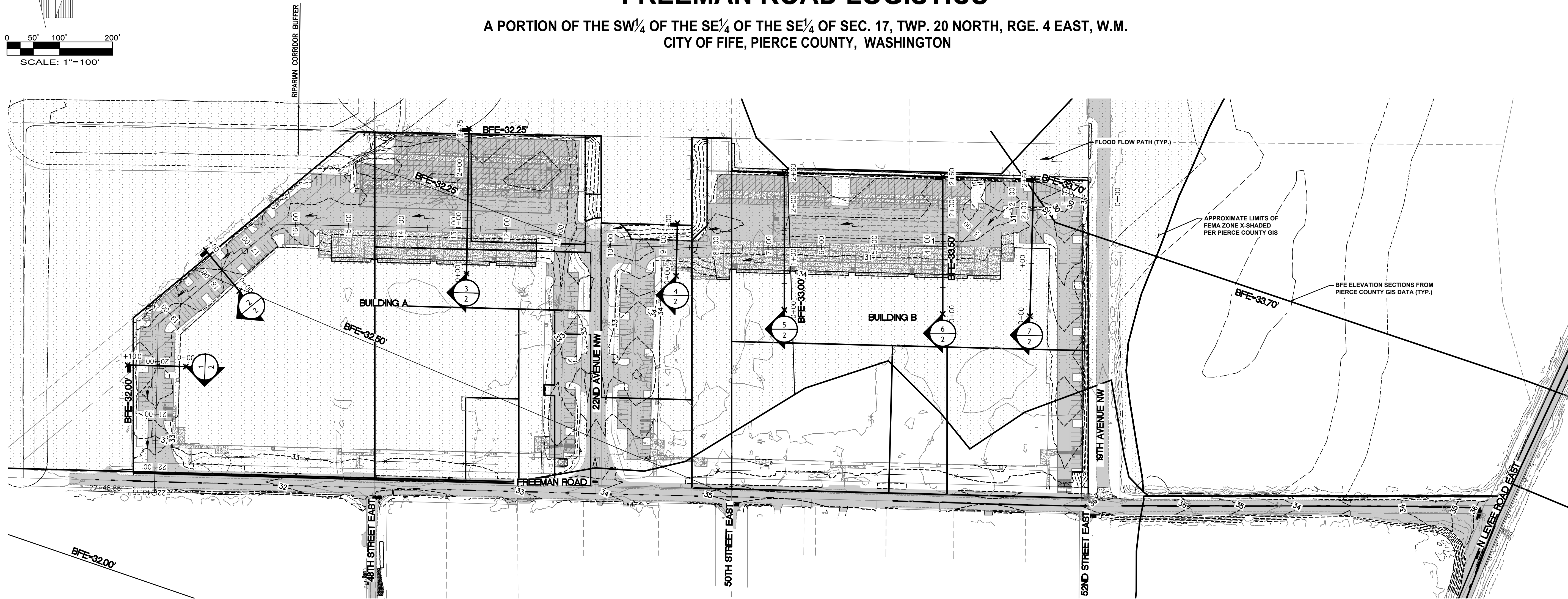
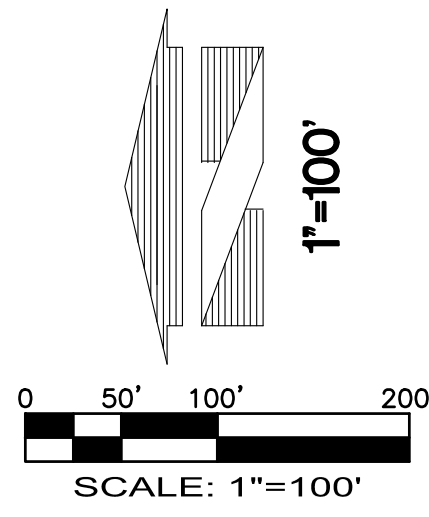
# **BASE FLOOD ELEVATION EXHIBIT**

# BASE FLOOD ELEVATION EXHIBIT

FOR

## FREEMAN ROAD LOGISTICS

A PORTION OF THE SW<sup>1</sup>/<sub>4</sub> OF THE SE<sup>1</sup>/<sub>4</sub> OF THE SE<sup>1</sup>/<sub>4</sub> OF SEC. 17, TWP. 20 NORTH, RGE. 4 EAST, W.M.  
CITY OF FIFE, PIERCE COUNTY, WASHINGTON



**BFE PROFILE SECTION**  
SCALE: HORIZ. 1"=100' VERT. 1"=5'

**SURVEY INFORMATION**

BASES NAD83(2011) DATUM PER WASHINGTON STATE REFERENCE NETWORK (WSRN)  
BASES NAD83(2011) DATUM WAS ESTABLISHED BY HOLDING WSRN OBSERVATIONS ON MONUMENTS, SAID DIMENSIONS AS SHOWN HEREON.

PROJECT BASE POINT  
LATITUDE: N47.213701882  
LONGITUDE: W122.326606688  
HEIGHT: -40.2000000  
PROJECT COMBINED SCALE: 1:0000232619

VERTICAL DATUM IS NAVD88 PER WSRN TIED TO GEOID18

**FLOOD INFORMATION**  
PARCEL IS LOCATED IN ZONE "X" - AREA OF MINIMAL FLOOD HAZARD.  
PER FEMA PANEL NUMBER 5305300329E, DATED 3/7/2017.  
PER PIERCE COUNTY GIS: AREA WITHIN AREA OF REGULATED FLOODPLAIN 2017  
FLOOD INSURANCE ZONE: X-SHADED  
REGULATORY FLOOD ZONE: AE

**FLOOD PLAIN COMPENSATION CALCULATION**  
100 YR. FLOOD PLAIN EL. RANGES FROM 33.7 TO 32.0 (NAVD 88).  
ESTIMATED EXISTING 100 YR. FLOOD PLAIN STORAGE ON SITE = 19,303 CY  
ESTIMATED FLOOD PLAIN STORAGE PROVIDED UNDER DEVELOPED CONDITIONS = 19,555 CY

No.	Date	By	Chk.	Appr.	Revision

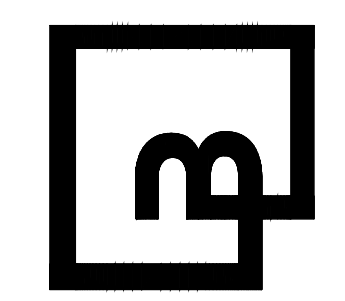
Title: **BASE FLOOD ELEVATION EXHIBIT**  
FOR  
**FREEMAN ROAD LOGISTICS**

For: **VECTOR DEVELOPMENT COMPANY**  
11411 NE 124TH ST, SUITE 190  
KIRKLAND, WA 98034

Scale:  
Horizontal 1" = 100'  
Vertical 1" = 5'

Designed: JSM  
Drawn: DTC  
Checked: JSM  
Approved: BHE  
Date: 12/16/24

**Barghausen Consulting Engineers, LLC.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
[barghausen.com](http://barghausen.com)



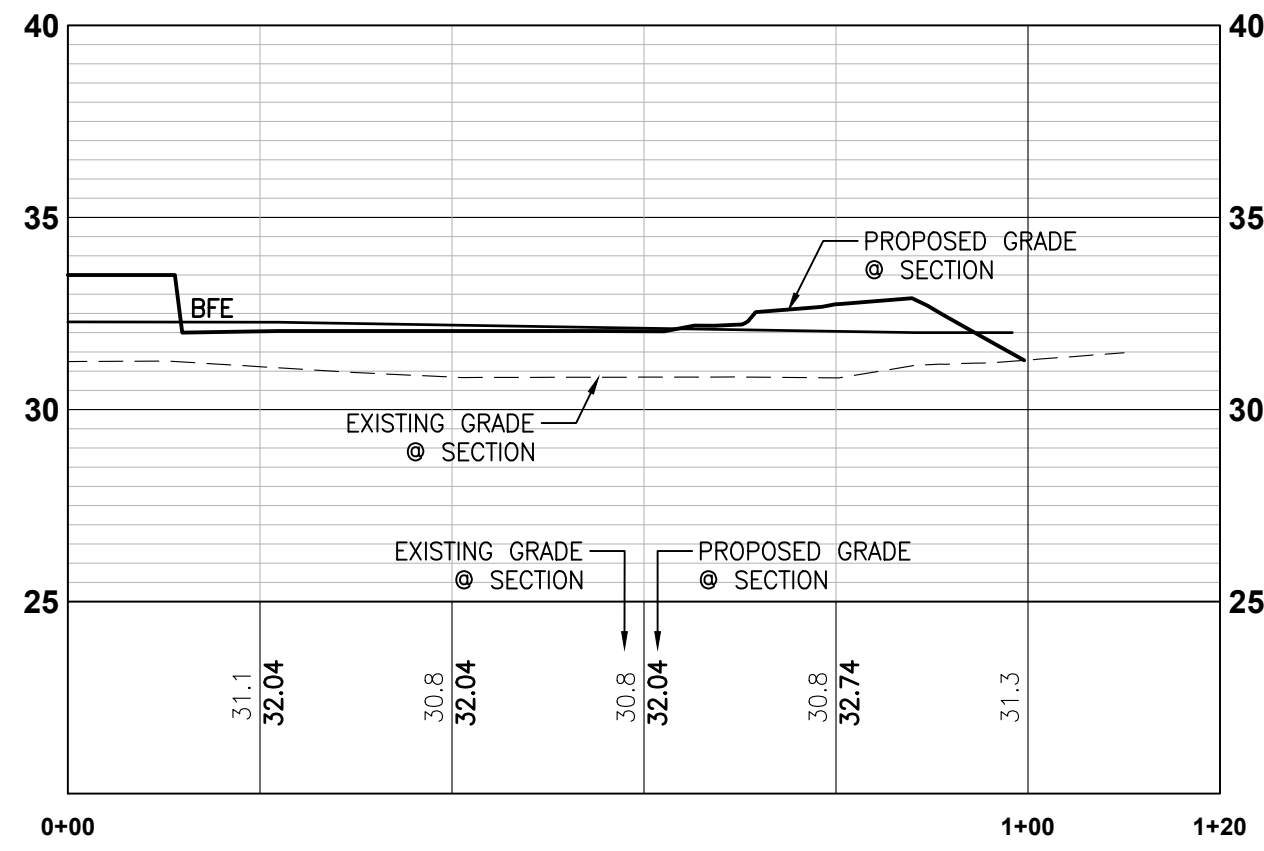
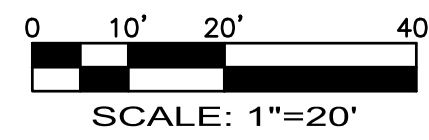
Job Number: **21585**  
Sheet: **1** of **2**

# BASE FLOOD ELEVATION EXHIBIT

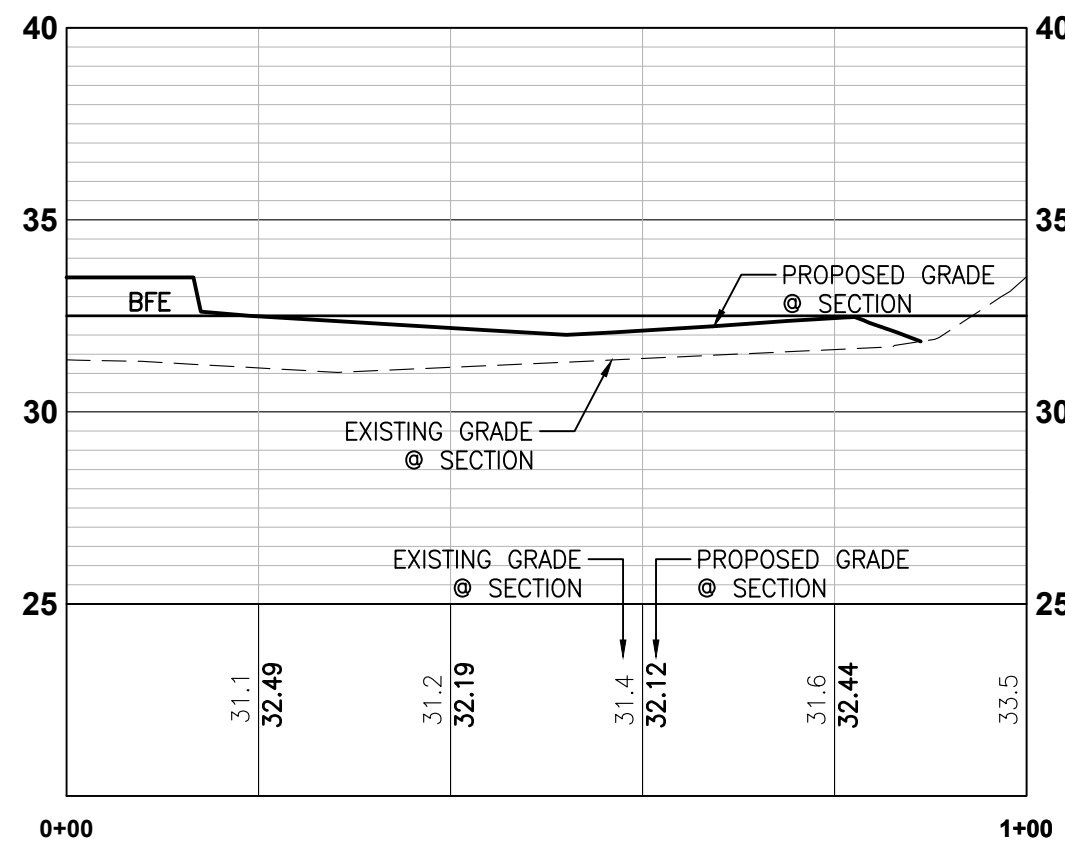
FOR

## FREEMAN ROAD LOGISTICS

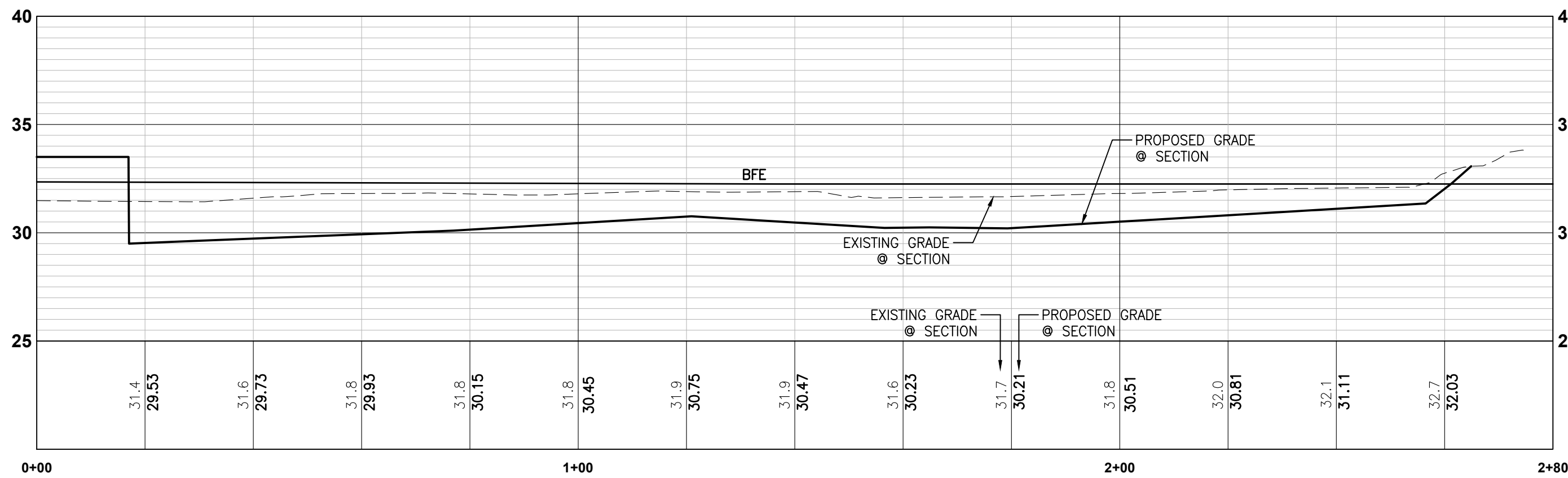
A PORTION OF THE SW $\frac{1}{4}$  OF THE SE $\frac{1}{4}$  OF THE SE $\frac{1}{4}$  OF SEC. 17, TWP. 20 NORTH, RGE. 4 EAST, W.M.  
CITY OF PUYALLUP, PIERCE COUNTY, WASHINGTON



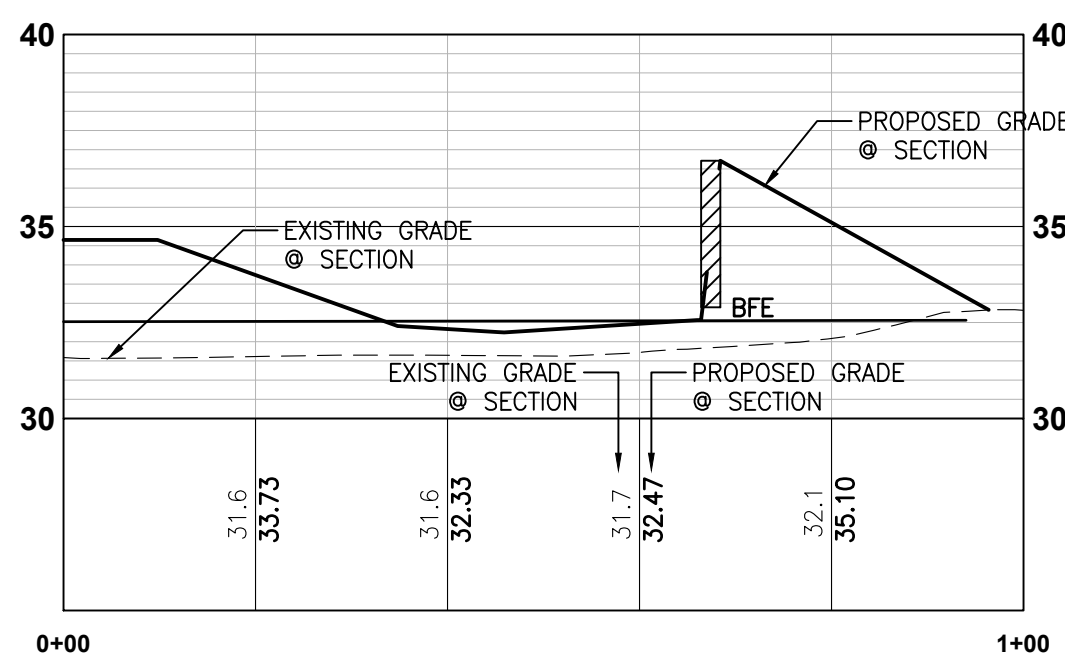
**1** BFE CROSS SECTION 1  
SCALE: HOR. 1"=20' VERT. 1"=5'



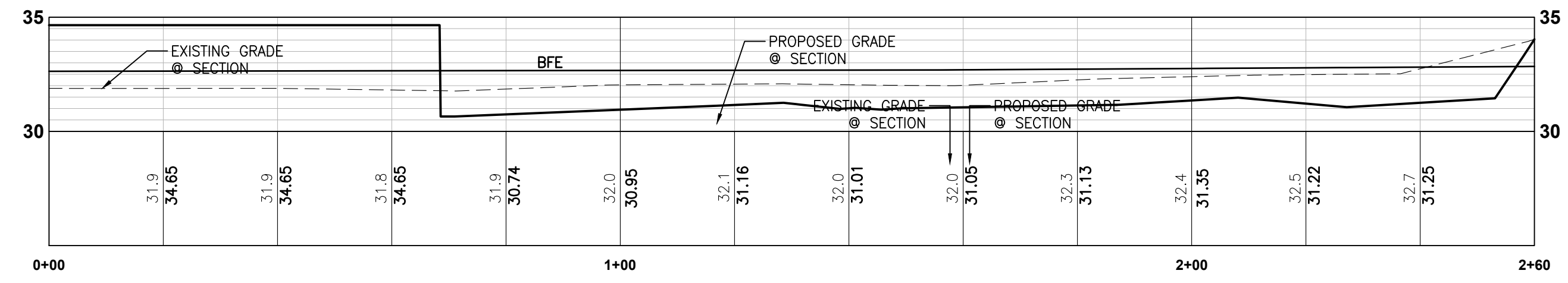
**2** BFE CROSS SECTION 2  
SCALE: HOR. 1"=20' VERT. 1"=5'



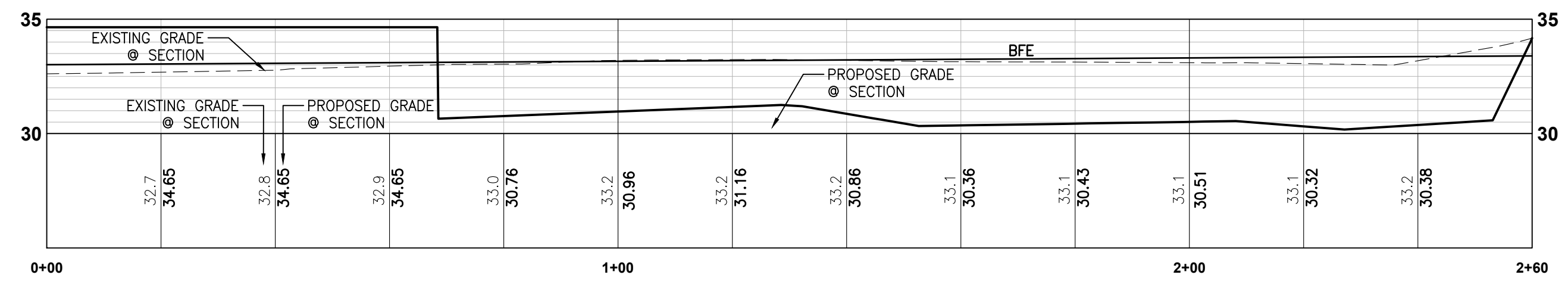
**3** BFE CROSS SECTION 3  
SCALE: HOR. 1"=20' VERT. 1"=5'



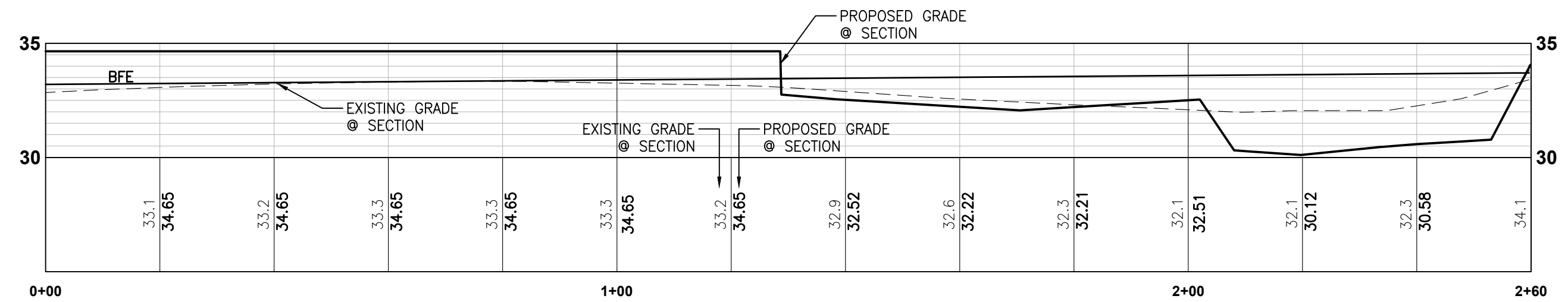
**4** BFE CROSS SECTION 4  
SCALE: HOR. 1"=20' VERT. 1"=5'



**5** BFE CROSS SECTION 5  
SCALE: HOR. 1"=20' VERT. 1"=5'



**6** BFE CROSS SECTION 6  
SCALE: HOR. 1"=20' VERT. 1"=5'



**7** BFE CROSS SECTION 7  
SCALE: HOR. 1"=20' VERT. 1"=5'

No.	Date	By	Chd.	Appr.	Revision

Title: BASE FLOOD ELEVATION EXHIBIT  
FOR  
FREEMAN ROAD LOGISTICS

For: VECTOR DEVELOPMENT COMPANY  
11411 NE 124TH ST, SUITE 190  
KIRKLAND, WA 98034

Designed	Drawn	Checked	Approved	Date
ISM	DTC	ISM	ISM	12/16/24

**Barghausen Consulting Engineers, LLC.**  
18215 72nd Avenue South  
Kent, WA 98032  
425.251.6222  
barghausen.com

Tab 3.0



## **3.0 COMPENSATORY FLOOD STORAGE PLAN**

### 3.0 Compensatory Flood Storage Plan

The project is subject to Puyallup Municipal Code (PMC) Chapter 21.07 Flood Damage Protection which requires that new construction includes methods and practices that minimize flood damage. Based on conversations with City of Puyallup officials and standards created by the American Society of Civil Engineers (ASCE) within the publication of *Flood Resistant Design and Construction*, proposed building elevations have been established a minimum of 1 foot above the recognized base flood elevation (BFE). Raising the finished floor elevation of the buildings creates a measure of protection for the proposed occupants and businesses but displaces the available storage volume for flood waters on the site. Compensatory storage is needed to mitigate for lost flood volume. Section 21.07.60(f) of PMC includes regulations for compensatory storage.

Compensatory storage must:

- A. Provide equivalent elevations to the displaced storage
  - B. Be hydraulically connected to the source of flooding
  - C. Be provided in the same construction season and before the flood season begins on Sept 30<sup>th</sup>.
  - D. Occur on site or off site if legal arrangements can be made to assure that the effective compensatory storage volume will be preserved over time; and
  - E. Be supported by a detailed hydraulic analysis that is prepared by a licensed professional engineer.
- A) Refer to the attached Base Flood Elevation Exhibit. Most of the site is located within the zone indicated on per Pierce County mapping as "X-shaded". The BFE for this zone ranges from 33.7 in the south to 32.0 in the north. The proposed site grading is such that compensatory storage is provided along the truck docks of the two warehouse buildings and within the drive aisles. Profiles are presented on the exhibit which depict the BFE versus existing and proposed grading. The existing and proposed grades typically differ by only 1-2 feet vertically. Total site elevation difference is in the range of 5-ft for the project. In our opinion the compensatory storage provided satisfies the equivalent elevation standard.
- B) Compensatory flood storage has been designed such that completed site grades are at or below the BFE for a complete transit of the site from south to north. Per the Pierce County BFE mapping, floodwaters trend from the SE to the NW across the site in decreasing elevation. The south end of the site receives overflow flooding from the adjacent wetland located on parcel #0420201008. The private road, 19<sup>th</sup> Ave NW, functions as a weir between the wetland and the project site, controlling the flow of incoming floodwater. Water flowing over the road enters the site at the southeast corner. Flood water is conveyed around the east side of the facility and then exits the site in the northwest corner, flowing north and west over Freeman Road. This flow pattern closely matches the BFE pattern as mapped by Pierce County. As such, we believe the flood compensation plan provides adequate hydraulic connectivity to the flood source.
- C) The construction timeframe for grading can be conditioned to meet the flood season requirement. This will be handled on the construction plans.
- D) Proposed flood comp will occur on site.
- E) This report provides the required engineered hydraulic analysis.

See Pierce County BFE Exhibit. Based on our understanding of the Pierce County GIS mapping and BFE information, the Puyallup River is the source of flood water. During the 1% event (BFE), flood water appears to exceed the levee elevation at a point along Levee Road directly to the south of the site. We do not have actual modeling data from the county to enable computation of the flow rate of flood waters crossing the site. However, we note



the mapped X-Shaded zone immediately downstream of the project site is contained within a narrow stream channel just west of Freeman Road. We also note that the BFE where water crosses Freeman Road is on the order of ~0.5-ft depth (comparing project topography to the listed BFE contour at this location). These observations suggest that flow rates associated with the flood waters are relatively modest.

The Freeman Logistics compensatory storage plan includes grading which satisfies the above criteria. A pathway for flood water is provided through the eastern half of the site containing the truck courts, then north and west along the north drive aisle of the site, allowing the flooding to pass around the buildings and continue downstream with as little change as possible versus the predeveloped condition. Using a volume comparison of surfaces in CAD, one surface representing the existing grade as surveyed and one surface representing the base flood elevation (BFE) as mapped on Pierce County GIS, the existing flood plain storage onsite was determined to be 19,303 cubic yards (CY). The same method was used to compare the BFE surface to the finished grade surface of the proposal; showing 19,555 CY of storage provided. As the proposed volume is greater than existing, adequate compensatory storage is provided by the project to offset the displacement caused at the building locations.

In our opinion, the proposed compensatory storage plan meets the requirements of Section 21.07.60(f) of PMC.