The Boeing Company
P.O. Box 3707
Seattle, WA 98124-2207

November 19, 2020
DAT-2020-039

Mr. Paul Bianco
Senior Environmental Engineer
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Dear Mr. Bianco:

Subject: Boeing Everett Facility - Draft RCRA Permit Application, No. WAD 041585464, Renewal

I have attached an electronic copy of the Boeing Everett Draft RCRA Permit Application renewal. This application renewal is being submitted as part of the Draft Clean Action Plan package for Ecology review and includes Part A and Part B documents.

Due to the Governor's work-in-place order and requirements, two hard copies of the draft permit application will be printed and delivered to your office after lifting of the Governor's order.

Please feel free to contact me if you have any questions.

Sincerely,

Deborah Taege
Project Manager
Boeing EHS Remediation
(818) 720-5575
deborah.a.taege@boeing.com

cc: Christa Colouzis, Ecology (Electronic copy)
Katie Moxley, Boeing (Electronic copy)
Stanley Alpert, Boeing (Electronic copy)

DRAFT RCRA PERMIT APPLICATION
The Boeing Company
Everett, WA
Permit No. WAD 041585464
RCRA Permit Renewal

Prepared for
The Boeing Company

Prepared by
AECOM
and
Landau Associates, Inc.

November 2020

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FIGURES

TABLES

APPENDICES

ABBREVIATIONS AND ACRONYMS

AO	Agreed Order
AOC	area of concern
AST	aboveground storage tank
BCA	Boeing Commercial Airplane
BDP	butyl diphenyl phosphate
bgs	below ground surface
Boeing	The Boeing Company
BOMARC	BOMARC Building 45-70
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Cleanup Action Plan
CMT	continuous multi-channel tubing
cDCE	cis-1,2-dichloroethene
CFR	Code of Federal Regulations
cPAH	carcinogenic polycyclic aromatic hydrocarbon
City	City of Everett
cPAH	carcinogenic polycyclic aromatic hydrocarbon
DPP	dibutyl phenyl phosphate
EPA	U.S. Environmental Protection Agency
FS	feasibility study
GET	groundwater extraction and treatment
IA	interim cleanup action
Landau	Landau Associates, Inc.
MCL	maximum contaminant limit

µg/kg	microgram per kilogram
µg/L	microgram per liter
mg/kg	milligram per kilogram
mg/L	milligram per liter
MIBK	4-methyl-2-pentanone
MTCA	Model Toxics Control Act
NAPL	nonaqueous phase liquid
NFA	no further action
NGVD	National Geodetic Vertical Datum
PAH	polycyclic aromatic hydrocarbon
PCE	tetrachloroethene
PEL	permissible exposure limit
PMC	Powder Mill Creek
PMG	Powder Mill Gulch
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RI	remedial investigation
SVE	soil vapor extraction
SVOCs	semivolatile organic compounds
SWMU	solid waste management unit
TCA	trichloroethane
TCE	trichloroethene
tDCE	trans-1,2-dichloroethene
TEX	toluene, ethylbenzene, and xylenes

TBP	tributyl phosphate
URS	URS Corporation
UST	underground storage tank
VC	vinyl chloride
VI	vapor intrusion
VOC	volatile organic compound
WAC	Washington Administrative Code
WWTP	Wastewater Treatment Plant

SECTION A: PART A FORMS

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by:	Date:								
Month Day Year	Approved by:	Date:								

Please refer to instructions for completing this form.

I. This form is submitted to: (place an "X" in the appropriate box)

	Request modification to a final status permit (commonly called a "Part B" permit)	
	Request a change under interim status	
X	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).	
	Establish interim status because of the wastes newly regulated on:	(Date)
	List waste codes:	

II. EPA/State ID Number

W	A	D	0	4	1	5	8	5	4	6	4

III. Name of Facility

Boeing Commercial Airplanes Everett

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

3003 W Casino Road

City or Town	State	ZIP Code
Everett	WA	98204

County Code (if known)	County Name
	Snohomish

B. Land Type	C. Geographic Location		D. Facility Existence Date		
	Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	Month	Day	Year
	47 55 35	122 16 20	05	01	1967

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 3707, MC 0B-288

City or Town	State	ZIP Code
Seattle	WA	98124

Ecology is an equal opportunity employer

VI. Facility contact (Person to be contacted regarding waste activities at facility)

Name (last)	(first)
Brackett	Chapin
Job Title	**Phone Number (area code and number)**
Senior Environmental Manager	425-212-7247

Contact Address

Street or P.O. Box

P.O. Box 3707, MC 0B-288

City or Town	State	ZIP Code
Seattle	WA	98124

VII. Facility Operator Information

A. Name	Phone Number (area code and number)
Brad Zaback	(425) 342-2200

Street or P.O. Box

P.O. Box 3707, MC 0P-301

City or Town	State	ZIP Code
Seattle	WA	98124

B. Operator Type	C. Does the name in VII.A reflect a proposed change in operator?			If yes, provide the scheduled date for the change: Month / Day / Year
P			Yes	
		X	No	

D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.		
		Yes
	X	No

VIII. Facility Owner Information

A. Name	Phone Number (area code and number)
The Boeing Company	312-544-2800

Street or P.O. Box

100 N. Riverside

City or Town	State	ZIP Code
Chicago	IL	60606

B. Owner Type	C. Does the name in VIII.A reflect a proposed change in owner?			If yes, provide the scheduled date for the change: Month / Day / Year
P			Yes	
		X	No	

IX. NAICS Codes (5/6 digit codes)

A. First							B. Second						
3	3	6	4	1	1	Aircraft Manufacturing	3	3	6	4	1	3	Other Aircraft Parts and Aux. Equipment
C. Third							**D. Fourth**						

X. Other Environmental Permits (see instructions)

A. Permit Type	B. Permit Number	C. Description
N	WA0991001	NPDES Permit for Boeing Everett Cleanup Site, PMC
N	WAR001143	NPDES Industrial Stormwater General Permit
E	77047-17	City of Everett Industrial Waste Discharge Permit
		See Part B for air permits (Table B-3)

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

The facility property is used for commercial aircraft manufacturing operations. Operations include:

- Subassembly, major assembly, and final assembly
- Functional test of aircraft systems
- Performance testing of aircraft or aircraft components
- Cleaning, sealing, bonding, and painting
- Component manufacturing
- Aircraft interiors fabrication
- Customer delivery
- Tooling maintenance and construction
- Plant maintenance and construction
- Engineering and administrative support

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons & 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification.*

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes								
Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	D. Process Description
					1. Amount	2. Unit of Measure (enter code)							1. Amount	2. Unit of Measure (enter code)		
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1								1							
	2								2							
	3								3							
	4								4							
	5								5							
	6								6							
	7								7							
	8								8							
	9								9							
1	0							1	0							
1	1							1	1							
1	2							1	2							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
1	9							1	9							
2	0							2	0							
2	1							2	1							
2	2							2	2							
2	3							2	3							
2	4							2	4							
2	5							2	5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number			A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes										
									(1) Process Codes (enter)										(2) Process Description [If a code is not entered in D (1)]
X	1		D	0	0	2	400	P	S	0	1	T	0	1					
X	2		D	0	0	1	100	P	S	0	2	T	0	1					
X	3		D	0	0	2													Included with above
		1																	
		2																	
		3																	
		4																	
		5																	
		6																	
		7																	
		8																	
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	1	5																	
	1	6																	
	1	7																	
	1	8																	
	1	9																	
	2	0																	
	2	1																	
	2	2																	
	2	3																	
	2	4																	
	2	5																	

Use the tab key to move from cell to cell in the electronic version of this form.
PLEASE ENTER INFORMATION ONLY IN UNSHADED AREAS.

EPA/State ID Number	W	A	D	0	4	1	5	8	5	4	6	4

Continuation of Section XIV. Description of Dangerous Waste

Line Number			A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process									
									(1) Process Codes (enter)									(2) Process Description [If a code is not entered in D (1)]

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements. .

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator	**Signature**	**Date Signed**
Brad Zaback, V.P./G.M., 777/777X, Everett Site **Name and Official Title (type or print)**		
Facility/Property Owner	**Signature**	**Date Signed**
Brad Zaback, V.P./G.M., 777/777X, Everett Site **Name and Official Title (type or print)**		

XIX. Comments

SECTION B: FACILITY DESCRIPTION AND GENERAL PROVISIONS

40 Code of Federal Regulations (CFR) 270.14(b)(1), (11), (19); 264.18

SECTIONS

TABLES

FIGURES

B-13 Land Use – City of Mukilteo

B-14 Land Use – Snohomish County

INTRODUCTION

This application is for a Resource Conservation Recover Act (RCRA) dangerous waste management permit lite for corrective action and post-closure requirements for the Boeing Company's (Boeing) manufacturing facility in Everett, WA (Everett Facility) (Table B-1). For the purposes of this permit, "Facility" includes the RCRA solid waste management units (SWMUs) and areas of concern (AOCs) located within the Everett Facility and all other properties where contamination released at or from the Everett Facility has come to be located, including the Powder Mill Gulch (PMG) area (both on and off Boeing property), the BOMARC Property, Japanese Gulch (both on and off Boeing property), Alpha Pond (Paine Field property), and Wetland 3A (Community Transit property). The location of the Facility is shown on Figures B-1 and B-2. Cleanup actions for the Facility's SWMUs and AOCs are being conducted pursuant to Agreed Order No. DE 96HS-N274 (AO) between the Washington Department of Ecology (Ecology) and Boeing.

Boeing notified the U.S. Environmental Protection Agency (EPA), Region 10, of its dangerous waste management activities at the Boeing Everett Facility on August 6, 1980, including the storage of dangerous wastes under the RCRA interim status requirements (Section 3005) and implementing regulations such as the authorized Washington State Dangerous Waste Regulations (WAC 173-303). Boeing submitted Part A of its RCRA dangerous waste storage permit application to EPA on November 17, 1980, and its Part B application on November 7, 1988, and subsequently sent several revised Part B applications in 1992, 1995, and 2000. Boeing eventually withdrew its application and remains an interim status facility without any active units.

EPA contractors performed a RCRA facility assessment of the Boeing Everett Facility in 1991 and 1993 that recommended subsurface soil and groundwater investigations of specific SWMUs and AOCs, and Ecology-identified additional SWMUs/AOCs requiring further assessment. Releases and potential releases from these SWMUs/AOCs, identified in Attachments 5 and 6 of the February 12, 1997, AO, were investigated and monitored per the Ecology-approved RI Work Plan, Interim Action Work Plan (Dames & Moore 1997a and 1997b), and subsequent addendum work plans. Additional SWMUs/AOCs were investigated during the RI time period 1997-2010. Conditions at each SWMU/AOC were presented in two RI reports (URS 2011a and URS and Landau 2011). One RI report (URS 2011a) addressed sediment, stormwater, surface water, and accumulated solids in PMG, Japanese Gulch, and Boeing Lake (known as the "Sediment RI"). The other RI report (URS and Landau 2011) addressed soil and groundwater quality at SWMUs/AOCs in upland areas of the Boeing Everett Facility and volatile organic compounds (VOCs) in groundwater and surface water in upper PMG (known as the "Upland RI"). Several existing and new SWMUs/AOCs were addressed in the Upland RI report that were not included in the AO but were subsequently requested by Ecology.

The Wastewater Treatment Plant (WWTP) has a pretreatment permit, number 7704-17, issued by the City of Everett, a delegate of the Washington Department of Ecology (Ecology) and is a permit-by-rule unit under Washington Administrative Code (WAC) 173-303-802; its operations are not within the scope of this permit renewal application.

B-1 GENERAL FACILITY DESCRIPTION

40 CFR 270.14(B)(1)

The Facility is located within the limits of Snohomish County, Washington (Figure B-2). For the purposes of this permit, the Facility consists of the Everett Facility manufacturing plant, as well as off-site property impacted by past-releases, including the Powder Mill Gulch (PMG) area both on and off Boeing property, the BOMARC Property, Japanese Gulch, Boeing Lake, Alpha Pond, and Wetland 3A.

Boeing's Everett Facility (Figure B-3) is located at 3003 West Casino Road in Everett, Washington. The facility consists of the North Complex (located north of Highway 526) and the South Complex (located south of Highway 526) and currently occupies a total of approximately 1,025 acres. The Everett Facility is owned, operated, and under the control of Boeing.

The PMG area is located on the north end of the Everett Facility property and extends off-site to the north beneath several properties including: the Seaway Center, Powder Mill Business Center (PMBC), and City of Everett (City) Lot 9 properties (Figure B-2). PMG includes PMC and associated wetlands and stormwater structures. The PMG area is also referred to as the Esperance Sand, PMG SWMU or SWMU 180.

Alpha Pond is located off-site on Paine Field property west of the Facility's South Complex (Figure B-2). Alpha Pond constitutes the headwaters of Japanese Gulch. Alpha Pond discharges to Japanese Gulch via a 48-inch diameter pipe that passes beneath State Route 526.

Japanese Gulch is a freshwater creek covering approximately 14 acres located off-site to the west of the Facility's North Complex (Figure B-2). Japanese Gulch is located north of State Route 526 and west of the North Complex.

The BOMARC Business Park (BOMARC Property) is located near the southeast corner of the Airport Road and BOMARC Road intersection at 9205 Airport Road (Figure B-4). The BOMARC Property is located southeast of the Boeing Everett Facility South Complex. The BOMARC Property consists of an approximately 30.1-acre parcel, owned by Snohomish County, developed with an approximately 455,380-square-foot building (Building 45-70), and three office buildings (Buildings 45-80 and 45-801) that are owned by Boeing. The buildings are surrounded by asphalt-paved parking and storage areas.

NATURE OF BUSINESS

The Boeing Everett Facility is the main manufacturing complex for Boeing's 747, 767, 777, and 787 jetliners. Construction of the facility began in 1966, including the final assembly building for assembly of the 747. The facility was expanded in 1980 to accommodate 767 production and again in 1992 to accommodate 777 production. The current and foreseeable future use of the facility property will be for commercial aircraft manufacturing operations. The BCA Everett Plant is primarily dedicated to the manufacture of commercial aircraft. Operations include:

- Subassembly, major assembly, and final assembly
- Functional test of aircraft systems
- Performance testing of aircraft or aircraft components
- Cleaning, sealing, bonding, and painting
- Component manufacturing
- Aircraft interiors fabrication
- Customer delivery
- Tooling maintenance and construction
- Plant maintenance and construction
- Engineering and administrative support

Lists of the environmental permits associated with the Boeing Everett Facility are provided in Tables B-2 and B-3.

Boeing occupied the BOMARC Property from 1990 through 1999 and operations included sub-assembly of commercial aircraft interiors. From 1999 through 2003 Building 45-70 was unoccupied, and Boeing has leased the building to several tenants. Currently, two tenants occupy Building 45-70: Giddens Industries (Giddens) (aerospace components and assemblies manufacturing) and XPO Logistics Company (XPO) (warehousing and distribution of Boeing 787 parts). The office buildings are occupied by Boeing.

B-2 TOPOGRAPHIC MAP

40 CFR 270.14(B)(1)

Detailed topographic mapping of the Facility is shown on Figure B-5. All elevations shown on Figure B-5 are referenced to the North American Vertical Datum of 1988 (NAVD88). The detailed topographic map shows buildings, structures, localized surface water drainage features, and provides a reference for other maps described in this section.

100-YEAR FLOODPLAIN AND SURFACE WATERS

The Boeing Everett Facility is not located within the 100-year floodplain (Figure B-6).

WIND DIRECTION

Wind direction data compiled by Boeing is presented on Figure B-7.

DRAINAGE

Stormwater from the developed portion of the Boeing Everett Facility is captured by a stormwater collection system and routed through detention and sedimentation basins, retention ponds, peat/sand filters, other media filters, catch basins, and oil/water separators that collect and manage stormwater generated by the plant before they are discharged into one of the three

natural drainages: PMG, Edgewater Creek, and Japanese Gulch. The storm systems at the Facility are shown on Figure B-8.

Because the Facility was built over Powder Mill Gulch, Boeing's storm drainage system was designed to accept stormwater that would normally flow over the entire length of the gulch to Puget Sound. This includes collection of stormwater from business and residential properties to the south of Boeing Property, specifically to the area north of Kasch Park Road, south of SR-526, east of Airport Road, and west of 18th Avenue West.

All sanitary sewage is pumped to the City of Everett sewage treatment plant located in Everett, Washington. The sanitary sewer systems at the Boeing Everett Facility are shown on Figures B-9a and B-9b.

Industrial waste lines, including lines that carry oil, acid, and alkaline wastes, are shown on Figure B-8. Industrial waste lines are plumbed to the wastewater treatment plant. As previously discussed, the WWTP and all related piping, tanks, and sumps are under the authority of the City of Everett pretreatment permit and are a permit-by-rule unit under Washington Administrative Code (WAC) 173-303-802; its operations are not within the scope of this permit renewal application.

ACCESS CONTROL SYSTEMS

A perimeter fence surrounds the Everett Facility (Figure B-10). Entry to the Everett Facility is via four vehicular-guarded gates and multiple badge reader turnstiles or doors. There is one badging reader vehicular gate for Boeing vehicles. The railroad may enter the site using a normally locked gate. The facility is patrolled 24-hours, 7 days a week, by security guards. The main facility is surrounded by chain link fence with barbed wire or other barriers. The exceptions are the 40-88 office building, which can be accessed by badge reader doors, and the North and South ramps of the Flightline, which are open to Paine Field. Paine Field has a secured perimeter with its own security staff.

BOMARC Building 45-70 is surrounded by a perimeter fence with a normally open gate. The 45-70 has tenants that are responsible for the security of their leased spaces. The BOMARC office buildings are accessed by badge reader doors.

Boeing Lake, Japanese Gulch, Wetland 3A, Alpha Pond, and Powder Mill Gulch areas are unfenced.

WATER SUPPLY AND UNDERGROUND INJECTION WELLS

No water supply wells or underground injection wells are located at the Boeing Everett Facility.

SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

The AO identified solid waste management units (SWMUs) and areas of concern (AOCs) to be addressed during the remedial investigations (RI). SWMUs and AOCs from the RI/FS are shown on Figure B-11. SWMUs and AOCs were added through the FS process and are further discussed in Section J of the Part B application package.

B-3 FACILITY LOCATION INFORMATION

40 CFR 270.14(b)(11); 264.18

The Everett Facility is located in Everett, WA, with Mukilteo adjacent to its south and west boundaries. Land use is shown on Figures B-12 through B-14. The land around the Facility is generally zoned for commercial or industrial use, with some residential south of Highway 526.

Table B-1
General Information
RCRA Permit B Application
Boeing Everett Facility

Name of Company	The Boeing Company
Name of Owner	The Boeing Company
Facility Contact	Chapin L. Brackett, Senior Environmental Manager
Facility Location	3003 W Casino Rd, Everett, WA 98204-1910
Facility Mailing Address	P.O. Box 3707, MC 0B-288, Seattle, WA 98124
Telephone Number	(425) 212-7247
County	Snohomish
Latitute **Longitude**	47.91944 -122.27281
EPA/State ID Number	WAD041585464
Size of Facility	1,025 acres
Nominal Elevation of Plant	540 ft ASL
Date Hazardous Waste Operations Started	November 19, 1980

Table B-2
Boeing Everett Environmental Permits
RCRA Permit B Application
Boeing Everett Facility

Permit Number	Agency	Description
WA0991001	Ecology	NPDES Permit for Boeing Everett Cleanup Site, Powder Mill Creek
7704-17	City of Everett	City of Everett Industrial Waste Discharge Permit (Pretreatment)
WAR001143	Ecology	NPDES Industrial Stormwater General Permit
WAD041585464	Ecology	Hazardous waste identification number
8262	Ecology	EV-024-1, UST ID #: 620002, Tag #: A5663
8262	Ecology	EV-048-1 & EV-049-1, UST ID #: 619998, Tag #: A8031
8262	Ecology	EV-069-1, UST ID #: 620004, Tag #: A5665
8262	Ecology	EV-176-1, UST ID #: 620003, Tag #: A5664
8262	Ecology	EV-355-1, UST ID #: 620013, Tag #: A5669

Table B-3
Active Boeing Everett Facility Air Permits
RCRA Permit B Application
Boeing Everett Facility

NOC No.	Description	Building
2084	W&W 1500 Ton Press #2	40-56
2139	Spray Booth	40-56
2141	Jet Fuel Tank	45-18
2661	WWTP Air Stripper & Fan	45-06
3046	Curing Oven	40-56
3058	Vacuum System w/ Cyclone/Baghouse	40-21
3060	Vacuum Pumps, Sutorbilt (4)	40-56
3189	Lamp Repair Facility w/Exhaust	40-33
3371	Spray Booth	40-10
3387	Precision Silkscreen Printline #5	40-56
3446	Alcohol Chill Tank	40-31
3447	W&W 1500 Ton Press #1	40-56
	W&W 1500 Ton Press #6	40-56
	W&W 1500 Ton Press #7	40-56
	W&W 1200 Ton Press #8	40-56
3763	Paint Hangar, 45-04	45-04
3812	Precision Silkscreen Printline #2	40-56
3874	767 FBJ CIC Vent. System, West	40-32
3892	40-37 CST&P Facility	40-37
3913	767 J&I/HS CIC Vent. System, BS 41-43	40-21
3915	767 WS/WBJ CIC Vent. System	40-33
3917	747 VF CIC Vent. System	40-23
3918	747 HS CIC Vent. System	40-21
3924	747 WBJ CIC Vent. System (40-22)	40-22
3926	747 FBJ CIC Vent. System (40-22)	40-22
3953	W&W 1000 Ton Press #1N	40-56
3954	W&W 1000 Ton Press #2N	40-56
3955	W&W 1000 Ton Press #3N	40-56
3956	W&W 1000 Ton Press #4N	40-56
3980	Minster 200 Ton Perforating Press	40-56
3986	Spray Booth, Adhesive	40-56
3988	Spray Booth, Adhesive	40-56
3992	Spray Booth, Adhesive	40-56
3997	Spray Booth, Adhesive	40-56
3999	Spray Booth, Adhesive	40-56
4006	767 CST&P Wing Stub Oven, North	40-33
4013	Fjellman Multi-Opening (6) Press	40-56
4014	Fjellman Multi-Opening (12) Press	40-56
4015	Siempelkamp Multi-Open. (6) Press	40-56
4016	Siempelkamp Multi-Open. (12) Press	40-56
4024	Hazardous Waste Min. Facility	40-15
4119	777 Wing Panel CS&P Facility (#1)	40-34

Table B-3
Active Boeing Everett Facility Air Permits
RCRA Permit B Application
Boeing Everett Facility

NOC No.	Description	Building
4120	777 Wing Panel CS&P Facility (#2)	40-34
4121	777 Wing Panel CS&P Facility (#3)	40-34
4122	777 Wing Panel CS&P Facility (#4)	40-34
4123	777 Wing Spar CS&P Facility (#1)	40-04
4124	777 Wing Spar CS&P Facility (#2)	40-04
4125	777 Wing Spar CS&P Facility (#3)	40-04
4126	777 Wing Spar CS&P Facility (#4)	40-04
4170	Fostoria IR Oven, MR&D	40-30
4172	Fostoria IR Oven	40-56
4173	Fostoria or Brown IR Oven	40-56
4207	Fostoria IR Oven	40-56
4208	Fostoria IR Oven	40-56
4209	Fostoria IR Oven	40-56
4231	Silkscreen Printline Supplemental Exhaust	40-56
4247	777 Wing Major Spray Painting Ops.	40-34
4249	Vertical Wing Spray Booth, South	40-51
4250	Vertical Wing Spray Booth, North	40-51
4269	Oven Systems Curing Oven	40-56
4270	Oven Systems Curing Oven	40-56
4274	777 FA CIC Coating Ops. (40-25)	40-25
4420	Vacuum System w/ Cyclone/Baghouse, #2	40-56
4421	Vacuum System w/ Cyclone/Baghouse, #1	40-56
4422	Vacuum System w/ Cyclone/Baghouse, #3	40-56
4423	Vacuum System w/ Cyclone/Baghouse, #4	40-56
4425	Vacuum System w/ Cyclone/Baghouse	40-56
4426	Vacuum System w/ Cyclone/Baghouse	40-56
4432	Vacuum pump, Gardner-Denver, #1	40-56
4433	Vacuum pump, Gardner-Denver, #2	40-56
4434	Vacuum pump, Gardner-Denver, #3	40-56
4435	Vacuum pump, Gardner-Denver, #4	40-56
4436	Vacuum pump, Gardner-Denver, #5	40-56
4437	Vacuum pump, Gardner-Denver, #6	40-56
4438	Vacuum pump, Gardner-Denver, #7	40-56
4496	Vacuum System w/ Cyclone/Baghouse	40-05
4497	Vacuum System w/ Cyclone/Baghouse	40-05
4501	Spray Booth, Rudder & Elevator	45-04
4502	Spray Booth, Rudder & Elevator	45-04
4539	Despatch Air Flow Booth	40-56
4566	Vacuum System w/ Cyclone/Baghouse	40-01
4607	Gas Fired Air Handling System	40-56

Table B-3
Active Boeing Everett Facility Air Permits
RCRA Permit B Application
Boeing Everett Facility

NOC No.	Description	Building
4613	Boiler #4, 125,000 PPH	40-12
	Boiler #5, 125,000 PPH	45-07
	Boiler #6, 125,000 PPH	45-07
4651	Despatch Curing Oven	40-56
5038	Boiler #1, 2 & 3 Low-NOx Burner Retrofit	40-12
5051	Spray Booth, 777 46/47/48 Body Sect. CS&P	40-37
5054	Spray Booth, 777 41/43 Body Sect. CS&P	40-37
5060	Spray Booth, 777 44/45 Body Sect. CS&P	40-37
5061	Spray Booth, 777 Dolly Parts	40-37
5070	Solvent Cleaning Benches (3)	40-37
5178	Silkscreen Wash Booths (3)	40-56
5246	Vacuum System w/ Cyclone/Baghouse	40-01
5692	Vacuum System w/ Baghouse	40-31
5840	Spray Booth, Adhesive	40-56
5868	Vacuum System w/ Cartridge Dust Collector	40-11
5876	Vacuum Systems w/ Baghouse (2)	40-37
5903	Spray Booth	45-03
5904	Vacuum System w/ Cyclone/Baghouse	40-56
5913	767 Wing Panel CS&P Spray Booth	40-33
6582	Vacuum System w/ Cyclone/Baghouse	40-31
6690	Solvent Cleaning Bench	40-25
6691	Solvent Cleaning Benches (3)	40-33
6902	Prep Booth, Rudder & Elevator	45-04
7210	Paint Hangar, 45-01	45-01
7217	Paint Hangar, 45-03	45-03
7498	Open Spray Coating Operations	Everett Site
7509	Spray Booth	45-02
7550	Styrene Application	Everett Site
7637	40-51 CST&P Facility	40-51
7744	Spray Booth, Adhesive	40-56
8071	ANESHAP Averaging Scheme	Everett Site
8282	Spray Booth, Adhesive	40-56
8292	Spray Booth, Vinyl Repair	40-23
8315	767 Wing Stub Buildup CIC Vent. System	40-33
8330	Everett Truck Fueling Station	40-10
8603	Air Lock Spray Booth	45-01
8761	Spray Booth, MR&D	40-30
9058	Spray Booth, 777 41/43 Body Sect. CIC	40-37
	Spray Booth, 777 44/45 Body Sect. CIC	40-37
	Spray Booth, 777 46/47/48 Body Sect. CIC	40-37
	Spray Booth, 777 Horiz. Stab. CIC	40-37

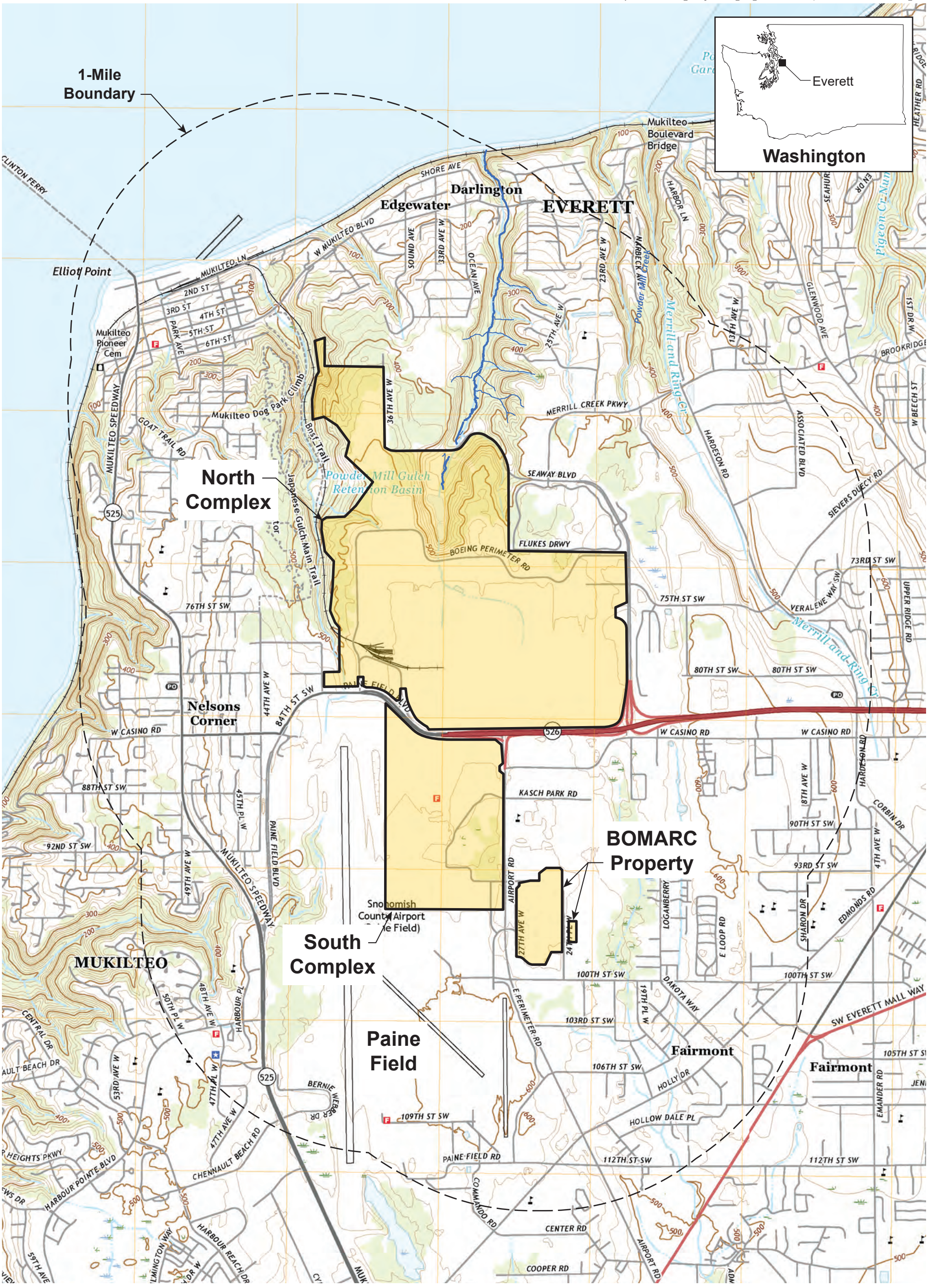
Table B-3
Active Boeing Everett Facility Air Permits
RCRA Permit B Application
Boeing Everett Facility

NOC No.	Description	Building
9571	Spray Booth, Adhesive	40-56
9705	Spray Booth, PSD	40-54
10060	Screen Print Line, Rotary	40-56
10316	787 Vertical Fin Spray Booth #1	40-37
	787 Vertical Fin Spray Booth #2	40-37
10336	747 HS Spray Coating Position	40-51
10868	Flatbed Screen Print Line	40-56
10931	777 Non-Robotic Wing Laydown Spray Booths (2)	40-37
	777 Robotic Wing Laydown Spray Booths (2)	40-37
	777 Vertical Wing Spray Booth	40-37
11131	Spray Booth, Adhesive	40-56
11308	777X LRIP WBJ spray coating ventilation system	40-24
	777 WBJ Mobile Containment System	40-25
11326	Spray Booth, Emergent Operations	40-31
11360	Spray Booth, Emergent Operations	40-31
11600	WWTP Air Stripper	45-08
11709	Spray Booth No. 1	40-51
	Spray Booth No. 2	40-51
	Spray Booth No. 3	40-51
11744	777 CWC Wing Panel Prep Booth #1	40-58
	777 CWC Wing Panel Prep Booth #2	40-58
	777 CWC Wing Panel Spray Booth #1	40-58
	777 CWC Wing Panel Spray Booth #2	40-58
	777 CWC Wing Spar Prep Booth	40-58
	777 CWC Wing Spar Spray Booth #1	40-58
	777 CWC Wing Spar Spray Booth #2	40-58
	Autoclave #1, Gas-Fired, CWC	40-58
	Autoclave #2, Gas-Fired, CWC	40-58
	Autoclave #3, Gas-Fired, CWC	40-58
	Spray Equipment Cleaning Booths (4)	40-58
11749	Snow Melter, Trecan	Everett Site
11782	IRC Integrated Paint Facility Spray Booth #1	40-56
	IRC Integrated Paint Facility Spray Booth #2	40-56
	IRC Integrated Paint Facility Spray Booth #3	40-56
	IRC Integrated Paint Facility Spray Booth #4	40-56
11856	767 J&I CIC Vent. System, BS 45, 46-48	40-32
12010	Abrasive Blast Booth and Cartridge Dust Collector	40-23
PSD-05-02	787 Production	Everett Site
PSD-11-01	777 Production Rate Increase	Everett Site
PSD-14-01 Amendment 3	777X Production	Everett Site

Table B-3
Active Boeing Everett Facility Air Permits
RCRA Permit B Application
Boeing Everett Facility

NOC No.	Description	Building
PSD-91-01 Amendment 2	45-04 Paint Hangar	45-04
PSD-91-06 Amendment 2	777 Production	Everett Site
PSD-92-05 Amendment 2	Steam Boilers #4, #5, & #6	40-12, 45-07

NOTE: In addition to the air permits listed below, the entire Boeing Everett site is also covered by a Title V Air Operating Permit (AOP No. 13120) issued by the Puget Sound Clean Air Agency



Source: USGS 7.5-minute topographic quadrangles: Mukilteo, Washington, 2020; Everett, Washington, 2020; Edmonds East, Washington, 2020; and Bothell, Washington, 2020

Legend

Everett Plant boundary

N

0 2,000 4,000

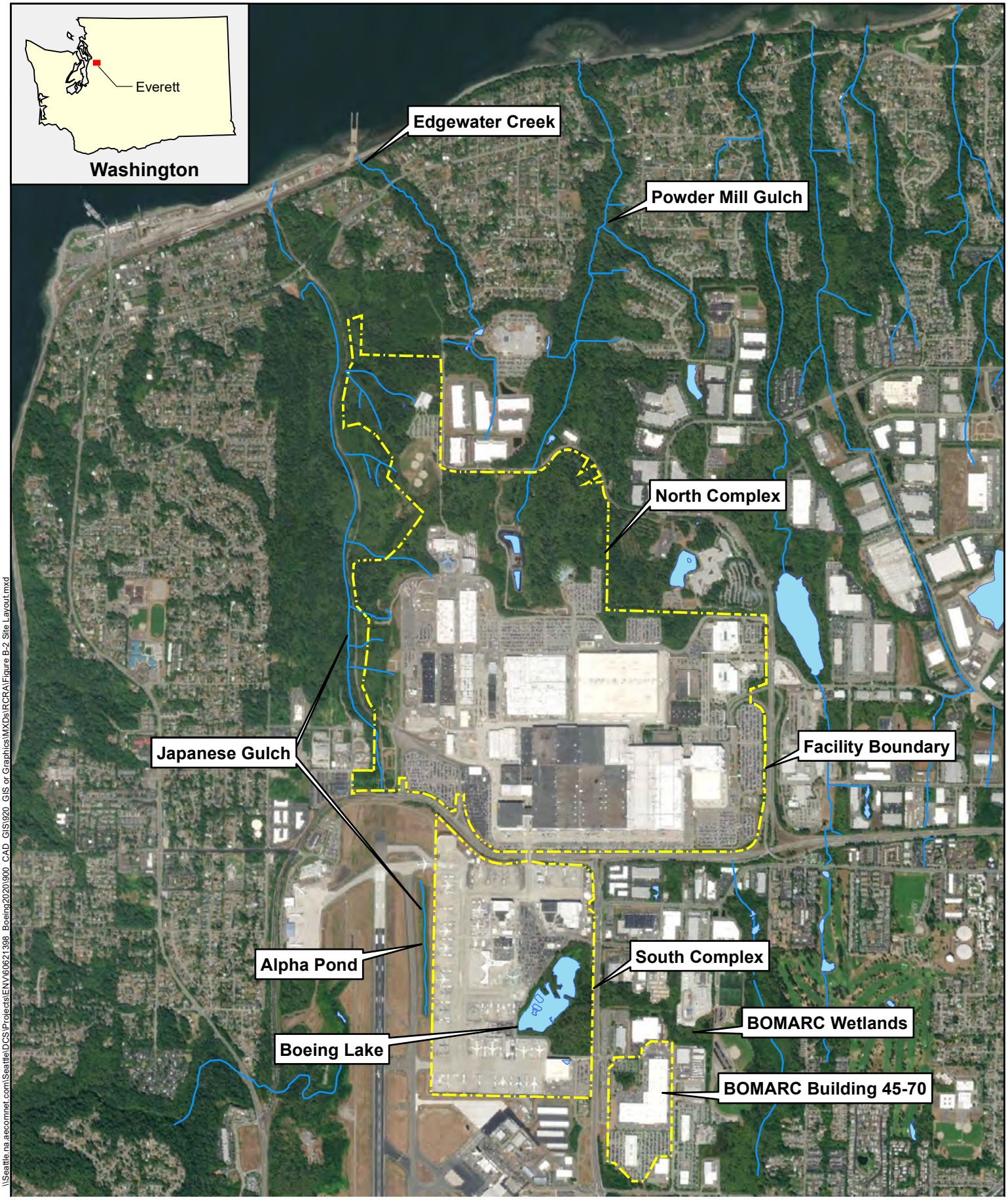
Scale in Feet

Figure B-1

Site Vicinity Map

AECOM

Boeing Everett Facility
RCRA Permit B Application

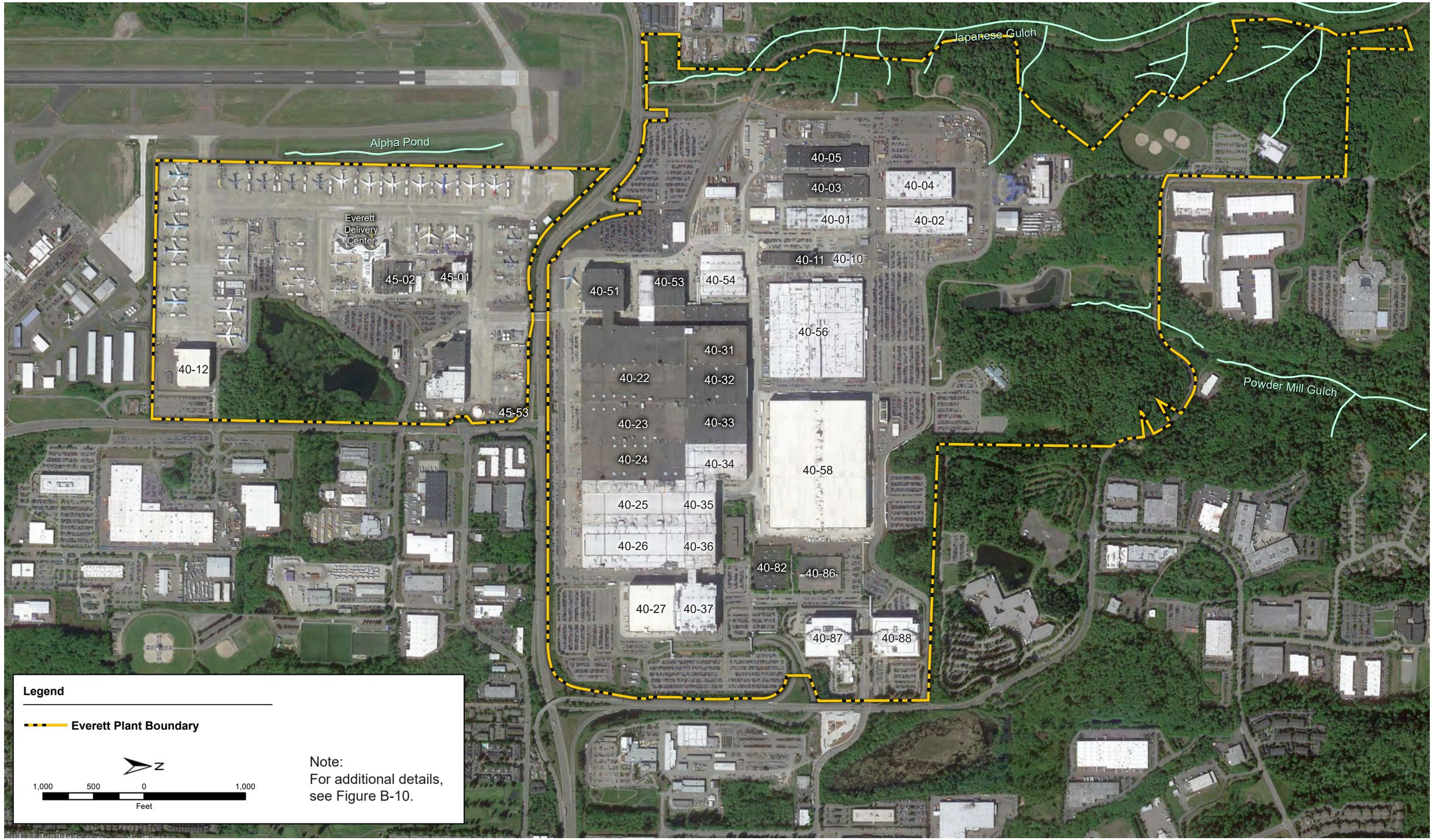


\\Seattle.na.aecomnet.com\Seattle\DCS\Projects\ENV\60621398_Boeing2020\900_CAD_GIS\920_GIS or Graphics\MXDs\RCRA\Figure B-2 Site Layout.mxd

0 1,000 2,000 4,000 Feet

Figure B-2
Site Layout

\\Seattle.na.aecomnet.com\Seattle\DCS\Projects\ENV\60595091_BoeingCA19\900_CAD_GIS\920-GIS or Graphics\60621398 GRFX\60621398_09.ai

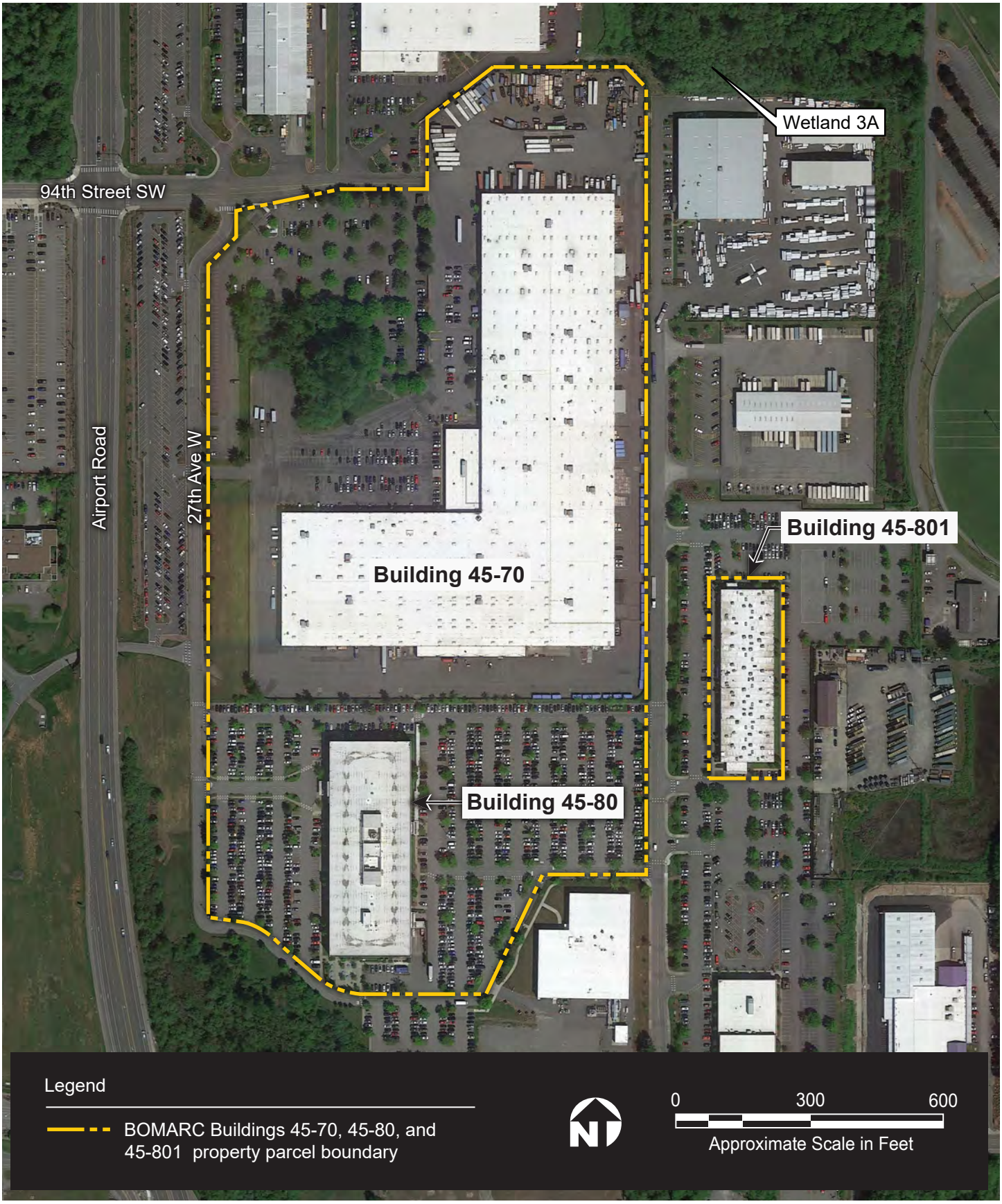


Source: Google Earth imagery dated 5/9/2019

Figure B-3

Site Plan - Boeing Everett Facility

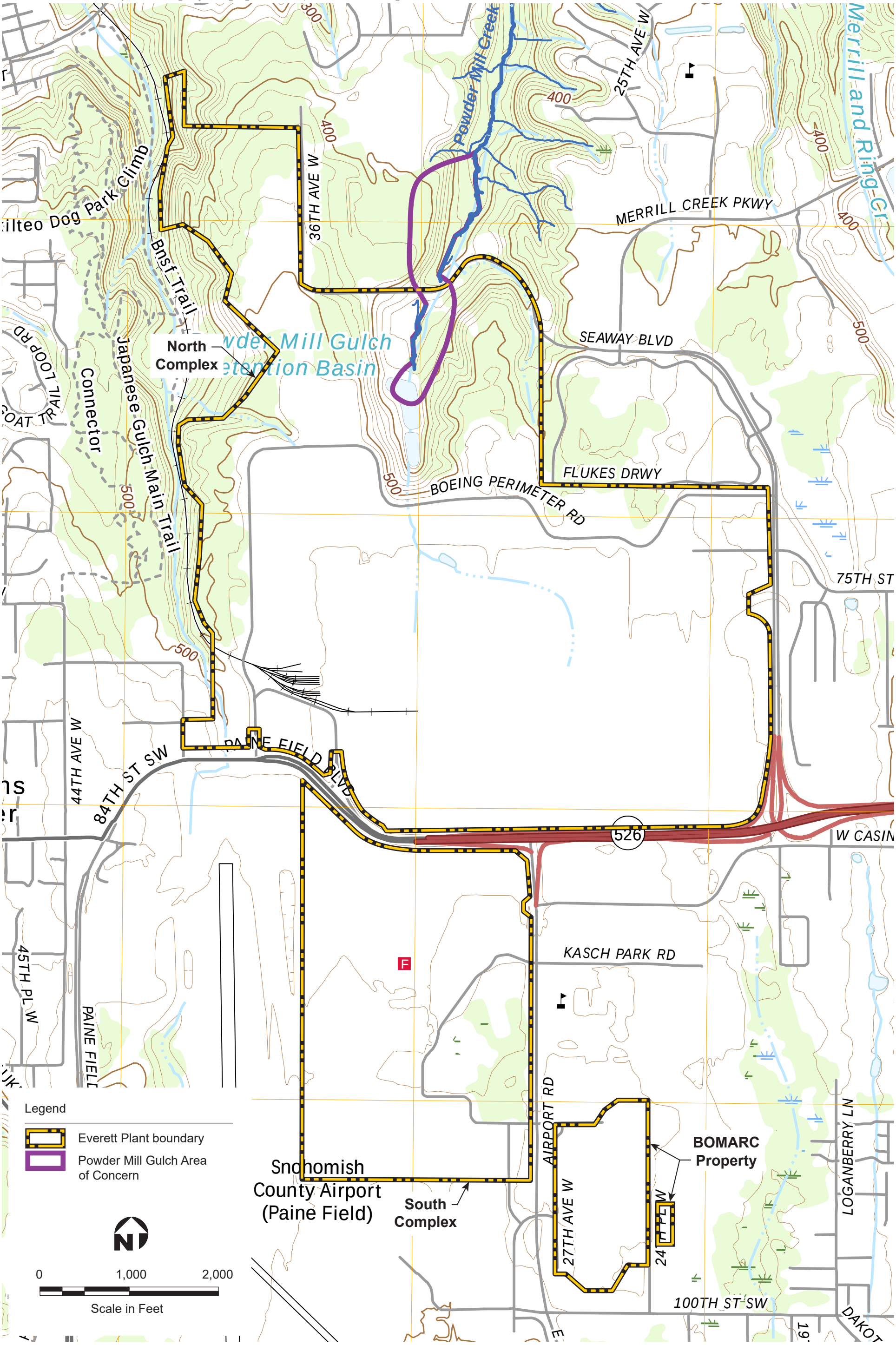
\\Seattle.na.aecomnet.com\Seattle\DCS\Projects\ENV\60595091_BoeingCA19\900_CAD_GIS\920-GIS or Graphics\60621398 GRFX\60621398_07.ai



Source: Google Earth Pro, imagery dated 5/13/18

Figure B-4

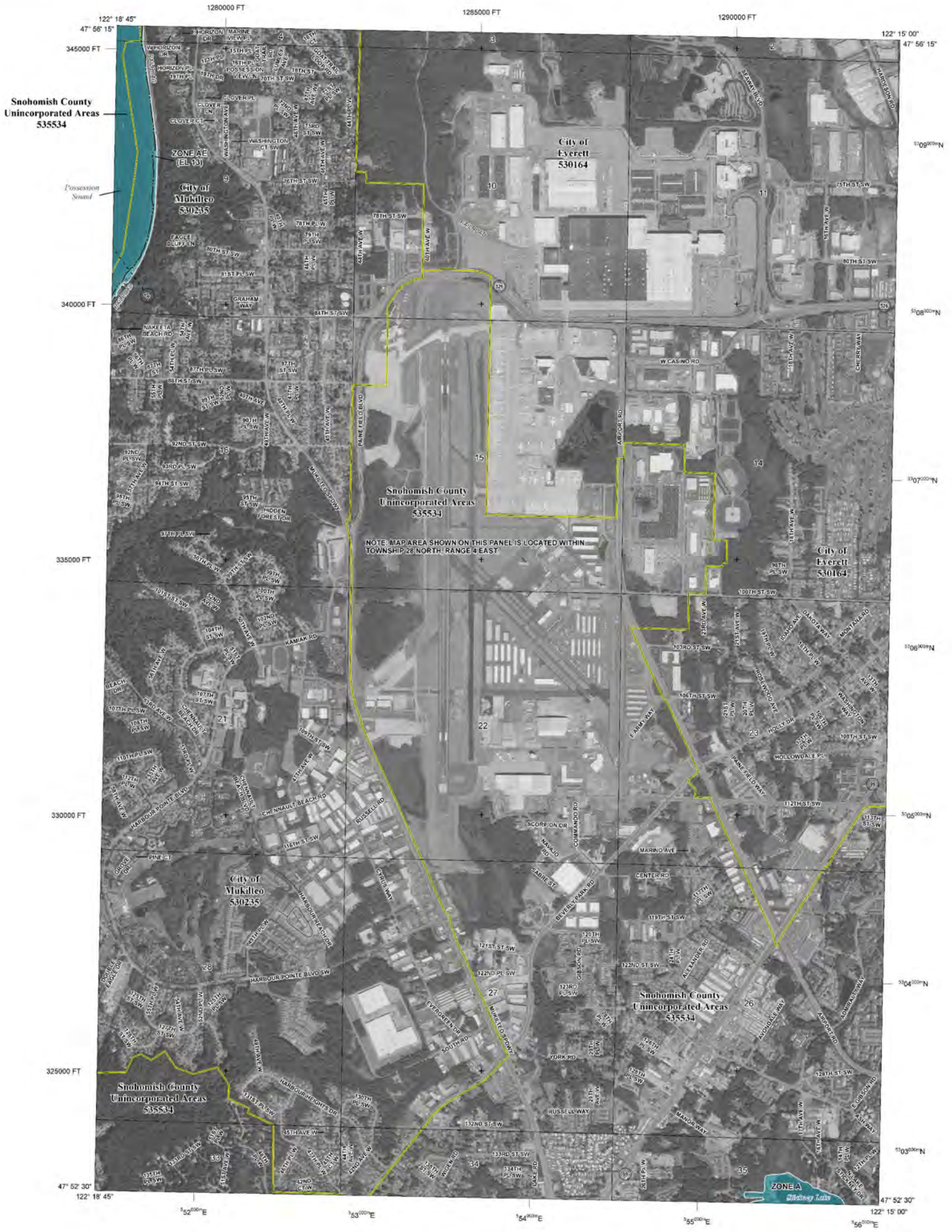
Site Plan – BOMARC Property



Source: USGS 7.5-minute topographic quadrangle, Mukilteo, Washington, 2020

Figure B-5

Facility Topographic Map



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A,V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
OTHER AREAS	NO SCREEN Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X
	Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
	E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	B Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this panel was provided by the USDA FSA Aerial Photography Field Office. This information was derived from digital orthophotography at a scale of 1:12,000 and 1-meter pixel resolution from photography dated 2009.

SCALE

N

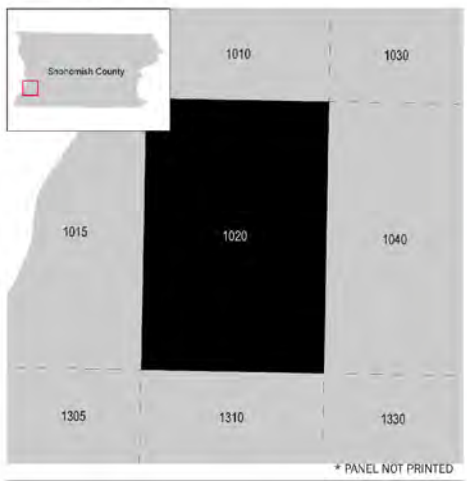
Map Projection:
NAD 1983 StatePlane Washington North FIPS 4601 Feet;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet

0 255 510 1,020 Meters

PANEL LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

SNOHOMISH COUNTY, WASHINGTON
AND INCORPORATED AREAS

PANEL 1020 OF 1575

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
EVERETT, CITY OF	530164	1020	F
MUKILTEO, CITY OF	530235	1020	F
SNOHOMISH COUNTY	535534	1020	F

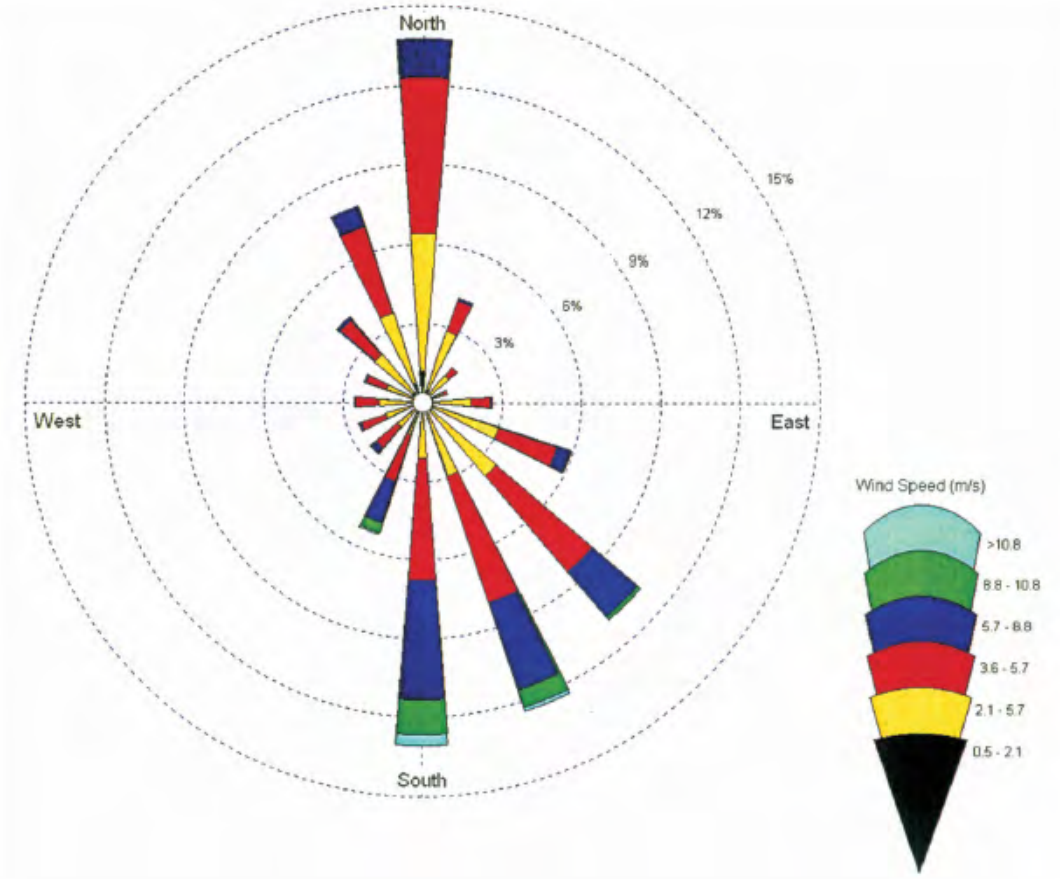
VERSION NUMBER
2.3.2.1

MAP NUMBER
53061C1020F

MAP REVISED
JUNE 19, 2020

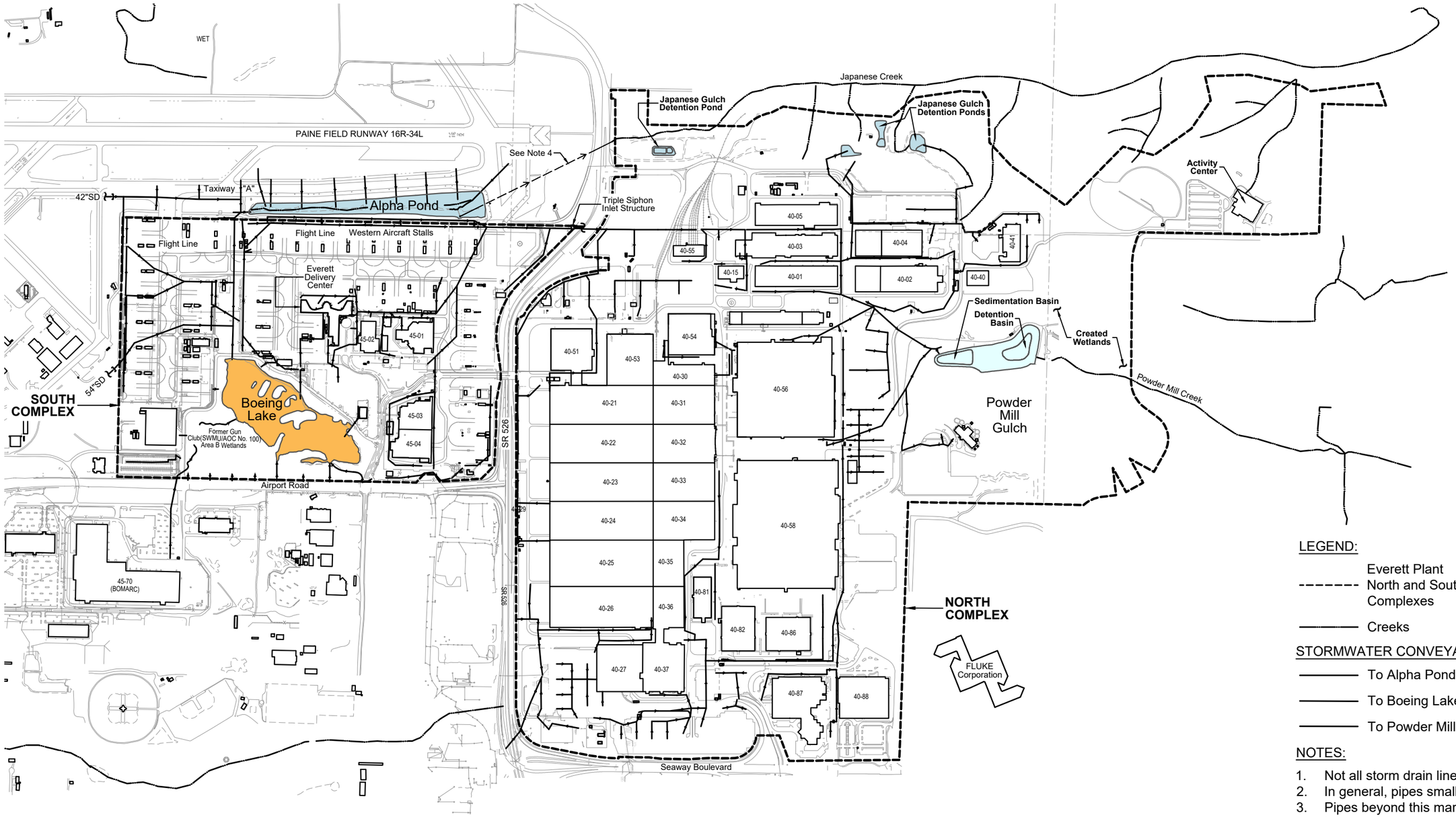
Figure B-6
Flood Hazard Map
Boeing Everett Facility
RCRA Permit B Application

Wind Direction and Velocity
South End of Paine Field - 1993 to 2002



Source: 2011 RI

Figure B-7
Wind Rose Diagram
Boeing Everett Facility
RCRA Permit B Application



LEGEND:

- Everett Plant North and South Complexes
- Creeks

STORMWATER CONVEYANCE SYSTEM

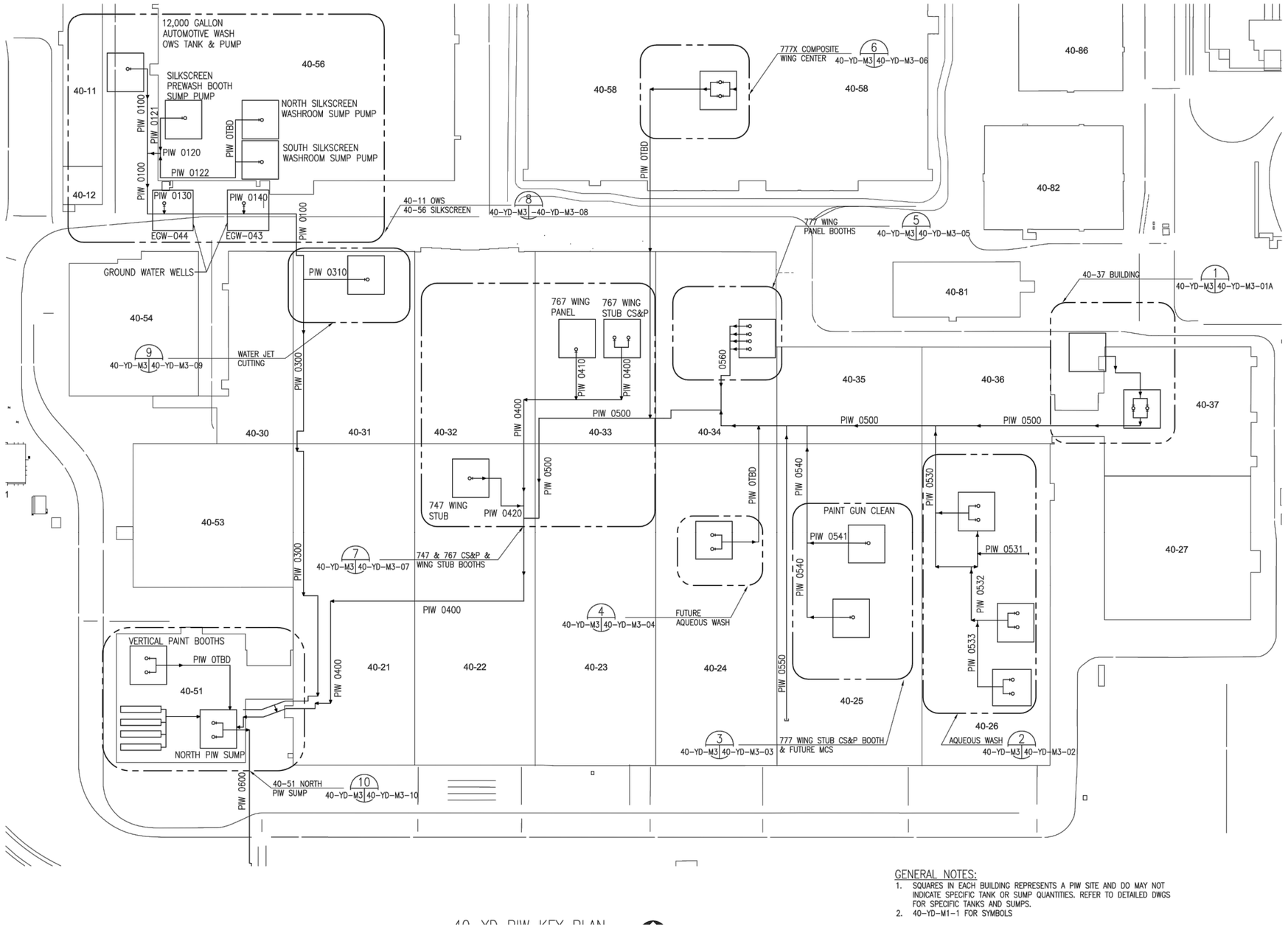
- To Alpha Pond / Japanese Gulch
- To Boeing Lake
- To Powder Mill Gulch

NOTES:

1. Not all storm drain lines are shown
2. In general, pipes smaller than 24-inch are not shown.
3. Pipes beyond this mark "≀" are not shown.
4. Location of discharge pipe from Alpha Pond to Japanese Gulch is inferred.

0 500 1,000
SCALE IN FEET

Figure B-8
Generalized Stormwater Conveyance System



GENERAL NOTES:

1. SQUARES IN EACH BUILDING REPRESENTS A PIW SITE AND DO MAY NOT INDICATE SPECIFIC TANK OR SUMP QUANTITIES. REFER TO DETAILED DWGS FOR SPECIFIC TANKS AND SUMPS.
2. 40-YD-M1-1 FOR SYMBOLS

40-YD PIW KEY PLAN

Figure B-9a

Waste Conveyance - North Complex

BOEING EVERETT FACILITY
RCRA PERMIT B APPLICATION

AECOM

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Mod: 10/30/2020, 08:09 | Plotted: 10/30/2020, 08:09 | mason.struna

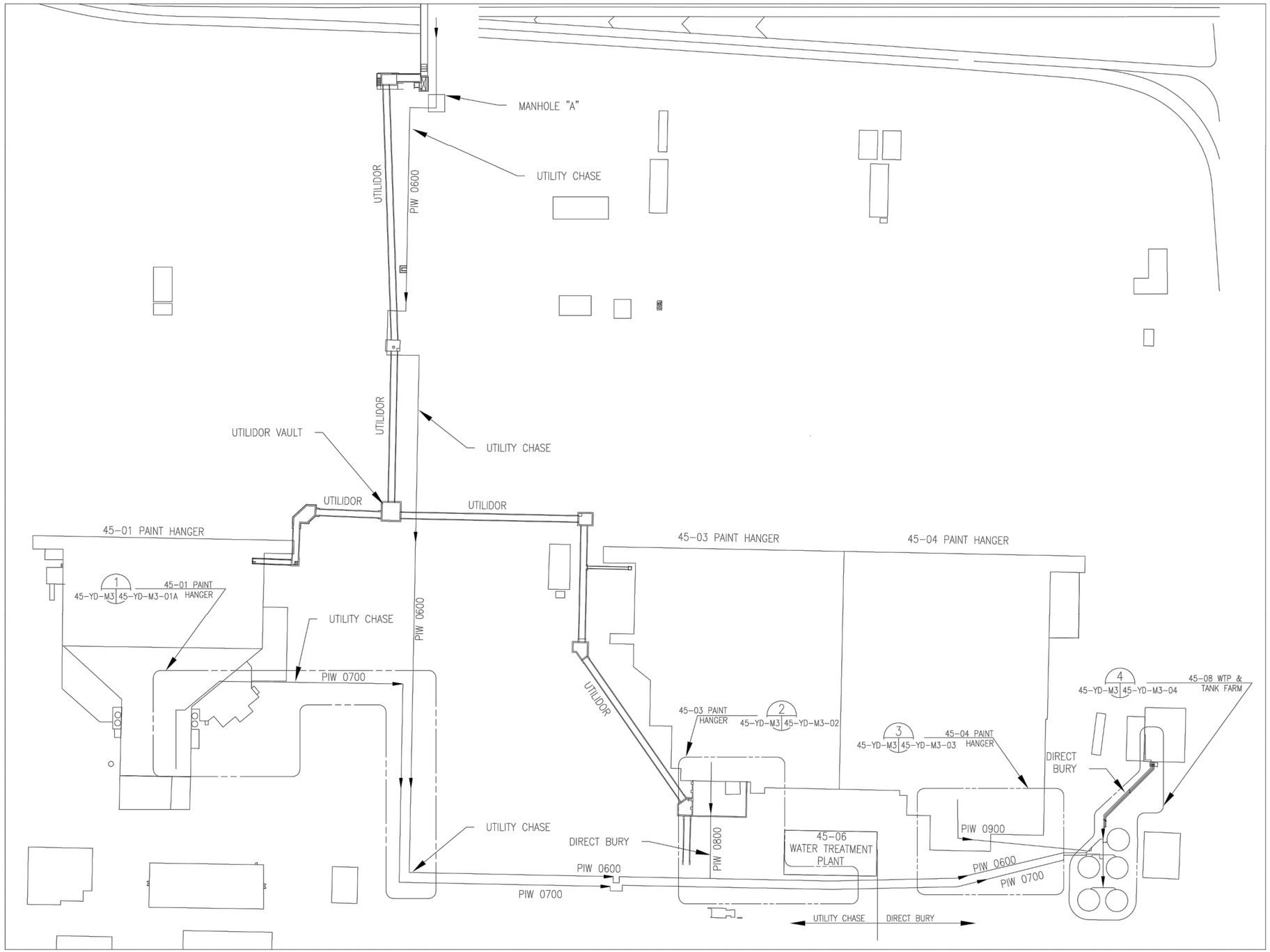


Figure B-9b

Waste Conveyance - South Complex

BOEING EVERETT FACILITY
RCRA PERMIT B APPLICATION

Washington – Everett

Everett Site
40-xx/45-xx Bldgs.
3003 West Casino Rd.
Everett, WA 98204

Harbour Pointe Technical Cntr
7-20 Bldg.
6500 Harbour Heights Pkwy.
Mukilteo, WA 98275

BOMARC
45-80 Bldg.
9801 27th Ave. W
Everett, WA 98204

Harbour Pointe Warehouse
41-02 Bldg.
12401 Harbour Reach Dr.
Mukilteo, WA 98275

BOMARC
45-801 Bldg.
9701 24th Pl. W
Everett, WA 98204

Tour Center
7-15 Bldg.
8415 Paine Field Blvd.
Mukilteo, WA 98275

BOMARC
45-802 Bldg.
9902 24th Pl. W
Everett, WA 98204

Employment Resources Center
IAM/Boeing Joint Programs
7-76 Bldg., 9901 24th Pl. W
Everett, WA 98204

Everett Modification Cntr (EMC)
45-334 Bldg.
3100 112th St. SW
Everett, WA 98204

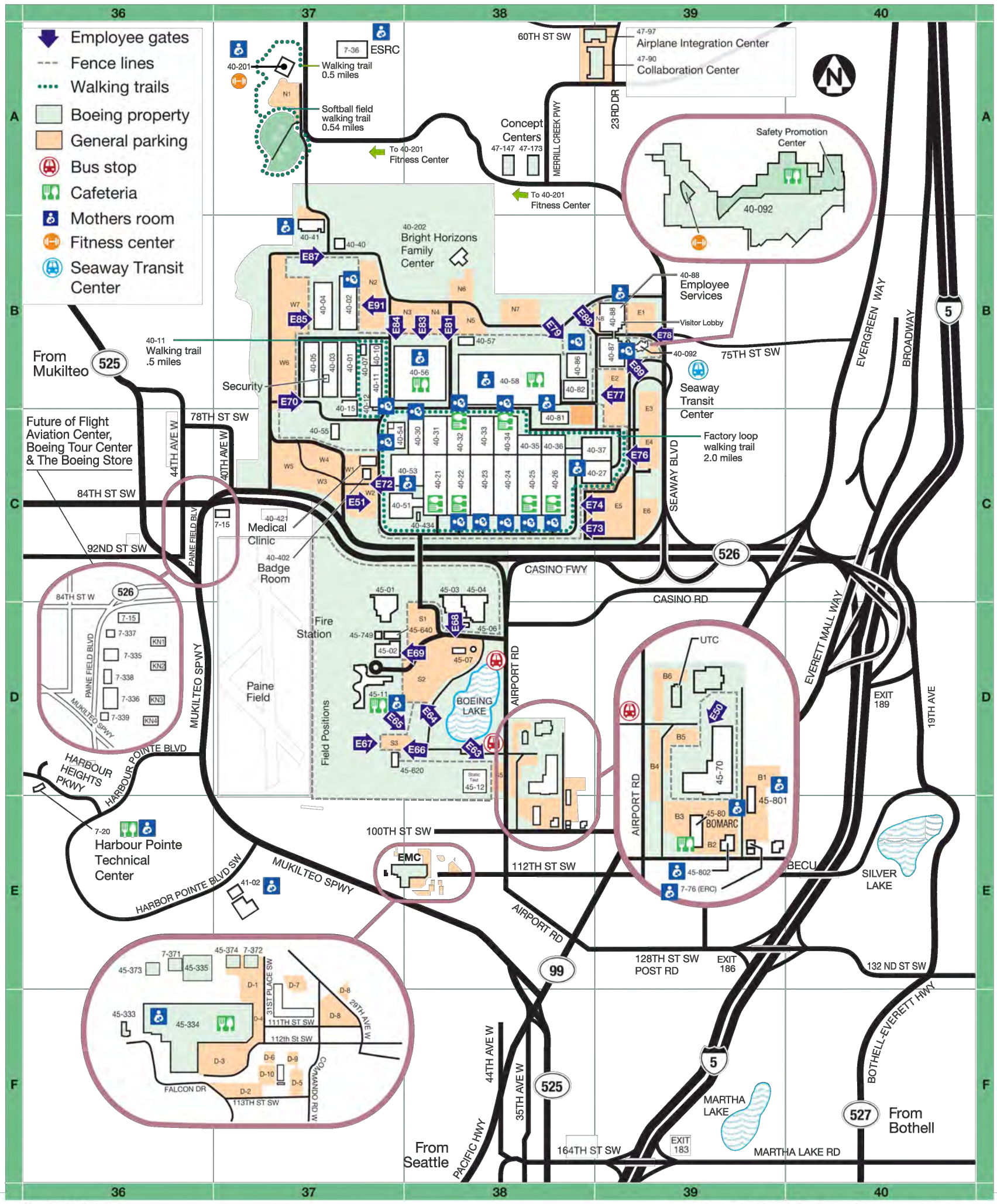
Concept Centers
47-147 (200) / 47-173 (100)
6600 Merrill Creek Pkwy.
Everett, WA 98203

ESRC
7-36 Bldg.
6001 36th Ave. W
Everett, WA 98203

Boeing Fitness Center
40-201 Bldg.
6400 36th Ave. W
Everett, WA 98204

Airplane Integration Center
47-97 Bldg.
6000 23rd Dr. W
Everett, WA 98203

Collaboration Center
47-90 Bldg.
6200 23rd Dr. W
Everett, WA 98203



Revised 07-16-2019

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Figure B-10
Boeing Everett Facility Access Control Systems

\\Seattle.na.aecomnet.com\Seattle\DCS\Projects\ENV\60595091_BoeingCA19\900_CAD_GIS\920-GIS or Graphics\60621398 GRFX\60621398_06.ai

Alpha Pond Area of Concern
Alpha Pond
SWMU 83
Everett Delivery Center
Fuel Stall Piping
Boeing Lake Area of Concern
45-02
45-01
7
SWMU 93
EGW060
SWMU 165
SWMU 68
SWMU 166
45-53
Ar
Ar
SWMU 123
45-80
45-70
BOMARC Property
SWMU 124
Wetland 3A
SWMU 90
SWMU 65
11
SWMU 151
40-51
4
40-53
3
40-54
SWMU 98
SWMU 54
40-22
Building 40-22 Utility Slants #2 and #3
40-23
40-24
Building 40-23 Static Test Pad
SWMUs 55 & 168
40-25
SWMU 177
40-26
EGW061
Esperance Sand Well EGW061
Japanese Gulch
Japanese Gulch Area of Concern
Former Paint Crib
SWMU 112
SWMU 170
SWMU 97
EV-48-1
EGW177
40-02
EGW178
SWMU 169
40-11
6
EGW040
SWMUs 86, 89 & 94
8
2
SWMUs 67 & 71
40-56
40-31
5
SWMU 171
40-32
9
Building 40-32 Footing Excavation
1
40-58
Powder Mill Gulch Area of Concern
Powder Mill Gulch

Boeing Everett Plant - Soil, Groundwater, and Surface Water Areas of Concern

- Everett Plant Boundary
- BOMARC Property Parcel Boundary
- Existing Deep Monitoring Well
- New Deep Monitoring Well
- Former Gun Club Areas
- Powder Mill Gulch Area of Concern
- Boeing Lake

N

1,000 500 0 1,000
Feet

Source: Google Earth imagery dated 5/9/2019

Figure B-11
Soil Waste Management Units and Areas of Concern

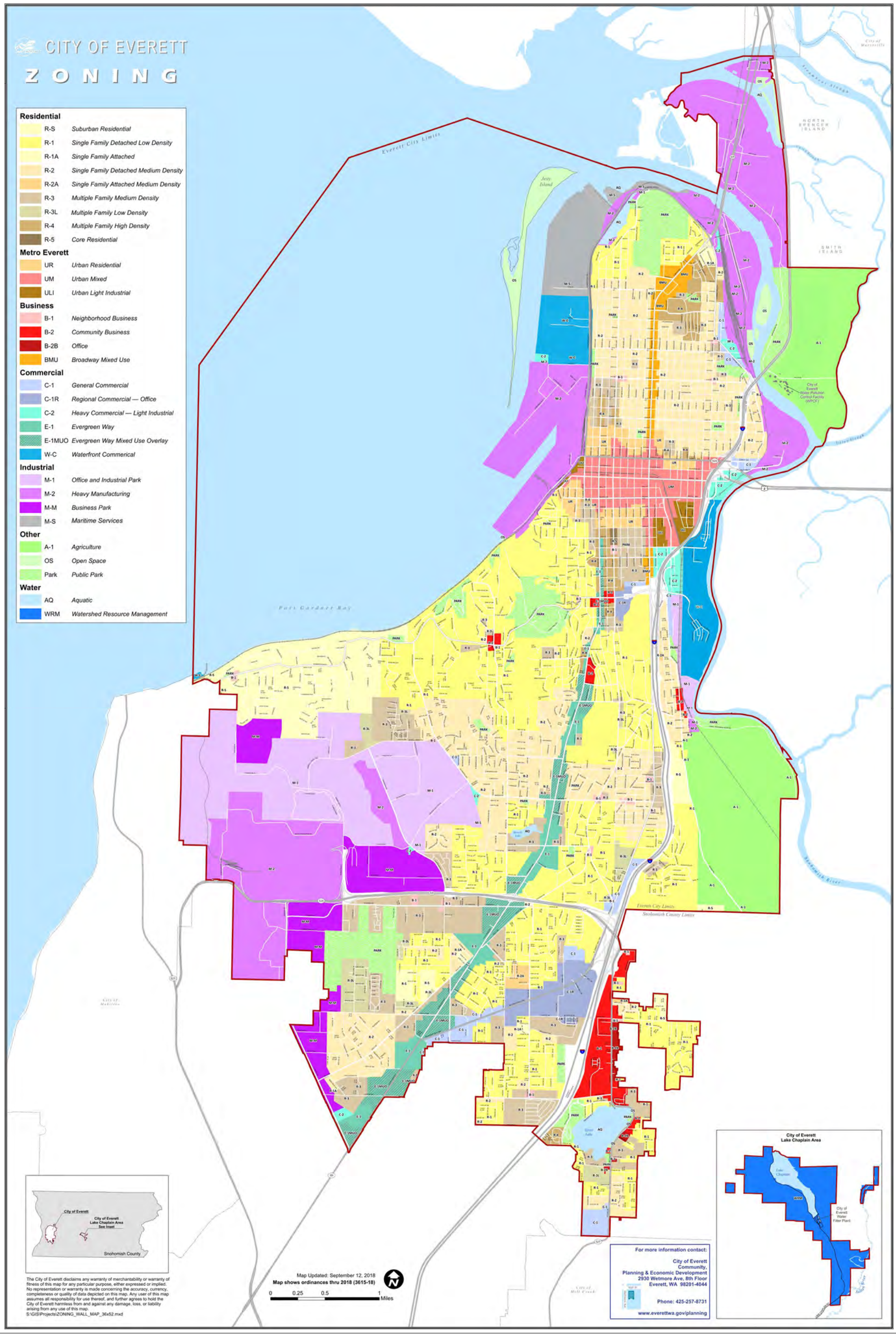
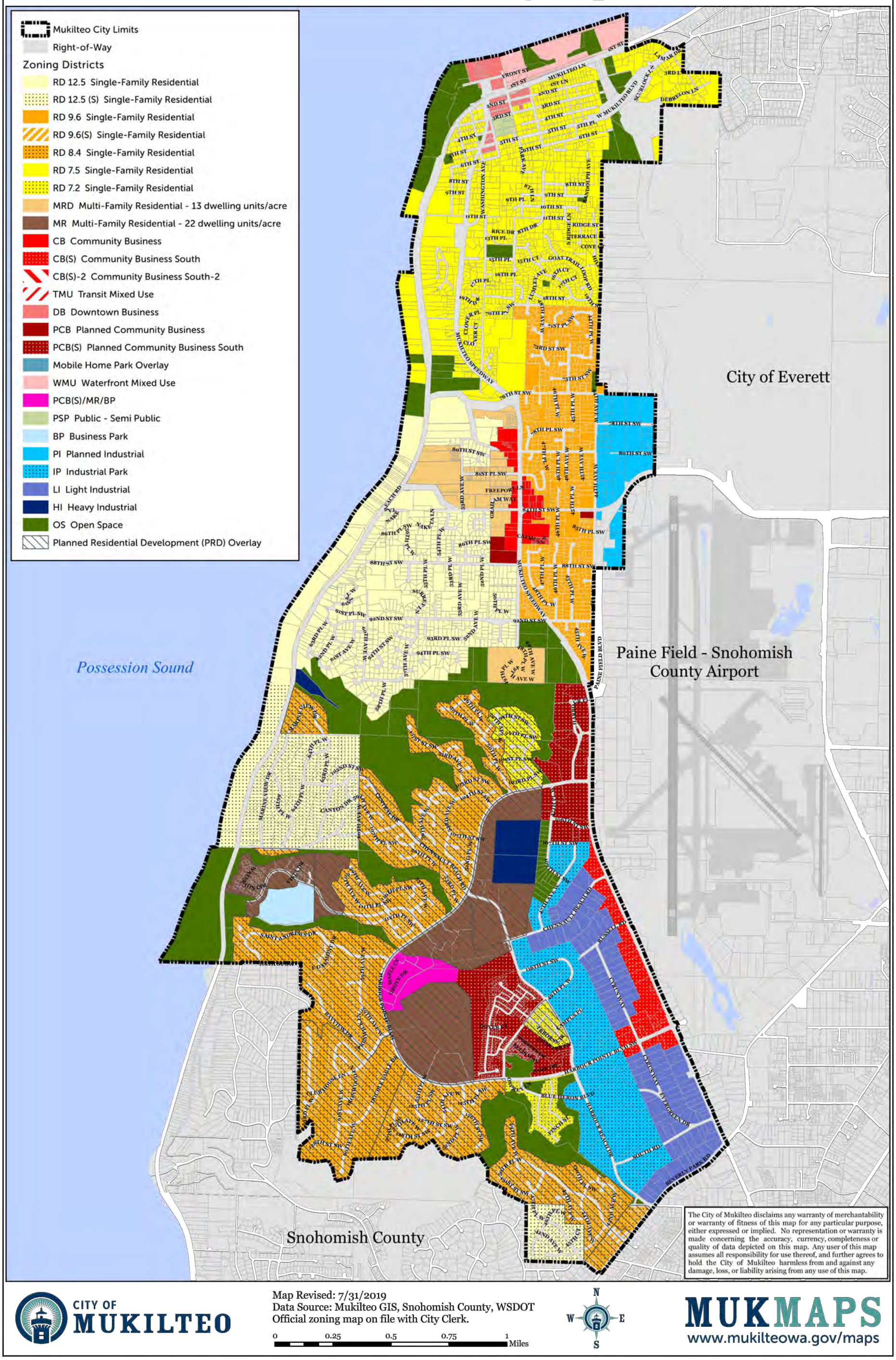


Figure B-12

Land Use - City of Everett

Mukilteo Zoning Map



CITY OF MUKILTEO

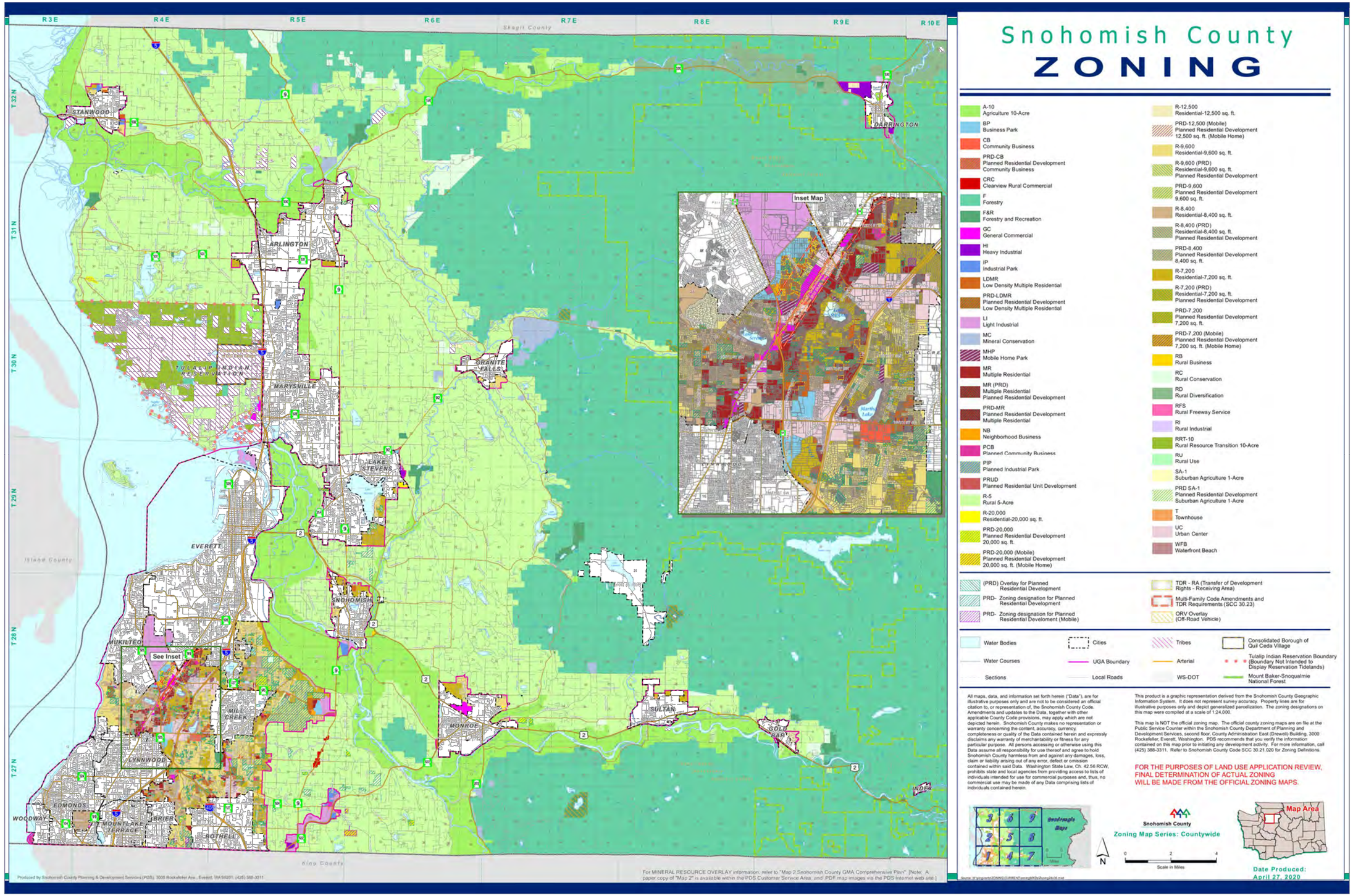
Map Revised: 7/31/2019
Data Source: Mukilteo GIS, Snohomish County, WSDOT
Official zoning map on file with City Clerk.

0 0.25 0.5 0.75 1 Miles

N W E S

MUKMAPS
www.mukilteowa.gov/maps

Figure B-13
Land Use - City of Mukilteo



Snohomish County ZONING

- A-10 Agriculture 10-Acre
- BP Business Park
- CB Community Business
- PRD-CB Planned Residential Development Community Business
- CRC Clearview Rural Commercial
- F Forestry
- F&R Forestry and Recreation
- GC General Commercial
- HI Heavy Industrial
- IP Industrial Park
- LDMR Low Density Multiple Residential
- PRD-LDMR Planned Residential Development Low Density Multiple Residential
- LI Light Industrial
- MC Mineral Conservation
- MHP Mobile Home Park
- MR Multiple Residential
- MR (PRD) Multiple Residential Planned Residential Development
- PRD-MR Planned Residential Development Multiple Residential
- NB Neighborhood Business
- PCB Planned Community Business
- PIP Planned Industrial Park
- PRUD Planned Residential Unit Development
- R-5 Rural 5-Acre
- R-20,000 Residential-20,000 sq. ft.
- PRD-20,000 Planned Residential Development 20,000 sq. ft.
- PRD-20,000 (Mobile) Planned Residential Development 20,000 sq. ft. (Mobile Home)
- R-12,500 Residential-12,500 sq. ft.
- PRD-12,500 (Mobile) Planned Residential Development 12,500 sq. ft. (Mobile Home)
- R-9,600 Residential-9,600 sq. ft.
- R-9,600 (PRD) Residential-9,600 sq. ft. Planned Residential Development
- PRD-9,600 Planned Residential Development 9,600 sq. ft.
- R-8,400 Residential-8,400 sq. ft.
- R-8,400 (PRD) Residential-8,400 sq. ft. Planned Residential Development
- PRD-8,400 Planned Residential Development 8,400 sq. ft.
- R-7,200 Residential-7,200 sq. ft.
- R-7,200 (PRD) Residential-7,200 sq. ft. Planned Residential Development
- PRD-7,200 Planned Residential Development 7,200 sq. ft.
- PRD-7,200 (Mobile) Planned Residential Development 7,200 sq. ft. (Mobile Home)
- RB Rural Business
- RC Rural Conservation
- RD Rural Diversification
- RFS Rural Freeway Service
- RI Rural Industrial
- RRT-10 Rural Resource Transition 10-Acre
- RU Rural Use
- SA-1 Suburban Agriculture 1-Acre
- PRD SA-1 Planned Residential Development Suburban Agriculture 1-Acre
- T Townhouse
- UC Urban Center
- WFB Waterfront Beach

- (PRD) Overlay for Planned Residential Development
- PRD- Zoning designation for Planned Residential Development
- PRD- Zoning designation for Planned Residential Development (Mobile)
- TDR - RA (Transfer of Development Rights - Receiving Area)
- Multi-Family Code Amendments and TDR Requirements (SCC 30.23)
- ORV Overlay (Off-Road Vehicle)

- Water Bodies
- Water Courses
- Sections
- Cities
- UGA Boundary
- Local Roads
- Tribes
- Arterial
- WS-DOT
- Consolidated Borough of Qui Ceda Village
- Tulalip Indian Reservation Boundary (Boundary Not Intended to Display Reservation Tidelands)
- Mount Baker-Snoqualmie National Forest

All maps, data, and information set forth herein ("Data"), are for illustrative purposes only and are not to be considered an official citation to, or representation of, the Snohomish County Code. Amendments and updates to the Data, together with other applicable County Code provisions, may apply which are not depicted herein. Snohomish County makes no representation or warranty concerning the content, accuracy, currency, completeness or quality of the Data contained herein and expressly disclaims any warranty of merchantability or fitness for any particular purpose. All persons accessing or otherwise using this Data assume all responsibility for use thereof and agree to hold Snohomish County harmless from and against any damages, loss, claim or liability arising out of any error, defect or omission contained within said Data. Washington State Law, Ch. 42.56 RCW, prohibits state and local agencies from providing access to lists of individuals intended for use for commercial purposes and, thus, no commercial use may be made of any Data comprising lists of individuals contained herein.

This product is a graphic representation derived from the Snohomish County Geographic Information System. It does not represent survey accuracy. Property lines are for illustrative purposes only and depict generalized parcelization. The zoning designations on this map were compiled at a scale of 1:24,000.

This map is NOT the official zoning map. The official county zoning maps are on file at the Public Service Counter within the Snohomish County Department of Planning and Development Services, second floor, County Administration East (Drewels) Building, 3000 Rockefeller, Everett, Washington. PDS recommends that you verify the information contained on this map prior to initiating any development activity. For more information, call (425) 388-3311. Refer to Snohomish County Code SCC 30.21.020 for Zoning Definitions.

FOR THE PURPOSES OF LAND USE APPLICATION REVIEW, FINAL DETERMINATION OF ACTUAL ZONING WILL BE MADE FROM THE OFFICIAL ZONING MAPS.

N

Snohomish County
Zoning Map Series: Countywide

0 2 4
Scale in Miles

Date Produced:
April 27, 2020

Source: W:\gis\work\ZONING\CURRENT\zoning\MXDs\Zoning24x36.mxd

Figure B-14
Land Use - Snohomish County

SECTION C: WASTE ANALYSIS

Section C describes characteristics and handling of waste associated with regulated units. All regulated units at the Boeing Everett Facility have been closed, and there are no active regulated units. Therefore, Section C is not required.

SECTION D: PROCESS INFORMATION

Section D describes process information associated with regulated units. All regulated units at the Boeing Everett Facility have been closed, and there are no active regulated units. Therefore, Section D is not required.

SECTION E: GROUNDWATER MONITORING

SECTIONS

TABLES

FIGURES

E-6 Building 40-24, Utility Trenches and Sumps (SWMU/AOCs No. 055 and No. 168), Area of Perched Groundwater Contamination

E-7 Powder Mill Gulch Site Plan

E-8 Powder Mill Gulch October 2019 TCE Concentrations

E-1 GENERAL HYDROGEOLOGIC INFORMATION

40 CFR 270.14(c)(2)

The interpretation of site geology and groundwater hydrology at the Boeing Everett Facility is based on previous geotechnical and environmental subsurface investigations, published reports, and the results of the RI (URS and Landau 2011).

GEOLOGY

The geologic units that directly underlie the plant are a combination of natural and fill soils. In general, the fill at the Boeing Everett Facility is less than 15 feet thick, except in the areas of the filled upper reaches of PMG where fill thickness ranges to greater than 120 feet. The uppermost natural soils are dense glacial deposits of the Vashon till (glacial till). The till predominately consists of silty, fine-to-medium sand with varying amounts of gravel, coarse sand, and clay. The glacial till is underlain by advanced glacial deposits commonly referred to as the Esperance Sand. The Esperance Sand is underlain by the Lawton Clay of glaciolacustrine origin.

HYDROGEOLOGY

Groundwater is situated beneath the facility in three forms/locations: (1) as discontinuous zones of perched water within fill soil and weathered glacial till overlying dense glacial till, (2) discontinuous perched zones within the till, and (3) unconfined groundwater within the Esperance Sand. The perched groundwater level within the fill and weathered till on the upland portion of the Everett Facility is generally between 10 and 20 feet below ground surface (bgs). The flow direction of water through the fill/weathered till is primarily controlled by gravity and typically follows the local topography and/or the slope on the interface between the fill and top of the glacial till. However, local variations in the stratigraphic conditions and manmade features such as cut-and-fill areas, recovery wells, or utility trenches may influence perched groundwater flow. The various perched groundwater zones detected at the site are hydraulically isolated from each other and predominately occur in backfill soil in former underground storage tank (UST) excavations and along utility corridors.

The perched zones are also hydraulically isolated from the regional groundwater occurring within the underlying Esperance Sand by the thick sequence of dense glacial till which extends to a depth of approximately 85 feet bgs. Groundwater within the Esperance Sand is unconfined, with the upper portion of the sand typically unsaturated. Unconfined groundwater within the Esperance Sand occurs at a depth of approximately 200–215 feet bgs beneath the upland portion

of the facility. The Esperance Sand groundwater flow direction beneath the Boeing Everett Facility is toward the north-northwest, which is consistent with previous interpretations of the regional groundwater flow in the vicinity.

In upper PMG, the Esperance Sand (and local alluvial) groundwater is generally unconfined with semiconfined conditions beneath a silt interbed in the Esperance Sand that underlies a portion of this area. Groundwater perennially discharges to Powder Mill Creek approximately 290 feet downstream of the head of the creek (i.e., the outlet from the stormwater detention basin), influencing the groundwater flow direction beneath upper PMG to vary from the regional northwest direction with localized flow toward PMG from both sides of the creek. The creek culvert beneath Seaway Boulevard (along the Boeing Everett Facility northern property boundary) breaks the hydraulic communication with groundwater and allows groundwater to cross the culvert from the east to the west side of the creek north of Seaway Boulevard. The entire reach of Powder Mill Creek receives either year-round or seasonal discharge of groundwater.

A detailed description of the geology and hydrogeology in the vicinity of the Boeing Everett Facility is provided in the RI report (URS and Landau 2011).

E-2 CONTAMINANT PLUME DESCRIPTION

40 CFR 270.14(c)(2), (4), (7)

PERCHED GROUNDWATER

The draft Cleanup Action Plan (CAP) provides a detailed description of six areas where perched groundwater is impacted by contaminants exceeding applicable cleanup levels. Table E-1 provides a summary of each of these areas. The location and approximate extent of perched groundwater impacts is illustrated on Figures E1 through E6. The most recent groundwater sampling data for these areas is provided in the 2nd Quarter 2020 Groundwater Monitoring Report (AECOM 2020).

POWDER MILL GULCH

The source zone of the contaminated groundwater plume in PMG is below the northern end of the Boeing Everett Facility's primary storm water detention basin. Contamination follows the path of groundwater flow northward, as described above, and eventually discharges to Powder Mill Creek. The PMG plume contains relatively low to moderately high levels of volatile organic compounds (VOCs), including trichloroethene (TCE) and its breakdown products: cis-1,2-dichloroethene (cDCE) and vinyl chloride (VC). TCE and VC are the primary constituents of concern due to their relative toxicity and low cleanup levels.

The plume geometries are variable because of aquifer heterogeneities, the presence of the Seaway Boulevard culvert, and varying degrees of groundwater recharge on either side of Powder Mill Creek based on surface features and developments. Contaminant distribution (TCE and VC) within the plume is also relatively complex and variable but generally consists of higher

concentrations near the center line of the plume with declining concentrations toward the lateral edges. A detailed description of the contaminant plumes is provided in the RI report (URS and Landau 2011) and the FS Work Plan (URS/LAI 2012). The PMG TCE plume is presented on Figures E-7 and E-8. The most recent groundwater sampling data for these areas is provided in the 2nd Quarter 2020 Groundwater Monitoring Report (AECOM 2020).

E-3 GENERAL MONITORING PROGRAM REQUIREMENTS

40 CFR 270.14(c)(5); 264.90(b)(4); 264.97

Groundwater is monitored throughout the Boeing Everett Facility under the requirements of an AO (and associated addenda) between the Washington State Department of Ecology (Ecology) and Boeing. Sampling for wells located in the upland portion of the facility is conducted in accordance with the procedures described in the Ecology-approved Groundwater Monitoring Plan (URS 2007). The groundwater monitoring program for PMG is conducted in accordance with a separate Groundwater Monitoring Plan (Landau 2008). The groundwater monitoring program sampling schedule is presented in Table E-2. The current list of wells in the groundwater monitoring network is provided on Table E-3.

E-3A DESCRIPTION OF WELLS

40 CFR 270.14(c)(6)(ii); 264.97(a), (b), (c)

Groundwater monitoring wells have been installed throughout the Boeing Everett Facility to investigate individual solid waste management units (SWMUs) and areas of concern (AOCs). Monitoring well logs are presented in the RI report (URS/LAI 2011). Wells were installed using hollow-stem auger, direct-push, or rotosonic drilling methods. Wells were constructed as either conventional PVC wells screened at one depth or as continuous multi-channel tubing (CMT) wells screened at multiple depths. Monitoring well details for current wells in the network are included in Table E-3.

E-3B DESCRIPTION OF SAMPLING AND ANALYSIS PROCEDURES

40 CFR 270.14(c)(7)(vi); 264.97(d), (e), (f); 264.99 (c) through (g)

Groundwater samples are collected from groundwater monitoring wells on a regular schedule (Table E-2). Wells are sampled using low-flow sampling techniques with a peristaltic pump or dedicated well pumps. Sampling procedures at all wells include the collection of water level measurements. For wells where low-flow purge sampling is used, procedures also include measurement of field parameters (pH, temperature, turbidity, conductivity, and dissolved oxygen). Wells are purged at a low-flow rate until field parameter measurements have stabilized; samples are collected following parameter stabilization. Samples requiring filtration (e.g., dissolved metals) are collected using an inline, high-volume, 0.45 micron, nitrocellulose filter. More detailed descriptions of the sample collection procedures are presented in the site sampling and analysis plan.

Sample analysis is provided by Washington State accredited laboratories. Analytical methods are provided on Table E-2. Groundwater sampling results are provided to Ecology on a quarterly basis as required under the AO.

E-4 CORRECTIVE ACTION PROGRAM

40 CFR 270.14(c)(8); 264.99(j); 264.100

The Boeing Everett Facility is currently undergoing corrective action in accordance with the program set forth in the AO (Ecology 1997) and associated amendments. The corrective action program for the Boeing Everett Facility includes an RI (AECOM and Landau 2011), a feasibility study (AECOM and Landau 2015), and a draft cleanup action plan (CAP; currently in development). Ecology will issue a new AO or Enforcement Order (or other appropriate administrative mechanism) for implementation of the final CAP.

Attachment 2 of the AO presents a public participation plan intended to engage stakeholders and promote public understanding of the planning and remediation activities related to investigation and cleanup of hazardous substances at the Facility.

The RI identified specific AOCs requiring cleanup that have been carried forward to the FS. The FS (and supplemental FS for PMG; Landau 2018) provided cleanup action alternatives for each area that requires cleanup. The current list of SMWUs/AOCs with impacted groundwater, as presented in the draft CAP, are summarized in Table E-1.

E-4A CHARACTERIZATION OF CONTAMINATED GROUNDWATER

40 CFR 270.14(c)(8)(i)

A detailed description of groundwater contaminant characterization is provided in the RI report (URS/LAI 2011) and FS Report (URS and Landau 2015).

E-4B CONCENTRATION LIMITS

40 CFR 270.14(c)(8)(ii); 264.94; 264.100(a)(2)

The FS report provided proposed screening levels for all constituents evaluated during the investigation (AECOM/LAI 2015). Final concentration limits (cleanup levels) for indicator hazardous substances are also proposed in the draft CAP that is currently under revision and will be promulgated in the final CAP.

E-4C CORRECTIVE ACTION PLAN

40 CFR 270.14(c)(8)(iii); 264.100(b); 264.101

Based on the FS (and supplemental FS for PMG), the corrective action plans for contaminated groundwater at the Boeing Everett Facility were proposed and will be formalized under the final CAP.

In addition to the corrective action plans, Boeing has conducted several interim cleanup actions (IAs) in the Uplands to address soil and perched groundwater contamination and in PMG groundwater to minimize TCE migration off Boeing property and to Powder Mill Creek. The IAs in PMG included thermal remediation of the source area underlying the stormwater detention basin, injecting electron donor amendments into the subsurface to enhance reductive dechlorination of TCE in the source area, and construction and operation of a groundwater extraction and treatment system. The PMG IAs were effective in reducing TCE and breakdown products in the groundwater as well as minimizing groundwater contamination migrating off Boeing property and entering Powder Mill Creek. Continued slow declines in VOC concentrations in wells located within and downgradient (north) of the source area are expected as natural attenuation and aquifer flushing occurs. Section J provides an overview of completed IAs. A detailed discussion of each IA is available in the FS Report (AECOM/LAI 2015) and draft CAP.

Table E-1
Summary of Areas with Impacted Groundwater
RCRA Permit B
Boeing Everett Facility

SWMU/AOC Number	Location	Description	Impacted Media	COCs Exceeding Proposed CULs
090	Building 40-51	Former UST EV-11	Soil, Perched Groundwater	Chlorinated VOCs
112	Building 40-11	Oil/Water Separator	Soil, Perched Groundwater	Chlorinated VOCs, TPH
151	Building 40-51	Sumps EV-112 and EV-119	Soil, Perched Groundwater	Chlorinated VOCs, Arsenic
086, 089, 094	Building 40-56	Former USTs	Soil, Perched Groundwater	Chlorinated VOCs, BTEX, MIBK
166	Building 45-53	Former UST EV-110-1	Soil, Perched Groundwater	TPH
055, 168	Building 40-24	Utility Trenches and Sumps	Soil, Perched Groundwater	TBP, DPP, BDP, TPP, BHT, n-butyl alcohol, arsenic
180	North Complex	Esperance Sand, Powder Mill Gulch	Groundwater, Surface Water	TCE, DCE, Vinyl Chloride
100	South Complex	Former Gun Club	Perched Groundwater	Lead
123, 124	BOMARC Property	Parking Lot/Water Separators	Soil, Perched Groundwater	Arsenic, cPAHs

Notes:

AOC - area of concern

BDP - butyl diphenyl phosphate

BHT - butylated hydroxytoluene

BTEX - benzene, toluene, ethylbenzene, and xylenes

COCs - chemicals of concern

CUL - cleanup level

DPP - dibutyl phenyl phosphate

MIBK - 4-methyl-2-pentanone

NA - not applicable

NAPL - nonaqueous-phase liquid

SWMU - solid waste management unit

TPH - total petroleum hydrocarbons

TPP - triphenyl phosphate

UST - underground storage tank

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Building 40-56	EGW002	Quarterly	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW005	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW006	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW007	Quarterly	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW008	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW009	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW010	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Gun Club	EGW016	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Gun Club	EGW018	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Gun Club	EGW024	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Gun Club	EGW025	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Building 40-51 (EV-11)	EGW030	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As (EPA 6020A)	As (EPA 6020A)			
Building 40-51 (EV-11)	EGW031	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As (EPA 6020A)	As (EPA 6020A)			
Building 40-51 (EV-11)	EGW032	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As (EPA 6020A)	As (EPA 6020A)			
Building 45-53 (EV-110-1)	EGW033	Jan/Jul								X (DRO+JetA)						
Building 45-53 (EV-110-1)	EGW035	Jan/Jul								X (DRO+JetA)						
Building 40-24	EGW037	Jan/Jul				X										
Building 45-53 (EV-110-1)	EGW038	Jan/Jul								X (DRO+JetA)						
Esperance Sand (Building 40-56)	EGW040	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)		X (8270D-SIM)	X	X	X	X (DRO+RRO+JetA)		As, Pb (EPA 6020A)	As, Pb (EPA 6020A)			
Building 40-56	EGW043	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW044	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-11 (Auto Sump)	EGW046	Jan/Jul	X	X (1,1-DCE, PCE, TCE, vinyl chloride)					X	X (DRO+RRO)		As (EPA 6020A)	As (EPA 6020A)			
Gun Club	EGW047	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Gun Club	EGW048	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Gun Club	EGW049	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Building 40-56	EGW050	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Building 40-56	EGW051	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 45-53 (EV-110-1)	EGW052	Jan/Jul								X (DRO+JetA)						
Building 45-53 (EV-110-1)	EGW053	Jan/Jul								X (DRO+JetA)						
Building 40-11 (Auto Sump)	EGW054	Jan/Jul	X	X (1,1-DCE, PCE, TCE, vinyl chloride)					X	X (DRO+RRO)		As (EPA 6020A)	As (EPA 6020A)			
Building 40-24	EGW055	Jan/Jul	X		X	X						As (EPA 200.8)	As (EPA 200.8)			
Gun Club	EGW056	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Building 40-51 (S. Scrubber Sump)	EGW057	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As, Cr, Pb (EPA 6020A)	As, Cr, Pb (EPA 6020A)			
Building 40-51 (S. Scrubber Sump)	EGW058	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As, Cr, Pb (EPA 6020A)	As, Cr, Pb (EPA 6020A)			
Esperance Sand (Building 45-07)	EGW060	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)		X (8270D-SIM)	X	X	X	X (DRO+RRO+JetA)		As, Pb (EPA 6020A)	As, Pb (EPA 6020A)			
Esperance Sand (Building 40-37)	EGW061	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)		X (8270D-SIM)	X	X	X	X (DRO+RRO+JetA)		As, Pb (EPA 6020A)	As, Pb (EPA 6020A)			
Building 40-56	EGW062	Quarterly	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW063	Quarterly	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Gun Club	EGW064	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Building 40-51 (EV-11)	EGW065	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As (EPA 6020A)	As (EPA 6020A)			
Building 40-51 (EV-11)	EGW066	Apr/Oct	X	X (1,1-DCE, PCE, TCE, vinyl chloride)								As (EPA 6020A)	As (EPA 6020A)			
Gun Club	EGW067	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Gun Club	EGW068	Jan/Jul					X					Pb, As (EPA 6020A)	Pb, As (EPA 6020A)			
Building 40-24	EGW070	Jan/Jul	X		X	X						As (EPA 200.8)	As (EPA 200.8)			
Building 40-24	EGW071	Jan/Jul	X		X	X						As (EPA 200.8)	As (EPA 200.8)			
Building 40-24	EGW072	Jan/Jul	X		X	X						As (EPA 200.8)	As (EPA 200.8)			
Building 40-24	EGW073	Jan/Jul	X		X	X						As (EPA 200.8)	As (EPA 200.8)			
Building 40-24	EGW074	Jan/Jul	X		X	X						As (EPA 200.8)	As (EPA 200.8)			
Powder Mill Gulch	EGW075	Quarterly	X	X (PCE, vinyl chloride)				X								
Powder Mill Gulch	EGW076	Oct	X+Cyclohexanone	X (PCE, vinyl chloride)								As (EPA 200.8)	As (EPA 200.8)			
Powder Mill Gulch	EGW078	Quarterly (except as noted)	X	X (vinyl chloride)				X			X (Apr/Oct)		As (EPA 200.8) Cr+Mn (EPA 6010D) (Apr/Oct)	X (Apr/Oct)	X (Apr/Oct)	X

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Powder Mill Gulch	EGW079	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW080	Quarterly (except as noted)	X	X (vinyl chloride)				X (Apr/Oct)								
Powder Mill Gulch	EGW084	Quarterly	X	X (vinyl chloride) +PCE Oct only												
Powder Mill Gulch	EGW085	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW086	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW087	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW088	Quarterly (except as noted)	X	X (vinyl chloride)							X (Apr/Oct)		As (EPA 200.8) Cr+Mn (EPA 6010D) (Apr/Oct)	X (Apr/Oct)	X (Apr/Oct)	X
Powder Mill Gulch	EGW089	Oct	X+Cyclohexanone	X (PCE, vinyl chloride)								As (EPA 200.8)	As (EPA 200.8)			
Powder Mill Gulch	EGW090 #2 (60')	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW090 #3 (75')	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW090 #4 (90')	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW090 #5 (100')	Quarterly (except as noted)	X	X (vinyl chloride) Apr/Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW091	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW092	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW093	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW094	Oct	X	X (PCE, vinyl chloride)												

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Powder Mill Gulch	EGW095	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW098	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW099	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW100	Quarterly (except as noted)	X	X (vinyl chloride)									As (EPA 200.8) Cr+Mn (EPA 6010D) (Apr/Oct)			X
Powder Mill Gulch	EGW101	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW102	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW103	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW104	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW105	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW106	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW107	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW110	Apr/Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW127	Quarterly	X	X (vinyl chloride)							X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW128	Apr/Oct	X	X (vinyl chloride)									As (EPA 200.8) Cr+Mn (EPA 6010D)			X
Powder Mill Gulch	EGW129	Apr/Oct	X	X (vinyl chloride)												X
Powder Mill Gulch	EGW130	Apr/Oct	X	X (vinyl chloride)									As (EPA 200.8) Cr+Mn (EPA 6010D)			X
Powder Mill Gulch	EGW131	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW132-1 (24')	Quarterly	X	X (vinyl chloride)												X
Powder Mill Gulch	EGW132-2 (37')	Quarterly	X	X (vinyl chloride)												X
Powder Mill Gulch	EGW132-3 (50')	Quarterly	X	X (vinyl chloride)												X
Powder Mill Gulch	EGW132-4 (62')	Quarterly	X	X (vinyl chloride)												X
Powder Mill Gulch	EGW132-5 (81')	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW132-6 (97')	Oct	X	X (PCE, vinyl chloride)												

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Powder Mill Gulch	EGW132-7 (113')	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-1 (28.5')	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-2 (41.5')	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-3 (54.5')	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-4 (67.5')	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-5 (88.5')	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-6 (100.5')	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW133-7 (112.5')	Oct	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW135	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW137	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW138	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW139	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW141	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW143	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW144	Quarterly	X	X (vinyl chloride)							X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW145	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW146	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW147	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW148	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW150-1	Apr/Oct	X													X
Powder Mill Gulch	EGW150-2	Apr/Oct	X													X
Powder Mill Gulch	EGW151-1	Quarterly	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW151-2	Quarterly	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Powder Mill Gulch	EGW151-3	Quarterly	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW152-1	Quarterly	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW152-2	Quarterly	X								X			X	X	X
Powder Mill Gulch	EGW152-3	Apr/Oct	X								X			X	X	X
Powder Mill Gulch	EGW153-1	Apr/Oct	X								X			X	X	X
Powder Mill Gulch	EGW153-2	Apr/Oct	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW153-3	Apr/Oct	X								X			X	X	X
Powder Mill Gulch	EGW154-2	Apr/Oct	X													X
Powder Mill Gulch	EGW156-2	Apr/Oct	X													X
Powder Mill Gulch	EGW156-3	Apr/Oct	X													X
Powder Mill Gulch	EGW157-1	Apr/Oct	X													X
Powder Mill Gulch	EGW158-1	Quarterly - pending discussion with Boeing/Ecology July 2017	X													X
Powder Mill Gulch	EGW159	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW160	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW161-1	Quarterly	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW161-2	Quarterly	X								X		As (EPA 200.8) Cr+Mn (EPA 6010D)	X	X	X
Powder Mill Gulch	EGW162	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW163	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW164	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW165	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW166	Quarterly (except as noted)	X	X (vinyl chloride) Apr, Oct (PCE+vinyl chloride)												
Powder Mill Gulch	EGW167	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW168	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW169	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW170	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW171R2	Quarterly	X	X (PCE, vinyl chloride)												

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Powder Mill Gulch	EGW173R	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW174	Quarterly	X	X (PCE, vinyl chloride)												
Building 40-02	EGW177	Quarterly	X	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-02	EGW178	Quarterly	X	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 45-70 (BOMARC)	EGW179	Jan/Jul	X	X (1,1-DCE, PCE, TCE, vinyl chloride)			X		X	X (DRO+RRO)		RCRA 8 (EPA 6020A/7470A)	RCRA 8 (EPA 6020A/7470A)			
Building 45-70 (BOMARC)	EGW180	Jan/Jul	X	X (1,1-DCE, PCE, TCE, vinyl chloride)			X		X	X (DRO+RRO)		RCRA 8 (EPA 6020A/7470A)	RCRA 8 (EPA 6020A/7470A)			
Building 45-70 (BOMARC)	EGW181	Jan/Jul	X	X (1,1-DCE, PCE, TCE, vinyl chloride)			X		X	X (DRO+RRO)		RCRA 8 (EPA 6020A/7470A)	RCRA 8 (EPA 6020A/7470A)			
Powder Mill Gulch	EGW185	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW186	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW187	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW194	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW195	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW196	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW197	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW198	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW199	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW200	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW201	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW202	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW203	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW204	Not Sampled - pending discussions with Boeing/Ecology														
Powder Mill Gulch	EGW205	Quarterly	X	X (vinyl chloride)												
Building 40-56	EGW211	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Building 40-56	EGW212	Apr/Oct	X+Cyclohexanone	X (1,1-DCE, PCE, TCE, vinyl chloride)												
Powder Mill Gulch	EGW213	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	EGW214	Quarterly	X	X (vinyl chloride)												
Esperance Sand (Building 40-37)	EGW217	Not sampled										As, Pb (EPA 6020A)	As, Pb (EPA 6020A)			

Table E-2
Groundwater Monitoring Plan
RCRA Permit B
Boeing Everett Facility

Building/Location	Well No.	Frequency	VOCs (EPA 8260C)	Low-Level VOCs (EPA 8260C-SIM)	SVOCs (EPA 8270D)	Phosphate-based hydraulic fluid+BHT (EPA 8270D-modified)	Low-Level PAHs (EPA 8270D-SIM)	Low-Level PCBs (EPA 8082A)	NWTPH-Gx	NWTPH-Dx	Dissolved Gases (acetylene, ethane, ethene, methane) (RSK-175)	Total Metals	Dissolved Metals	Anions (chloride/nitrate/sulfate) (EPA 300.0)	TOC (SM 5310C)	Field Measurement - Ferrous Iron (Fe+2)
Powder Mill Gulch	EGW218	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW219	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW220	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	EGW221	Quarterly	X	X (PCE, vinyl chloride)												
Powder Mill Gulch	PMG-P10	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P11	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P12A	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P12B	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P13A	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P13B	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P14A	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P14B	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P15A	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P15B	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P16	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P17	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P18	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P19	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P20	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P21	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P3	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P4	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P5	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P6	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P8	Quarterly	X	X (vinyl chloride)												
Powder Mill Gulch	PMG-P9	Quarterly	X	X (vinyl chloride)												

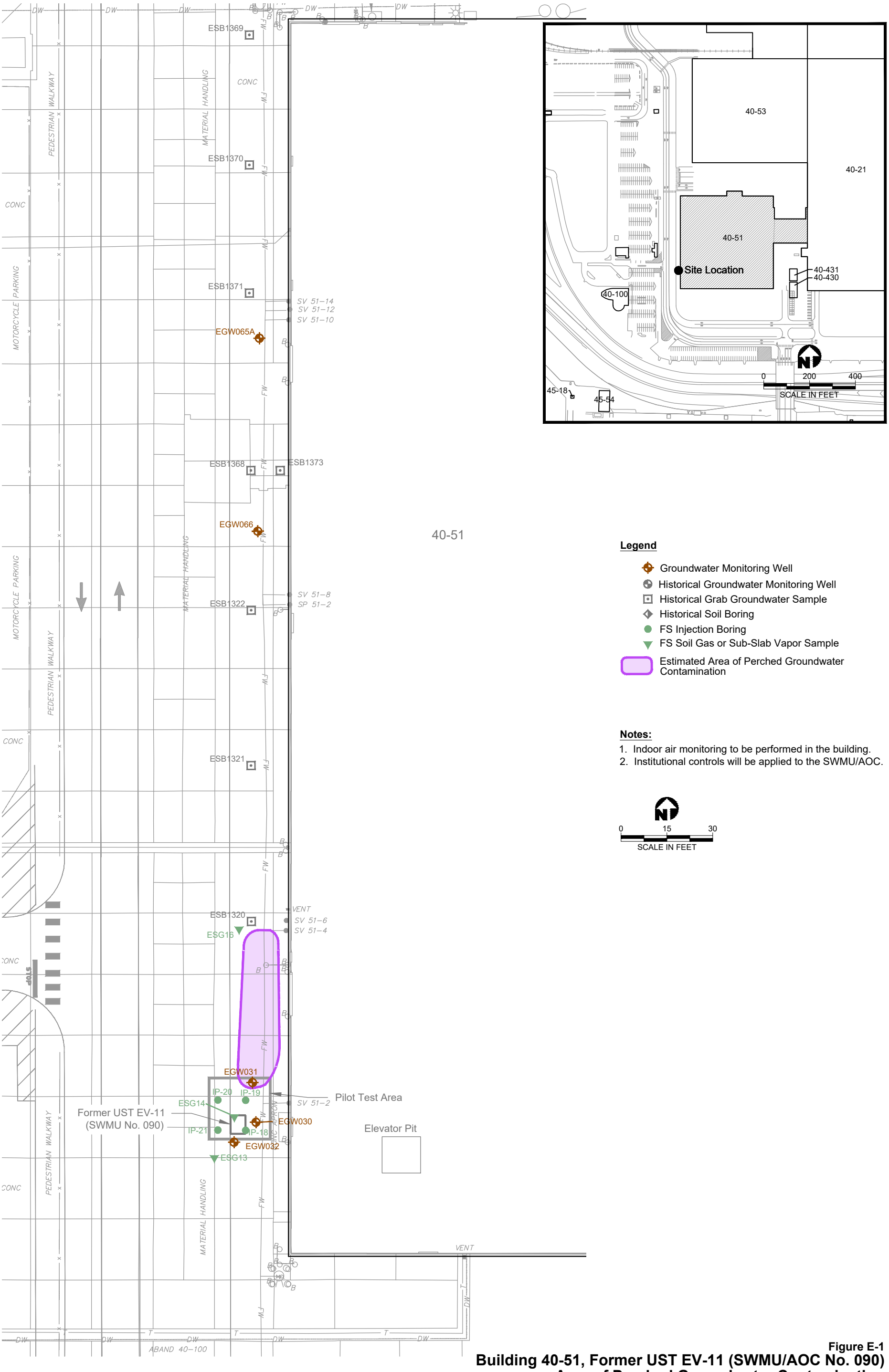
Table E-3
Monitoring Well List
RCRA Permit B
Boeing Everett Facility

Well	Groundwater Zone	Northing	Easting	RIM Elevation (ft)	Top of Casing Elevation (ft)	Screen nterval (ft bgs)	Date
EGW002	P	341883.36	1286538.12	545.18	544.67	15-20	1998
EGW005	P	341870.01	1286528.24	544.82	544.39	5-15	1995
EGW006	P	341814.81	1286555.69	544.11	543.57	19-24	1995
EGW007	P	341871.76	1286465.89	544.78	544.37	12-17	1995
EGW008	P	341838.50	1286419.51	543.41	542.95	9-14	1995
EGW009	P	341838.59	1286690.54	545.12	544.61	9-14	1995
EGW010	P	341854.77	1286360.84	543.37	542.83	9.5-14.5	1995
EGW016A	N/A	336680.88	1286953.44	562.69	562.27	N/A	2010
EGW018A	N/A	336434.60	1287205.80	564.07	563.85	N/A	03/17/2015
EGW024	P	336412.39	1287605.82	576.54	575.89	4-15	1995
EGW025A	N/A	335919.40	1287605.40	579.95	579.72	N/A	03/17/2015
EGW030	P	340115.84	1286179.37	548.32	547.75	5-10	1995
EGW031	P	340128.82	1286178.23	548.31	547.84	5-10	1995
EGW032	P	340109.30	1286172.21	548.29	547.95	5-10	1995
EGW033	P	339174.90	1287512.42	553.21	552.91	4-14	1995
EGW035	P	339205.11	1287549.92	550.96	550.68	3-13	1998
EGW037	P	340088.68	1288179.58	N/A	N/A	1.5-5.5	N/A
EGW038	P	339150.26	1287521.60	553.49	553.04	4-14	1995
EGW040	D	342099.05	1286298.08	543.2	542.51	192-222	1998
EGW043	P	341859.69	1286554.96	544.78	544.53	3-20	1995
EGW044	P	341880.87	1286397.10	544.59	N/A	3-19	1995
EGW046	N/A	342168.51	1286211.78	542.66	542.03	N/A	1995
EGW047	P	336892.52	1286987.80	555.15	554.32	2.5 -7.5	1995
EGW048	P	336576.34	1287052.13	566.53	565.55	3-13	1995
EGW049	P	336497.24	1287450.11	573.38	572.35	2.5-12.5	1995
EGW050	P	341874.29	1286575.80	545.07	544.81	10-20	1998
EGW051A	N/A	341876.20	1286589.60	N/A	544.66	N/A	01/23/2012
EGW052	P	339174.49	1287539.90	N/A	N/A	2.5-12.5	N/A
EGW053	P	339180.98	1287526.02	N/A	N/A	3 -13	N/A
EGW054	P	342145.00	1286209.00	542.69	542.5	8-18	1998
EGW055	P	N/A	N/A	N/A	N/A	5-15	N/A
EGW056	P	336796.98	1286724.48	559.4	559.05	27-37	1998
EGW057	P	N/A	N/A	N/A	N/A	5-11	N/A
EGW058	P	N/A	N/A	N/A	N/A	7.5-12.5	1998
EGW060	D	338147.00	1286908.00	566.55	566.05	203-233	1998
EGW061	D	341278.00	1289848.00	547.49	546.98	189-219	1998
EGW062	P	341877.22	1286646.90	545.43	545.04	10-20	2001
EGW063	P	341895.08	1286578.45	545.52	545.19	7-17	2001
EGW064	P	336796.98	1286719.76	559.39	559.04	10-20	2001
EGW065	P	340372.57	1286180.34	548.32	547.97	2-10	2001
EGW066	P	340309.32	1286179.96	548.31	548.03	2-10	2001
EGW067A	N/A	336383.07	1286952.17	564.79	564.17	N/A	2010
EGW068	P	336759.48	1287174.87	562.08	561.55	7-12	2001
EGW070	P	340059.57	1288169.69	548.34	547.86	9.5-12	2001
EGW071	P	340063.56	1288180.33	548.35	547.88	6.5-11.5	2001
EGW072	P	340057.06	1288180.33	548.32	547.78	7-12	2001
EGW073	P	340063.41	1288163.48	548.33	547.73	5.5-10.5	2001
EGW074	P	340057.06	1288163.66	548.25	547.6	5.5-10.5	2001
EGW075	P	344928.54	1286434.95	N/A	348.87	18-33	3/21/2003
EGW076	P	343582.95	1286408.32	471.94	471.46	128-143	11/18/2003
EGW078	P	344781.18	1286556.32	376.12	378.66	42-57	12/1/2003
EGW079	P	345773.21	1286592.44	343.62	343.05	27-42	11/20/2003
EGW080	P	345780.26	1286769.55	331.58	331.47	27-42	11/19/2003
EGW084	P	345311.06	1286636.81	333.57	335.92	6-21	11/20/2003
EGW085	P	345857.05	1286919.45	323.5	323.11	20-35	3/1/2004
EGW086	P	345782.02	1286774.22	331.77	331.12	52-62	3/1/2004
EGW087	P	345775.00	1286497.98	353.34	352.77	57-67	10/11/2004
EGW087	P	345774.48	1286510.40	353.34	352.77	57-67	10/11/2004
EGW088	P	344783.01	1286566.45	375.84	378.32	69-79	3/2/2004
EGW089	D	343552.07	1286950.46	521.61	521.11	178-213	3/1/2004
EGW090	P	345780.14	1286763.90	N/A	331.90	40, 60, 75, 90, 100	5/17/2004
EGW091	D	344791.35	1286560.58	376.28	377.98	147-157	7/14/2004
EGW092	P	344238.09	1286575.88	376.65	376.36	63-73	7/9/2004
EGW093	D	344243.43	1286577.02	375.48	375.42	147-157	7/8/2004
EGW094	P	346412.43	1287006.34	286.13	287.33	13-23	7/12/2004
EGW095	P	346408.21	1287008.98	286.23	287.59	51-61	7/12/2004
EGW098	P	346403.23	1287015.43	286.88	288.38	28-38	10/12/2004
EGW099	P	345774.16	1286507.19	352.23	351.74	80-90	10/11/2004
EGW100	P	344775.76	1286561.86	375.97	378.28	97.5-107.5	10/4/2004
EGW101	P	344242.26	1286568.09	374.7	374.07	99-109	10/4/2004
EGW102	P	344264.51	1286320.16	383.3	382.77	42-57	10/7/2004
EGW103	P	344259.13	1286319.67	383.75	383.34	68-78	10/7/2004
EGW104	P	344252.91	1286319.52	384.36	383.85	108-118	10/6/2004
EGW105	P	344247.40	1286568.21	374.33	373.85	31-46	10/8/2004
EGW106	P	346011.04	1286879.35	298.46	300.93	25-35	12/13/2004
EGW107	P	346019.49	1286874.15	297.47	299.81	40-50	12/13/2004
EGW110	P	345936.49	1286984.99	318.81	318.32	45-55	3/29/2005
EGW127	P	344745.50	1286489.51	358.58	360.67	56-66	12/14/2005
EGW128	P	344788.61	1286411.96	359.56	361.6	54-64	12/9/2005
EGW129	P	344844.19	1286449.38	376.36	376.19	69-79	12/20/2005
EGW130	P	344844.34	1286456.70	376.28	376.03	100-110	12/20/2005
EGW131	P	344929.59	1286430.31	349.89	349.6	45-55	12/16/2005
EGW132	P	345315.36	1286656.69	338.55	335.87	24, 37, 50, 62, 81, 97, 113	12/15/2005
EGW133	P	345401.02	1286767.79	339.49	337.03	29, 42, 55, 68, 89,101, 113	12/5/2005
EGW135	P	347761.99	1287387.63	243.27	242.83	3-13	1/26/2006
EGW137	P	346642.77	1287008.28	276.73	279.22	4-9	1/25/2006
EGW138	P	345956.48	1286779.79	300.03	302.74	11-15, 15-20 , 21-25, 28-32	1/4/2006
EGW139	P	345919.16	1286849.01	314	313.5	11-15, 15-20 , , 21.5-25.5, 31.5-35.5	1/6/2006
EGW141	P	346106.26	1286800.48	295.6	298.81	7-12	1/4/2006
EGW143	P	346565.68	1286995.78	279.74	279.69	22-32	1/25/2006
EGW144	P	344802.01	1286498.03	371.61	370.8	61-71	2/21/2006
EGW145	P	346665.17	1287012.48	276.28	276.005	18-22.5	8/31/2006
EGW146	P	347043.14	1287097.70	265.89	266.005	12-17	8/31/2006

Table E-3
Monitoring Well List
RCRA Permit B
Boeing Everett Facility

Well	Groundwater Zone	Northing	Easting	RIM Elevation (ft)	Top of Casing Elevation (ft)	Screen nterval (ft bgs)	Date
EGW147	P	346019.80	1286690.15	314.23	316.215	28-33	8/31/2006
EGW148	P	346014.20	1286682.72	314.26	316.175	40-45	8/30/2006
EGW150	P	344738.82	1286400.98	N/A	343	26-31, 41-46, 56-61, 71-76	7/12/2006
EGW151 (1-3-4)	P	344711.78	1286447.82	N/A	343.00	28-33, 56-61, 71-76	7/11/2006
EGW151 (2)	P	344711.78	1286447.82	N/A	343.00	41-46	7/11/2006
EGW152 (1-3)	P	344738.79	1286464.13	N/A	349.50	23.5-28.5, 43.5-48.5, 63.5-68.5	8/9/2006
EGW152 (4)	P	344738.79	1286464.13	N/A	349.50	76.5-81.5	8/9/2006
EGW153	P	344757.05	1286463.83	N/A	354.00	28-33, 48-53, 68-73	8/8/2006
EGW154	P	344774.86	1286431.85	N/A	354.50	28.5-33.5, 48.5-53.5, 68.5-73.5	8/14/2006
EGW156	P	344775.05	1286400.54	N/A	351.00	26.5-31.5, 46.5-51.5, 66.5-71.5	8/4/2006
EGW157	P	344756.23	1286400.24	N/A	352.50	26.5-31.5, 46.5-51.5, 66.5-71.5	8/10/2006
EGW158	P	344737.79	1286369.75	N/A	346.50	20.5-25.5, 40.5-45.5, 60.5-65.5	8/15/2006
EGW159	P	346200.73	1286834.11	301.36	303.44	20.5-25.5	8/31/2006
EGW160	P	346193.96	1286828.82	300.88	303.24	32-37	8/30/2006
EGW161	P	344701.77	1286431.38	N/A	343.00	16.5-21.5, 36.5-41.5,56.5-61.5, 69.5-74.5	8/17/2006
EGW162	P	346008.13	1286674.96	314.38	316.695	47-52	8/30/2006
EGW163	P	346655.48	1286918.03	299.93	299.58	20.5-30.5	5/25/2007
EGW164	P	346232.71	1286791.42	323.82	323.6	47-57	5/25/2007
EGW165	P	346034.45	1286655.66	326.3	326.3	51.5-61.5	6/4/2007
EGW166	P	345880.99	1286498.29	338.9	338.81	64-74	6/5/2007
EGW167	P	346055.92	1286674.61	326.3	326.07	69.5-74.5	10/19/2007
EGW168	D	346048.52	1286457.14	430.56	433.94	153.5-163.5	2/13/2008
EGW169	P	N/A	N/A	406.75	409.47	128.5-138.5	2/12/2008
EGW170	P	346684.68	1286712.71	406.34	405.59	131-141	2/6/2008
EGW171R2	P	N/A	N/A	409.23	408.87	134-144	9/26/2017
EGW173R	P	N/A	N/A	402	404.44	136.6-146.6	6/23/2015
EGW174	P	347098.48	1286835.07	379.17	382.78	118-128	9/23/2009
EGW177	D	343563.00	1285553.00	N/A	N/A	193.5-208.5	N/A
EGW178	D	343900.00	1285739.00	N/A	N/A	191-206	N/A
EGW179	P	335336.24	1288070.55	580.91	580.5	9-24	02/26/2010
EGW180	P	335331.09	1288600.76	581.14	580.57	20-40	02/26/2010
EGW181	P	335763.85	1288361.85	583.47	583.12	26.75-41.75	02/26/2010
EGW185	P	345898.31	1286653.45	310.98	312.95	36-46	6/13/2012
EGW186	P	345828.44	1286644.19	338.68	338.18	64-74	6/18/2012
EGW187	P	345887.43	1286767.77	307.44	309.47	34-44	6/7/2012
EGW194	P	N/A	N/A	294	293.88	20-30	2/18/2015
EGW195	P	N/A	N/A	268	269.6	3-8	7/22/2015
EGW196	P	N/A	N/A	292.5	292.35	25-35	2/17/2015
EGW197	P	N/A	N/A	259	261.6	10-15	7/21/2015
EGW198	P	N/A	N/A	265.63	268.13	21-31	2/17/2015
EGW199	P	N/A	N/A	252.68	255.18	10-15	7/20/2015
EGW200	P	N/A	N/A	258.84	261.34	10-15	7/21/2015
EGW201	P	N/A	N/A	267.57	270.07	3-8	7/22/2015
EGW202	P	N/A	N/A	279.37	281.87	10.5-15.5	2/19/2015
EGW203	P	N/A	N/A	285	284.98	14.5-19.5	12/9/2014
EGW204	P	N/A	N/A	294	293.73	25-30	2/19/2015
EGW205	P	N/A	N/A	249.43	251.93	10-15	7/20/2015
EGW211	P	N/A	N/A	N/A	N/A	6-16	N/A
EGW212	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EGW213	P	N/A	N/A	280.24	282.74	10-15	2/19/2015
EGW214	P	N/A	N/A	254.03	256.53	10-15	7/21/2015
EGW217	D	N/A	N/A	N/A	N/A	197-212	N/A
EGW218	P	N/A	N/A	389.87	391.96	118-128	4/25/2017
EGW219	D	N/A	N/A	409.16	408.67	145-155	5/1/2017
EGW220	P	N/A	N/A	406	405.74	129.7-139.7	10/24/2018
EGW221	P	N/A	N/A	408.91	408.45	133.5-143.5	10/23/2018
PMG-P10	P	345719.32	1286699.50	313.5	315.58	34.75-44.75	6/20/2012
PMG-P11	P	345797.18	1287007.60	324.81	326.39	42.75-52.75	6/25/2012
PMG-P12A	P	345357.71	1286580.86	321.04	322.86	13-23	6/27/2012
PMG-P12B	P	345353.65	1286579.97	321.37	323.28	24.75-34.75	6/27/2012
PMG-P13A	P	345353.09	1286595.10	322.34	324.56	12.75-22.75	6/26/2012
PMG-P13B	P	345347.63	1286592.05	322.21	324.02	24.75-34.75	6/27/2012
PMG-P14A	P	345347.63	1286592.05	324.02	322.21	34-44	10/17/2012
PMG-P14B	P	345428.60	1286609.29	321.1	319.65	14-24	10/17/2012
PMG-P15A	P	345433.71	1286615.86	321.23	319.49	34-44	10/18/2012
PMG-P15B	P	345431.00	1286626.26	321.85	320.4	14-24	10/18/2012
PMG-P16	P	345426.50	1286624.79	322.08	320.66	10-15	10/18/2012
PMG-P17	P	345527.20	1286614.14	317.44	314.88	10-15	10/18/2012
PMG-P18	P	345515.09	1286623.76	318.83	316.77	5-10	6/29/2012
PMG-P19	P	345638.50	1286666.16	308.24	310.5	5-10	6/29/2012
PMG-P20	P	345254.17	1286529.36	326.23	328.56	19.75-29.75	6/30/2012
PMG-P21	P	345248.73	1286542.74	327.74	329.79	19.75-29.76	7/1/2012
PMG-P3	P	N/A	N/A	292.04	292.04	5-10	3/25/2010
PMG-P4	P	N/A	N/A	289.65	289.65	6-11	3/23/2010
PMG-P5	P	N/A	N/A	286.72	286.72	5-9, 5-10, 15-19, 20-24	3/24/2010
PMG-P6	P	N/A	N/A	285.83	285.83	4.5-9.5	3/23/2010
PMG-P8	P	345687.97	1286760.98	315.96	318.28	36.75-46.75	6/21/2012
PMG-P9	P	345761.89	1286928.10	315.06	317.3	37-47	10/9/2012

Notes:
N/A = Not applicable, or records not locatable



40-51

Legend

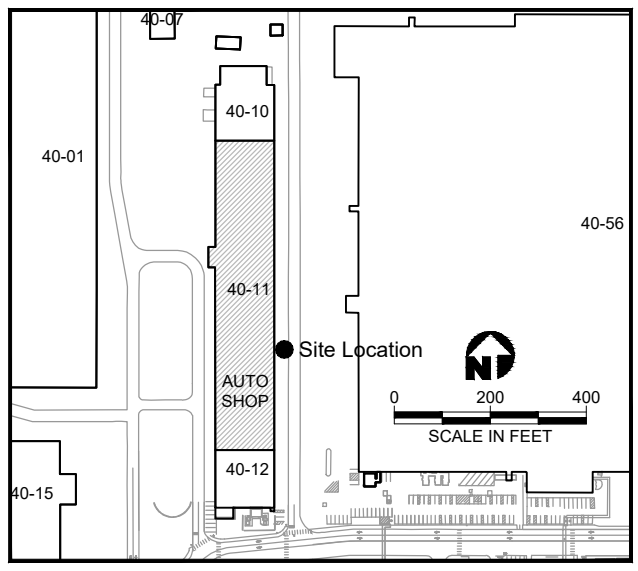
- Groundwater Monitoring Well
- Historical Groundwater Monitoring Well
- Historical Grab Groundwater Sample
- Historical Soil Boring
- FS Injection Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Perched Groundwater Contamination

Notes:

1. Indoor air monitoring to be performed in the building.
2. Institutional controls will be applied to the SWMU/AOC.

0 15 30
SCALE IN FEET

Figure E-1
Building 40-51, Former UST EV-11 (SWMU/AOC No. 090)
Area of Perched Groundwater Contamination



Inter-Plant Transportation Artery

Steel Lined Concrete Containment Trench

Building 40-11 Exterior Wall

Building 40-11 (Auto Shop)

Steam Clean Area

4" Pipe

4" Drain

3" Pipe

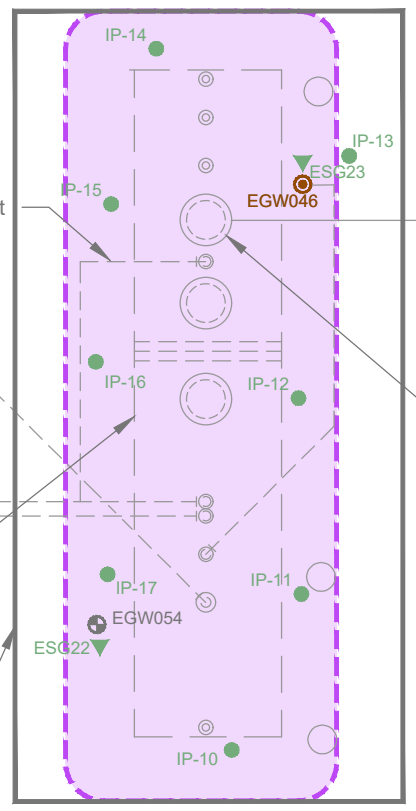
2" Pipe

Vent

4" Pipe

12,000 Gallon Double Wall Steel Oil/Water Separator EV-118-1 (SWMU/AOC No. 112)

Pilot Test Area



Legend

- Groundwater Monitoring Well
- Groundwater Recovery Well
- FS Injection Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Catch Basin/ Floor Drain

0 5 10
SCALE IN FEET

Figure E-2
Building 40-11, Oil/Water Separator (SWMU/AOC No. 112)
Area of Perched Groundwater Contamination

Legend

- ◆ Groundwater Monitoring Well
- ◆ Historical Soil Boring
- ◆ FS Soil Boring
- ▼ FS Soil Gas or Sub-Slab Vapor Sample
- ⬭ Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)

Figure E-3

Building 40-51, Southern Air Scrubber Sump (SWMU/AOC No. 151) Area of Perched Groundwater Contamination

AECOM

J:\DCS\Projects\ENV\60621398_Boeing2020\900_CAD_GIS\910_CAD\20-SHEETS\RCRA\Fig E-3 (Alt 1 Bldg 40-51 SWMU 151).dwg
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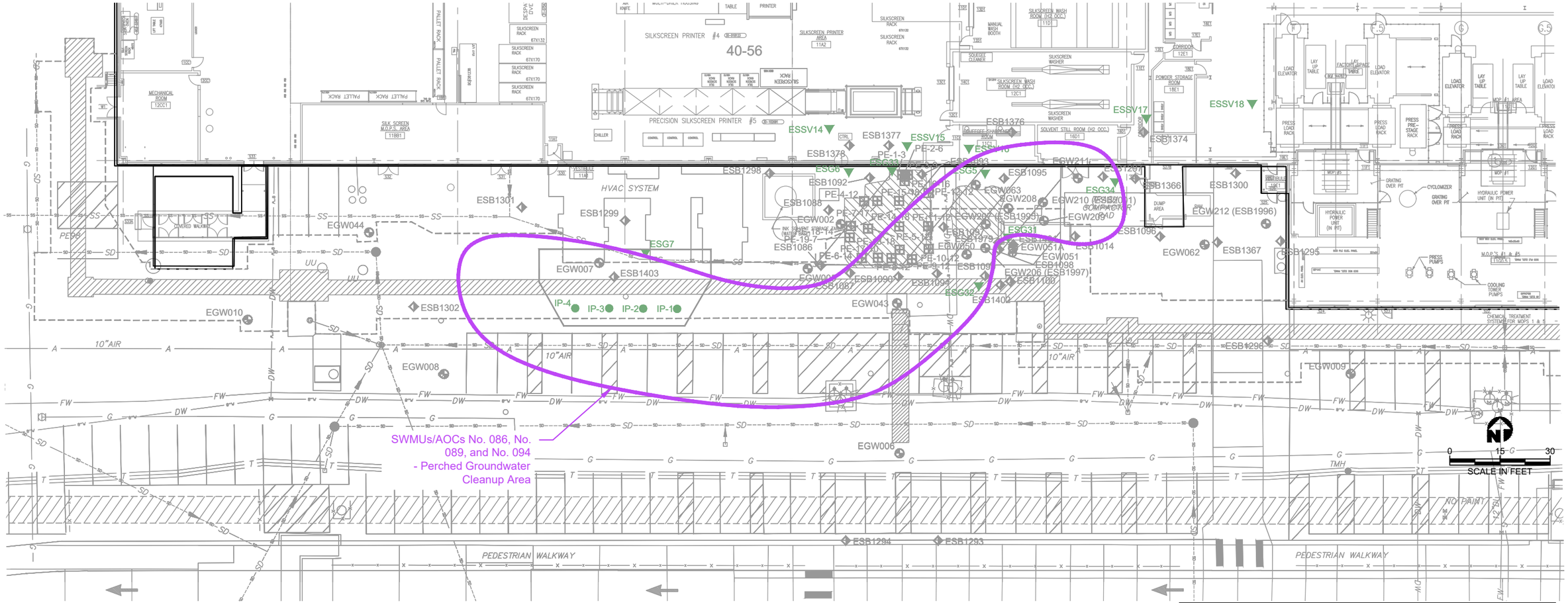
Boeing Everett Facility
RCRA Permit B Application



Legend

◆	Historical Soil Boring
⊕	Historical Monitoring Well
⊕	Abandoned Groundwater Monitoring Well
⊞	Historical Excavation Sample
▼	FS Soil Gas or Sub-slab Vapor Sample
●	FS Injection Boring
⊕	FS Monitoring Well
⊕	Groundwater Monitoring Well
▨	Recovery Trench
▨	Former UST Excavation
▨	Redundant Steam Line Utility Upgrade Excavation
━	Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- - -	Sawcut of Pavement and Approximate Limits of Excavation for the 2011 Steamline Replacement

Figure E-4

Building 40-56, Former USTs (SWMUs/AOCs No. 086, No. 089, and No. 094)
Area of Perched Groundwater Contamination

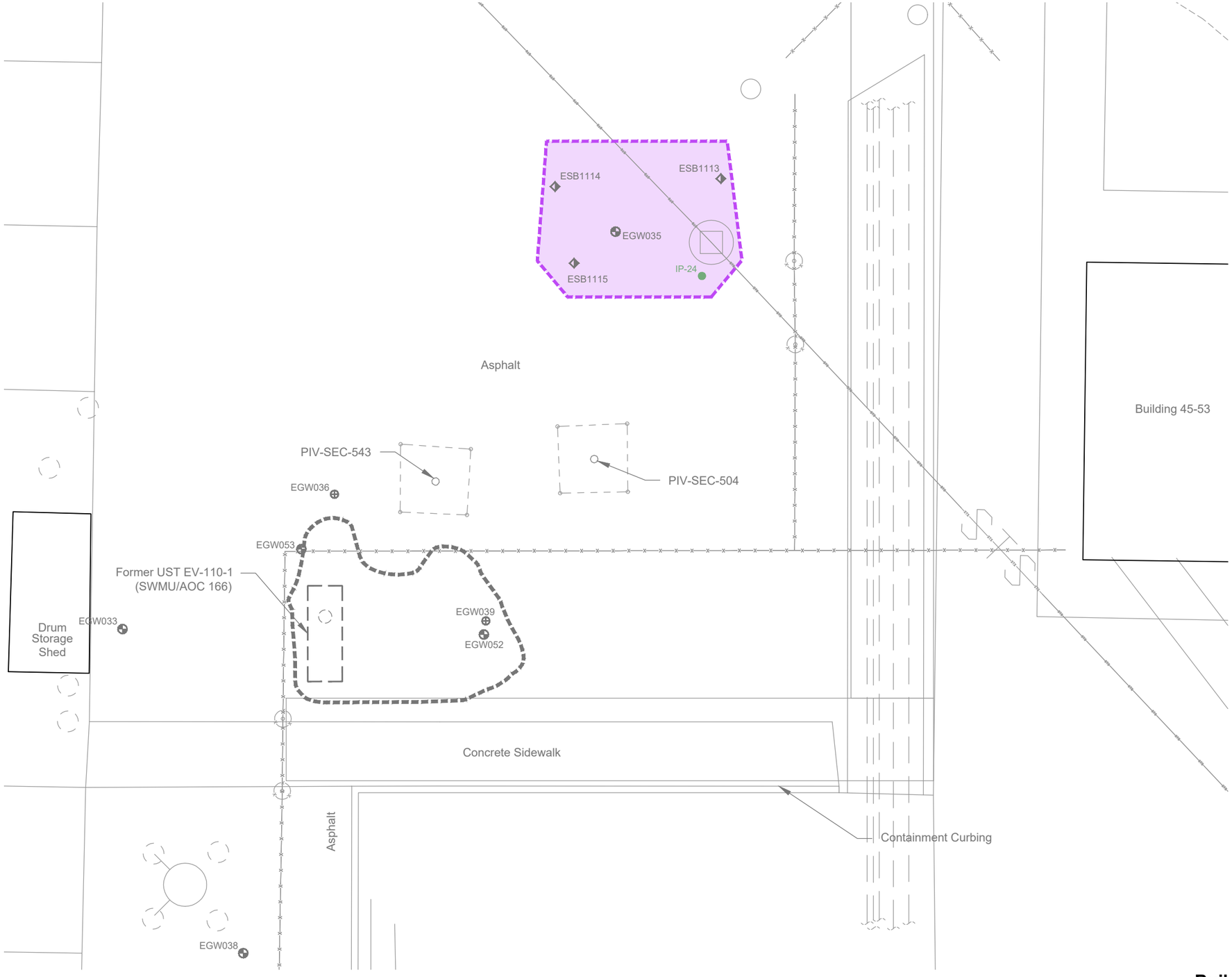


Figure E-5
Building 45-53, UST EV-110-1 (SWMU/AOC No. 166)
Modified Cleanup Alternative 1 - Maintain Containment

Boeing Everett Facility
RCRA Permit B Application

AECOM

J:\DCS\Projects\ENV\60621398_Boeing2020\900_CAD_GIS\910_CAD\20-SHEETS\RCRA\Fig E-5 (Alt 2 Bldg 45-53 SWMU 166).dwg
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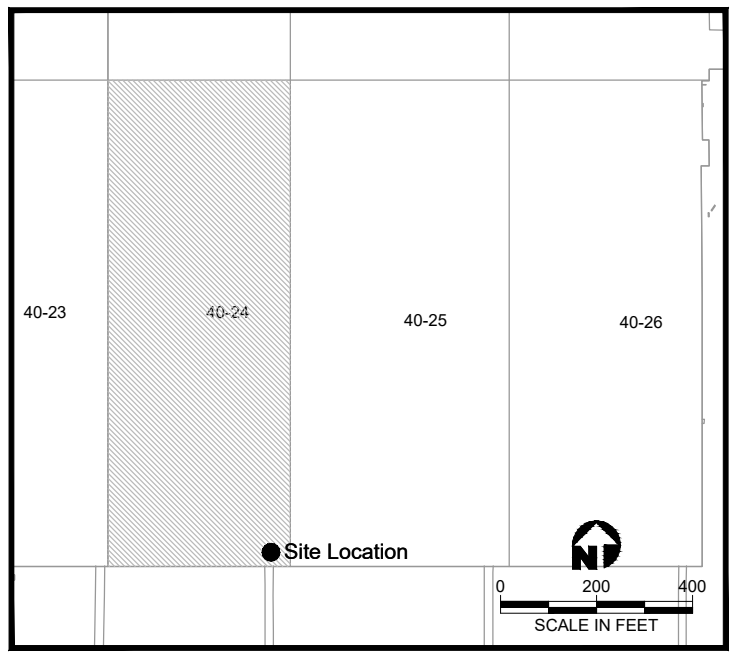

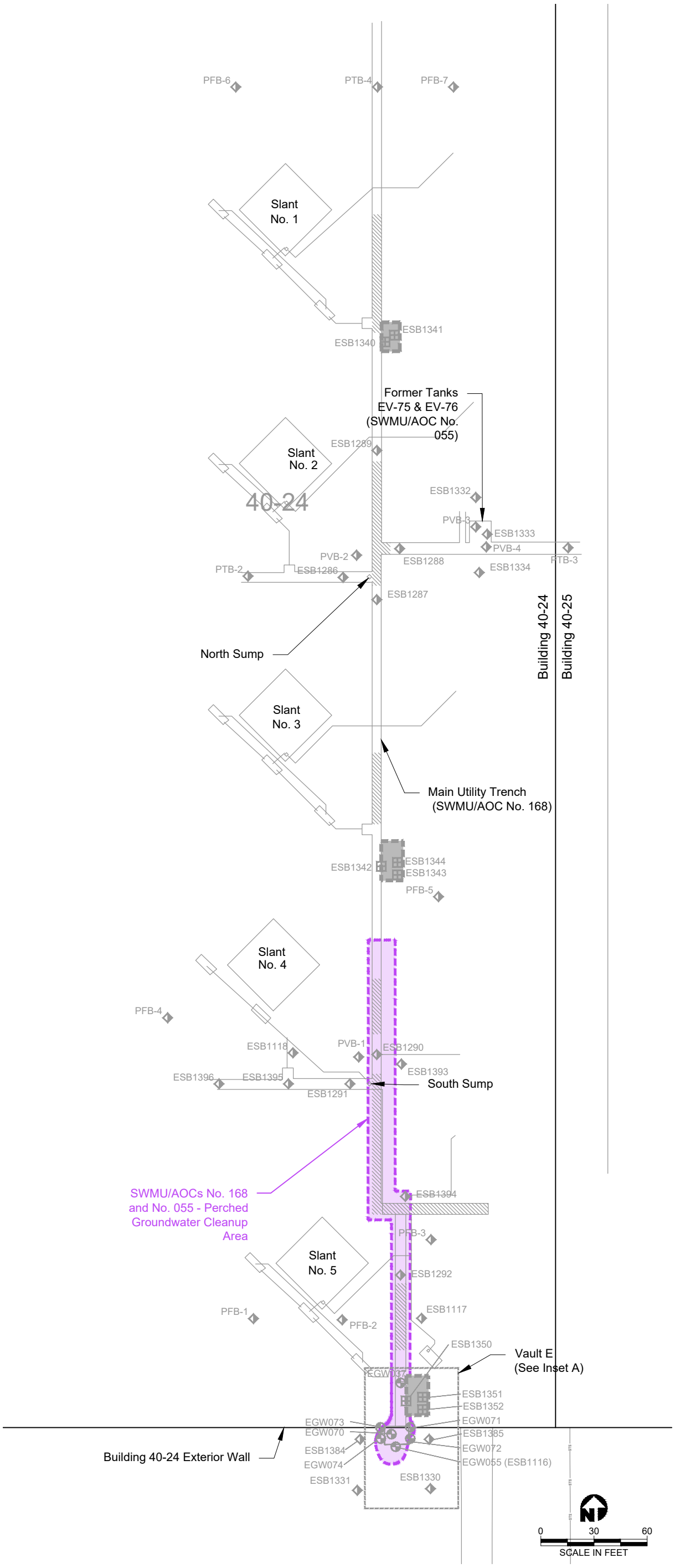

Legend

- Groundwater Monitoring Well
- Historical Soil Boring
- Historical Excavation Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Floor of Trench Inaccessible To Drilling
- Historical Utility Vault Excavation

Figure E-6

Building 40-24 (SWMU/AOCs No. 055 and No. 168) Area of Perched Groundwater Contamination

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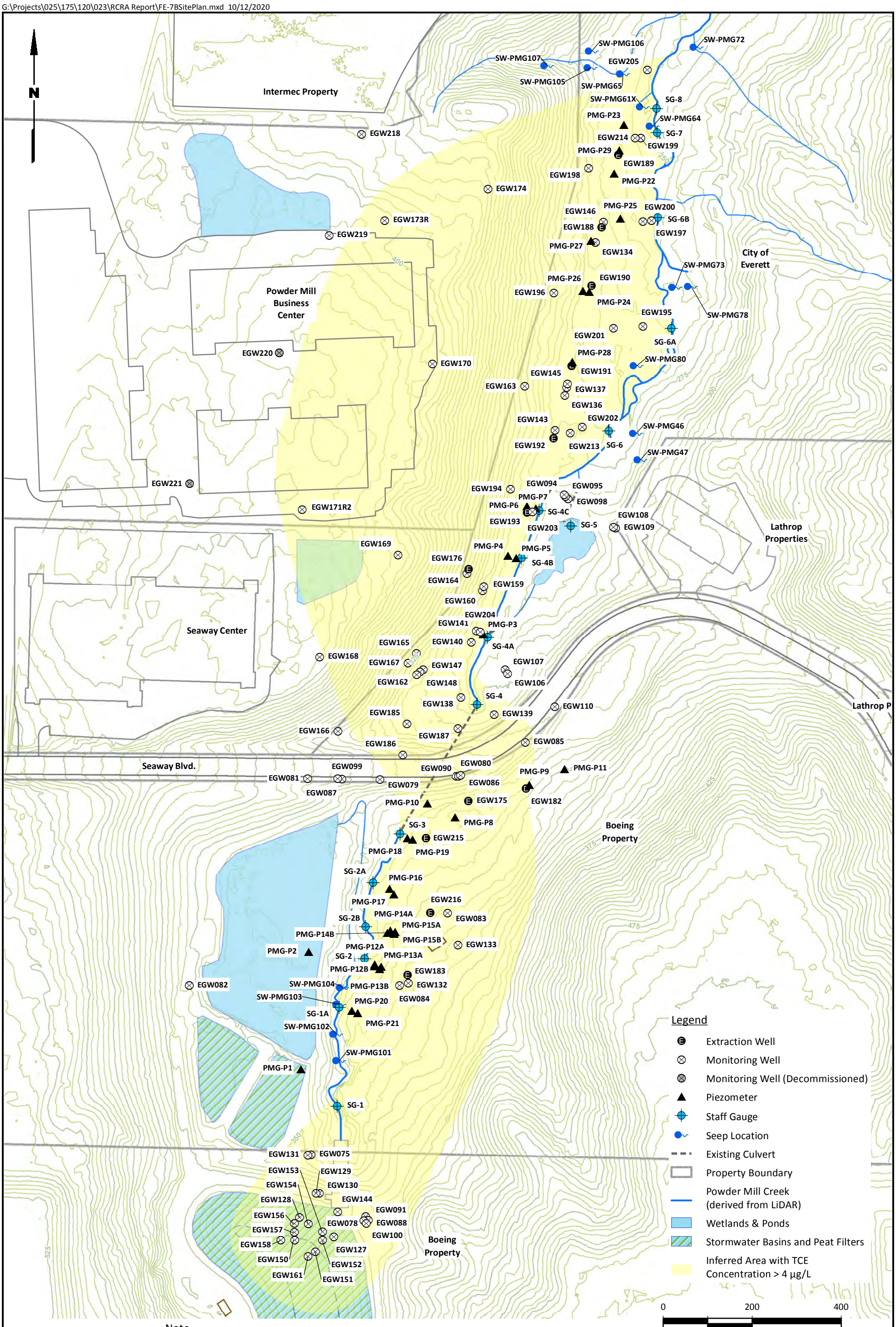


Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

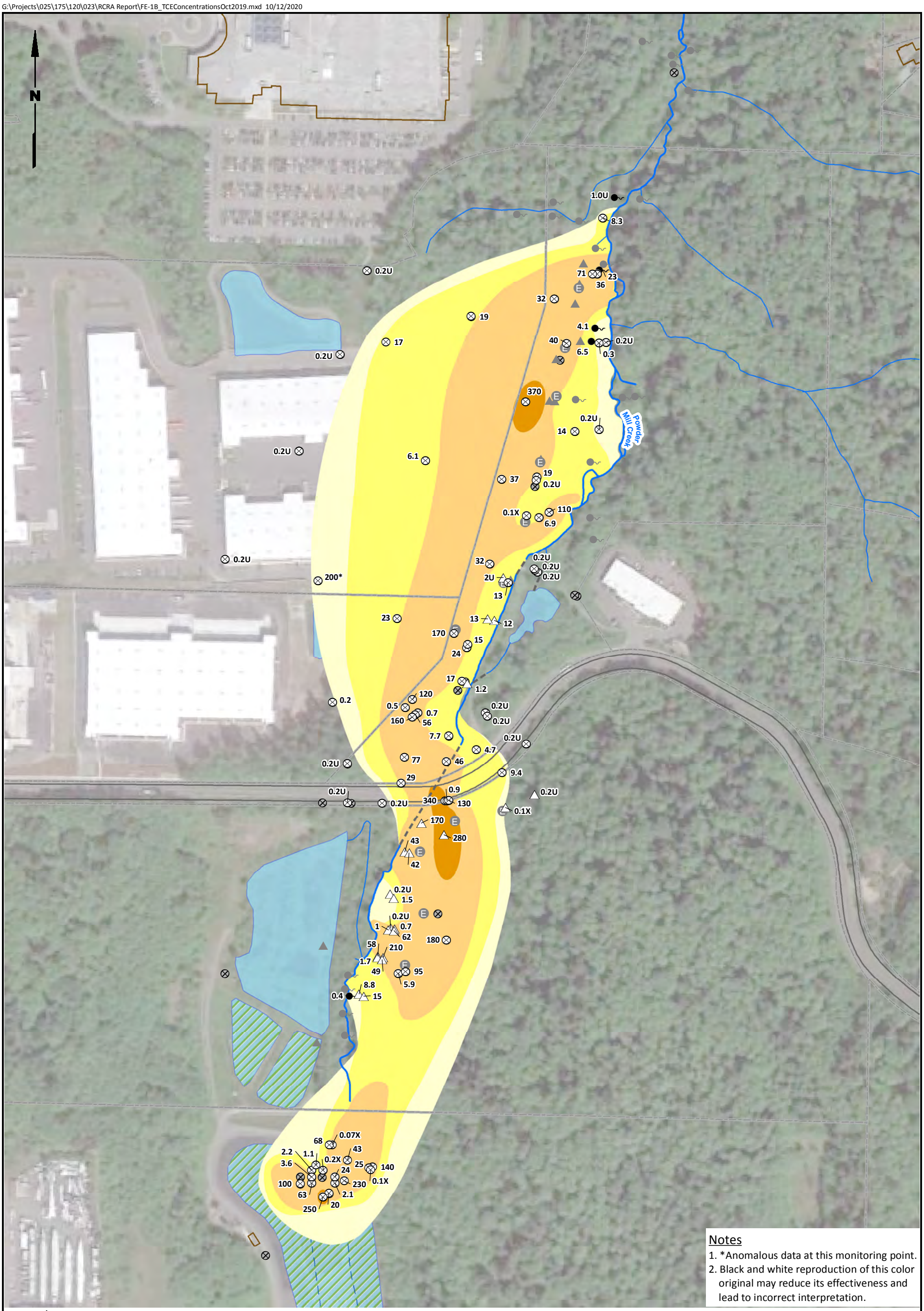
LANDAU ASSOCIATES

RCRA Permit Renewal
Boeing Commercial Airplanes
Everett, Washington

Site Plan - Powder Mill Gulch

Figure
E-7

G:\Projects\025\175\120\023\RCRA Report\FE-1B_TCEConcentrationsOct2019.mxd 10/12/2020



Notes

1. *Anomalous data at this monitoring point.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Legend

Samples Collected in October 2019
- Monitoring Well
- Piezometer
- Seep

Other Monitoring Locations
- Monitoring Well
- Piezometer
- Seep
- Extraction Well

- 0.3 ≤ TCE <4µg/L
- 4 ≤ TCE <25 µg/L
- 25 ≤ TCE <250 µg/L
- 250 ≤ TCE <500 µg/L

0 250 500

Scale in Feet

Data Sources: Google Earth Pro. Aerial Photo Date: 5/18.

LANDAU ASSOCIATES

RCRA Permit Renewal
Boeing Commercial Airplanes
Everett, Washington

October 2019 TCE Concentrations

Figure E-8

SECTION F: PROCEDURES TO PREVENT HAZARDS

40 CFR 264.14; 270.14(b)(4)

SECTIONS

INTRODUCTION

The Boeing Everett Facility is designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned, sudden, or non-sudden release of dangerous waste or dangerous waste constituents to air, soil, surface water, or groundwater that could threaten human health or the environment. This section describes the procedures used by Boeing to prevent such hazards.

F-1 SECURITY

40 CFR 264.14, 270.14(b)(4)

F-1A SECURITY PROCEDURES AND EQUIPMENT

40 CFR 264.14, 270.14(b)(4)

Access to most of the Boeing Everett Facility is controlled 24 hours a day, 7 days a week. Secured areas are surrounded by an 8-foot high chain link fence. The Facility maintains a 24-hours-per-day, 365-days-per-year armed security force. The security guards routinely patrol the perimeter of the Facility. The guards also control access at the vehicle and pedestrian gates.

Access to the Facility is strictly controlled by the security guards at the access gates. Only badged employees or contractors are permitted to enter the Facility. All visitors are issued temporary badges by security personnel and are escorted by authorized employees at all times. The pedestrian-only gates are available for use by electronic-badged employees. These turnstile gates open only with the use of the employee badge activating an electronic sensor. The layout of the security system is shown in Figure B-10.

The BOMARC building, PMG, and Boeing Lake are not located within the secured portion of the Facility. Sediment areas Alpha Pond, Japanese Gulch, and Wetland 3A are located on properties that are not owned or controlled by Boeing. All dangerous waste is managed within secured areas.

SECTION G: CONTIGENCY PLAN

40 CFR 270.14(b)(7); 264.50 through 264.56

APPENDIX

G-1 COMPREHENSIVE CONTINGENCY PLAN

A comprehensive contingency plan (CCP) was developed for the Facility, because it is a large quantity generator. The complete CCP is included as Appendix G-1 of this application. The CCP outlines the process that should be followed to respond to environmental emergencies. It also describes the initial report requirements associated with those events. The plan is typically updated on an annual basis.

SECTION H: PERSONNEL TRAINING

40 CFR 270.14(b)(12); 264.16

Section H discusses personnel training associated with the regulated dangerous waste units. All regulated units at the Facility have been closed, and there are no active regulated units. Section H is not required.

SECTION I: CLOSURE PLAN AND FINANCIAL INSURANCE

40 CFR 270.14(b)(13), (16), and (18); 264.144; 264.145; 264.149; and .151

SECTIONS

APPENDIX

INTRODUCTION

This section describes the status of closure activities at the Facility and financial assurance mechanisms associated with closure activities. Closure means both the closure of regulated units and closure of the Facility. The Boeing Everett Facility currently has no regulated units requiring closure plan; all previous regulated units have undergone clean closure (see Section B). The following sections describe the closure process, closure cost estimate, financial assurance, and post closure planning process:

I-1 Site CLOSURE PLAN

40 CFR 270.14(b)(13)

The Boeing Everett Facility is currently undergoing corrective actions related to releases from SWMUs and AOCs. Corrective action is being conducted in accordance with requirements of the AO and the Washington State Model Toxics Control Act (MTCA; WAC 173-340). An RI has been conducted to determine the extent of contamination in soil, groundwater, air, and surface water (URS and Landau 2011). A cleanup action plan is presently under revision for the upland areas, BOMARC, and PMG portion of the Facility. The cleanup action plan outlines the actions that will be used to address remaining contamination. Selected remedies were incorporated into the cleanup action plan for remediation of contaminated media and post-closure care. The cleanup action plan is expected to be finalized in 2021.

A feasibility study was completed to evaluate cleanup alternatives for freshwater sediments and surface water at the Facility. SWMUs and AOCs associated with sediments and surface water are described in the RI Report (URS 2011) and FS (AECOM 2016). The cleanup action plan for sediments and surface water will be prepared following finalization of the FS.

I-2 CLOSURE COST ESTIMATE AND FINANCIAL ASSURANCE

40 CFR 270.14(b)(16); 264.144; 264.145; 264.151

Financial assurance is required only at certain stages of a facility's lifespan during the operation of regulated units and for post closure activities (cleanup activities). Financial assurance is not required for previous regulated units at the Facility. A financial assurance agreement was established under the existing AO. Once the cleanup action plan has been finalized, Boeing will submit a closure cost estimate to Ecology and implement a financial assurance mechanism for facility closure and post closure care.

SECTION J: RELEASES FROM SOLID WASTE MANAGEMENT UNITS

SECTIONS

TABLES

J-1 SOLID WASTE MANAGEMENT UNITS OF KNOWN AND SUSPECTED RELEASES OF DANGEROUS WASTES OR CONSTINUENTS

40 CFR 270.14(d); 264.101

The Boeing Everett Facility is currently undergoing RCRA corrective action for releases from SWMUs and AOCs (Figure B-11). In the state of Washington, EPA has delegated responsibility for implementation of the RCRA hazardous waste program to Ecology. The implementing regulations for RCRA Corrective Action in Washington are contained in the MTCA, WAC 173-340. The corrective action process includes conducting an RI and FS, preparing a cleanup action plan, and implementing the cleanup action. The RI/FS for the Uplands, PMG, and adjacent BOMARC property is complete; and a draft CAP has been prepared. As indicated above, a feasibility study has been submitted to Ecology which evaluates cleanup alternatives for freshwater sediments and surface water at the Facility. SWMUs and AOCs associated with sediments and surface water are described in the Sediment FS (AECOM 2016). The cleanup action plan for sediments and surface water will be prepared following finalization of the FS.

J-1A SOLID WASTE MANAGEMENT UNITS

An up-to-date list of SWMUs and AOCs for the Facility and proposed corrective measures, as presented in the draft CAP, are presented in Table J-1. Based on the results of the investigations and evaluations conducted as part of the RI/FS, the draft Cleanup Action Plan provides a detailed description and proposed cleanup actions for each of the SWMUs and AOCs (AECOM and Landau 2020).

J-1B RELEASES

Information on characterization of releases from SWMUs and AOCs is documented in the RI (URS and Landau 2011). Information about the potential for the public to be exposed to releases from the Facility SWMUs and AOCs is also presented in the RI report (URS and Landau 2011). This information includes potential pathways of human exposure and evaluates concentrations compared to screening levels.

J-2 CORRECTIVE ACTIONS IMPLEMENTED

Corrective action cleanup activities conducted at SWMUs and AOCs where releases have occurred at the Boeing Everett Facility are summarized in Table J-2. Reports documenting these corrective actions were previously submitted to the EPA and/or Ecology. A detailed summary of the corrective actions is provided in the FS (AECOM and Landau 2015). Table J-2 lists only those areas where cleanup was implemented, or a no-further-action determination was made.

Table J-1
Summary of Solid Waste Management Units and Areas of Concern
RCRA Permit B
Boeing Everett Facility

SWMU/AOC, Building No., and Description	Selected Remedy	Media[1]		COCs Exceeding Proposed CULs	Proposed Cleanup Actions														
		Impacted	Point of Compliance		Additional Investigation	Institutional/ Engineering Controls	Monitoring	New Groundwater Monitoring Well Installation	SVE	Future SVE	Enhanced In Situ Bioremedi-ation	Dewatering	Groundwater Extraction	GET System Operation/ Dynamic Groundwater Recirculation	MNA	Near-Term Excavation[2]/ Comprehensive Excavation	Limited Excavation	Future Excavation	NFA
No. 090, Building 40-51, Former UST EV-11	Maintain Containment with Groundwater Monitoring	Soil, perched groundwater	Indoor air	Chlorinated VOCs		X	X												
No. 112, Building 40-11, Oil/Water Separator	Maintain Containment with Groundwater Monitoring	Perched groundwater	Indoor air	Chlorinated VOCs, TPH		X	X												
No. 151, Building 40-51, Sumps EV-112 and EV-119	Maintain Containment with Groundwater Monitoring	Soil, perched groundwater	Indoor air	Chlorinated VOCs, arsenic		X	X												
Nos. 086, 089, 094, Building 40-56, Former USTs	SVE and Groundwater Extraction	Soil, perched groundwater	Potable groundwater, indoor air	Chlorinated VOCs, BTEX, MIBK	X[3]	X	X	X	X				X						
No. 166, Building 45-53, Former UST EV-110-1	Maintain Containment with Groundwater Monitoring	Perched groundwater	NA	TPH		X	X												
Nos. 055 and 168, Building 40-24, Utility Trenches and Sumps	Near-Term Excavation with Dewatering and Future Excavation	Soil, perched groundwater	Potable groundwater	TBP, DPP, BDP, TPP, BHT, n-butyl alcohol, arsenic		X	X	X				X				X		X	
Building 40-22, Utility Slants #2 and #3	Maintain Containment with Future Excavation	Soil	NA	TBP		X	X	X										X	
Building 40-23, Static Test Pad	Maintain Containment with Future Excavation	Soil	NA	TBP		X	X	X										X	
No. 177, Building 40-25, Utility Vault	Maintain Containment with Future Excavation	Soil	NA	TBP		X												X	
No. 054, Building 40-51, Former Wastewater AST	Maintain Containment with Future Excavation	Soil	Potable groundwater, indoor air	TCE, vinyl chloride		X	X	X										X	
No. 097, Building 40-11, Former Vapor Degreaser	Near-Term Excavation	Soil	Indoor air	Chlorinated VOCs												X			
No. 098, Building 40-53, Former Mock-Up Degreaser	Maintain Containment	Soil	Potable groundwater, indoor air	Chlorinated VOCs		X	X	X											

Table J-1
Summary of Solid Waste Management Units and Areas of Concern
RCRA Permit B
Boeing Everett Facility

SWMU/AOC, Building No., and Description	Selected Remedy	Media[1]		COCs Exceeding Proposed CULs	Proposed Cleanup Actions														
		Impacted	Point of Compliance		Additional Investigation	Institutional/ Engineering Controls	Monitoring	New Groundwater Monitoring Well Installation	SVE	Future SVE	Enhanced In Situ Bioremedi-ation	Dewatering	Groundwater Extraction	GET System Operation/ Dynamic Groundwater Recirculation	MNA	Near-Term Excavation[2]/ Comprehensive Excavation	Limited Excavation	Future Excavation	NFA
No. 169, Building 40-02, Former Small Vapor Degreaser	Maintain Containment	Soil	Potable groundwater, indoor air	Chlorinated VOCs, Freon 12, chloroform		X	X												
No. 170, Building 40-02, Former Large Vapor Degreaser	Maintain Containment	Soil	Potable groundwater, indoor air	Chlorinated VOCs, Freon 12, chloroform		X	X												
No. 171, Building 40-31, Former Bluestreak Vapor Degreaser	Maintain Containment with Future SVE	Soil	Potable groundwater, indoor air	Chlorinated VOCs		X	X	X		X									
Building 40-02, Former Paint Crib	Maintain Containment	Soil	Potable groundwater, indoor air	Chlorinated VOCs, Freon 12, chloroform		X	X												
Building 40-32, Footing Excavation	Maintain Containment	Soil	Potable groundwater, indoor air	Chlorinated VOCs, BTEX, TPH		X	X	X											
No. 068, South Complex, South Fire Pit	Near-Term Excavation	Soil	Indoor air	BTEX, TPH	X[6]		X									X			
No. 065, Building 40-51, Former Paint Stripping Tankline	Maintain Containment	Soil	NA	Cadmium, chromium, lead		X													
No. 083, Former UST EV-15	Maintain Containment	Soil	NA	TPH		X													
No. 165, Building 45-52, Former Fuel Farm USTs	Limited Excavation and Maintain Containment with Future Excavation	Soil	Potable groundwater, indoor air	BTEX, TPH		X	X	X									X	X	
Building 40-11, UST EV-48-1	Maintain Containment with Future Excavation	Soil	Potable groundwater, indoor air	BTEX, TPH		X	X	X										X	
Nos. 067 and 071, Building 40-56, Former Recycling Unit and UST EV-153	Maintain Containment with Future Excavation	Soil	Potable groundwater, indoor air	BTEX		X	X	X										X	
No. 093, Building 45-01, Former Solvent USTs	Maintain Containment with Future Excavation	Soil	Potable groundwater, indoor air	2-Butanone (methyl ethyl ketone)		X	X	X										X	

Table J-1
Summary of Solid Waste Management Units and Areas of Concern
RCRA Permit B
Boeing Everett Facility

SWMU/AOC, Building No., and Description	Selected Remedy	Media[1]		COCs Exceeding Proposed CULs	Proposed Cleanup Actions														
		Impacted	Point of Compliance		Additional Investigation	Institutional/ Engineering Controls	Monitoring	New Groundwater Monitoring Well Installation	SVE	Future SVE	Enhanced In Situ Bioremedi-ation	Dewatering	Groundwater Extraction	GET System Operation/ Dynamic Groundwater Recirculation	MNA	Near-Term Excavation[2]/ Comprehensive Excavation	Limited Excavation	Future Excavation	NFA
Esperance Sand Well EGW061	NFA	NA	Groundwater	Arsenic			X												X
North Complex, Esperance Sand, Powder Mill Gulch	Enhanced In Situ Bioremediation/GET System Operation/Dynamic Groundwater Recirculation/MNA and Institutional Controls	Groundwater, surface water	NA	TCE, DCE, vinyl chloride		X	X				X			X	X				
No. 011, Bomarc Building 45-70	Air Monitoring	Sub-slab vapor	Indoor air	Freon-12, TCE		X	X												
Nos. 123 and 124, Oil Water Separators EV-151 and EV-152	Near-term Excavation	Soil	NA	cPAHs			X									X			

Notes:

AOC - area of concern
AST - above-ground storage tank
BDP - butyl diphenyl phosphate
BHT - butylated hydroxytoluene
BTEX - benzene, toluene, ethylbenzene, and xylenes
COC - chemical of concern
cPAH - carcinogenic polycyclic aromatic hydrocarbons
CUL - cleanup level
DPP - dibutyl phenyl phosphate
GET - groundwater extraction and treatment
MIBK - 4-methyl-2-pentanone
NA - Not Applicable
NAPL - nonaqueous-phase liquid
NFA - no further action
PAH - polycyclic aromatic hydrocarbon
SVE - soil vapor extraction
SWMU - solid waste management unit
TBP - tributyl phosphate
TCE - trichloroethylene
TEX - toluene, ethylbenzene, and xylenes
TPH - total petroleum hydrocarbons
TPP - triphenyl phosphate
UST - underground storage tank
VI - vapor intrusion
VOC - volatile organic compound

[1]This includes all media addressed by the remedy. Media included in the impacted sub-column have chemical concentrations above a cleanup or screening level. Media in the point of compliance sub-column are included because the remedy includes monitoring of that media to address potential future contamination of that media or potential future risks from exposure to that media. Potable water is included if concentrations in soil are greater than the protection of drinking water CULs for selected remedy of maintain containment. Indoor air is included if potential vapor intrusion issues have been identified for that SWMU/AOC.

[2]In these alternatives the phrase "near-term" is used to mean execution of the cleanup action as soon as practical after Ecology's approval of the final CAP. For these excavations, cleanup would be performed after execution of the CAP, Ecology approval of the engineering design report, and then as soon as access can be practicably arranged. Near-term is used in contrast to "future", which refers to some later time, not specifically defined, during which excavation of contaminated soil is linked to some other site development project on the Facility.

[3]Sampling will be performed to better characterize the area prior to SVE implementation.

[4]Pre-design sampling will be performed.

[5]EPM J (SWMU/AOC No. 100) will be addressed in the Sediment Cleanup Action Plan

Table J-2
Summary of Corrective Actions Implemented
RCRA Permit B
Boeing Everett Facility

SWMU/ AOC No.	Building Number and Description	Media[1]	Primary COC Exceeding CUL	Interim Action(s)[2]
090	40-51, Former UST EV-11	Perched groundwater, soil gas	TCE	Although not an interim action, UST was removed in 1986. Monitor exisitng groundwater monitoring well(s) routinely
112	40-11, Oil/Water Separator	Perched groundwater, soil gas	TPH	Maintain and operate pump used for dewatering perched groundwater in fill adjacent to underground utilities and USTs Monitor existing groundwater monitoring well(s) routinely
086, 089, 094	40-56, Former USTs	Perched groundwater, soil, soil gas	BTEX	Although not an interim action, 285 tons of soil were removed in the 1997 removal of UST EV-43-1 Maintain and operate pump used for dewatering perched groundwater in fill adjacent to underground utilities and USTs Monitor existing perched and deep groundwater monitoring well(s) routinely
166	45-53, Former UST EV-110-1	Perched groundwater	TPH	Although not an interim action, UST was removed in 1997 Monitor existing groundwater monitoring well(s) routinely
055, 168	40-24, Utility Trenches and Sumps	Perched groundwater, soil	TBP	Although not an interim action, USTs were removed in 1993. Monitor existing groundwater monitoring well(s) routinely
165	45-52, Former Fuel Farm USTs and Fuel Stall Piping	Soil	TPH, benzene, ethylbenzene, xylenes	Excavation and disposal of soil containing petroleum hydrocarbons during removal of four USTs and removal of one dewatering well (2008) Monitor existing groundwater monitoring well(s) routinely

Table J-2
Summary of Corrective Actions Implemented
RCRA Permit B
Boeing Everett Facility

SWMU/ AOC No.	Building Number and Description	Media[1]	Primary COC Exceeding CUL	Interim Action(s)[2]
067, 071	40-56, Former Recycling Unit and UST EV-153	Soil	TEX	Although not an interim action, features were removed in 1991, and soil was removed from the floor during the 1991/1992 remodel Maintain and operate pump used for dewatering perched groundwater in fill adjacent to underground utilities and USTs Monitor existing groundwater monitoring well(s) routinely
NA	Esperance Sand Well EGW061	Groundwater	Arsenic	NA
NA	North Complex, Esperance Sand, Powder Mill Gulch	Groundwater	TCE	Source area treatment of TCE in groundwater by in-situ Electric Resistance Heating and bioremediation (2006-2010) Monitor existing groundwater monitoring well(s) routinely
100	Former Gun Club	Soil, Perched Groundwater	Lead	Interim actions consisting of removal and off-site disposal of impacted soils was completed in Area A (2008, 2014) and Area C (2014).
011	BOMARC Building 45-70 Interior	Sub-slab vapor	Freon 12	Monitor existing groundwater monitoring well(s) routinely

Notes:

AOC - area of concern
AST - aboveground storage tank
BTEX - benzene, toluene, ethylbenzene, and xylenes
CUL - cleanup level
NA - not applicable
PAH - polycyclic aromatic hydrocarbon
SWMU - solid waste management unit
TBP - tributyl phosphate
TCE - trichloroethene
TEX - toluene, ethylbenzene, and xylenes
TPH - total
VOCs - volatile
UST - underground storage tank

[1]Media listed for each SWMU/AOC have chemical concentrations above a cleanup level or screening level.

[2]Interim Actions are described in the Upland FS (URS and Landau, 2012)

SECTION K: OTHER FEDERAL AND STATE LAWS

40 CFR 270.14(b)(20); 270.3

SECTIONS

TABLE

INTRODUCTION

This section addresses the environmental permits and approvals for the Boeing Everett Facility.

K-1 FEDERAL, STATE, AND LOCAL LAWS

Federal, state, and local requirements that are applicable to the proposed cleanup actions for the Boeing Everett Facility are summarized on Table K-1. Federal, state, and local permits held by the Boeing Everett Facility are listed in Table B-2.

K-2 STATE ENVIRONMENTAL POLICY ACT (SEPA) CHECKLIST

Under the SEPA rules, MTCA and SEPA processes are to be combined to reduce duplication and improve public participation (WAC 97-11-250). Ecology is the lead agency for implementing the substantive requirements of SEPA as described in WAC 197-11-253. Ecology is likely to determine that it will act as the lead agency for implementing the requirements of SEPA for cleanup actions at the Boeing Everett Facility. A SEPA checklist will be completed as part of the finalization of the CAP. It is expected that a determination of non-significance will be issued, as the proposed remedies unlikely to have a significant adverse environmental impact.

Table K-1
Summary of Applicable Federal, State, and Local Laws
RCRA Permit B
Boeing Everett Facility

SWMU/AOC, Building No. and Description	Chemical-Specific ARARs: Soil: MTCA Method B, Protection of Groundwater	Soil: MTCA Method B, Direct Contact	Soil: MTCA Method A, Direct Contact	Soil: MTCA Method A	Soil: Ecological Indicator Soil Concentrations for Protection of Plants and Animals (MTCA Table 749-3)	Soil: Puget Sound Background	Air: MTCA Method C	Air: Airborne Contaminants (WAC 296-841)	Groundwater: MTCA Method A	Groundwater: MTCA Method B	Groundwater: MTCA Method A	Groundwater: Risk-Based Cleanup Levels (WAC 173-340-708(3))	Surface Water: MTCA Method B	Surface Water: EPA Region 3 Biological Technical Assistance Group Freshwater Screening Benchmarks	Surface Water: EPA Region 4 Waste Management Division Freshwater Surface Water Screening Values for Hazardous Waste Sites	Surface Water: EPA Region 5 Ecological Screening Levels	Sediment: Site-Specific Background	Sediment: Sediment Cleanup Objectives (Chapter 173-204)	Location-Specific ARARs: Clean Water Act, Section 404, Dredge or Fill Requirements Regulations, 33 USC 1344(a)–(d); 33 CFR Parts 320–330; 40 CFR Part 230	Clean Water Act, Section 401, Water Quality Certification, 33 USC 1340; WAC 173-225-10	Washington Hydraulics Project Approval (RCW 75.20.100; Chapter 220-110 WAC)	Native American Graves Protection and Repatriation Act Regulations, 25 USC 3001 et. seq; 43 CFR Part 10.1, 10.4 and 10.5	National Historic Preservation Act, 16 USC 470; 36 CFR Parts 60, 65, and 800	Archaeological and Historic Preservation Act, 16 USC 469	Everett Municipal Code 14.56.040, Discharge of Polluting Matter into the Surface Water System Prohibited	WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington	Action-Specific ARARs: Clean Water Act's Pretreatment Regulations (40 CFR Part 503.5, City of Everett Code Title 14 Water and Sewers)	National Pollutant Discharge Elimination System	Stormwater Permit Program (33 USC 1342, RCW 90.48.260, 40 CFR 122.26; Chapter 173-220 WAC)	State Environmental Policy Act (RCW 43.21.036, WAC 197-11-250 through 268)	Washington Clean Air Act and Implementing Regulations (Chapter 70.94 RCW, WAC 173-400-040[8], and WAC 173-460) and Puget Sound Clean Air Agency Regulation 1, Section 9.15	Washington Solid Waste Management Act and Solid Waste Management Handling Standards Regulations (Chapter 70.95 RCW and Chapter 173-350 WAC)	Washington MTCA (Chapter 173-340-440) Institutional Controls	Washington Minimum Standards for Construction and Decommissioning Wells (WAC 173-160-381)	Underground Injection Control Program (WAC 173-218)	City of Everett Requirements (Title 19, Chapters 37 and 18.23)
No. 090, Building 40-51, Former UST EV-11							X					X																			X	X			
No. 112, Building 40-11, Oil/Water Separator							X				X	X																			X	X	X		
No. 151, Building 40-51, Southern Scrubber Sumps	X						X					X																			X	X	X		
Nos. 086, 089, and 094, Building 40-56, Former USTs	X						X					X										X	X	X			X			X	X	X	X	X		X
No. 166, Building 45-53, Former UST EV-110-1									X		X																			X	X	X			
Nos. 055 and 168, Building 40-24, Utility Trenches and Sumps	X								X			X										X	X	X	X		X			X	X	X	X	X		X
Building 40-22, Utility Slants #2 and #3	X								X			X										X	X	X	X					X	X	X	X	X		X
Building 40-23, Static Test Pad	X								X			X										X	X	X	X					X	X	X	X	X		X
No. 177, Building 40-25, Utility Vault	X								X													X	X	X	X					X	X	X	X			X

Table K-1
Summary of Applicable Federal, State, and Local Laws
RCRA Permit B
Boeing Everett Facility

SWMU/AOC, Building No. and Description	Chemical-Specific ARARs: Soil: MTCA Method B, Protection of Groundwater	Soil: MTCA Method B, Direct Contact	Soil: MTCA Method A, Direct Contact	Soil: MTCA Method A	Soil: Ecological Indicator Soil Concentrations for Protection of Plants and Animals (MTCA Table 749-3)	Soil: Puget Sound Background	Air: MTCA Method C	Air: Airborne Contaminants (WAC 296-841)	Groundwater: MTCA Method A	Groundwater: MTCA Method B	Groundwater: MTCA Method A	Groundwater: Risk-Based Cleanup Levels (WAC 173-340-708(3))	Surface Water: MTCA Method B	Surface Water: EPA Region 3 Biological Technical Assistance Group Freshwater Screening Benchmarks	Surface Water: EPA Region 4 Waste Management Division Freshwater Surface Water Screening Values for Hazardous Waste Sites	Surface Water: EPA Region 5 Ecological Screening Levels	Sediment: Site-Specific Background	Sediment: Sediment Cleanup Objectives (Chapter 173-204)	Location-Specific ARARs: Clean Water Act, Section 404, Dredge or Fill Requirements Regulations, 33 USC 1344(a)–(d); 33 CFR Parts 320–330; 40 CFR Part 230	Clean Water Act, Section 401, Water Quality Certification, 33 USC 1340; WAC 173-225-10	Washington Hydraulics Project Approval (RCW 75.20.100; Chapter 220-110 WAC)	Native American Graves Protection and Repatriation Act Regulations, 25 USC 3001 et. seq; 43 CFR Part 10.1, 10.4 and 10.5	National Historic Preservation Act, 16 USC 470; 36 CFR Parts 60, 65, and 800	Archaeological and Historic Preservation Act, 16 USC 469	Everett Municipal Code 14.56.040, Discharge of Polluting Matter into the Surface Water System Prohibited	WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington	Action-Specific ARARs: Clean Water Act's Pretreatment Regulations (40 CFR Part 503.5, City of Everett Code Title 14 Water and Sewers)	National Pollutant Discharge Elimination System	Stormwater Permit Program (33 USC 1342, RCW 90.48.260, 40 CFR 122.26; Chapter 173-220 WAC)	State Environmental Policy Act (RCW 43.21.036, WAC 197-11-250 through 268)	Washington Clean Air Act and Implementing Regulations (Chapter 70.94 RCW, WAC 173-400-040[8], and WAC 173-460) and Puget Sound Clean Air Agency Regulation 1, Section 9.15	Washington Solid Waste Management Act and Solid Waste Management Handling Standards Regulations (Chapter 70.95 RCW and Chapter 173-350 WAC)	Washington MTCA (Chapter 173-340-440) Institutional Controls	Washington Minimum Standards for Construction and Decommissioning Wells (WAC 173-160-381)	Underground Injection Control Program (WAC 173-218)	City of Everett Requirements (Title 19, Chapters 37 and 18.23)
No. 054, Building 40-51, Former Wastewater AST	X						X															X	X	X	X				X	X	X	X		X
No. 097, Building 40-11, Former Vapor Degreaser	X						X															X	X	X	X				X	X	X			X
No. 098, Building 40-53, Former Mock-Up Degreaser	X						X															X	X	X					X		X	X	X	
No. 169, Building 40-02, Small Vapor Degreaser	X						X																								X	X	X		
No. 170, Building 40-02, Large Vapor Degreaser	X						X																								X	X	X		
No. 171, Building 40-31, Former Bluestreak Vapor Degreaser	X						X															X	X	X			X			X	X	X	X	X	X
Building 40-02, Former Paint Crib	X						X																										X			
Building 40-32, Footing Excavation	X		X				X															X	X	X					X		X	X	X		X
No. 068, South Complex, South Fire Pit			X				X															X	X	X					X	X	X		X		X
No. 065, Building 40-51, Former Paint Stripping Tankline			X			X																										X			
No. 083, Former UST EV-15			X																													X			
No. 165, Building 45-52, Former Fuel Farm USTs and Fueling Positions			X				X															X	X	X	X				X	X	X	X	X		X
Building 40-11, UST EV-48-1			X				X															X	X	X	X				X	X	X	X	X		X

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Summary of Applicable Federal, State, and Local Laws
RCRA Permit B
Boeing Everett Facility

SWMU/AOC, Building No. and Description	Chemical-Specific ARARs: Soil: MTCA Method B, Protection of Groundwater	Soil: MTCA Method B, Direct Contact	Soil: MTCA Method A, Direct Contact	Soil: MTCA Method A	Soil: Ecological Indicator Soil Concentrations for Protection of Plants and Animals (MTCA Table 749-3)	Soil: Puget Sound Background	Air: MTCA Method C	Air: Airborne Contaminants (WAC 296-841)	Groundwater: MTCA Method A	Groundwater: MTCA Method B	Groundwater: MTCA Method A	Groundwater: Risk-Based Cleanup Levels (WAC 173-340-708(3))	Surface Water: MTCA Method B	Surface Water: EPA Region 3 Biological Technical Assistance Group Freshwater Screening Benchmarks	Surface Water: EPA Region 4 Waste Management Division Freshwater Surface Water Screening Values for Hazardous Waste Sites	Surface Water: EPA Region 5 Ecological Screening Levels	Sediment: Site-Specific Background	Sediment: Sediment Cleanup Objectives (Chapter 173-204)	Location-Specific ARARs: Clean Water Act, Section 404, Dredge or Fill Requirements Regulations, 33 USC 1344(a)–(d); 33 CFR Parts 320–330; 40 CFR Part 230	Clean Water Act, Section 401, Water Quality Certification, 33 USC 1340; WAC 173-225-10	Washington Hydraulics Project Approval (RCW 75.20.100; Chapter 220-110 WAC)	Native American Graves Protection and Repatriation Act Regulations, 25 USC 3001 et. seq; 43 CFR Part 10.1, 10.4 and 10.5	National Historic Preservation Act, 16 USC 470; 36 CFR Parts 60, 65, and 800	Archaeological and Historic Preservation Act, 16 USC 469	Everett Municipal Code 14.56.040, Discharge of Polluting Matter into the Surface Water System Prohibited	WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington	Action-Specific ARARs: Clean Water Act's Pretreatment Regulations (40 CFR Part 503.5, City of Everett Code Title 14 Water and Sewers)	National Pollutant Discharge Elimination System	Stormwater Permit Program (33 USC 1342, RCW 90.48.260, 40 CFR 122.26; Chapter 173-220 WAC)	State Environmental Policy Act (RCW 43.21.036, WAC 197-11-250 through 268)	Washington Clean Air Act and Implementing Regulations (Chapter 70.94 RCW, WAC 173-400-040[8], and WAC 173-460) and Puget Sound Clean Air Agency Regulation 1, Section 9.15	Washington Solid Waste Management Act and Solid Waste Management Handling Standards Regulations (Chapter 70.95 RCW and Chapter 173-350 WAC)	Washington MTCA (Chapter 173-340-440) Institutional Controls	Washington Minimum Standards for Construction and Decommissioning Wells (WAC 173-160-381)	Underground Injection Control Program (WAC 173-218)	City of Everett Requirements (Title 19, Chapters 37 and 18.23)
No. 93, Building 45-01, Former Solvent USTs	X						X															X	X	X	X				X	X	X		X
Nos. 067 and 071, Building 40-56, Former Recycling Unit and UST EV-153			X				X															X	X	X	X				X	X	X		X
Esperance Sand[1]																																				
North Complex, Esperance Sand, Powder Mill Gulch										X			X							X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
No. 011, BOMARC Building 45-70							X																										X			
Nos. 123 and 124, EV-151 and EV-152 Oil Water Separator				X					X													X	X	X	X					X	X	X		X		X

Notes:

AST - above ground storage tank
CFR - Code of Federal Regulations
EPA - U.S. Environmental Protection Agency
MCL - maximum contaminant limit
MTCA - Model Toxics Control Act
RCW - Revised Code of Washington
SWMU/AOC - Solid Waste Management Unit/Area of Concern
USC - United States Code
UST - underground storage tank
WAC - Washington Administrative Code

[1]No further action is the selected remedy for Esperance Sand. Therefore, no ARARs are applicable to this SWMU/AOC

[2]EPM J (SWMU/AOC No. 100) will be addressed in the Sediment Cleanup Action Plan

SECTION L: PART B CERTIFICATION

WAC 173-303-806(4)(a); WAC 173-303-810(12) and (13); 40 CFR 270.11

CERTIFICATION

In accordance with 40 CFR 270.11(d) and Washington State Dangerous Waste Regulations, WAC 173-303-810(13), the following certification is made in reference to the November 2020 Part B Application for the Boeing Everett Facility located in Everett, Washington:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____ Date:_____

(Signature will be added when final permit application is submitted)

Brad Zaback
Vice President/General Manager, 777/777X Program
Boeing Everett Site

REFERENCES

AECOM and Landau Associates, Inc. 2015. *Feasibility Study, Upland Areas and Powder Mill Gulch, BCA Everett Plant.* November 16.

AECOM. 2020. *2nd Quarter 2020 Groundwater Monitoring Report, Boeing Everett Facility*. Everett, Washington. June 25.

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APPENDIX G-1

COMPREHENSIVE CONTINGENCY PLAN

DANGEROUS WASTE CONTINGENCY PLAN
Everett Facility

September 16, 2020
WAD# 041585464

Boeing Commercial Airplanes
Everett, Washington

This is a controlled document. Printed copies for reference only. Approved by Boeing Everett Environmental Affairs Manager.

Revision Log:

Rev Date	Rev #	Change Author	Summary of Change
February 11, 2015	1	Ian Gluck	Complete document rewrite.
July 22, 2015	2	Ian Gluck	Updated contact information.
June 7, 2016	3	Ian Gluck	Updated Sections 3.1, 3.2 ,and 3.7.
March 29, 2017	4	Ian Gluck	Updated contact information.
May 30, 2017	5	Ian Gluck	Updated Sections 3.1, 3.6 and 3.7
November 15, 2017	6	Ian Gluck	Added executive summary. Re-structured section numbers to accommodate executive summary. Added Appendix B: Map of Fire Hydrants
April 26, 2019	7	Ian Gluck	Added Appendix B: Map of Hazardous Waste Accumulation Areas. Changed Map of Fire Hydrants to Appendix C. Updated Sections 1.4, 1.8, 4.1, 4.6.
September 6, 2019	8	Ian Gluck	Updated Sections 1.1,1.2, 1.4, 1.8, 4.1
April 30, 2020	9	Ian Gluck	Updated Sections 1.1, 1.2, 1.8, 4.1, 4.6
September 16, 2020	10	Harry Richardson	Updated Section 1.8, table 4-1 and accumulation area maps.

Table of Contents:

Section 1.0: Quick Reference Guide

1.1 Names and Types of Hazardous Wastes Generated

Below is a comprehensive list of the names and types of hazardous waste generated at the Boeing Everett Facility. Also included are constituents of each type of waste, and the process that generates the waste.

Description	Process
Debris Contaminated with Paints, Sealants, and Solvents: • Barium • Benzene • Cadmium • Chromium • Methylethylketone • Lead • Selenium • Silver • Acetone • Methanol • Tetrachloroethylene • Toluene • Trichloroethylene	Disposal of contaminated debris from airplane painting and cleaning of parts during manufacture and assembly
Solvents, Paints and Inks: • Acetone • Methylene Chloride • Methylethylketone • Tetrachloroethylene • Toluene • Xylene • Barium • Benzene • Cadmium • Chromium • Lead • Selenium • 1,1,1-Trichloroethane	Excess product from painting operations and cleaning of equipment
Containers with Residual Flammable Products (Adhesives, Coatings, Fillers, Paints, Resins, Sealants, Waxes): • Barium • Benzene • Cadmium • Chromium • Lead • Methylethylketone • MPK • Secondary Butyl Alcohol • Selenium • Silver • Toluene	Excess product from painting operations and parts assembly
Containers of Resin Hardeners: • Diethtylenetriamine • Triethylenetetramine	Excess products from parts fabrication
Aerosol Cans and Sprayer Units: • Barium • Benzene • Butane • Chromium • Difluoroethane • Lead • Methylethylketone • Methylene Chloride • Propane • Tetrachloroethylene • 1,1,1-Trichloroethane	Disposal of flammable aerosol products
Pressed, Treated Wastewater Sludge, and Screens/Filter Media Contaminated with Same Material	Wastewater solids removal and wastewater treatment sludge
Water with Combustible Fuels	Aircraft or equipment maintenance and tank cleaning
Debris and Containers Contaminated with Alodine • Chromic Acid	Conversion coating of aluminum parts

Description	Process
Methylethylketone Contaminated with Adhesive	Disposal of excess adhesive and gun cleaning with MEK
Debris, Soil and Sediments Contaminated with 1-100 ppm Polychlorinated biphenyls	Cleanout of stormwater catch basins contaminated with 1-100 ppm Polychlorinated Biphenyls
Soil and Debris Contaminated with Solvent: • Cyclohexanone • Ethylbenzene • Xylenes • Methylethylketone • Toluene • Trichloroethylene	Site remediation - F-listed, but solvents all below LDR concentrations
Paint Sludge and Solvents: • Barium • Acetone • Cadmium • Benzene • Chromium • Methylethylketone • Lead • Methylene Chloride • Selenium • Toluene	Cleaning paint booths and painting equipment, and paint stripping
Residual Paints • Strontium Chromate • N-Butanol	Disposal of excess paints
Paint Booth Sludge: • Acetone • Chromium • Methylethylketone • Lead • Toluene • Nickel • Barium • Selenium • Cadmium	Paint booth cleanout
Paint Booth Wash Water Contaminated with Spent Solvents: • Cadmium • Nickel • Chromium • Phenol • Lead • Selenium • Methylethylketone • Toluene	Cleanout of paint hangar sump and paint booths
Blast Media Contaminated with Heavy Metals: • Cadmium • Chromium	Parts and equipment surface preparation by media blasting
Containers and Debris Contaminated with Paint Stripper: • Formic Acid • Sodium Dichromate • Methylene Chloride • Toluene • Phenol	Paint Stripping
Water, Jet Fuel and Sludge	Oil-water separator cleanout
Caulk or Sealant with Polychlorinated biphenyls and Lead	Maintenance
Containers of Cream Hardeners: • Benzoyl Peroxide	Excess products from parts fabrication
Paint, Sealant, Composite, Metal, Plastic, and Coating Residues, Dust and Non-Hazardous Debris: • Cadmium • Chromium • Lead	Cleaning residue and cleaning of air pollution control equipment
PCB Fluorescent Light Ballasts; PCB Contaminated Debris; and PCB Bulk Product Waste	Disposal of PCB light ballasts and/or bulk product waste

Description	Process
Rust Inhibitor: • Petroleum Distillates	Disposal of excess product
Tetrachloroethylene	Removal of pure material from surplus transformers
Debris from Paint Removal: • Barium • Cadmium • Chromium • Lead • Selenium • Sodium Hydroxide	Removal of paint from parts and equipment
Benzyl Alcohol Stripping Solution and Debris	Aircraft paint removal
Flammable Metallic Powders: • Aluminum • Iron	Shot peening and other metal surface preparation processes
Resin Hardeners: • Diethtylenetriamine • Triethylenetetramine	Excess products from parts fabrication
Expired Epinephrine Pens and Containers	Expired medical supplies from Boeing Medical
Fire Suppression Foam	Disposal of fire suppression system foam. Disposed in chemical waste landfill
Pressed Treated Wastewater Sludge	Wastewater treatment sludge
Waste Pace B-82 and MF-30 Cleaner	Discarded unused product
Carbon Filter Media	Disposal of Vapor extraction filter media with non-flammable organics
Fire Fighting Foam: Surfactant Mixture	Disposal of unused material
Used Ultrasonic Cleaning Solution Polygone 505	Seal removal from tooling
Benzyl Alcohol Stripping Solution	Unused material from aircraft de-painting
Containers of Peroxide • Methylethylketone Peroxide • Methylethylketone	Disposal of unused material in original containers.
Ammonium Thiocyanate	Laboratory chemicals
Aircraft lavatory fire extinguisher cartridge containing 1,1,1,2,3,3,3-Heptafluoropropane	Disposal of unused or damaged aircraft parts

1.2 Hazardous Waste Maximum Amounts

The table below shows the maximum amount of each type of hazardous waste listed in Section 1.1 at the site at any one time:

Description	Max. Amount (lbs)
Debris Contaminated with Paints, Sealants, and Solvents	29560
Solvents, Paints and Inks	40320
Containers with Residual Flammable Products (Adhesives, Coatings, Fillers, Paints, Resins, Sealants, Waxes)	10160
Containers of Resin Hardeners	6260
Aerosol Cans and Sprayer Units	1760
Pressed, Treated Wastewater Sludge, and Screens/Filter Media Contaminated with Same Material	39680
Water with Combustible Fuels	16090
Debris and Containers Contaminated with Alodine	2400
Methylethylketone Contaminated with Adhesive	10820
Debris, Soil and Sediments Contaminated with 1-100 ppm Polychlorinated biphenyls	57082
Soil and Debris Contaminated with Solvent	65400
Paint Sludge and Solvents	36000
Residual Paints	5600
Paint Booth Sludge	102382
Paint Booth Wash Water Contaminated with Spent Solvents	80294
Blast Media Contaminated with Heavy Metals	1300
Containers and Debris Contaminated with Paint Stripper	840
Water, Jet Fuel and Sludge	13076
Caulk or Sealant with Polychlorinated biphenyls and Lead	2805
Containers of Cream Hardeners	200
Paint, Sealant, Composite, Metal, Plastic, and Coating Residues, Dust and Non-Hazardous Debris	3000
PCB Fluorescent Light Ballasts; PCB Contaminated Debris; and PCB Bulk Product Waste	161
Rust Inhibitor	700
Tetrachloroethylene	3132
Debris from Paint Removal	180
Benzyl Alcohol Stripping Solution and Debris	350
Flammable Metallic Powders	60
Resin Hardeners	450
Expired Epinephrine Pens and Containers	10
Fire Suppression Foam	33404
Pressed Treated Wastewater Sludge	24800
Waste Pace B-82 and MF-30 Cleaner	5740
Carbon Filter Media	4500
Fire Fighting Foam: Surfactant Mixture	1640
Used Ultrasonic Cleaning Solution Polygone 505	900
Benzyl Alcohol Stripping Solution	880
Containers of Peroxide	20
Ammonium Thiocyanate	20
Aircraft lavatory fire extinguisher cartridge containing 1,1,1,2,3,3,3-Heptafluoropropane	10

1.3 Hazardous Waste Exposure Unique Medical Risks

Of the waste streams listed in Section 1.1, none require unique or special treatment by medial or hospital staff. Standard First Aid measures including removal to fresh air, removal of contaminated clothing, and flushing of eyes and skin with water will be performed as needed. Further medical attention per Safety Data Sheet recommendations will be sought.

1.4 Hazardous Waste Site Map

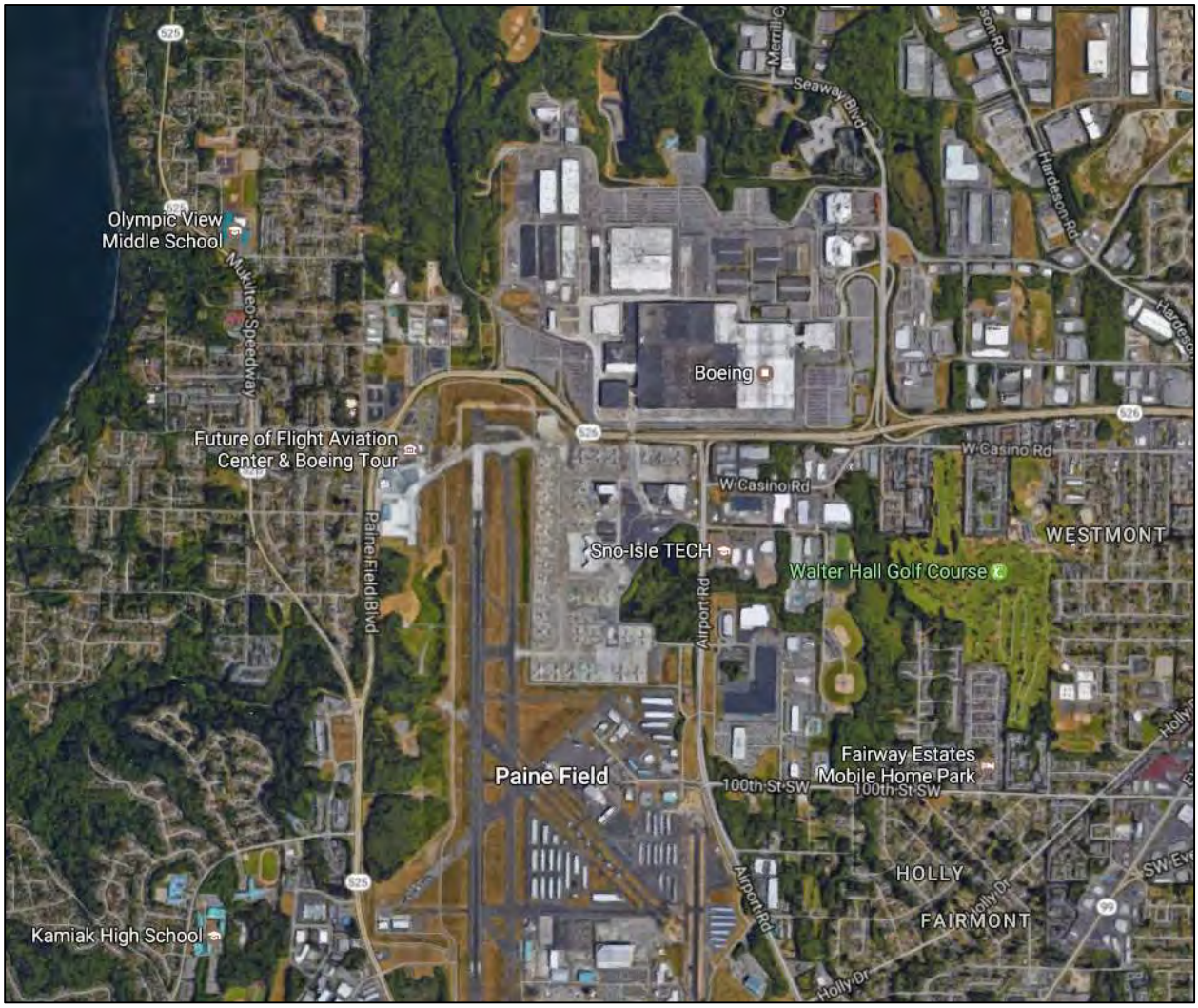
Hazardous waste is generated across the site, and is accumulated in hazardous waste accumulation areas located around the facility. The central accumulation area is Building 40-15. A map that shows locations for hazardous waste accumulation, and the routes to reach these locations is located in Appendix B.

Satellite accumulation areas are typically located nearby to these mapped hazardous waste accumulation areas.

Entry gates are located throughout the facility, and included in the map. Gates E-68 and E-78 are the primary entry locations for vehicles.

1.5 Facility Street Map

Below is a map that shows the Everett Facility in relation nearby businesses, schools, and residential areas.



Source: Google Maps

1.6 Fire Water Supply

A map of fire hydrant locations at the Everett site is located in Appendix C.

1.7 Emergency On-Site Notification Systems

In the event of an emergency that would trigger the use of this plan, one or more of the following means will provide facility personnel notification:

- Notification by other employees (word of mouth);
- Boeing Employee Accountability Network (BEACON) and Desktop Emergency Notification System (DENS) (pop up message sent to computers);
- Audible or visual alarms (located throughout facility);
- Public announcement (PA) systems;
- Two-way radio;
- Notification from Security, Fire Department, or other emergency responder.

1.8 Emergency Response Communications

The table below contains contact information for the site Emergency Response Coordinator, and the site phone number to be used 24/7 in event of an emergency.

Title	Name	Office Address	Home Phone	Office Phone	Cell Phone
24-Hour Boeing Fire & Security Emergency Phone: (206) 655-2222					
Primary ERC	Harry Richardson	3003 West Casino Rd Everett, WA	(501) 529-2047	(425) 395-5649	(425) 395-5649
Alternate ERC	Dylan Gray	3003 West Casino Rd Everett, WA	(209) 602-5030	(425) 622-7901	(425) 622-7901
Environmental Manager	Chapin Brackett	3003 West Casino Rd Everett, WA	(206) 240-6407	(425) 212-7247	(425) 212-7247

Section 2.0: Plan Purpose

WAC 173-303-350(1) & (2)

The purpose of this Contingency Plan is to document procedures to lessen the potential impact on public health and the environment in the event of an emergency circumstance. Emergency circumstances include fire, explosion, or unplanned release of dangerous waste or dangerous waste constituents to air, soil, surface water, or groundwater. Activities addressed by this plan include those associated with Boeing owned areas in and around the Everett facility. This plan will be implemented immediately in such emergency circumstances.

Section 3.0: Contingency Plan

WAC 173-303-350(2)

This contingency plan is for use in emergencies or unplanned release of dangerous waste or dangerous waste constituents at the Boeing Everett facility.

Section 4.0: Description of the Actions

WAC 173-303-350(3) & WAC 173-303-360

4.1 Emergency Response Coordinator (ERC)

WAC 173-303-360(a)

At all times, there is at least one employee either on the facility premises or on call with the responsibility for coordinating all emergency response measures (See Table 4-1).

Table 4-1 Emergency Response Coordinator Contact Info.

Title	Name	Office Address	Home Phone	Office Phone	Cell Phone
24-Hour Boeing Fire & Security Emergency Phone: (206) 655-2222					
Primary ERC	Harry Richardson	3003 West Casino Rd Everett, WA	(501) 529-2047	(425) 395-5649	(425) 395-5649
Alternate ERC	Dylan Gray	3003 West Casino Rd Everett, WA	(209) 602-5030	(425) 622-7901	(425) 622-7901
Environmental Manager	Chapin Brackett	3003 West Casino Rd Everett, WA	(206) 240-6407	(425) 212-7247	(425) 212-7247

Authority To Commit Resources

As required by the Washington State Dangerous Waste Regulations, paragraph 173-303-360(1), I hereby certify that the individual(s) designated as the Emergency Response Coordinator (or their alternates) in this Contingency Plan has the authority to commit Boeing Everett plant's resources needed to carry out this Contingency Plan.

Signature: _____ Date: 10-1-2020

Chapin Brackett
Boeing Everett Environmental Manager

4.2 Emergency Procedures

WAC 173-303-360(2)

The following procedures will be implemented in the event of an emergency:

4.2.a Whenever there is a release, fire, or explosion involving dangerous waste, the ERC will, to the best of the person's abilities, immediately identify the character, exact source, amount, and areal extent of any released materials.

4.2.b Whenever there is an imminent or actual emergency situation, the ERC (or the designee when the ERC is on call) will immediately:

- Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel. One or more of the following means will provide facility personnel notification:
  - Notification by other employees (word of mouth);
  - Boeing Employee Accountability Network (BEACON) and Desktop Emergency Notification System (DENS) (pop up message sent to computers);
  - Audible or visual alarms (located throughout facility);

- Public announcement (PA) systems;
- Two-way radio;
- Notification from Security, Fire Department, or other emergency responder.

- Notify appropriate state or local agencies with designated response roles if their help is needed. A notification flow chart is shown in Appendix A. At this location the Boeing Fire Department is responsible for emergency response. The ERC will work with the designated incident commander (IC) to implement this plan using the National Incident Management System (NIMS) to manage the incident.

4.2.c Concurrently, the ERC will assess possible hazards to human health and the environment (considering direct, indirect, immediate, and long-term effects) that may result from the release, fire, or explosion.

4.2.d If the ERC determines that the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, the ERC will report the findings as follows:

- If the ERC's assessment indicates that evacuation of local areas outside the Everett site may be advisable, the ERC must immediately notify appropriate local authorities. The ERC must be available to help appropriate officials decide whether local areas should be evacuated; and
- He must immediately notify the Boeing Emergency Dispatcher
- He must immediately notify the Washington Department of Ecology or the National Response Center.

4.2.e The assessment report to the Washington Department of Ecology or the National Response Center must include:

- Name and telephone number of reporter;
- Name and address of facility;
- Time and type of incident (e.g., release, fire);
- Name and quantity of material(s) involved, to the extent known;
- Extent of injuries, if any; and
- The possible hazards to human health or the environment outside the facility.

4.2.f During an emergency, the ERC will take reasonable measures necessary to ensure that fires, explosions, and releases do not occur,

recur, or spread to other dangerous waste at the facility. These measures must include, where applicable:

- Stopping processes and operations,
- collecting and containing released waste, and
- removing or isolating containers.

4.2.g If the facility stops operations in response to a fire, explosion, or release, the ERC will monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

4.2.h Immediately after an emergency, the ERC will provide for proper managing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility. The standard dangerous waste processes used at this site will be used to profile and dispose of the waste.

4.2.i The ERC must ensure that, in the affected area(s) of the facility:

- No waste that may be incompatible with the released material is managed in such a manner that the materials will come in contact with each other, and
- All emergency equipment listed in the contingency plan is clean and fit for its intended use before operations are resumed.

4.2.j The ERC will notify the department, and appropriate local authorities, that the facility is in compliance with 4.2.i of this plan before operations are resumed in the affected area(s) of the facility.

4.2.k The ERC will note in the operating record the time, date, and details of any incident that requires implementing this contingency plan. Within fifteen days after the incident, the ERC will submit a written report on the incident to the Washington Department of Ecology. The report must include:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (e.g., fire, explosion);
- Name and quantity of material(s) involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, where this is applicable;

- Estimated quantity and disposition of recovered material that resulted from the incident;
- Cause of incident; and
- Description of corrective action taken to prevent reoccurrence of the incident.

4.3 Damaged Dangerous Waste Shipment

WAC 173-303-350(3)(b)

The following actions will be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported, pursuant to the requirements of WAC 173-303-370 (6).

If a shipment of dangerous or hazardous waste is received and it is damaged or otherwise presents a hazard to the public health and the environment, the facility will reject the shipment to the Treatment, Storage and Disposal Facility (TSDF) designated on the manifest or shipping paper, or contact the generator to identify another facility capable of handling the waste and provide for its delivery to that other facility, unless, the containers are damaged to such an extent, or the dangerous waste is in such a condition as to present a hazard to the public health or the environment in the process of further transportation. If the dangerous waste shipment cannot leave the facility for the reasons described above, then the owner or operator will work with the generator of the waste and the Washington Department of Ecology to ensure it is properly managed.

4.4 Local Coordination Agreements

WAC 173-303-350(3)(c)

Letters have been sent to coordinate arrangements and agreements with local police departments, fire departments, hospitals, contractors, and state and local emergency response teams listed in Table 4-1 to coordinate emergency services as required in WAC 173-303-340(4). Enclosed with those letters was a copy of this Contingency Plan.

4.5 Emergency Response Coordinator List

WAC 173-303-350(3)(d)

A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the ERC required under WAC 173-303-360(1) is

found in Table 4-1. More than one person is listed, one is the primary emergency coordinator, and others are listed in the order in which they will assume responsibility as alternates.

4.6 Emergency Equipment List

WAC 173-303-350(3)(e)

Table 4-2 Fire Extinguishing and Prevention Systems

Equipment	Capability	Location
Portable fire extinguisher	Control & extinguish	75 feet from any location, typically next to doors, elevators
Electrical grounding as applicable	Prevent buildup and discharge of static electricity	Flammable liquid waste 55 gallon drums located at waste collection areas
Automatic sprinklers	Heat sensitive water sprinklers for structural fires	Throughout facility
Fire suppression system	Firefighting foam system	45-04 Paint Hangar
Hydrants, hoses, loop fire mains, water cannon	Control and extinguishing large structural fires	Throughout facility

Building 40-15 serves at the central accumulation area for hazardous wastes at the site. The storage area within the building is divided into several containment bays designed to segregate wastes. Each bay is surrounded by trenches to contain potential spills. Furthermore, the building is equipped with fire extinguishers, automatic sprinklers, and electrical grounding. There are also eyewash stations and safety showers in each segment of the building. Employees use intrinsically safe two-way radio and a public announcement system when communicating, and the building uses the emergency notification systems described in Section 4.7.a.

The Hazmat Spill Truck is parked in front of Building 40-15 when not in use, and the building itself is supplied with pads, booms, and other spill absorbents.

Communication throughout the site is performed through an extensive system that includes telephones, cellular phones, alarms and two-way radios. There are several vehicles permanently assigned to the Boeing Everett plant and fully available to the ERC in response to emergency situations. Those vehicles and their locations are listed in Table 4-3.

Table 4-3 List of Emergency Vehicles

Equipment	Description of Capabilities	Location
Battalion 30	Incident command vehicle and communication center • Equipped with maps, plans and radios to be used in emergencies, including this Contingency Plan.	Building 45-02
Engine 30	Fire engine • Equipped to mitigate fires. • Possesses 500 gallon water and 40 gallon foam tanks. • Delivers water/foam at 1500 gal/min.	Building 45-02
Rapid Intervention Vehicle RIV 30	Small, quick-response fire vehicle • Used for initial firefighting prior to arrival of larger firefighting vehicles at incident. • Possesses 300 gallon water and 40 gallon foam tanks. • Delivers water/foam at 100 gal/min.	Building 45-02
Airport Crash Truck Foam 30	Heavy firefighting vehicle for mitigating large fires • Possesses 3000 gallon water and 420 gallon foam tanks. • Delivers water/foam at 1800 gal/min.	Building 45-02
Airport Crash Truck Foam 30A2	Heavy firefighting vehicle for mitigating large fires • Possesses 3000 gallon water and 420 gallon foam tanks. • Delivers water/foam at 1800 gal/min.	Building 45-02
Tanker Truck Foam 30B	Heavy firefighting vehicle for mitigating large fires • Possesses 5000 gallon water and 625 gallon foam tanks. • Delivers water/foam at 2000 gal/min.	Building 45-02
Special Operations 30	Vehicle contains following: • Level A to C HazMat response equipment • Decontamination materials • Confined space rescue equipment • Cribbing and extraction equipment • Plans to be used in emergencies, including this Contingency Plan	Building 45-02
Ambulance Aid 30	Medical treatment and transport to nearby hospitals	Building 45-02
Ambulance Aid 30A		
Ambulance Aid 30B		
EMS Officer MSO 30		
Hazmat Spill Truck	Vehicle contains following: • Level D HazMat response equipment and spill absorbents (pads, booms, personal protective equipment, etc.)	Building 40-15
Vacuum Tanker Truck	Vacuum truck with 2,000 gallon capacity	Building 40-11

The Special Operations Truck 30 and Hazmat Spill Truck contain the primary spill kits used to respond to emergencies related to hazardous waste. Their inventories are regularly inspected, and a complete inventory of both vehicles is included the Everett Facility-Specific Response Plan.

Additional spill kits are located throughout the site, particularly in areas where fuel transfer occurs, such as the Flightline. These kits contain pads, booms, and other absorbents. Eyewash stations are located within 50 feet of operations that involve work with chemicals that may cause eye injury.

4.7 Employee Evacuation Plan

WAC 173-303-350(3)(f)

Company Procedure PRO-2270, “Emergency Plan” establishes responsibilities and outlines the requirements to develop, implement, maintain and communicate an emergency plan. The emergency plan contains employee evacuation information and signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes. The following sections, provide a notional summary of the basic evacuation steps. Emergency plans can be forwarded to outside agencies if requested.

4.7.a Notification to evacuate may be initiated by any person through one or more of the following means:

- Notification by other employees (word of mouth)
- Boeing Employee Accountability Network (BEACON) and Desktop Emergency Notification System (DENS) (pop up message sent to computers)
- Audible or visual alarms
- Public announcement (PA) systems
- Two-way radio
- Notification from Security, Fire Department, or other emergency responder.

4.7.b When an evacuation directive is received, do the following:

- Alert other employees working in the area by using one or more of the notification methods in 4.7.a.
- If safe to do so, retrieve personal items, secure classified information and turn off equipment that may pose a hazard if left unattended
- Proceed to the primary or alternate evacuation assembly area following established primary and alternate routes.
- Remain in the assembly area until further direction is provided

Section 5.0: Copies of the Contingency Plan

WAC 173-303-350(4)

5.0.a A copy of the contingency plan and all revisions to the plan are maintained at the facility in the Environmental Affairs e-files, at the ERC's desk, and on the EHS website (See Table 4-1).

5.0.b Copies of the Contingency Plan and all revisions are sent to local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services (See Table 5-1).

Table 5-1: Plan Distribution List:

Plan Locations	Building or address	Column or City	Zip Code
e-File	40-30.2	I11	
Emergency Response Coordinator's Desk	40-30.2	I11	
Boeing Everett Fire Station (2 copies)	45-02	Vehicles C3 & SO3	
City of Everett Fire Department	2930 Wetmore Ave., Ste. 700	Everett, WA	98201
City of Everett Office of Emergency Management	2801 Oakes Ave.	Everett WA	98201
Mukilteo Fire Department	10400 47th Pl. W.	Mukilteo, WA	98275
Snohomish County Fire District #1	12425 Meridian Ave S.	Everett, WA	98208
Snohomish County Airport Fire Department	10630 36th Pl. SW	Everett, WA	98204
Everett Police Dept.	3002 Wetmore Ave, City Hall	Everett, WA	98201
Mukilteo Police Dept.	10500 47th Pl. W.	Mukilteo, WA	98275
Snohomish County Sheriff Dept.	3000 Rockefeller, M/S 606	Everett, WA	98201
Providence General Medical Center	PO Box 1147	Everett, WA	98201
Swedish Edmonds Hospital	21601 76th Ave. W.	Edmonds, WA	98026
Swedish Medical Center – Mill Creek	13020 Meridian Ave. S.	Everett, WA	98208
Snohomish County Department of Emergency Management	720 80th St., Bldg. A	Everett, WA	98203
Washington State Emergency Response Commission – Ecology	PO Box 47659	Olympia, WA	98504
Stericycle	18000 77nd Ave. S., Suite 217	Kent, WA	98032
Snohomish County Risk Management	3000 Rockefeller, M/S 610	Everett, WA	98201
City of Everett Department of Public Works	3200 Cedar St	Everett, WA	98201
City of Mukilteo Department of Public Works	11930 Cyrus Way	Mukilteo, WA	98275
Marine Spill Response Corporation (MSRC)	1330 Industry St. #100	Everett, WA	98203

Section 6.0: Plan Amendments

WAC 173-303-350(5)

This Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

6.0.a Applicable regulations or the facility permits are revised;

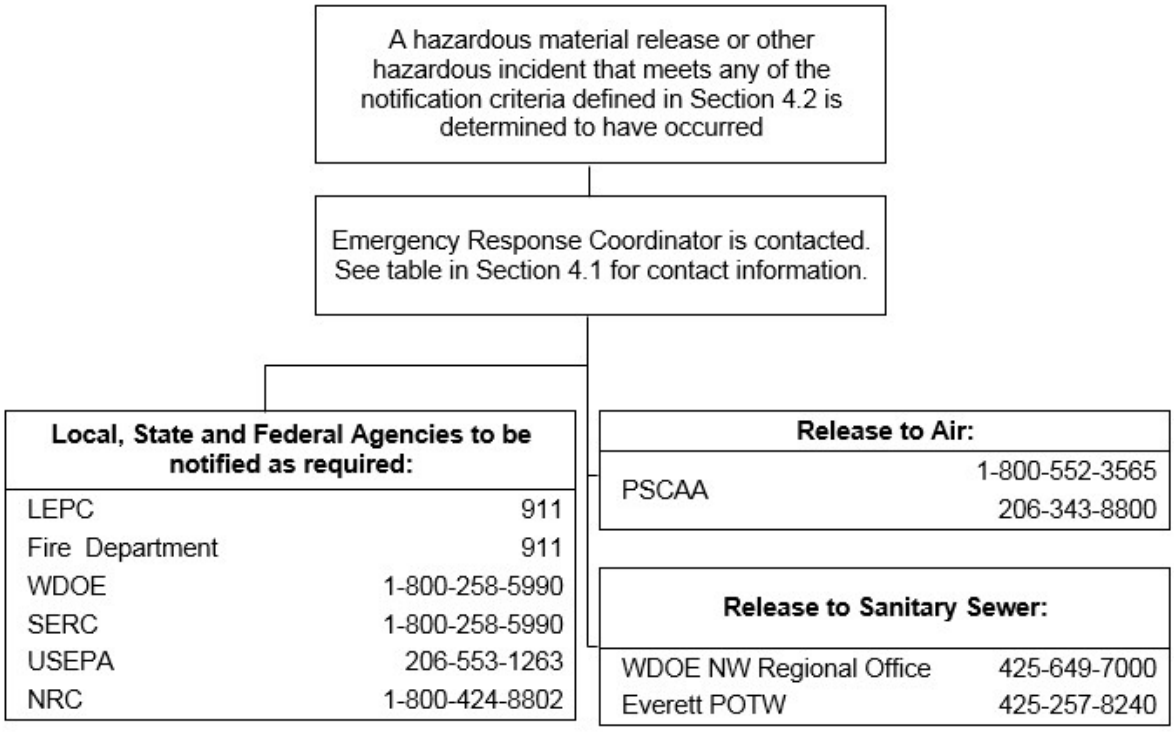
6.0.b The plan fails in an emergency.

6.0.c The facility changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of dangerous waste or dangerous waste constituents, or in a way that changes the response necessary in an emergency;

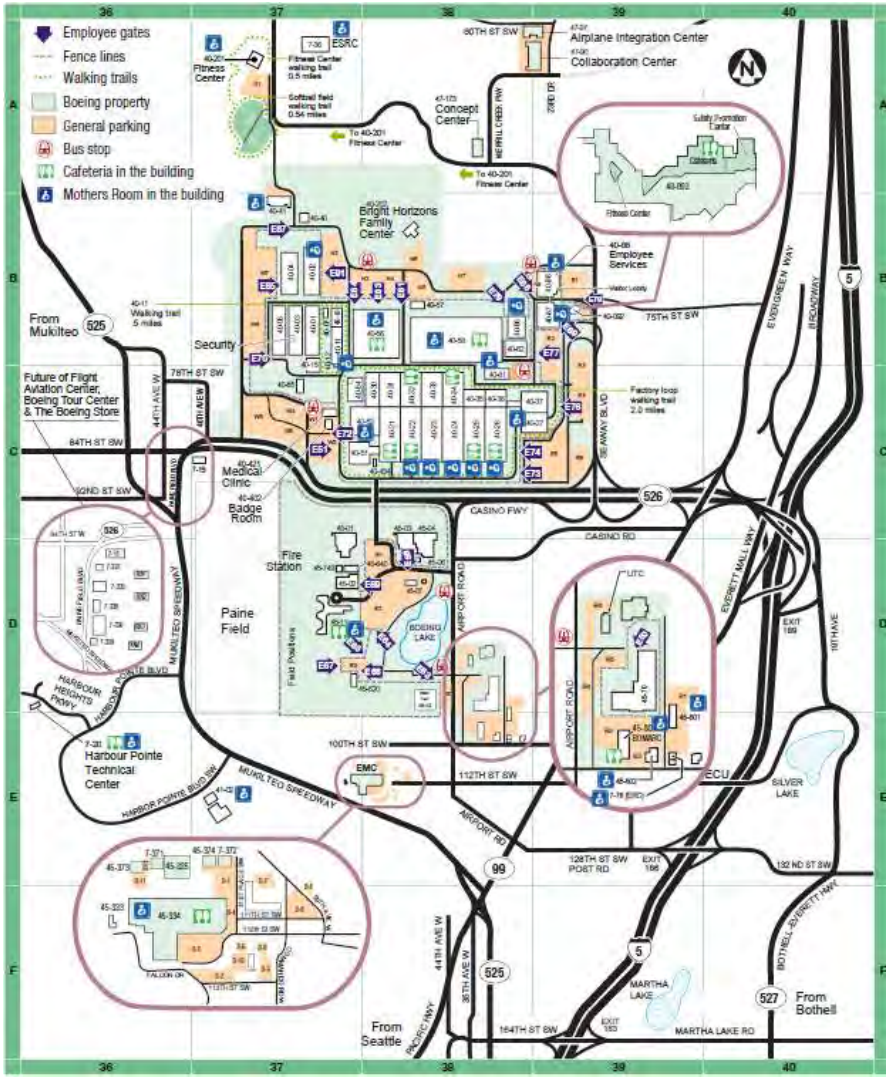
6.0.d The list of emergency coordinators changes; or

6.0.e The list of emergency equipment changes.

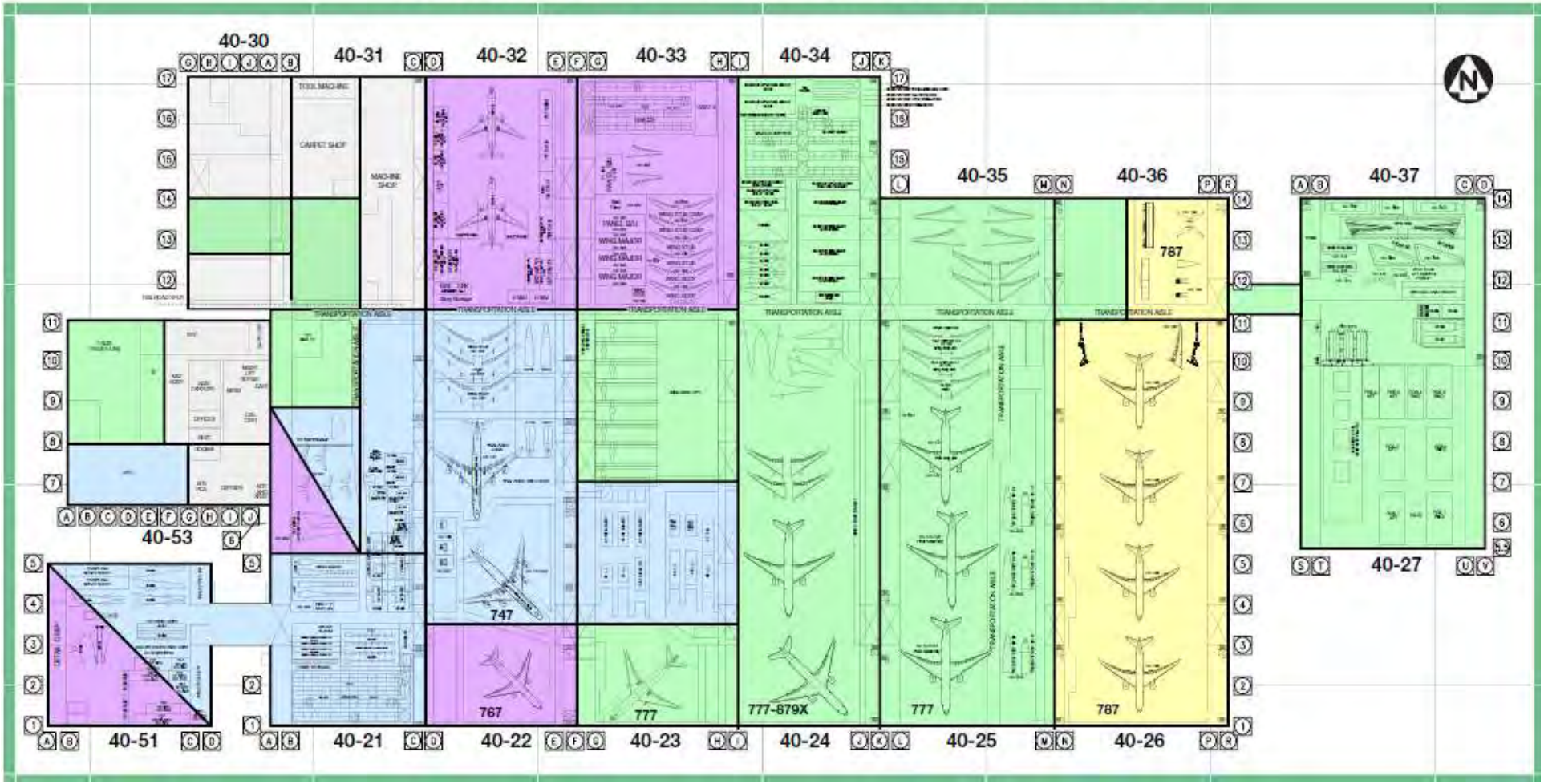
Appendix A: Agency Notification Flow Chart

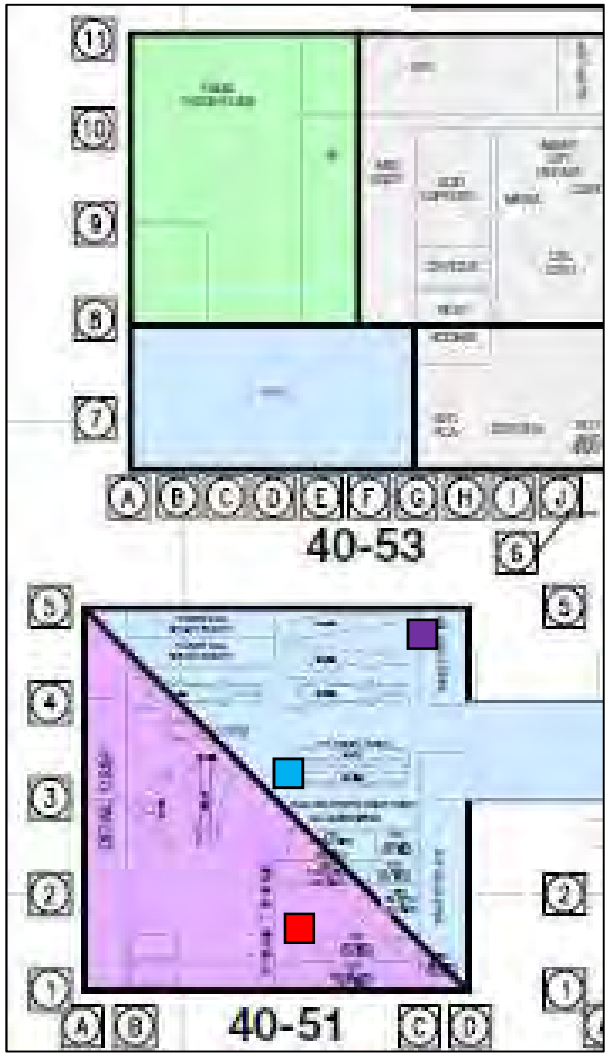


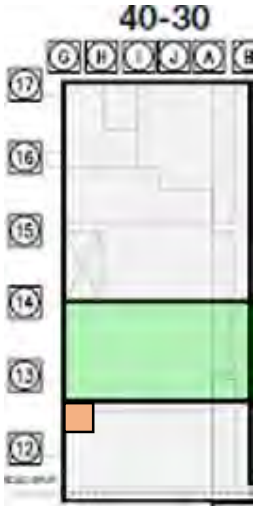
Appendix B: Map of Hazardous Waste Accumulation Areas


Employee gates
Fence lines
Walking trails
Boeing property
General parking
Bus stop
Cafeteria in the building
Mothers Room in the building
Fitness Center
ESRC
Airplane Integration Center
Collaboration Center
Concept Center
Bright Horizons Family Center
Employee Services
From Mukilteo
525
Security
Future of Flight Aviation Center, Boeing Tour Center & The Boeing Store
Medical Clinic
Badge Room
Fire Station
Paine Field
Boeing Lake
Harbour Pointe Technical Center
EMC
UTC
ECU
526
99
5
From Seattle
From Bothell
527
75TH ST SW
78TH ST SW
84TH ST SW
92ND ST SW
100TH ST SW
112TH ST SW
128TH ST SW
164TH ST SW
CASINO RD
CASINO FWY
AIRPORT ROAD
MUKILTEO SPEEDWAY
HARBOUR POINTE BLVD
EVERGREEN WAY
BROADWAY
SEAWAY BLVD
EVERETT MALL WAY
BOTHELL-EVERETT HWY
MARTHA LAKE RD
SILVER LAKE
MARTHA LAKE

Washington – Everett Main Factory







30G125 BR&T Ice Lab

E RCRA 51BF15 40-51.1 BF-1.5

E RCRA 51BG3 40-51.1 BG-3

E RCRA 51BM5 40-51.1 BM-5

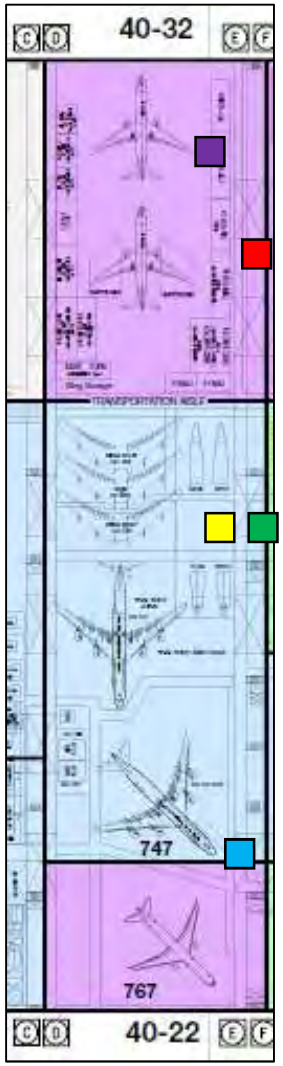
E RCRA 40-31.3 B-13

E RCRA 31A125 40-31.1 A-12.5

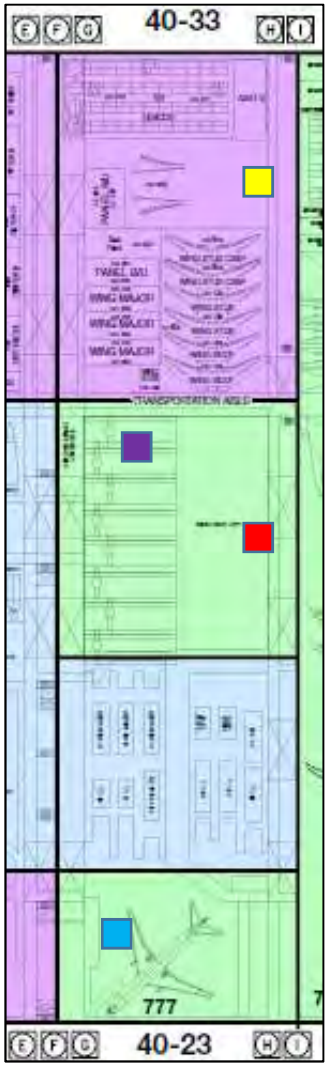
E RCRA 31BD165 40-31.1 BD-16.5

E RCRA 21B65 40-21.1 B-6.5

E RCRA 40-21 BH-7



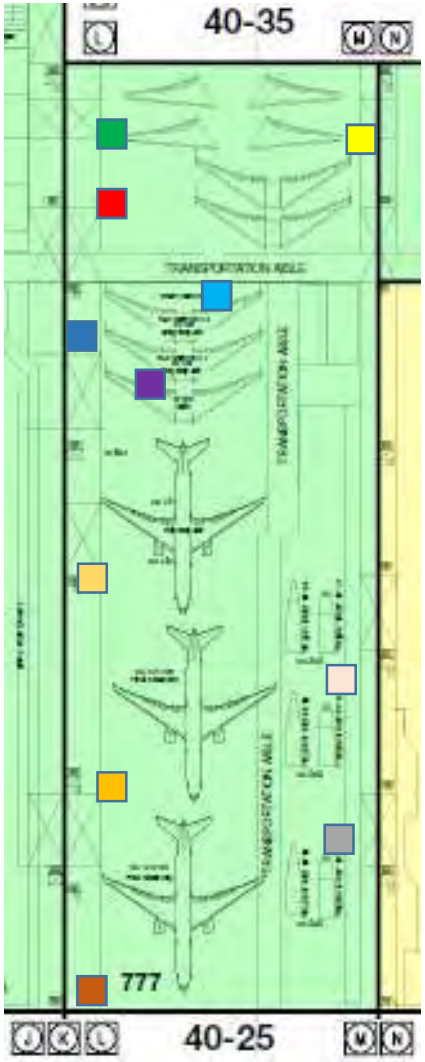
E RCRA 32D15 40-32.1 D-15
E RCRA 32E14 40-32.1 E-14
E RCRA 22DE95 40-22.1 DE-9.5
E RCRA 22E95 40-22.1 E-9.5
E RCRA 22E3.5 40-22.1 E-3.5



E RCRA 33H145 40-33.1 H-14.5
E RCRA 23G2 40-23.1 G-2
E RCRA 23H9 40-23.1 H-9
E RCRA 40-23.1 G-11

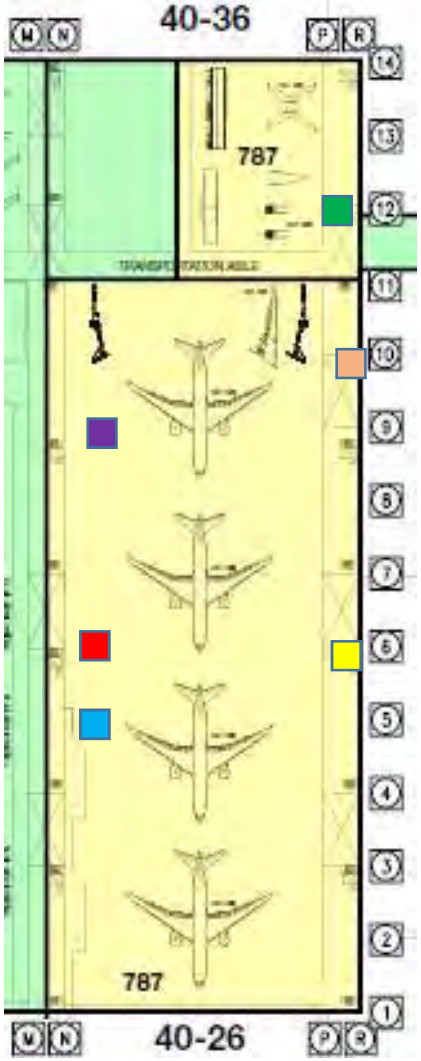
E RCRA 34IG145 40-34.1 IG-14.5
E RCRA 34J155 40-34.1 J-15.5
E RCRA 40-34.2 J-13
E RCRA 40-34.1 IE13

E RCRA 40-24.1 I-11
E RCRA 24I3 40-24.1 I-3
E RCRA 24J2 40-24.1 J-2

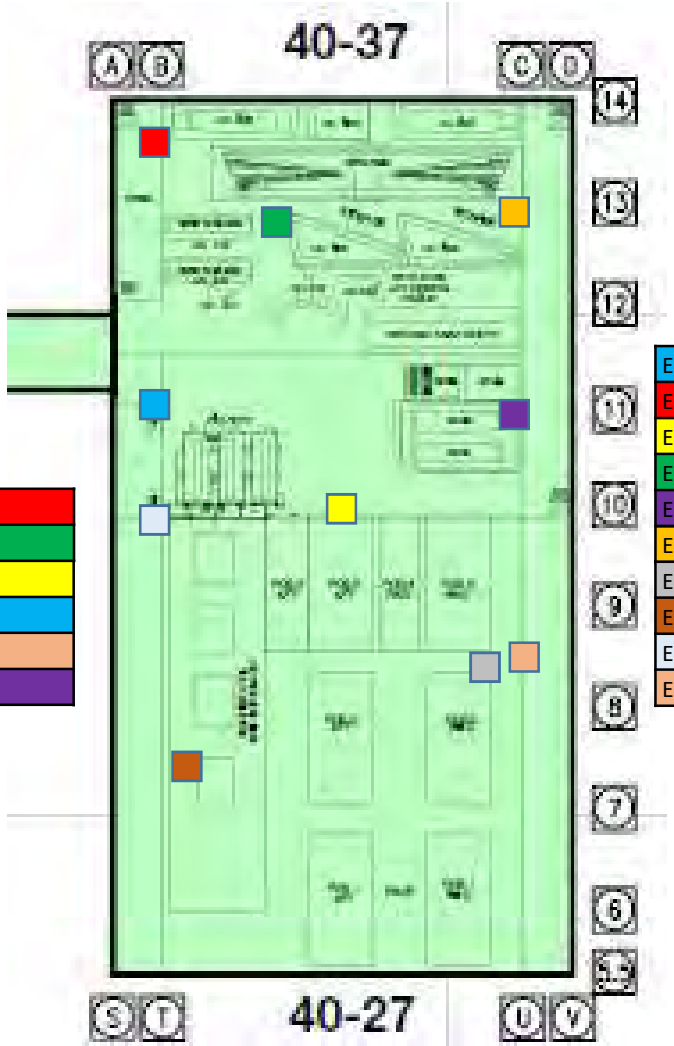


E RCRA 35M12 40-35.1 L-12
E RCRA 40-35.1 L-13.5
E RCRA 40-35.1 M-13.5

E RCRA 25LI 40-25.1 L-1
E RCRA 25L7.5 40-25.1 L-7.5
E RCRA 25LM11 40-25.1 LM-11
E RCRA 25LG9 40-25 LG9
E RCRA 25M6 40-25.1 M-6
E RCRA 25M3 40-25.1 M-3
E RCRA 25L4 40-25.1 L-4
E RCRA 25K10



- E RCRA 36N6 40-36.1 N-6
- E RCRA 40-36.1 P-12
- E RCRA 26P6 40-26.1 P-6
- E RCRA 40-26.1 N-5
- E RCRA 40-26 P-10
- E RCRA 40-26.1 N-9



- E RCRA 37A11 40-37.1 A-11
- E RCRA 37 A14 40-37.1 A-14
- E RCRA 37BJ10 40-37.1 BJ-10
- E RCRA 37BF13 40-37.1 BF-13
- E RCRA 37C11 40-37.1 C-11
- E RCRA 37C13 40-37.1 C-13
- E RCRA 40-27.1 U-8.5 Center
- E RCRA 27.1 T-7.5
- E RCRA 40-27.1 S-10
- E RCRA 27U85 40-27.1 U-8.5

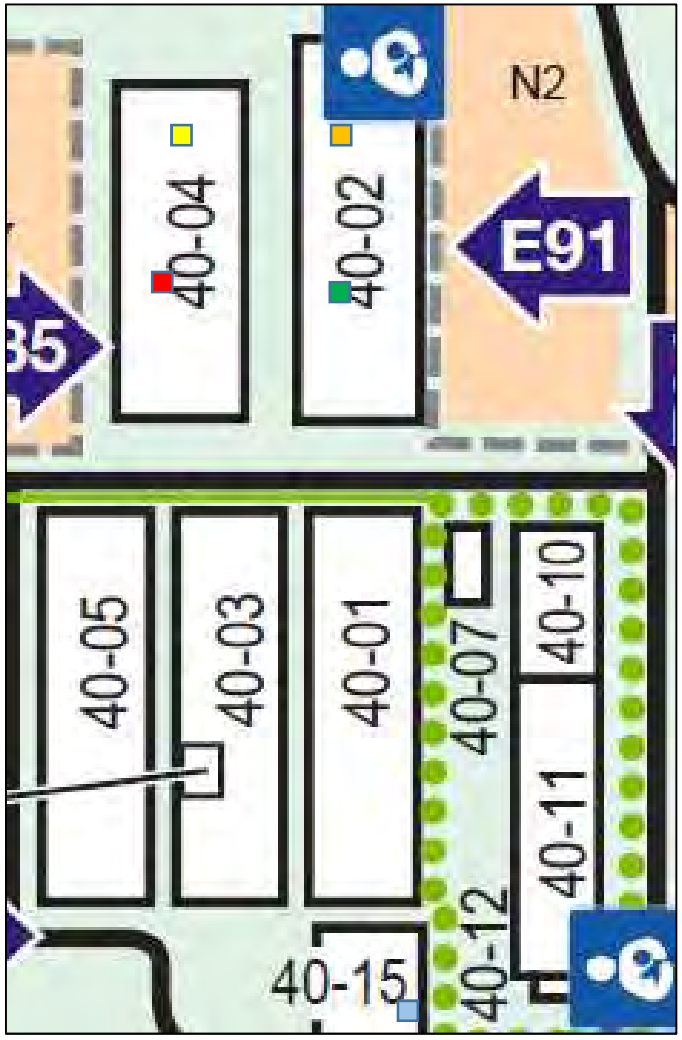
45-01
A14
A15
A16
A17
A31

45-03
A20
A21
A33

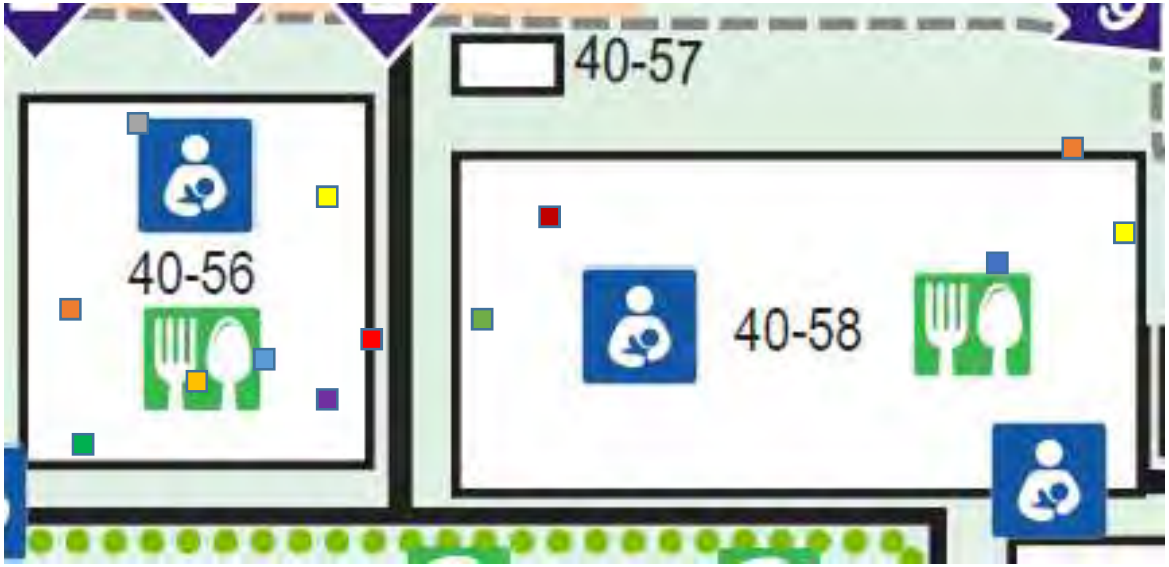
45-04
A24
A25
A26
A27
A28
A34

Waste Solvent Still

E RCRA 4502 J10 45-02 J-10
45-10 (Stericycle)

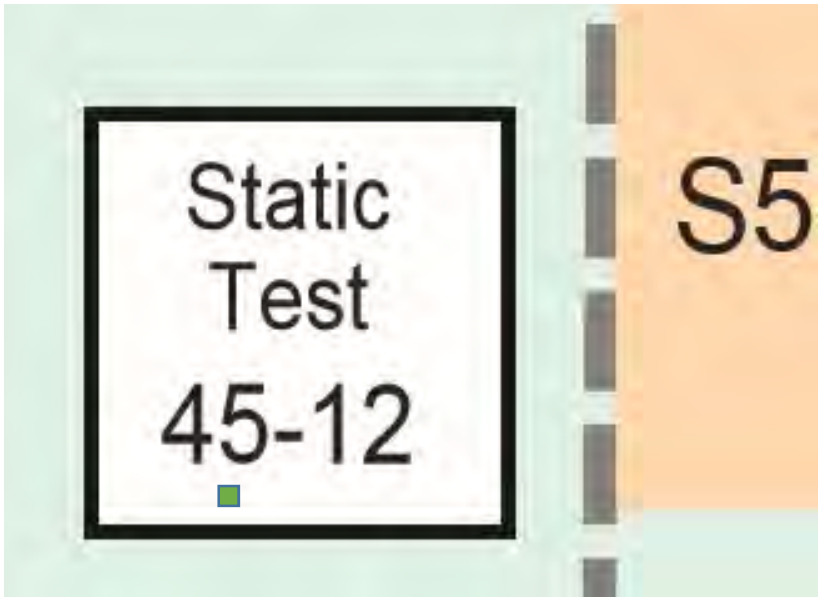


E RCRA 04AC35 40-04.1 AC-3.5
E RCRA 04AE9 40-04.1 AE-9
E RCRA 40-02.1 B-9
E RCRA 40-02.1 C-14
E RCRA 15DRE1 40-15.1 E-5



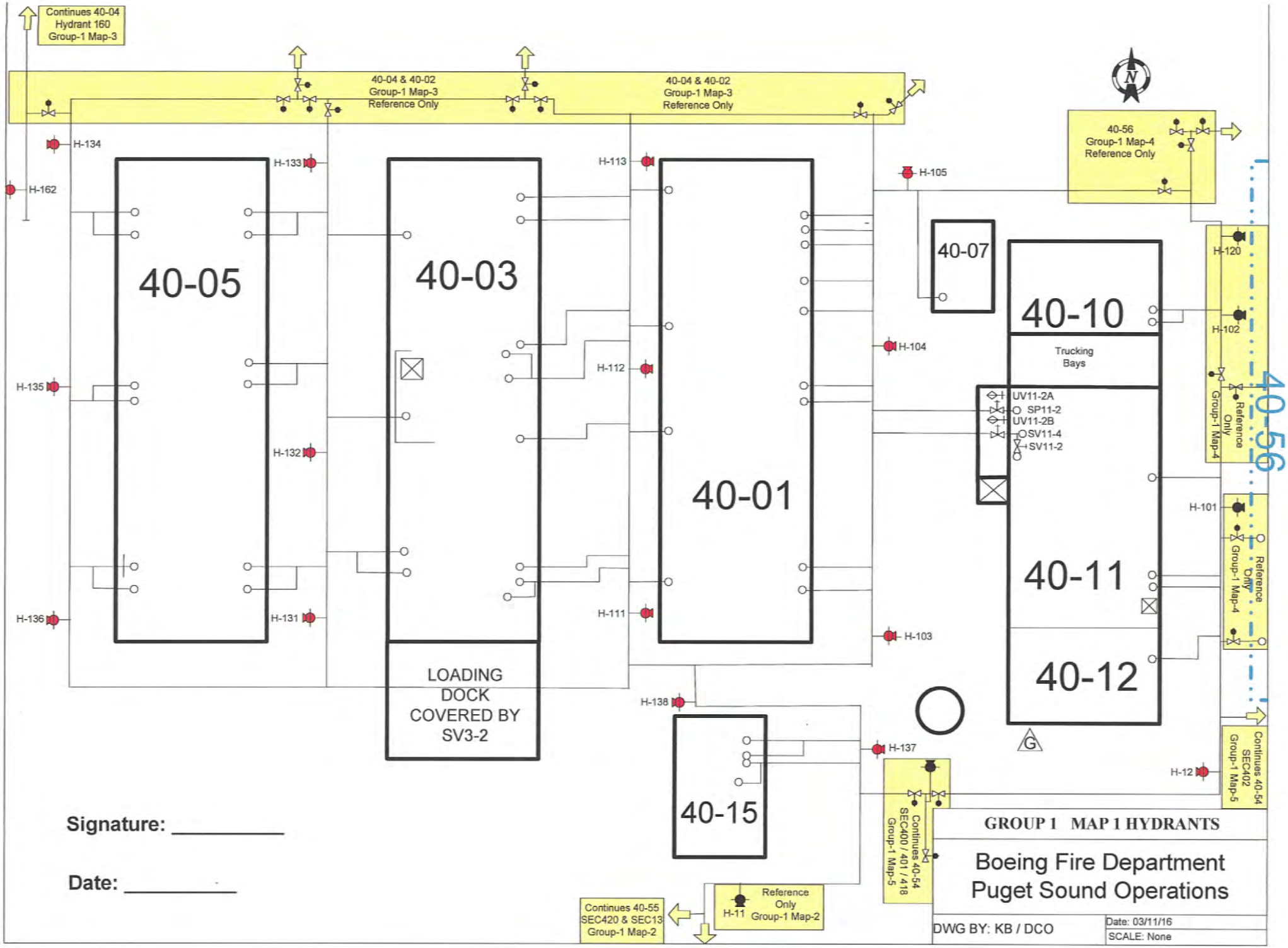
E RCRA 40-58.1 K-4
E RCRA 58A13/3.20
E RCRA 40-58.1 K.9-3.5
E RCRA 40-58.1 J.75-3.4
E RCRA 40-58.1 C/3.00

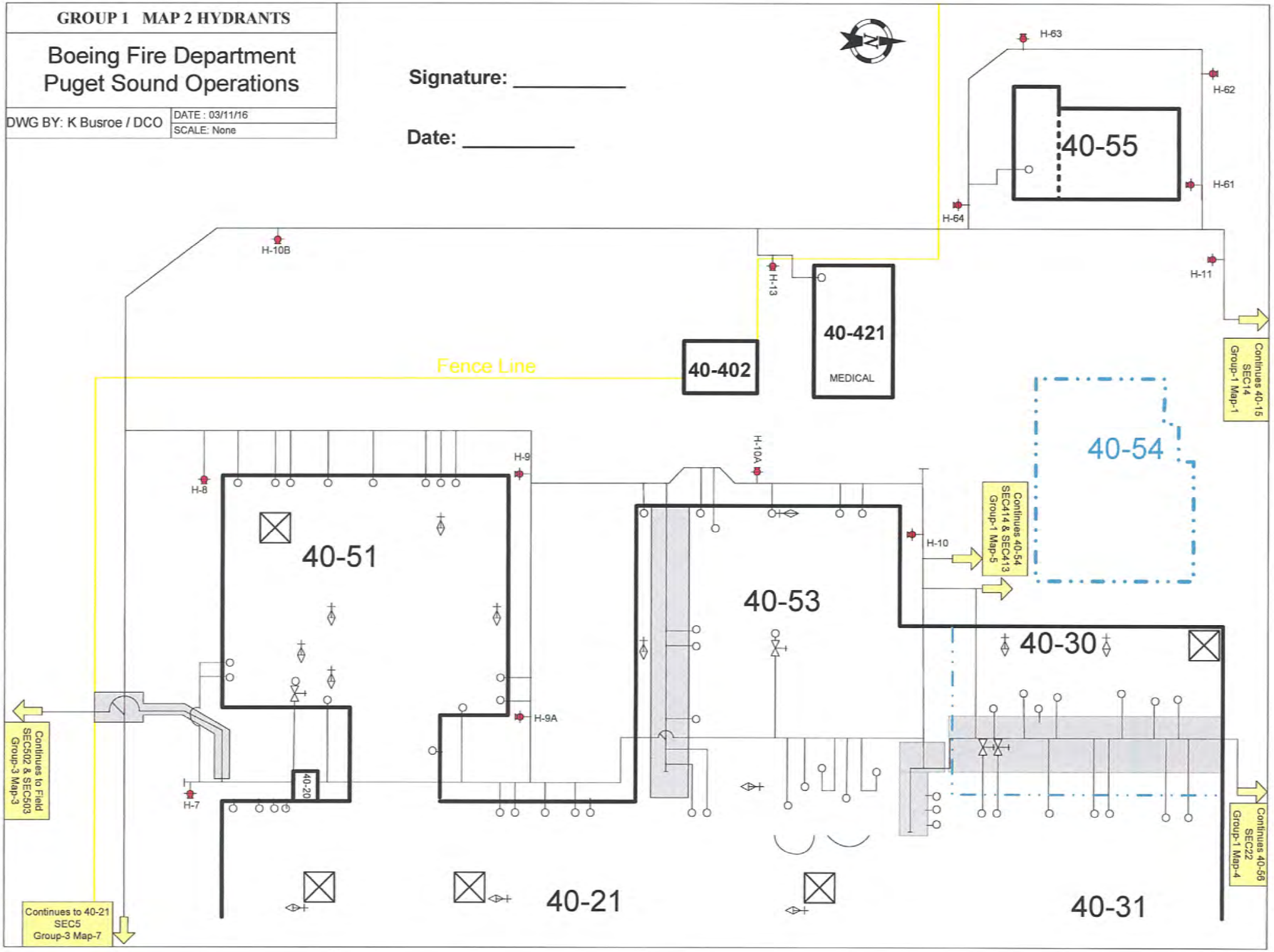
E RCRA 40-56.1 3.5J
E RCRA 5610F 40-56.1 10-F
E RCRA 561D 40-56.1 1-D
E RCRA 568Q 40-56 8-Q
E RCRA 5627Q 40-56.1 2-7Q
E RCRA 56.1 4L
E RCRA 565.5B.5
40-56 East Vacuum

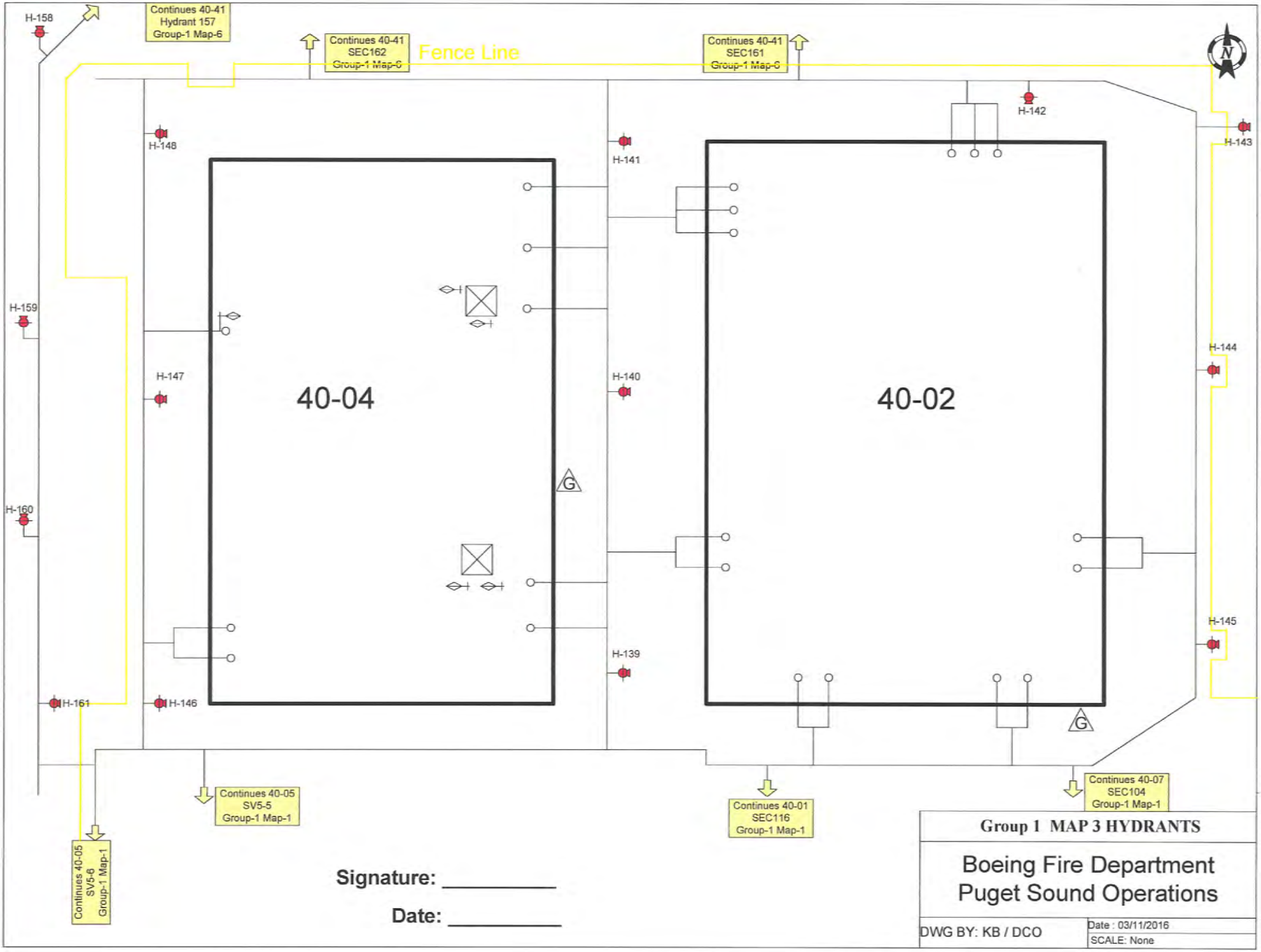


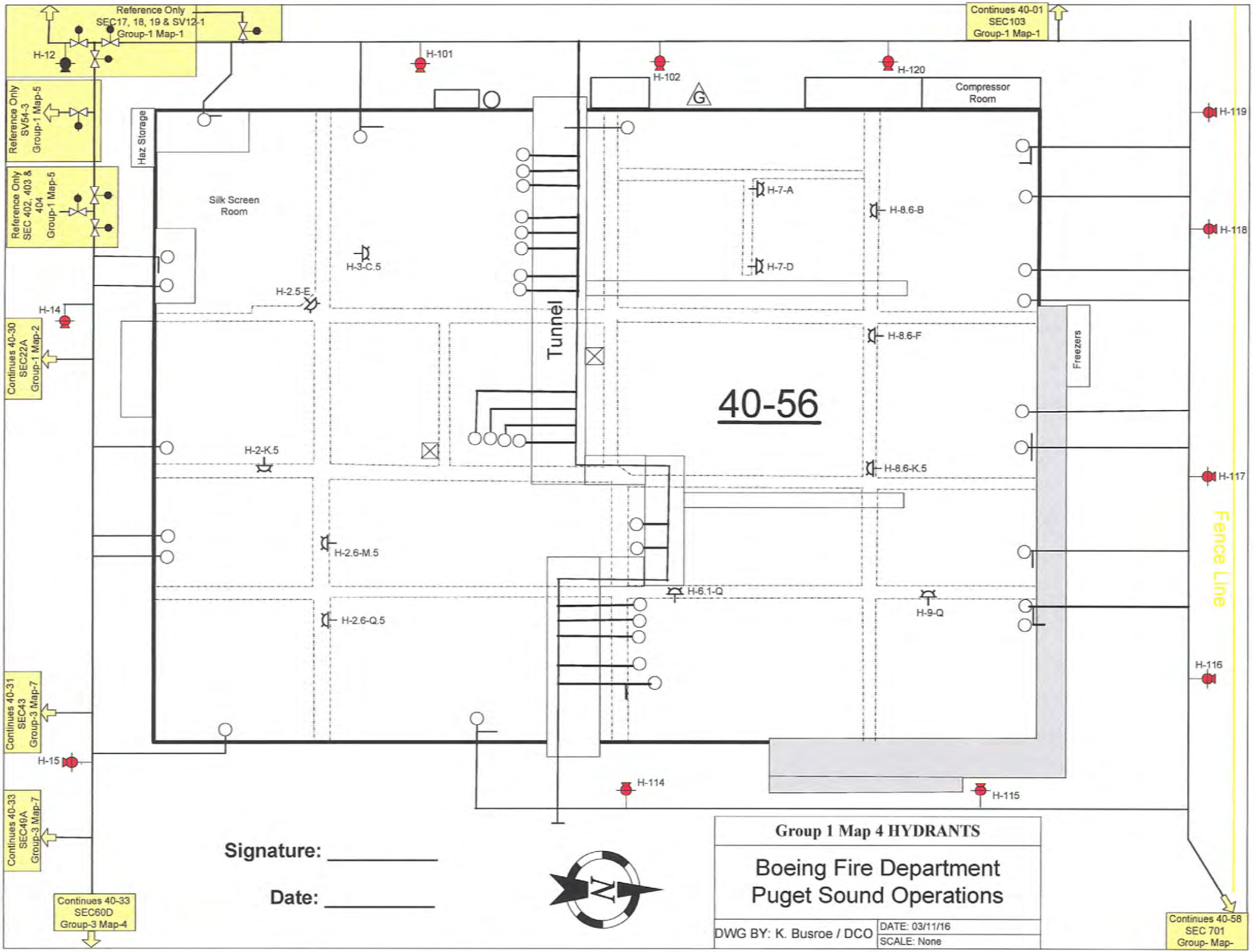
45-12.1 P9

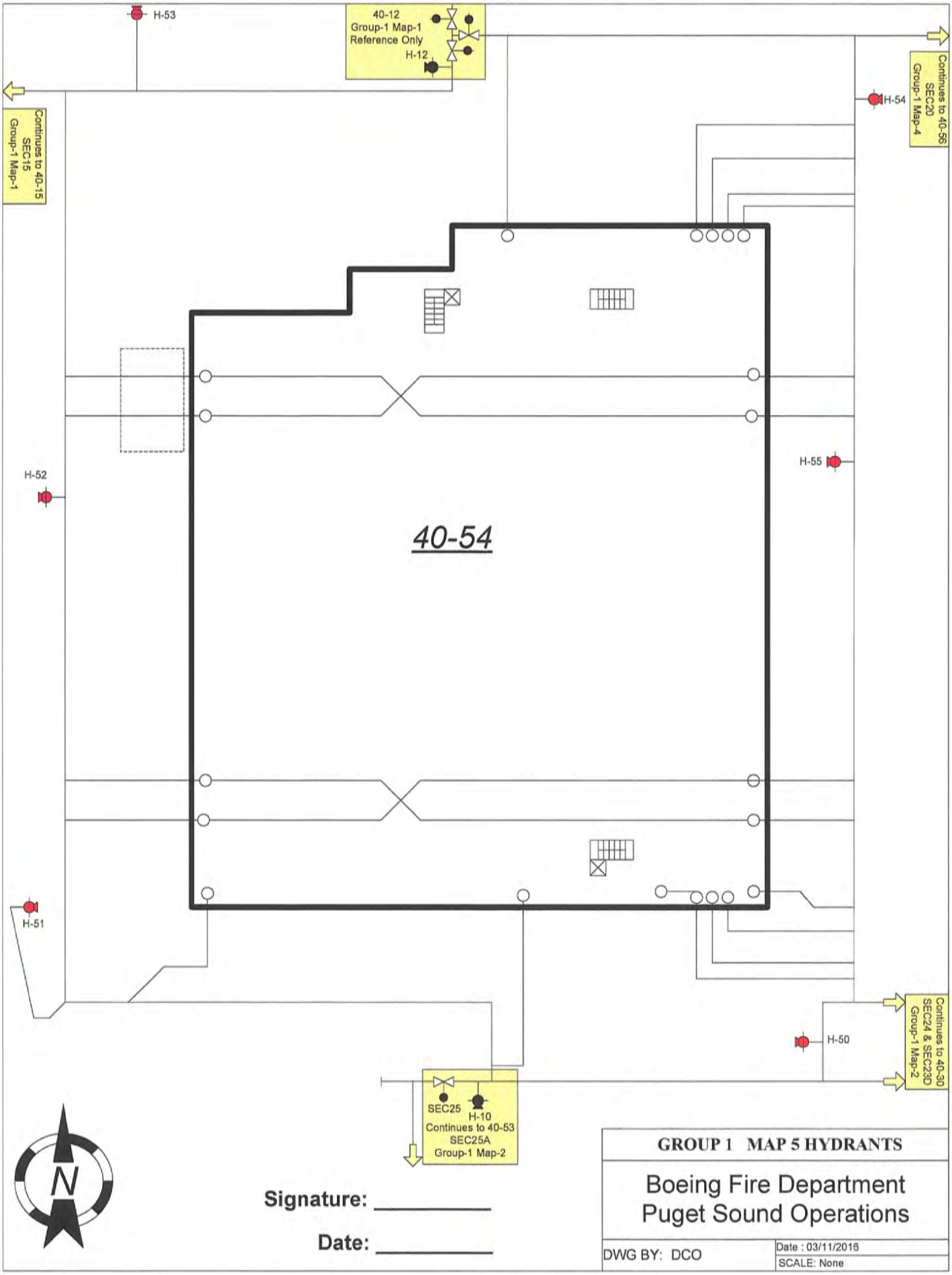
Appendix C: Map of Fire Hydrants


Continues 40-04
Hydrant 160
Group-1 Map-3
40-04 & 40-02
Group-1 Map-3
Reference Only
40-04 & 40-02
Group-1 Map-3
Reference Only
N
40-56
Group-1 Map-4
Reference Only
H-134
H-162
H-133
H-135
H-132
H-136
H-131
H-113
H-112
H-111
H-105
H-104
H-103
H-138
H-137
H-120
H-102
H-101
H-12
40-05
40-03
40-01
40-07
40-10
Trucking
Bays
UV11-2A
SP11-2
UV11-2B
SV11-4
SV11-2
40-11
40-12
40-15
LOADING
DOCK
COVERED BY
SV3-2
Reference
Only
Group-1 Map-4
Reference
Only
Group-1 Map-4
Continues 40-54
SEC402
Group-1 Map-5
Continues 40-54
SEC400 / 401 / 418
Group-1 Map-5
Continues 40-55
SEC420 & SEC13
Group-1 Map-2
H-11
Reference
Only
Group-1 Map-2
40-56
Signature: _____
Date: _____
GROUP 1 MAP 1 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: KB / DCO
Date: 03/11/16
SCALE: None


GROUP 1 MAP 2 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: K Busroe / DCO
DATE : 03/11/16
SCALE: None
Signature: _____
Date: _____
N
H-63
H-62
H-61
H-64
40-55
H-10B
H-13
H-11
40-421
MEDICAL
40-402
Fence Line
Continues 40-15
SEC14
Group-1 Map-1
40-54
H-9
H-10A
H-8
H-10
Continues 40-54
SEC414 & SEC413
Group-1 Map-5
40-51
40-53
40-30
H-9A
40-20
H-7
Continues to Field
SEC502 & SEC503
Group-3 Map-3
Continues 40-56
SEC22
Group-1 Map-4
Continues to 40-21
SEC5
Group-3 Map-7
40-21
40-31


H-158
Continues 40-41
Hydrant 157
Group-1 Map-6
Continues 40-41
SEC162
Group-1 Map-6
Fence Line
Continues 40-41
SEC161
Group-1 Map-6
N
H-142
H-143
H-148
H-141
H-159
H-147
40-04
H-140
40-02
H-144
G
H-160
H-145
H-139
H-161
H-146
G
Continues 40-05
SV5-5
Group-1 Map-1
Continues 40-01
SEC116
Group-1 Map-1
Continues 40-07
SEC104
Group-1 Map-1
Continues 40-05
SV5-6
Group-1 Map-1
Signature: _____
Date: _____
Group 1 MAP 3 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: KB / DCO
Date : 03/11/2016
SCALE: None


Reference Only
SEC17, 18, 19 & SV12-1
Group-1 Map-1
Continues 40-01
SEC103
Group-1 Map-1
Reference Only
SV54-3
Group-1 Map-5
Reference Only
SEC 402, 403 & 404
Group-1 Map-5
Haz Storage
Silk Screen Room
Compressor Room
Tunnel
Freezers
40-56
Fence Line
H-12
H-101
H-102
H-120
H-119
H-118
H-117
H-116
H-115
H-114
H-15
H-14
H-3-C.5
H-2.5-E
H-2-K.5
H-2.6-M.5
H-2.6-Q.5
H-6.1-Q
H-9-Q
H-7-A
H-7-D
H-8.6-B
H-8.6-F
H-8.6-K.5
Continues 40-30
SEC22A
Group-1 Map-2
Continues 40-31
SEC43
Group-3 Map-7
Continues 40-33
SEC49A
Group-3 Map-7
Continues 40-33
SEC60D
Group-3 Map-4
Continues 40-58
SEC 701
Group- Map-
Signature: _____
Date: _____
N
Group 1 Map 4 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: K. Busroe / DCO
DATE: 03/11/16
SCALE: None



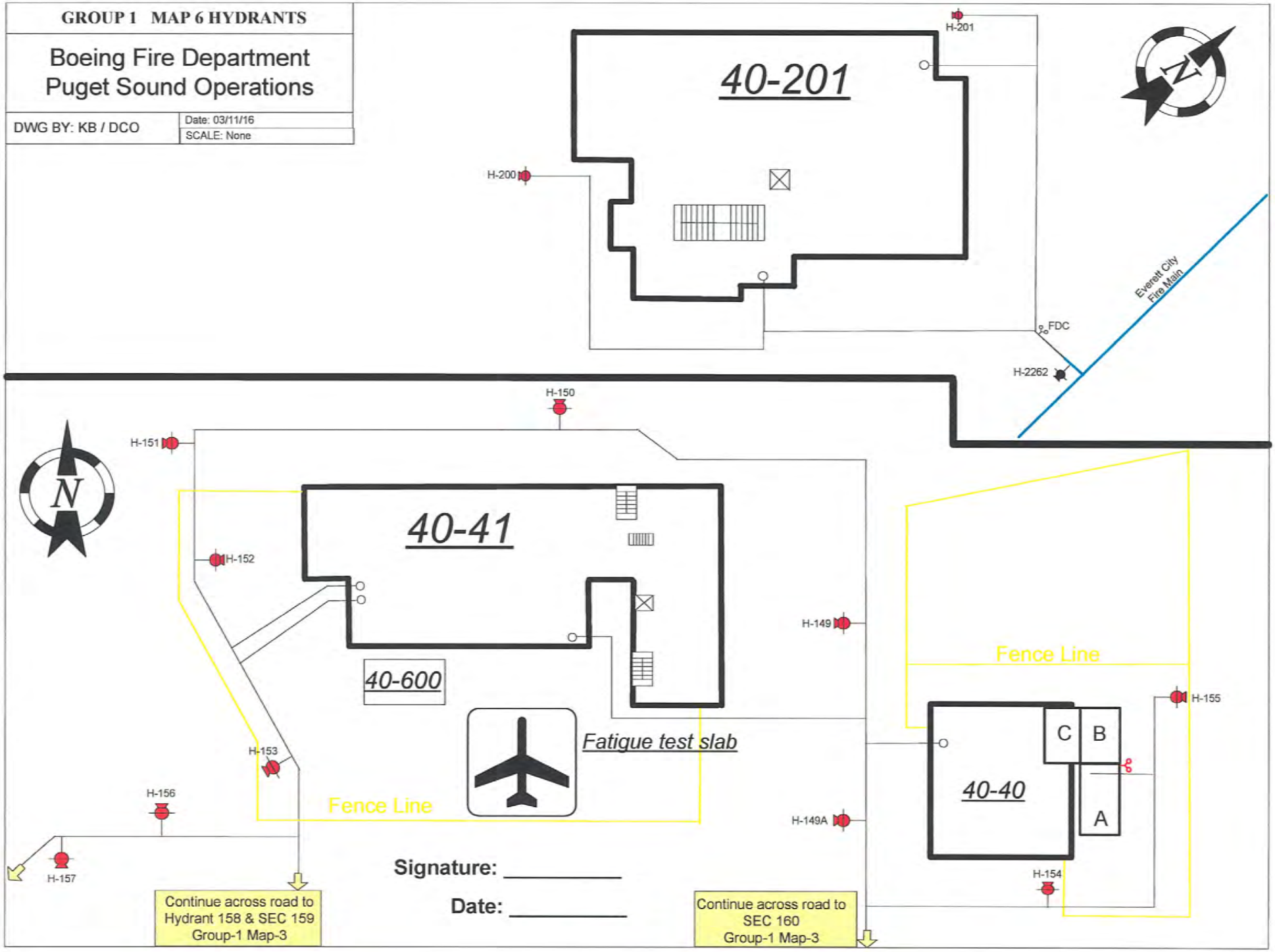
Signature: _____

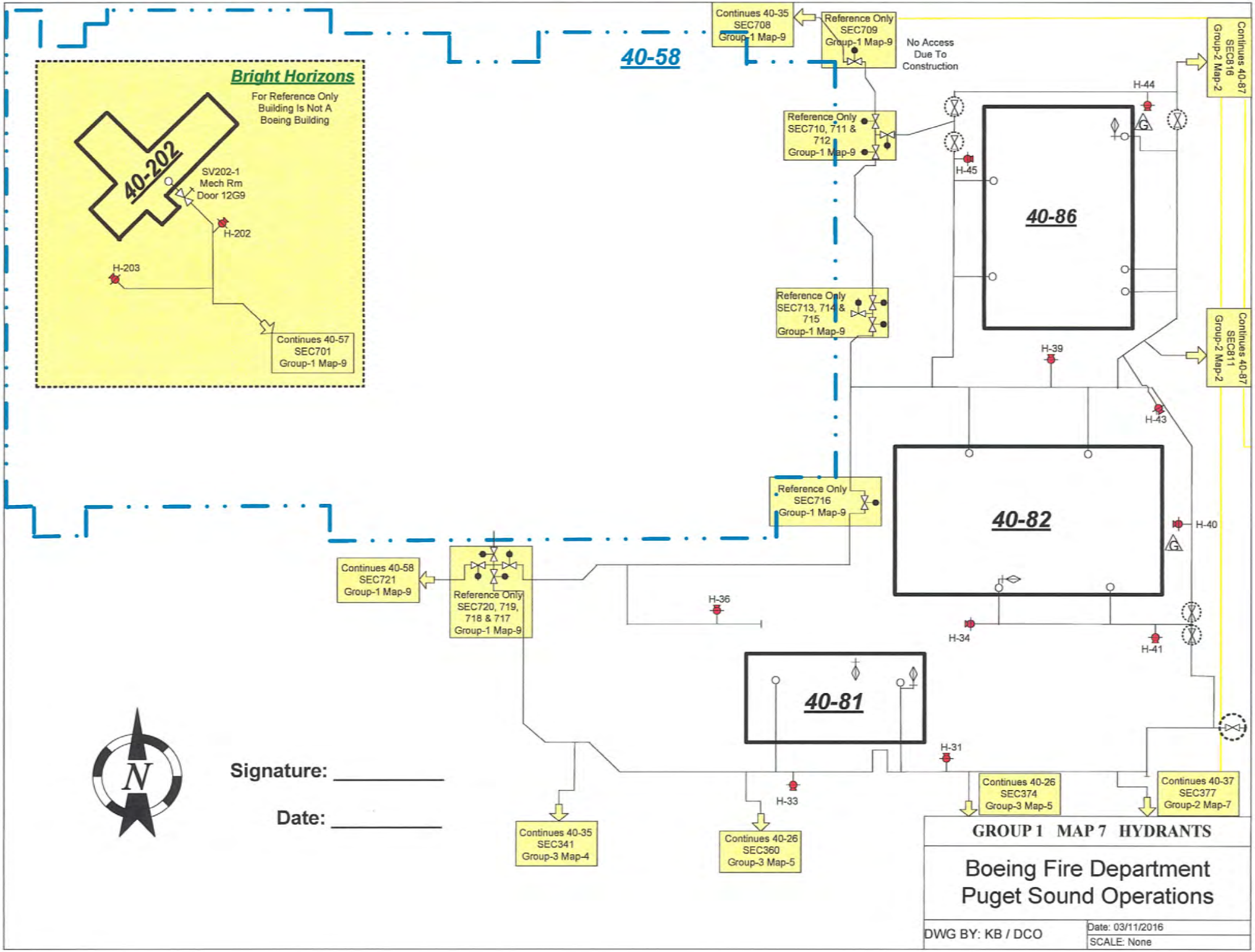
Date: _____

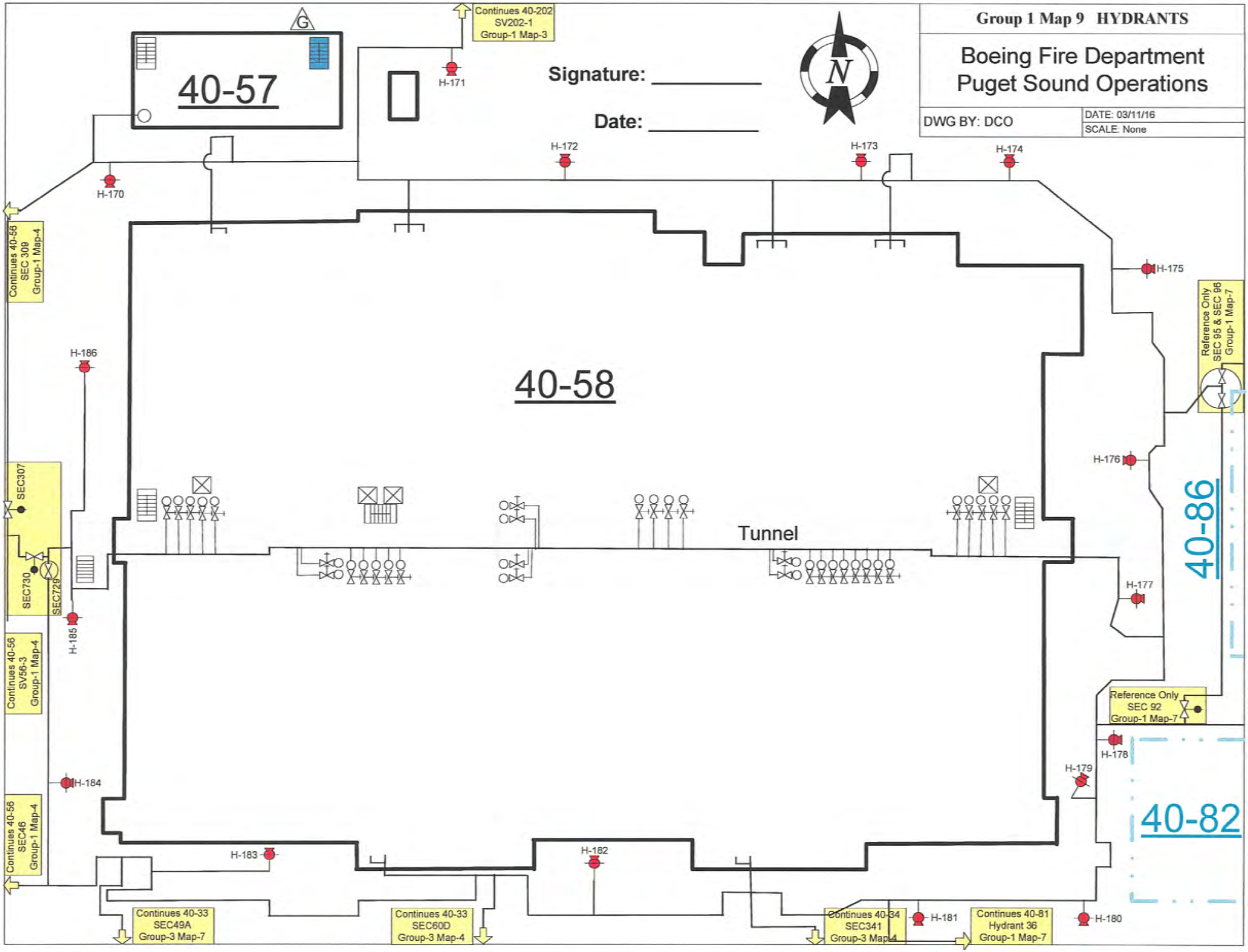
GROUP 1 MAP 5 HYDRANTS

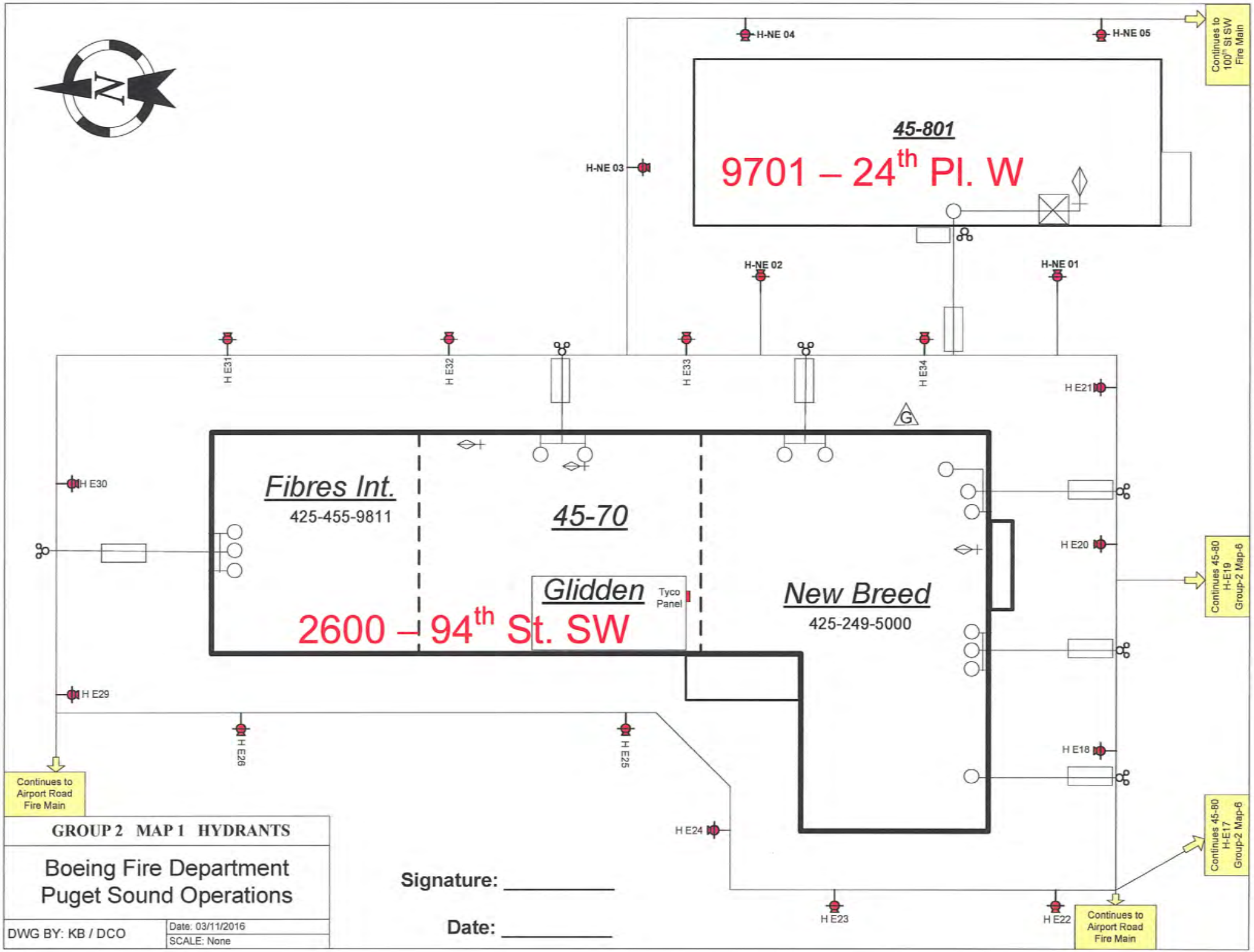
Boeing Fire Department
Puget Sound Operations

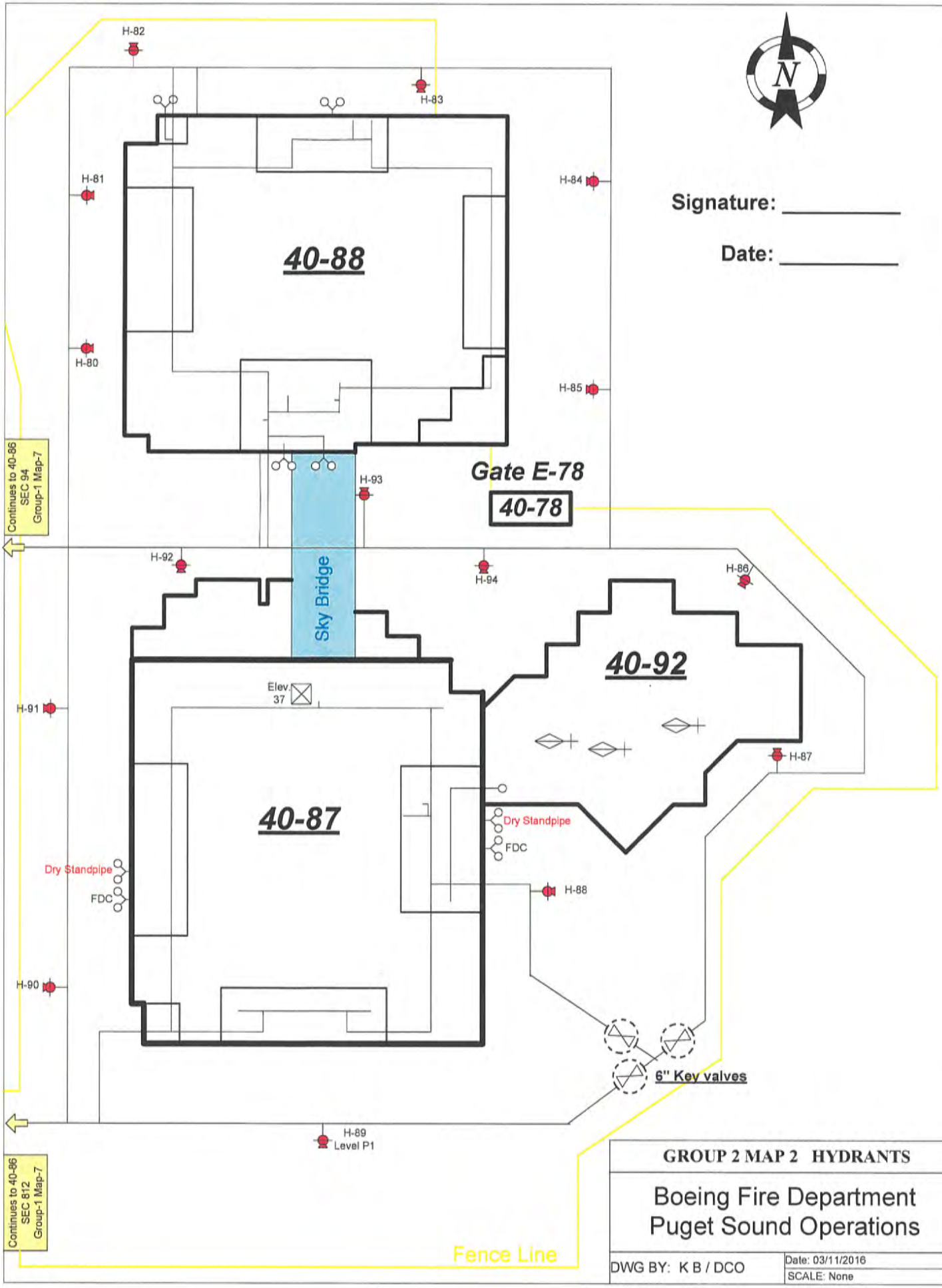
DWG BY: DCO	Date : 03/11/2016
	SCALE: None

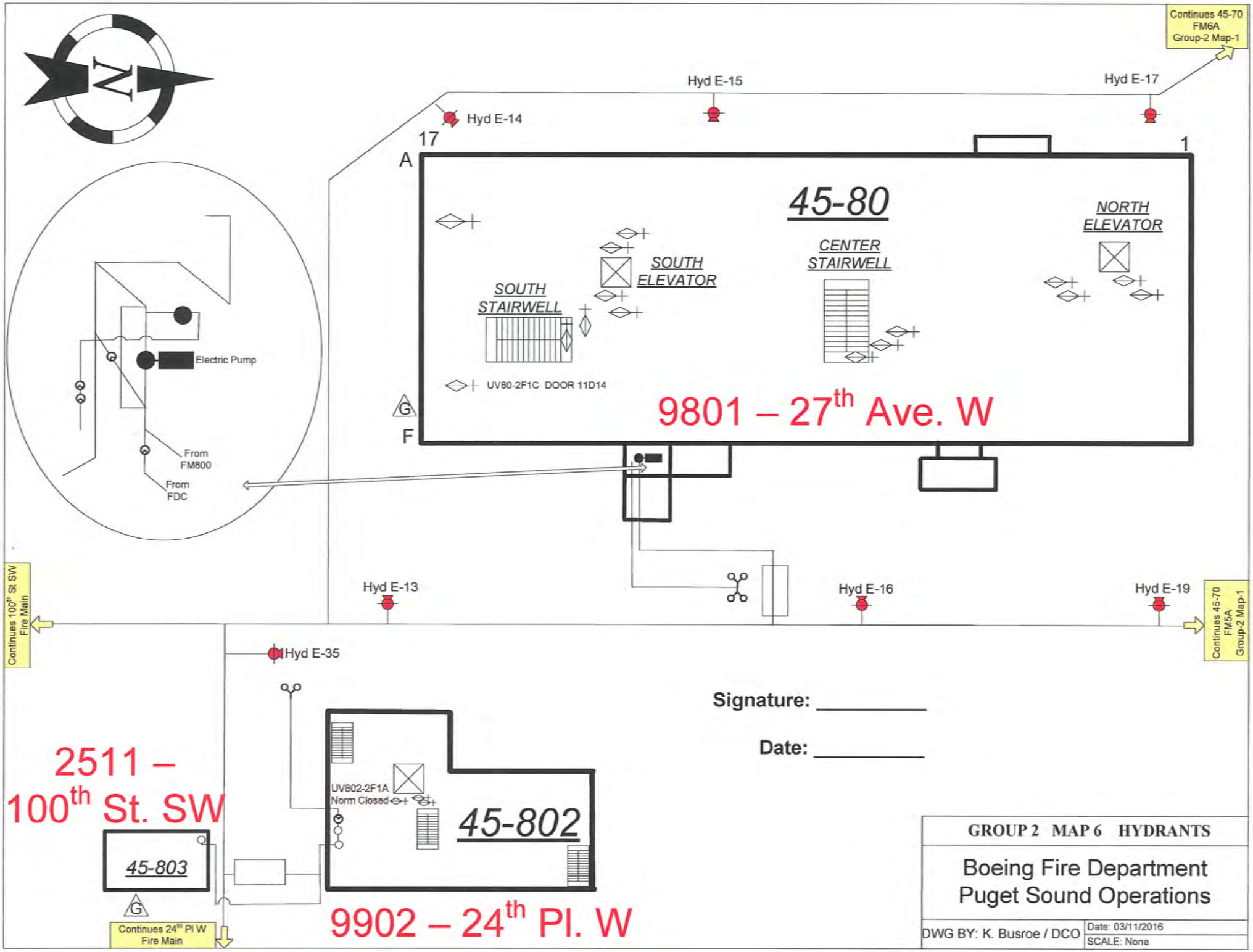

GROUP 1 MAP 6 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: KB / DCO
Date: 03/11/16
SCALE: None
40-201
H-201
H-200
FDC
H-2262
Everett City Fire Main
N
H-150
H-151
40-41
H-152
40-600
H-149
Fence Line
Fatigue test slab
H-153
H-156
H-157
Fence Line
H-149A
40-40
C
B
A
H-155
H-154
Signature: _____
Date: _____
Continue across road to Hydrant 158 & SEC 159 Group-1 Map-3
Continue across road to SEC 160 Group-1 Map-3

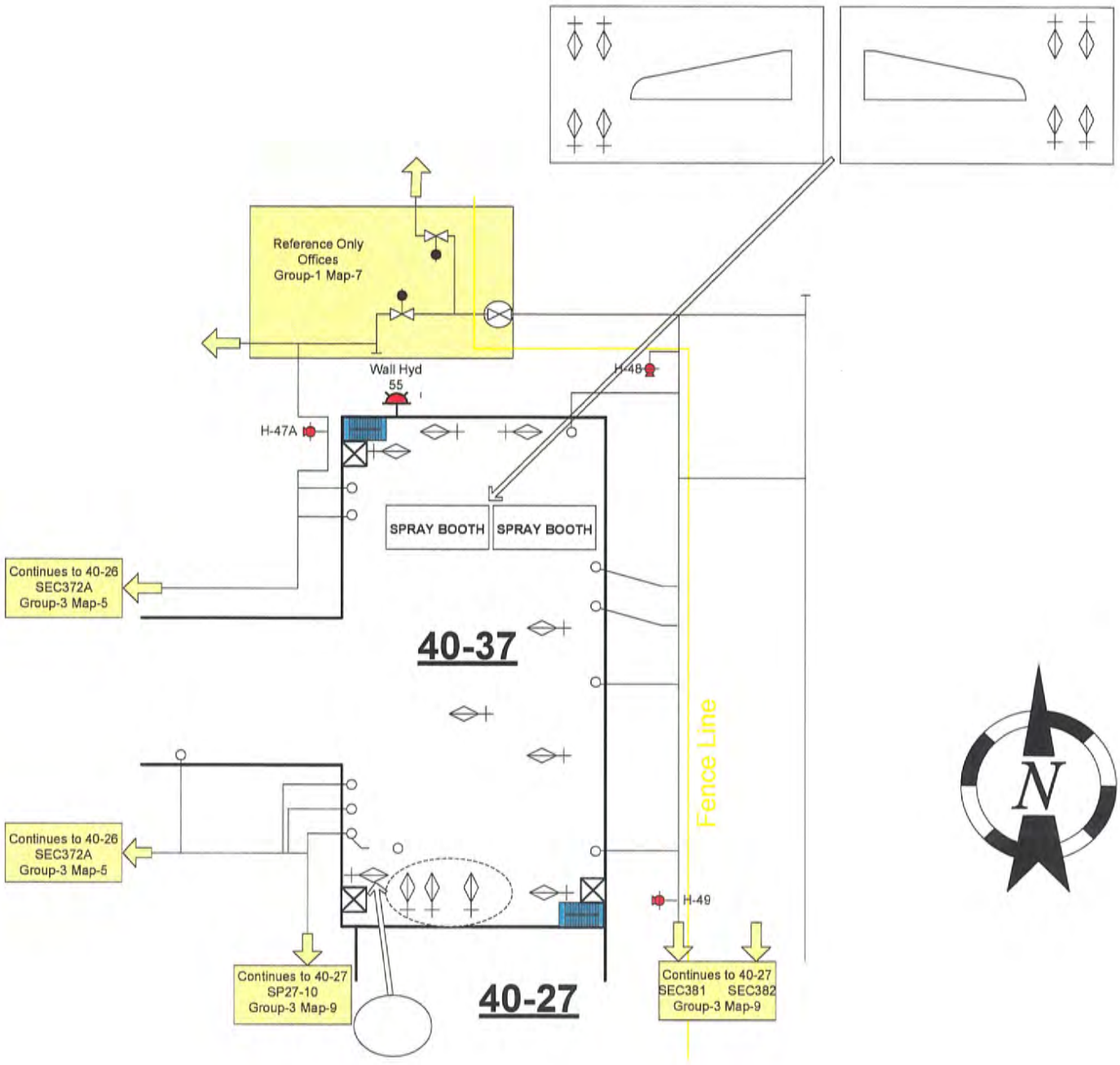

Bright Horizons
For Reference Only
Building Is Not A
Boeing Building
40-202
SV202-1
Mech Rm
Door 12G9
H-202
H-203
Continues 40-57
SEC701
Group-1 Map-9
40-58
Continues 40-35
SEC708
Group-1 Map-9
Reference Only
SEC709
Group-1 Map-9
No Access
Due To
Construction
Continues 40-87
SEC816
Group-2 Map-2
H-44
Reference Only
SEC710, 711 &
712
Group-1 Map-9
H-45
40-86
Reference Only
SEC713, 714 &
715
Group-1 Map-9
H-39
Continues 40-87
SEC811
Group-2 Map-2
H-43
Reference Only
SEC716
Group-1 Map-9
40-82
H-40
Continues 40-58
SEC721
Group-1 Map-9
Reference Only
SEC720, 719,
718 & 717
Group-1 Map-9
H-36
H-34
H-41
40-81
H-31
H-33
Continues 40-26
SEC374
Group-3 Map-5
Continues 40-37
SEC377
Group-2 Map-7
Continues 40-35
SEC341
Group-3 Map-4
Continues 40-26
SEC360
Group-3 Map-5
N
Signature: _____
Date: _____
GROUP 1 MAP 7 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: KB / DCO
Date: 03/11/2016
SCALE: None


Group 1 Map 9 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: DCO
DATE: 03/11/16
SCALE: None
Signature: _____
Date: _____
N
40-57
40-58
40-86
40-82
Tunnel
Continues 40-202 SV202-1 Group-1 Map-3
Continues 40-56 SEC 309 Group-1 Map-4
Continues 40-56 SV56-3 Group-1 Map-4
Continues 40-56 SEC46 Group-1 Map-4
Continues 40-33 SEC49A Group-3 Map-7
Continues 40-33 SEC60D Group-3 Map-4
Continues 40-34 SEC341 Group-3 Map-4
Continues 40-81 Hydrant 36 Group-1 Map-7
Reference Only SEC 95 & SEC 96 Group-1 Map-7
Reference Only SEC 92 Group-1 Map-7
SEC307
SEC730
SEC729
H-170
H-171
H-172
H-173
H-174
H-175
H-176
H-177
H-178
H-179
H-180
H-181
H-182
H-183
H-184
H-185
H-186


N
H-NE 04
H-NE 05
Continues to 100th St SW Fire Main
45-801
9701 – 24th Pl. W
H-NE 03
H-NE 02
H-NE 01
H E31
H E32
H E33
H E34
H E21
G
H E30
Fibres Int.
425-455-9811
45-70
Glidden
Tyco Panel
2600 – 94th St. SW
New Breed
425-249-5000
H E20
Continues 45-80 H-E19 Group-2 Map-6
H E29
H E26
H E25
H E18
Continues to Airport Road Fire Main
H E24
H E23
H E22
Continues 45-80 H-E17 Group-2 Map-6
Continues to Airport Road Fire Main
GROUP 2 MAP 1 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: KB / DCO
Date: 03/11/2016
SCALE: None
Signature: _____
Date: _____


H-82
H-83
H-81
H-84
40-88
H-80
H-85
Continues to 40-86
SEC 94
Group-1 Map-7
Gate E-78
40-78
H-93
H-92
H-94
H-86
Sky Bridge
40-92
Elev.
37
H-91
H-87
40-87
Dry Standpipe
FDC
Dry Standpipe
FDC
H-88
H-90
6" Key valves
H-89
Level P1
Continues to 40-86
SEC 812
Group-1 Map-7
Fence Line
N
Signature: _____
Date: _____
GROUP 2 MAP 2 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: K B / DCO
Date: 03/11/2016
SCALE: None


Continues 45-70
FM6A
Group-2 Map-1
Hyd E-15
Hyd E-17
Hyd E-14
17
1
A
45-80
NORTH
ELEVATOR
CENTER
STAIRWELL
SOUTH
ELEVATOR
SOUTH
STAIRWELL
UV80-2F1C DOOR 11D14
G
F
9801 – 27th Ave. W
Electric Pump
From
FM800
From
FDC
Continues 100th St SW
Fire Main
Hyd E-13
Hyd E-16
Hyd E-19
Continues 45-70
FM5A
Group-2 Map-1
Hyd E-35
Signature: _____
Date: _____
2511 –
100th St. SW
UV802-2F1A
Norm Closed
45-802
45-803
G
Continues 24th Pl W
Fire Main
9902 – 24th Pl. W
GROUP 2 MAP 6 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: K. Busroe / DCO
Date: 03/11/2016
SCALE: None



Signature: _____

Date: _____

GROUP 2 MAP 7 HYDRANTS

Boeing Fire Department
Puget Sound Operations

DWG BY: Ken Busroe / DCO	Date: 03/11/16
	SCALE: None

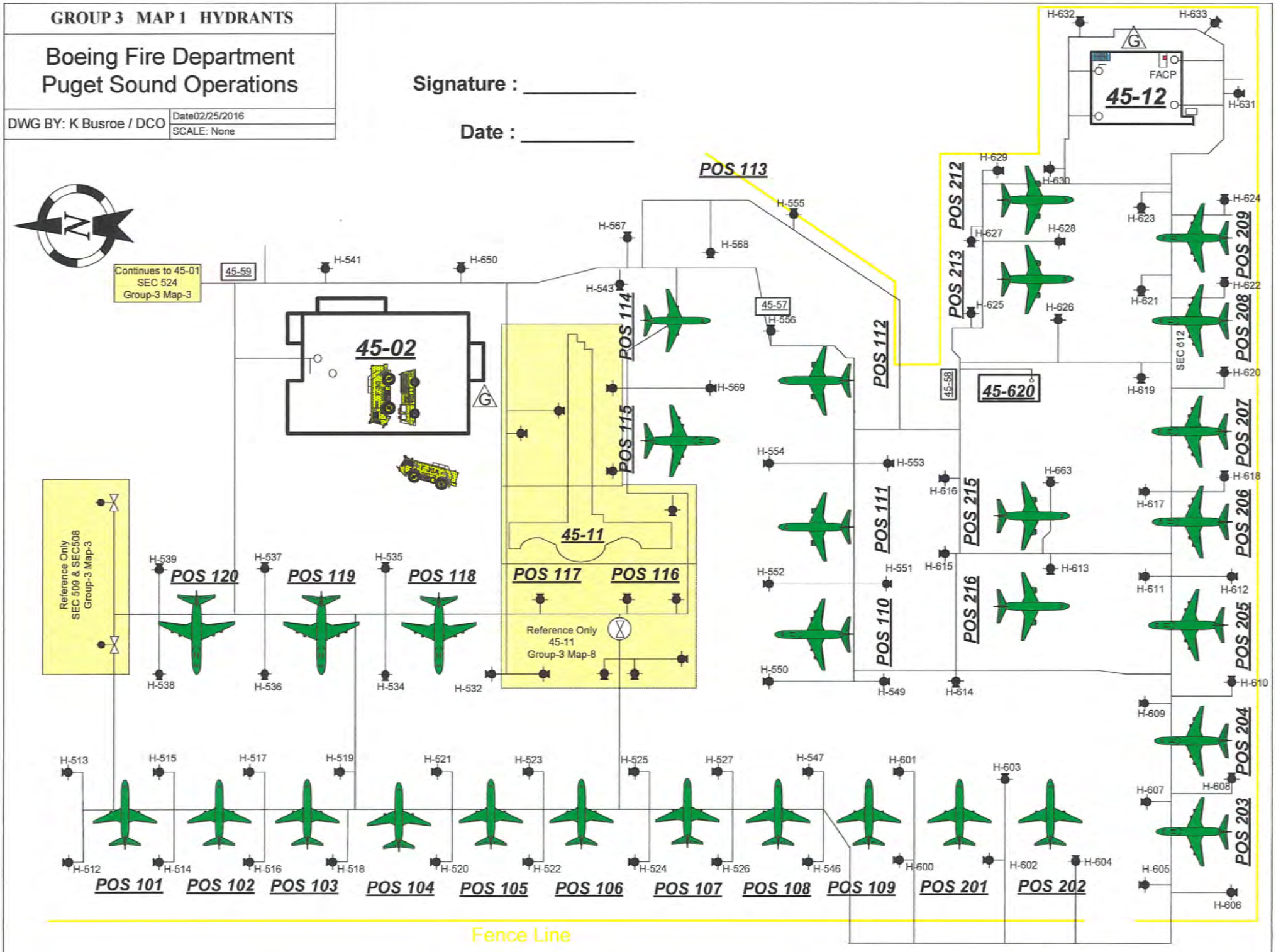
GROUP 3 MAP 1 HYDRANTS

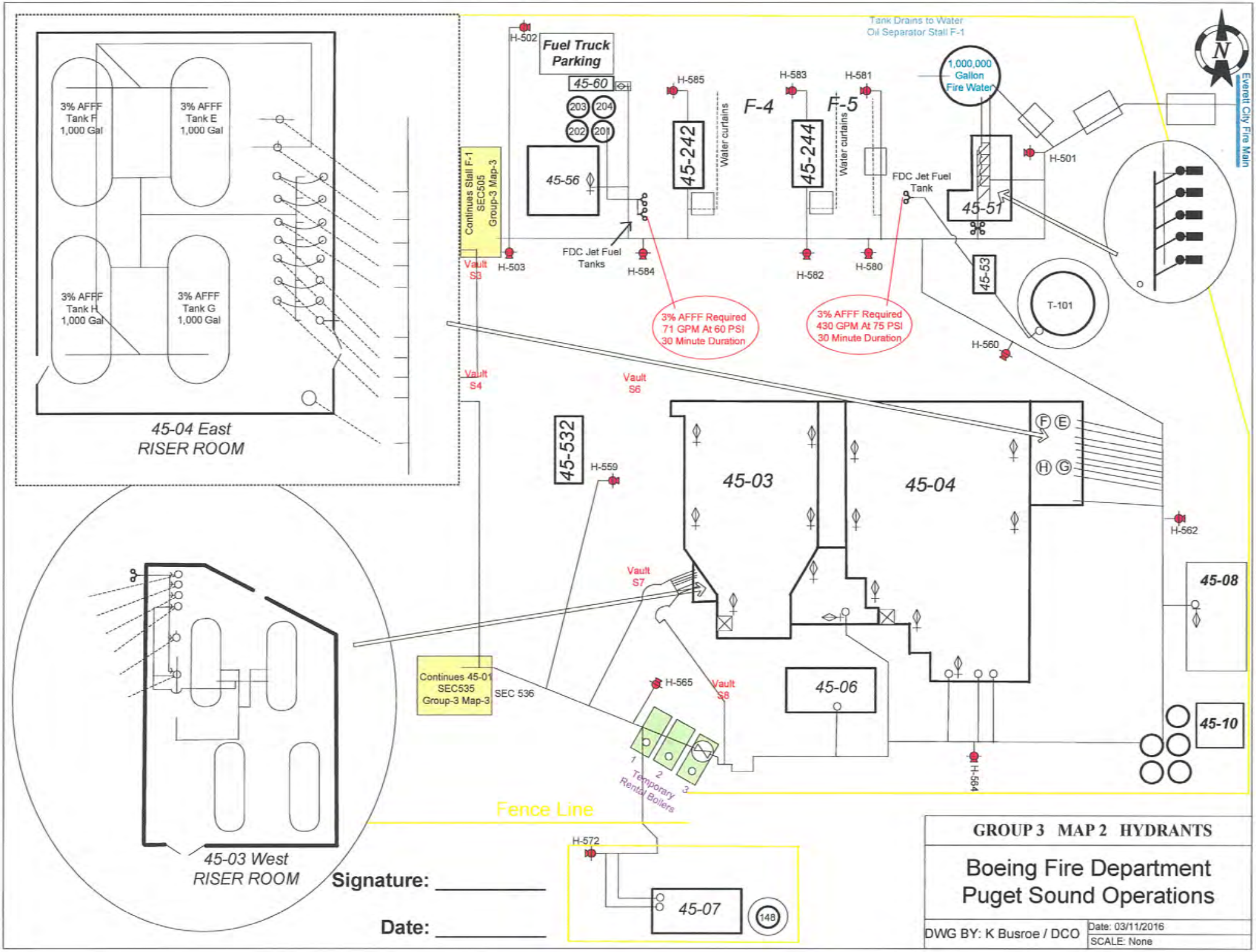
Boeing Fire Department
Puget Sound Operations

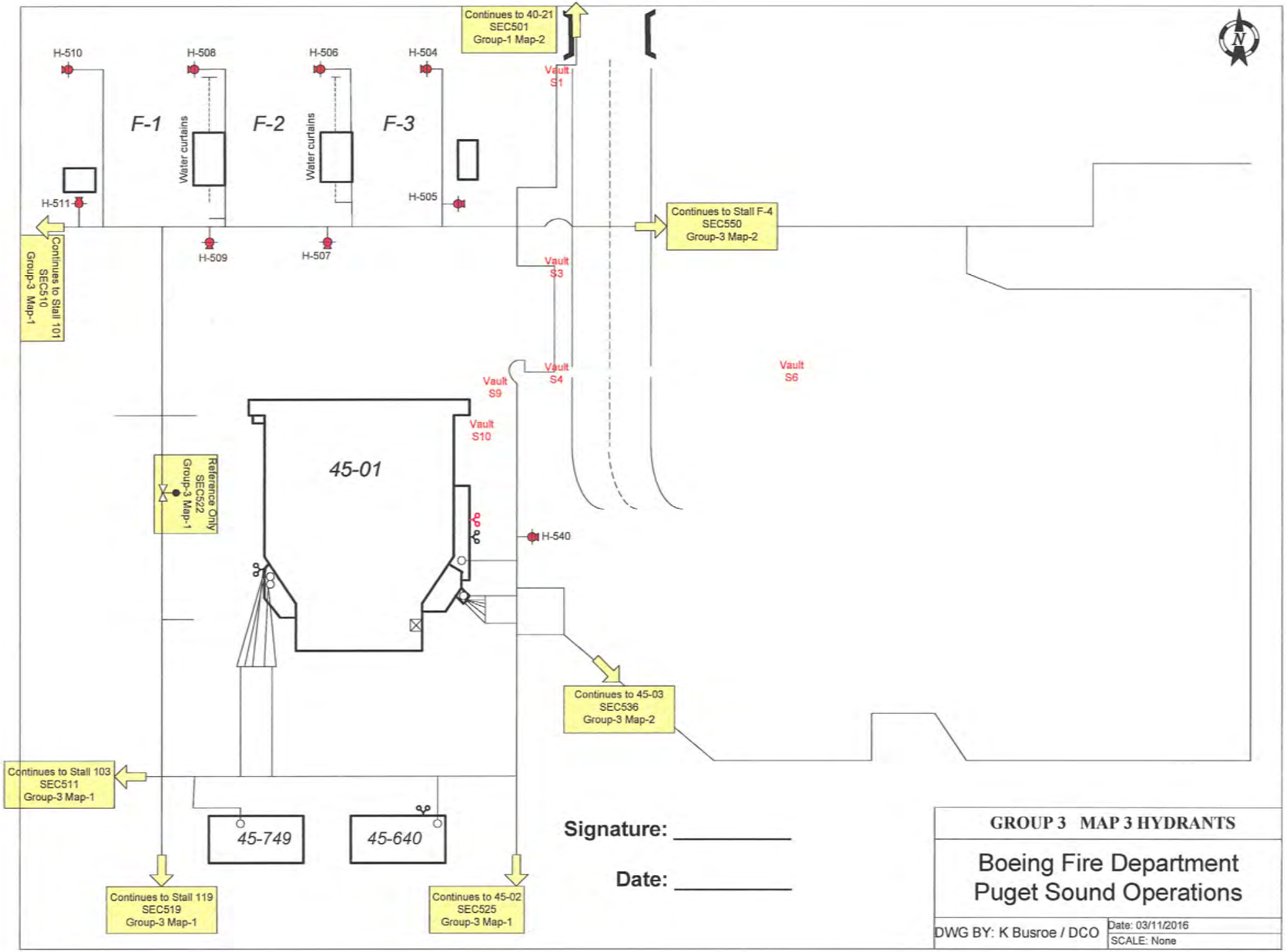
DWG BY: K Busroe / DCO | Date02/25/2016 | SCALE: None

Signature : _____

Date : _____




3% AFFF Tank F 1,000 Gal
3% AFFF Tank E 1,000 Gal
3% AFFF Tank H 1,000 Gal
3% AFFF Tank G 1,000 Gal
45-04 East RISER ROOM
45-03 West RISER ROOM
Tank Drains to Water Oil Separator Stall F-1
H-502
Fuel Truck Parking
45-60
203
204
202
201
45-56
H-585
45-242
Water curtains
F-4
H-583
H-581
45-244
F-5
Water curtains
1,000,000 Gallon Fire Water
Everett City Fire Main
H-501
FDC Jet Fuel Tank
45-51
45-53
T-101
H-560
Continues Stall F-1 SEC505 Group-3 Map-3
Vault S3
H-503
FDC Jet Fuel Tanks
H-584
H-582
H-580
3% AFFF Required 71 GPM At 60 PSI 30 Minute Duration
3% AFFF Required 430 GPM At 75 PSI 30 Minute Duration
Vault S4
Vault S6
45-532
H-559
45-03
45-04
F E H G
H-562
Vault S7
45-08
Continues 45-01 SEC535 Group-3 Map-3
SEC 536
H-565
Vault S8
45-06
45-10
1 2 3 Temporary Rental Boilers
H-564
Fence Line
H-572
45-07
148
Signature: _____
Date: _____
GROUP 3 MAP 2 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: K Busroe / DCO
Date: 03/11/2016
SCALE: None



Signature: _____

Date: _____

GROUP 3 MAP 3 HYDRANTS

Boeing Fire Department
Puget Sound Operations

DWG BY: K Busroe / DCO

Date: 03/11/2016

SCALE: None

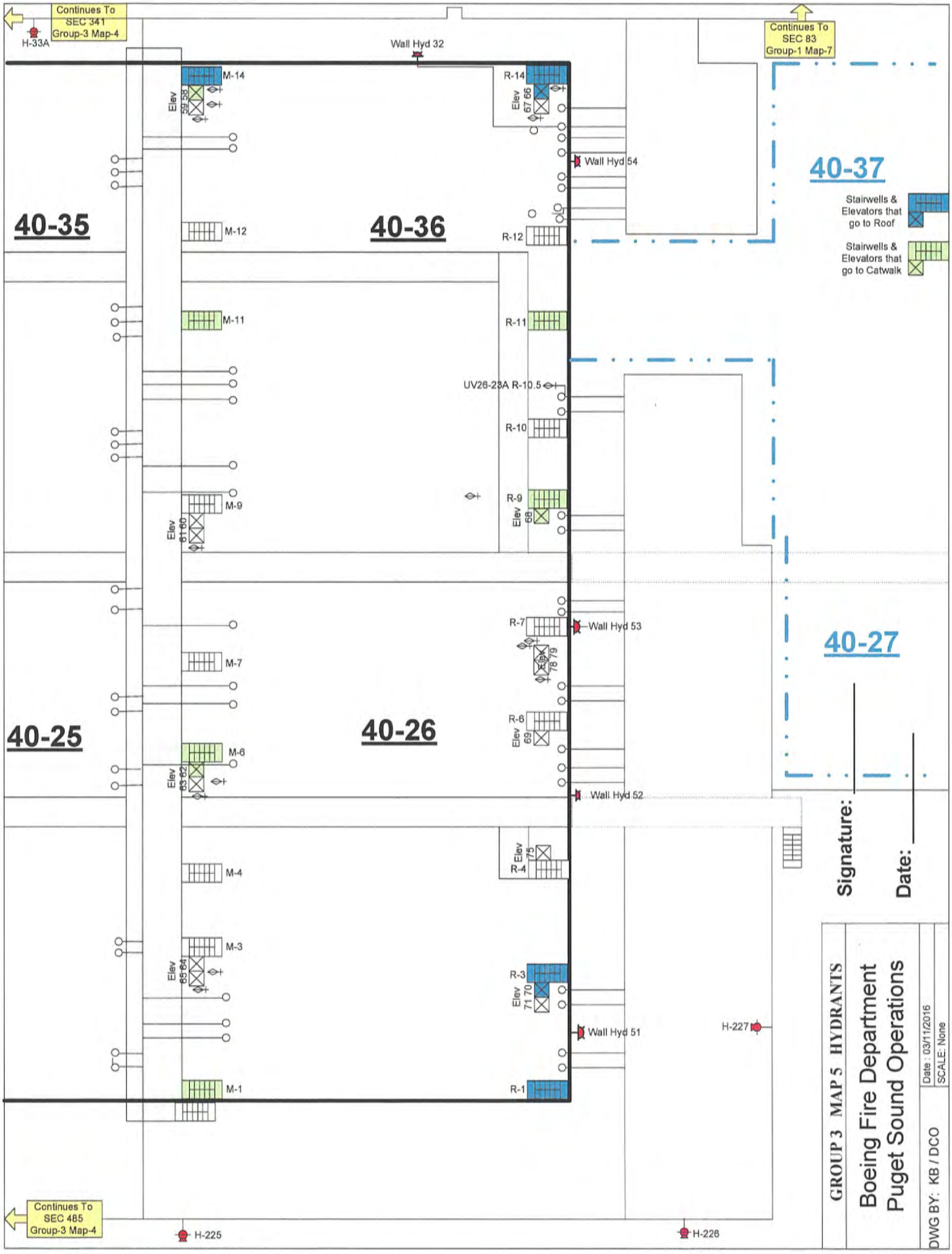
Signature: _____

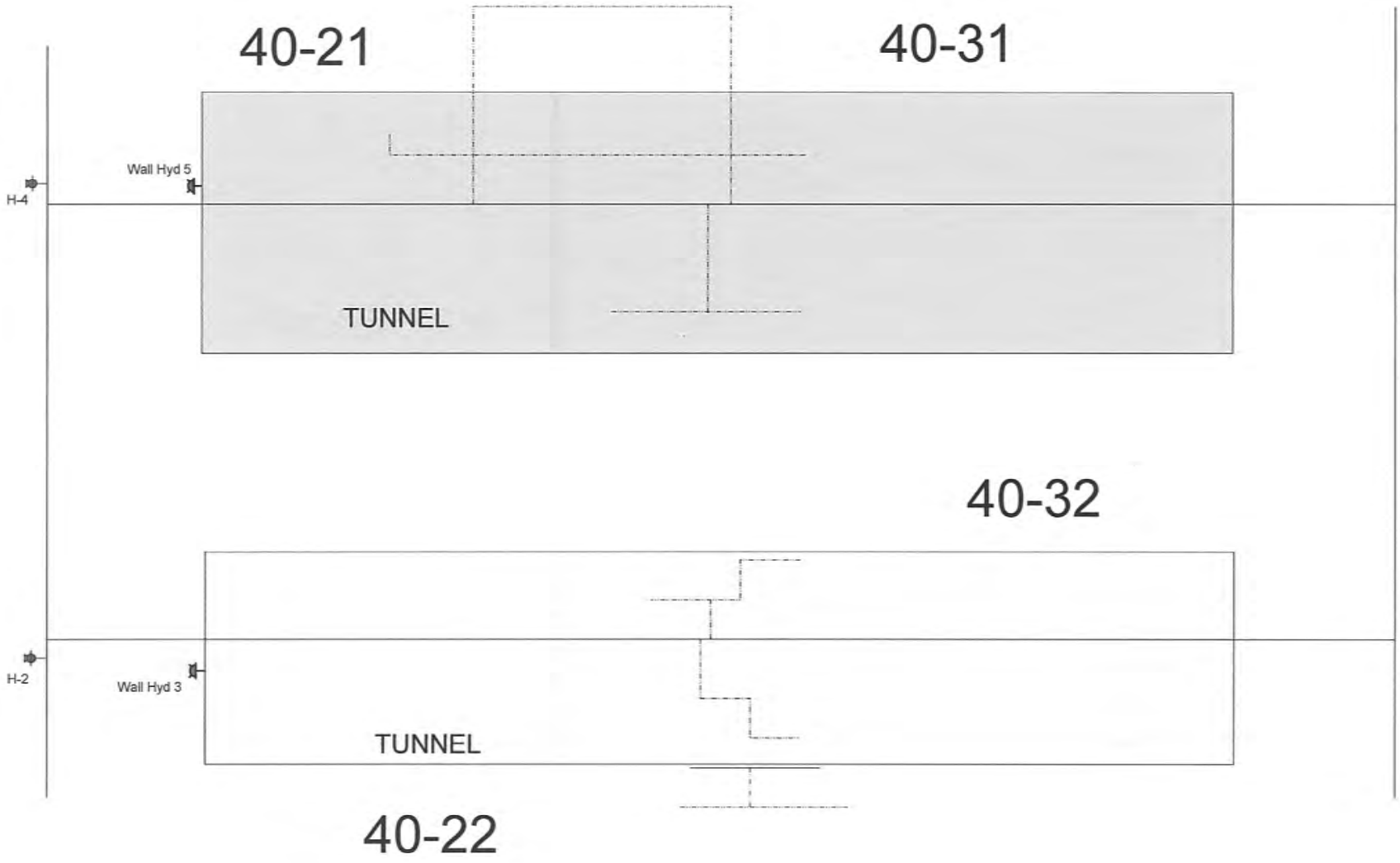
Date: _____

Group 3 MAP 4 HYDRANTS

Boeing Fire Department
Puget Sound Operations

DWG BY: KB / DCO	Date: 03/11/2016
	SCALE: None


Continues To SEC 341 Group-3 Map-4
H-33A
Wall Hyd 32
Continues To SEC 83 Group-1 Map-7
40-35
40-36
40-37
40-25
40-26
40-27
M-14
R-14
Elev 59 58
Elev 67 66
Wall Hyd 54
M-12
R-12
Stairwells & Elevators that go to Roof
Stairwells & Elevators that go to Catwalk
M-11
R-11
UV26-23A R-10.5
R-10
M-9
R-9
Elev 61 60
Elev 68
R-7
Wall Hyd 53
M-7
Elev 78 79
R-6
Elev 69
M-6
Elev 83 62
Wall Hyd 52
Elev 75
R-4
M-4
M-3
Elev 85 64
R-3
Elev 71 70
Wall Hyd 51
H-227
M-1
R-1
Signature:
Date:
Continues To SEC 485 Group-3 Map-4
H-225
H-226
GROUP 3 MAP 5 HYDRANTS
Boeing Fire Department
Puget Sound Operations
DWG BY: KB / DCO
Date : 03/11/2016
SCALE: None



Public Hydrant, 2 Hs Outlts & Pumpr Cnct	Post Indicator Valve	Alarm Check Valve	Automatic Sprinkler - Partially Sprinklered	Stairs in Rated Shaft
Public Hydrant, 2 Hose Outlets	Key-operated Valve	Dry Pipe Valve	Non - Sprinklered	Escalator
Private Hydrant, 1 Hose Outlet	Nonindicating Valve	Dry Pipe Valve with Quick Opening Device	Electrical Main	Heat Detector - Fixed Temperature
2-Way FDC	O S & Y Valve	Flow Detector Switch	Gas Line	Smoke Detector - Ionization Type
Freestanding 2-Way FDC	Valve in Pit	Pressure Detector Switch	Fire Door	Smoke Detector - Photo Electric Type
Fire Pump w/drives	Check Valve	Water Motor Alarm	Overhead Door	Speaker / Horn
Private Housed Hydrant, 2 Hose Outlets	Riser Pipe	Electric Bell / Gong	Elevator in non-Combustible Shaft	Emergency Light
Wall Hydrant, 2 Hose Outlets	Deluge Valve	Automatic Sprinkler - Fully Sprinklered	Stairs in Combustible Shaft	Manual Alarm - Pull Station

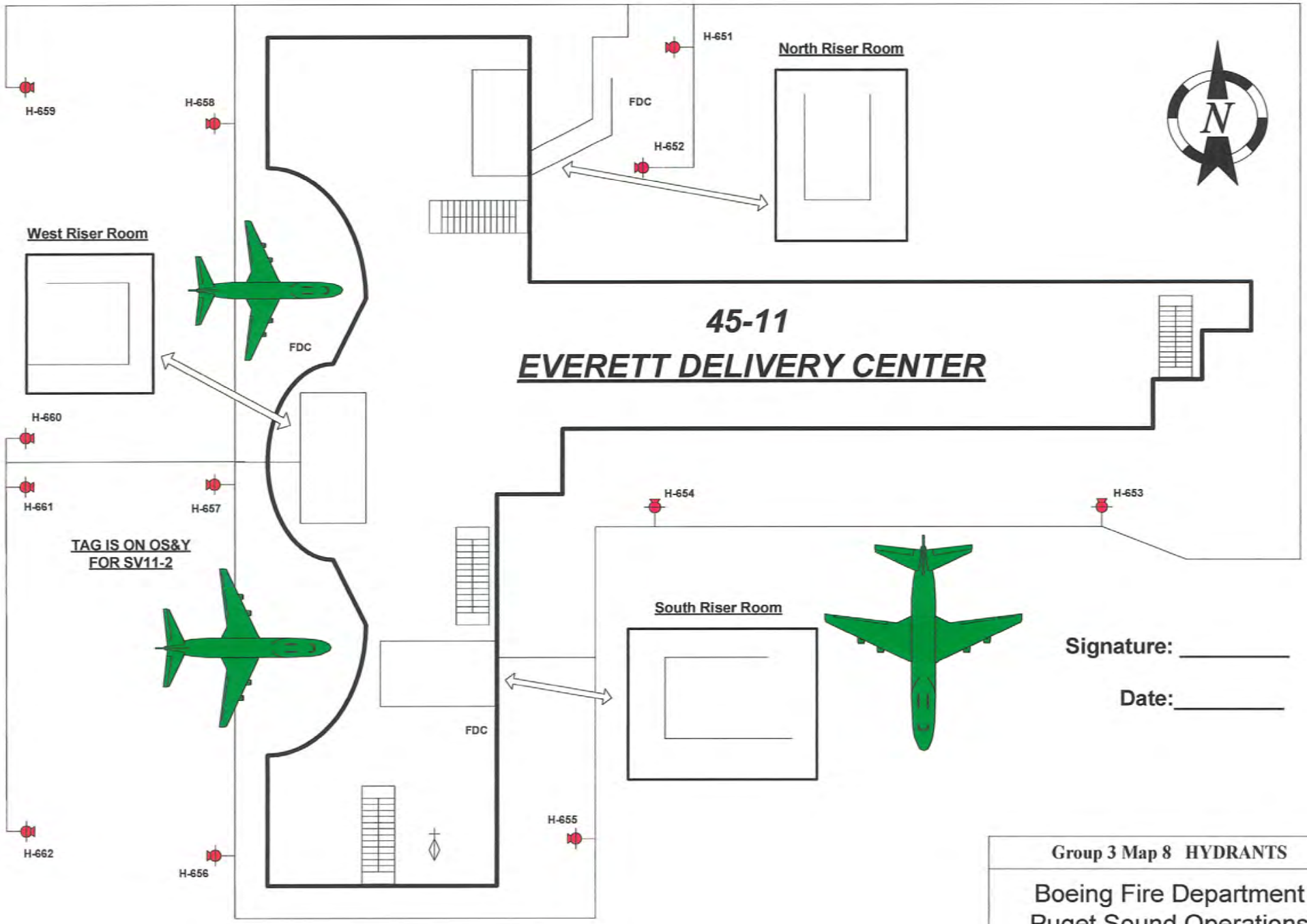
Signature: _____

Date: _____

GROUP 3 MAP 7 HYDRANTS

Boeing Fire Department
Puget Sound Operations

DWG BY: KB / DCO	Datte:03/11/2016
	SCALE: None



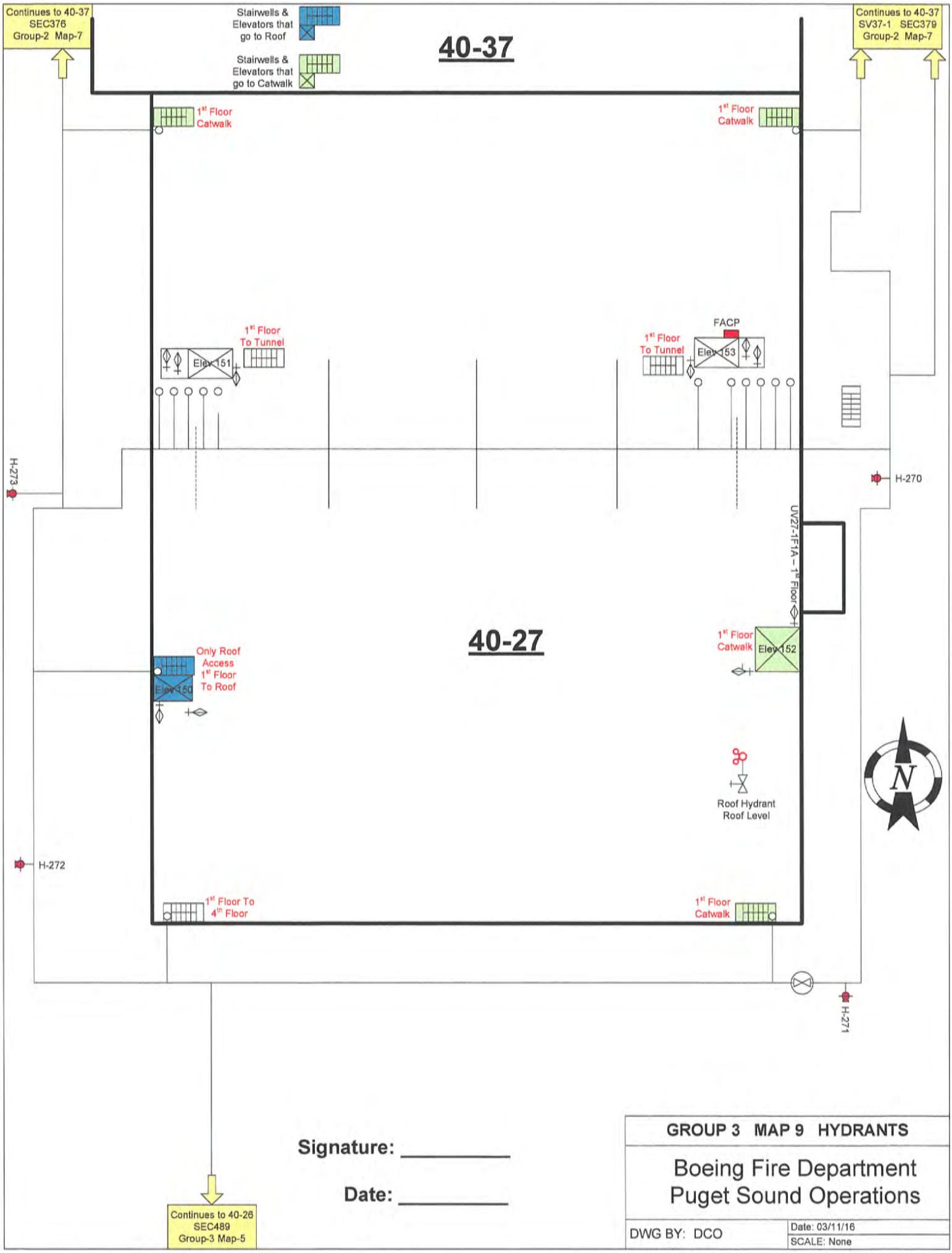
Signature: _____

Date: _____

Group 3 Map 8 HYDRANTS

Boeing Fire Department
Puget Sound Operations

DWG BY: KB / DCO	Date:02/11/2016
	SCALE: None



Signature: _____

Date: _____

GROUP 3 MAP 9 HYDRANTS

Boeing Fire Department
Puget Sound Operations

DWG BY: DCO	Date: 03/11/16
	SCALE: None