Preliminary Technical Information Report

PREPARED FOR:

Bridge Development Partners
10655 NE 4th Street, Suite 500
Bellevue, WA 98004
Contact: Kyle Siekawitch

PROJECT:

Bridge Point Seatac 300
1410 South 200th Street
SeaTac, WA 98148
2200531.10

PREPARED BY:

Matt Whittlesey, EIT
Project Engineer

REVIEWED BY:

Bart Brynestad, PE,
Project Manager

J. Matthew Weber, PE
Principal

DATE:

March 2021

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DATE:

March 2021

3/9/2021

I hereby state that this Technical Information Report for Bridge Point Seatac 300 has been prepared by me or under my supervision and meets the standard of care and expertise that is usual and customary in this community for professional engineers. I understand that City of SeaTac does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me.

Table of Contents

Section 1

Project Overview

1.0 Project Overview

1.1 Purpose and Scope

This report accompanies the Site Plan Review plans and documents for the Bridge Point Seatac 300 development, located at 1410 South 200th Street in SeaTac, King County, Washington. The project proposes construction of three industrial buildings on approximately 16 acres. This project is located in Township 22N, Range 4E, in the SE Quarter of Section 5 of the Willamette Meridian, in King County, Washington. See Figure 1-1 for a Vicinity Map.

The site is located within the city of SeaTac, which has adopted the 2016 *King County Surface Water Design Manual (KCSWDM)*. Per the *KCSWDM*, Flow Control BMPs, Conservation Flow Control, and Basic Water Quality Menus will apply to the proposed development.

1.2 Existing Conditions

The site consists of several developed and undeveloped parcels. The developed parcels are mostly residential uses. The largest constituent parcel consists of the former Maywood Elementary School and play field. The undeveloped parcels are mainly forested, with unmanaged vegetation. The site slopes significantly from east to west, with approximately 70 feet of fall across the site. See Figure 1-2 for the Existing Conditions Map.

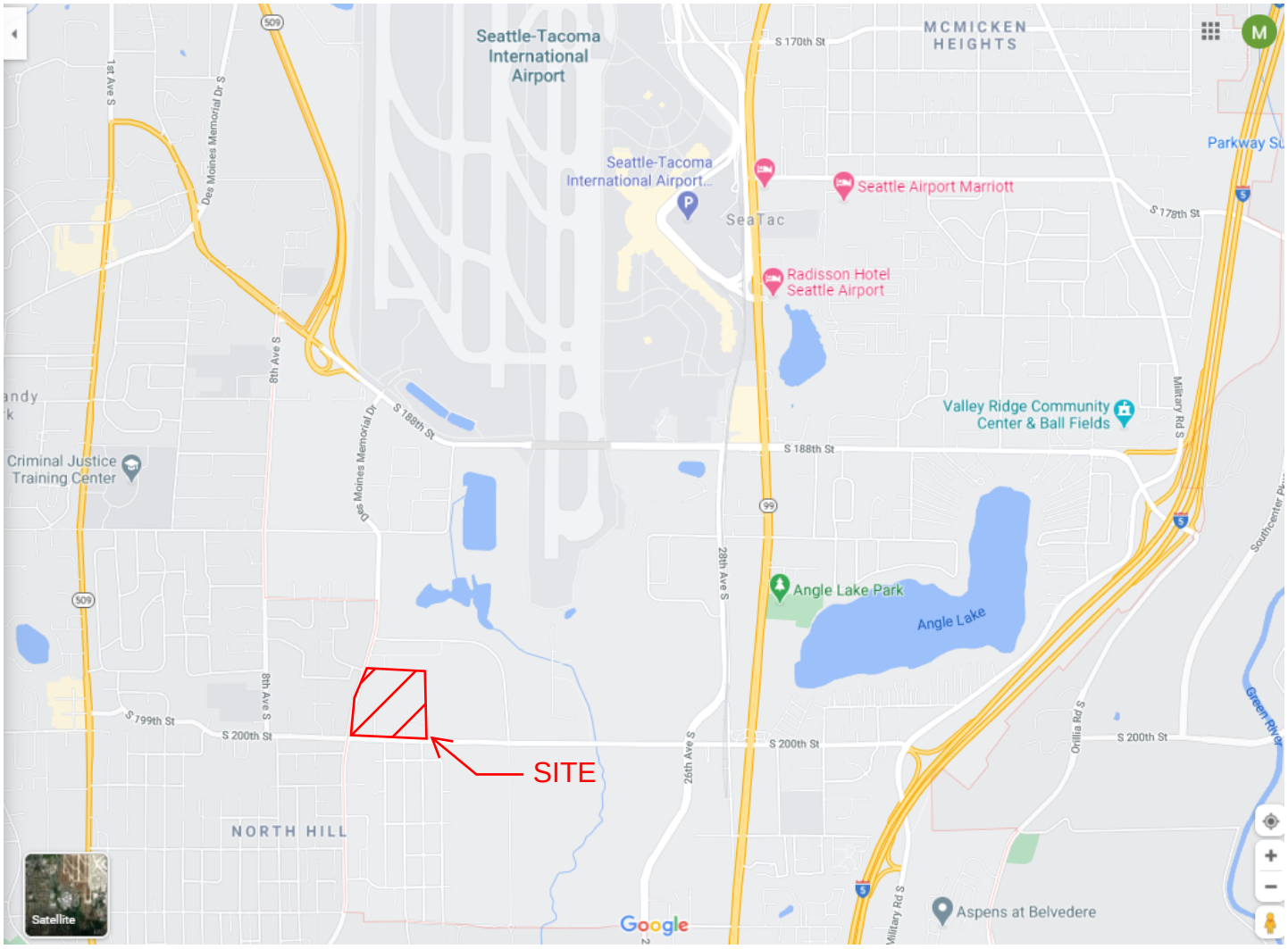
The project site is bounded by South 200th Street to the south, Des Moines Memorial Drive to the west, a mix of industrial development and undeveloped land to the north, and undeveloped land to the east.

1.3 Developed Conditions

The developed conditions will include three high-cube warehouse/distribution center buildings with approximate areas of 64,000 square feet, 90,000 square feet, and 155,000 square feet. The development also proposes associated site improvements such as paving, sidewalks, and utility connections. See the table below for a preliminary summary of the developed areas and Figure 1-3 for a Developed Conditions Map.

Developed Areas			
Surface	Area (SF)	Area (ac)	Area (%)
Roof	310,000	7.12	42.9%
Pavement and Sidewalk	288,966	6.63	40.0%
Landscaping	123,000	2.82	17.0%
Entire Site	721,966	16.57	100.0%

Section 1.0 Figures



AHBL
2215 North 30th Street
Suite 300
Tacoma, WA 98403
253.383.2422 TEL
253.383.2572 FAX

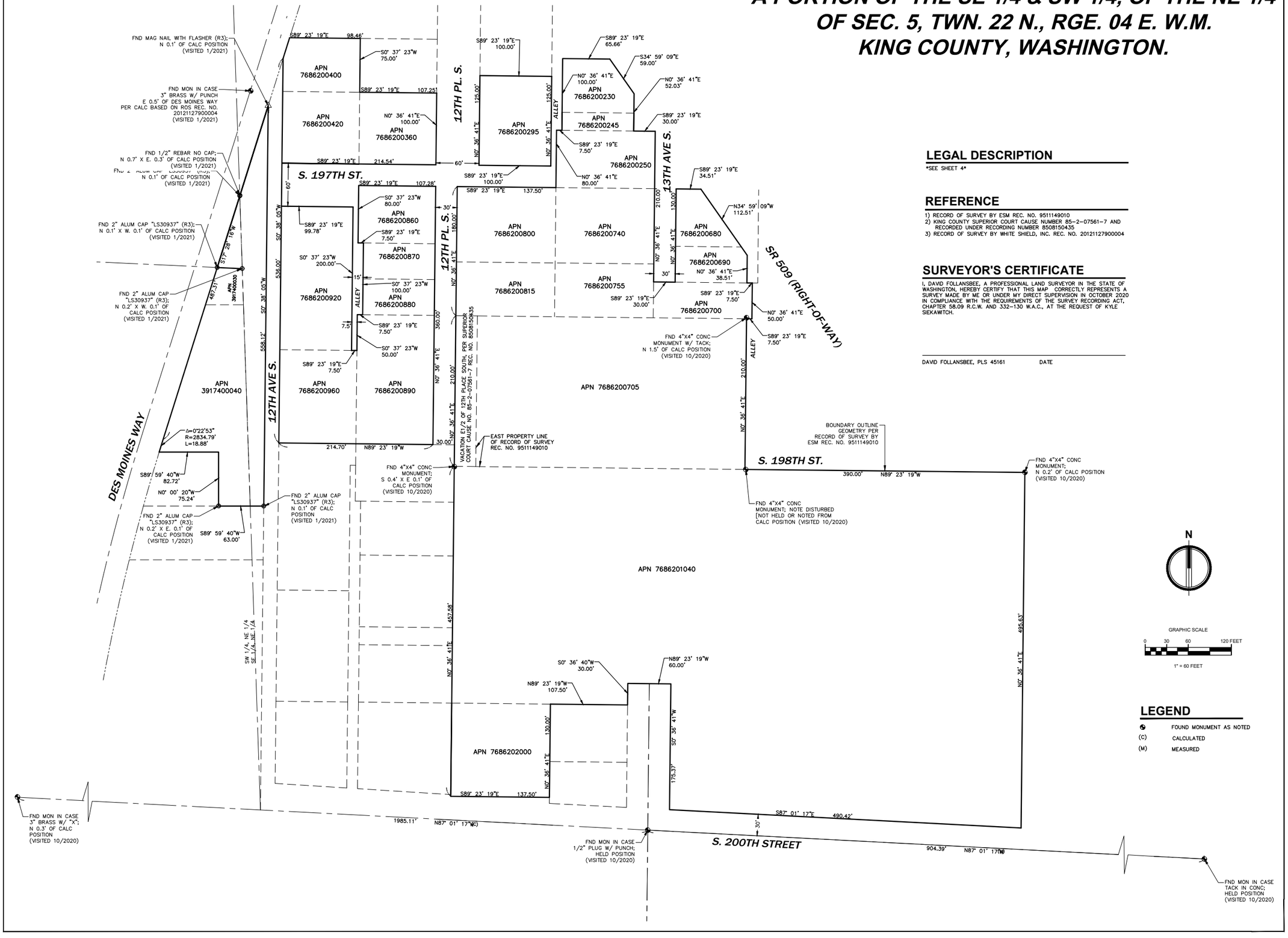
BRIDGE POINT SEATAC 300
2200531.10

VICINITY MAP

EXHIBIT 1-1

BRIDGE SEATAC

A PORTION OF THE SE 1/4 & SW 1/4, OF THE NE 1/4 OF SEC. 5, TWN. 22 N., RGE. 04 E. W.M. KING COUNTY, WASHINGTON.



LEGAL DESCRIPTION

SEE SHEET 4

REFERENCE

1) RECORD OF SURVEY BY ESM REC. NO. 9511149010
2) KING COUNTY SUPERIOR COURT CAUSE NUMBER 85-2-07561-7 AND RECORDED UNDER RECORDING NUMBER 8508150435
3) RECORD OF SURVEY BY WHITE SHIELD, INC. REC. NO. 20121127900004

SURVEYOR'S CERTIFICATE

I, DAVID FOLLANSBEE, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF WASHINGTON, HEREBY CERTIFY THAT THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION IN OCTOBER 2020 IN COMPLIANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT, CHAPTER 58.09 R.C.W. AND 332-130 W.A.C., AT THE REQUEST OF KYLE SIEKAWITCH.

DAVID FOLLANSBEE, PLS 45161 DATE

N

GRAPHIC SCALE
0 30 60 120 FEET
1" = 60 FEET

LEGEND

- FOUND MONUMENT AS NOTED
- (C) CALCULATED
- (M) MEASURED

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2215 North 30th Street, Suite 200 Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:
BRIDGE SEATAC

Client:
BRIDGE DEVELOPMENT PARTNERS, LLC
10655 NE 4TH STREET, SUITE 500
BELLEVUE, WA 98004
KYLE SIEKAWITCH

Job No.
2200531.50

Issue Set & Date:
DECEMBER 8, 2020

DAVID C. FOLLANSBEE — STATE OF WASHINGTON — 45161 — REGISTERED PROFESSIONAL LAND SURVEYOR

2 ADDITIONAL PARCELS ADDED 03/2021 GD
1 ADDITIONAL PARCELS ADDED 02/2021 GD

Revisions:

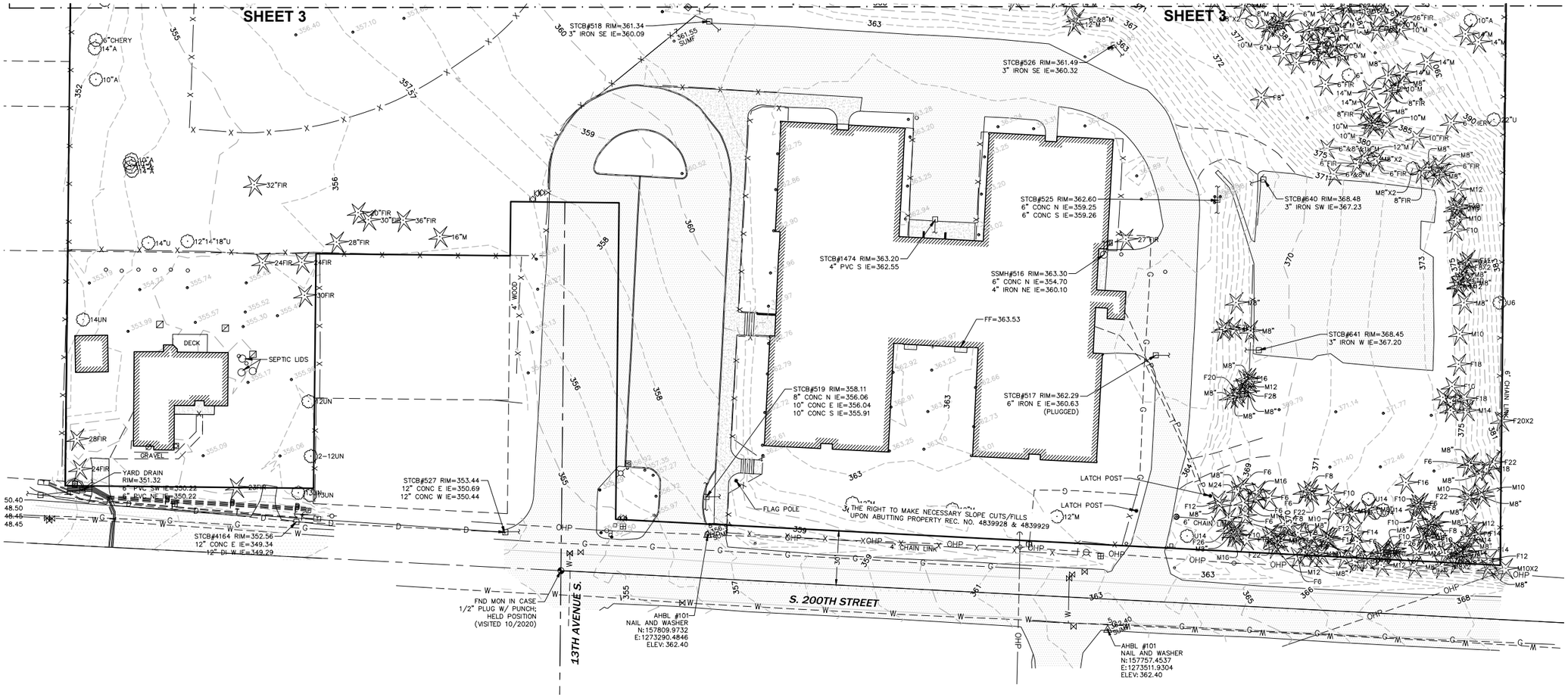
Sheet Title:
TOPOGRAPHIC SURVEY

Designed by:	Drawn by:	Checked by:
	GD	DF

Sheet No.
1
1 of 6 Sheets

BRIDGE SEATAC

A PORTION OF THE SE 1/4 OF THE NE 1/4 OF SEC. 5, TWN. 22 N., RGE. 04 E. W.M.
KING COUNTY, WASHINGTON.



VERTICAL DATUM

NAVD 1988 VERTICAL DATUM ON ORTHOMETRICALLY CORRECTED GPS OBSERVATIONS USING WSRN AND GEOID 2012A.

BASIS OF BEARING

NAD 1983/11
WASHINGTON STATE PLANE NORTH PROJECTION, BASED ON GPS OBSERVATIONS USING WSRN AND GEOID 2012A. UNITS OF MEASUREMENT ARE US SURVEY FEET.

UTILITY NOTES

1. SURFACE UTILITY FACILITIES ARE SHOWN HEREON PER FIELD LOCATED VISIBLE EVIDENCE. THERE MAY BE UTILITIES THAT EXIST ON THIS SITE OTHER THAN THOSE GRAPHICALLY DEPICTED HEREON.

2. UNDERGROUND (BURIED) UTILITIES SHOWN HEREON ARE BASED ON COMBINATIONS OF VISIBLE SURFACE EVIDENCE, UTILITY LOCATOR MARKINGS AND RECORD DATA (SUCH AS AS-BUILT OR UTILITY DESIGN DRAWINGS). ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND, IN SOME CASES, ARE SHOWN AS STRAIGHT LINES BETWEEN FIELD LOCATED SURFACE UTILITY FACILITIES. UNDERGROUND UTILITIES MAY HAVE BENDS, CURVES OR CONNECTIONS WHICH ARE NOT SHOWN.

3. ALTHOUGH LOCATIONS OF UNDERGROUND UTILITIES BASED ON UTILITY LOCATOR MARKINGS AND RECORD DATA (SUCH AS AS-BUILT OR UTILITY DESIGN DRAWINGS) ARE DEEMED RELIABLE, AHBL, INC. ASSUMES NO LIABILITY FOR THE ACCURACY OF SAID DATA.

4. CALL 1-800-424-5555 BEFORE ANY CONSTRUCTION.

EQUIPMENT USED

3" TOTAL STATION UTILIZING STANDARD FIELD TRAVERSE METHODS FOR CONTROL AND STAKING.

LEGEND

- FOUND MONUMENT AS NOTED
- HUB AND TACK
- SET NAIL AND WASHER
- BOLLARD
- SIGN AS NOTED
- UNKNOWN VAULT
- GATE POST
- SANITARY SEWER MANHOLE
- CLEANOUT
- STORM CATCH BASIN
- YARD DRAIN
- GAS METER
- GAS VALVE
- GUY ANCHOR
- UTILITY POWER POLE
- LUMINAIRE
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
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- DECIDUOUS TREE M=MAPLE U=UNKNOWN A=ALDER

- W — WATER LINE
- G — GAS LINE
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- T — COMMUNICATION LINE
- OHP — OVERHEAD UTILITIES
- x—x—x—x— FENCE
- ASPHALT
- CONCRETE

N

GRAPHIC SCALE
0 15 30 60 FEET
1" = 30 FEET

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45161
REGISTERED
PROFESSIONAL LAND SURVEYOR

4 _____
3 _____
2 _____
1 _____

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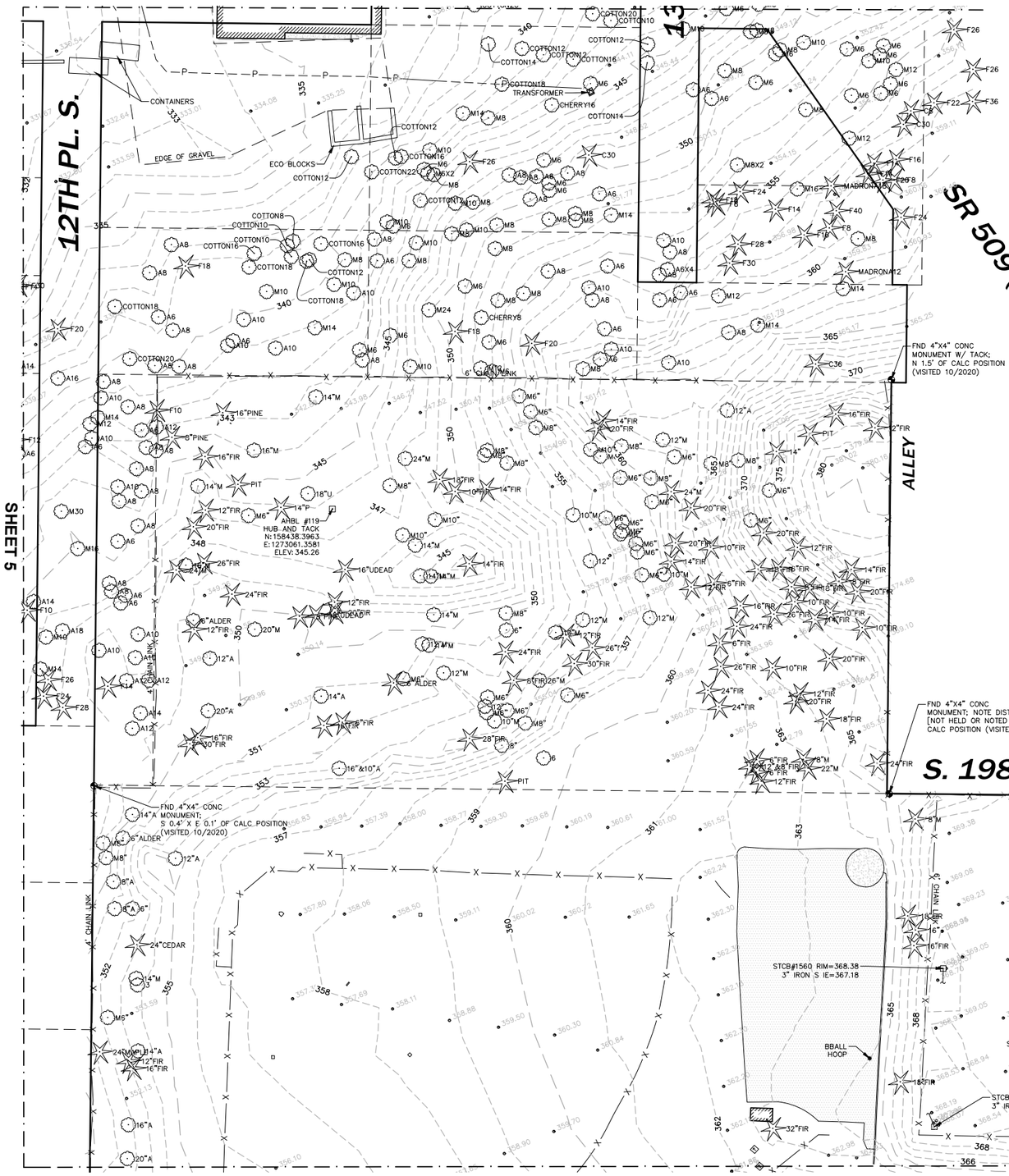

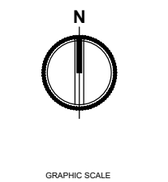

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DAVID C. FOLLANSBEE STATE OF WASHINGTON 15161 REGISTERED PROFESSIONAL LAND SURVEYOR

Revisions:
- 4
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- 2
- 1

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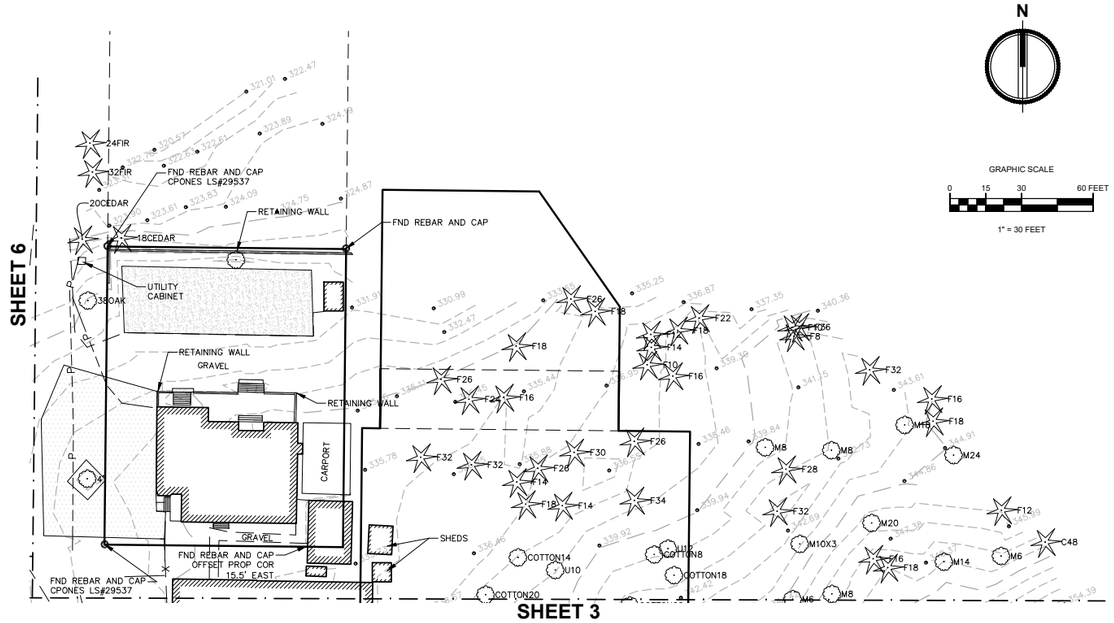

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- OHP — OVERHEAD UTILITIES
- x—x—x—x— FENCE
- ASPHALT
- CONCRETE

LEGAL DESCRIPTION

(APN 7686200705 & 7686201040)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, BY CHICAGO TITLE COMPANY OF WASHINGTON, ORDER NUMBER: 201645-SC, DATED MAY 4, 2020)
LOTS 7 THROUGH 12, BLOCKS 16, 17 AND 18, ALL OF BLOCKS 23, 24, 25, 26, 27 AND 28; AND
ALSO THOSE PORTIONS OF BLOCKS 33, 34, 35 AND 36 LYING NORTH OF SOUTH 200TH STREET;
ALL IN SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, IN KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF 12TH PLACE SOUTH ABUTTING BLOCKS 18 AND 28 AS VACATED UNDER KING COUNTY SUPERIOR COURT CAUSE NUMBER 85-2-07561-7 AND RECORDED UNDER RECORDING NUMBER 8508150435; ALSO TOGETHER WITH ALL VACATED STREETS AND ALLEYS ADJACENT THERETO WHICH ATTACH BY OPERATION OF LAW.

(APN 768620092009)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, ISSUED BY REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NUMBER 5226010550-CB, DATED OCTOBER 26, 2020)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
VACATED LOTS 1 TO 8, INCLUSIVE, BLOCK 20, (ALSO KNOWN AS THE NORTH 200 FEET OF BLOCK 20,
SEELEY'S ADDITION TO DES MOINES), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF
PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 391740003092 & 391740004000)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, ISSUED BY REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NUMBER 5226010552-CB, DATED OCTOBER 26, 2020)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
THAT PORTION OF VACATED BLOCK 5, AND ALL OF VACATED BLOCK 6, KNIGHT'S SECOND ADDITION TO
DES MOINES, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 5 OF PLATS, PAGE 3, RECORDS OF KING COUNTY, WASHINGTON, LYING EAST OF DES MOINES WAY SOUTH;
TOGETHER WITH VACATED PORTION OF STREET AND ALLEY ADJOINING.
PARCEL B:
LOTS 1 THROUGH 10, BLOCK 7, KNIGHT'S SECOND ADDITION TO DES MOINES, ACCORDING TO THE
PLAT THEREOF RECORDED IN VOLUME 5 OF PLATS, PAGE 3, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH VACATED PORTION OF STREET AND ALLEY ADJOINING; AND TOGETHER WITH THAT PORTION OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER IN SECTION 5, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M. , IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:
BEGINNING AT THE SOUTHWEST CORNER OF SAID SUBDIVISION;
THENCE NORTH 3°23'13" WEST, ALONG THE WESTERLY LINE THEREOF, 861.39 FEET TO THE SOUTHEASTERLY MARGIN OF DES MOINES HIGHWAY;
THENCE NORTH 16°00'21" EAST, ALONG SAID SOUTHEASTERLY MARGIN, 132.61 FEET TO ITS INTERSECTION WITH THE WESTERLY LINE OF PLAT OF SEELEY'S ADDITION TO THE CITY OF DES MOINES, ACCORDING TO PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, ON PAGE 59, RECORDS OF KING COUNTY. WASHINGTON;
THENCE SOUTH 0°49'52" EAST, ALONG SAID WESTERLY LINE, 987.46 FEET TO THE POINT OF BEGINNING;
EXCEPT THAT PORTION THEREOF, LYING SOUTHERLY OF THE EASTERLY EXTENSION OF LOT 10, BLOCK 7 OF AFORESAID KNIGHT'S SECOND ADDITION TO DES MOINES.
TOGETHER WITH LOTS 1 THROUGH 7, BLOCK 8, KNIGHT'S SECOND ADDITION TO DES MOINES,
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 5 OF PLATS, PAGE 3, RECORDS OF KING COUNTY, WASHINGTON;
EXCEPT COUNTY ROAD;
TOGETHER WITH VACATED PORTION OF STREET AND ALLEY ADJOINING;
EXCEPT THAT PORTION OF LOTS 1 AND 2 LYING WEST OF DES MOINES WAY SOUTH.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 768620024507)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, ISSUED BY REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NUMBER 5226010555-CB, DATED OCTOBER 26, 2020)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
VACATED LOT 10, BLOCK 7, (ALSO KNOWN AS THE NORTH 25 FEET OF THE SOUTH 75, BLOCK 7, SEELEY'S ADDITION TO DES MOINES), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 768620074007, 768620075509, 768620080004, 768620081507, 768620096000, 768620089005 & 768620086001)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, ISSUED BY REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NUMBER 5226010556-CB, DATED OCTOBER 26, 2020)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
THE NORTH 75 FEET OF BLOCK 17, SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED),
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL B:
THE SOUTH 75 FEET OF THE NORTH 150 FEET OF BLOCK 17, SEELEY'S ADDITION TO THE CITY OF DES
MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59,
RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL C:
THE NORTH 75 FEET OF BLOCK 18, SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED),
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL D:
THE SOUTH 75 FEET OF THE NORTH 150 FEET OF BLOCK 18, SEELEY'S ADDITION TO THE CITY OF DES
MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59,
RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL E:
THE SOUTH 100 OF BLOCK 20, SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED),
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL F:
THE SOUTH 150 FEET OF BLOCK 19, SEELEY'S ADDITION TO THE CITY OF DES MOINES
(VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL G:
THE NORTH 50 FEET OF BLOCK 19, SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED),
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 768620087009 & 768620069007)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, ISSUED BY REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NUMBER 5226010557-CB, DATED OCTOBER 26, 2020)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
THE SOUTH 50 FEET OF THE NORTH 100 FEET OF BLOCK 19, SEELEY'S ADDITION TO THE CITY OF DES
MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59,
RECORDS OF KING COUNTY, WASHINGTON;
PARCEL B:
THE SOUTH 50 FEET OF THE NORTH 100 FEET OF BLOCK 16, SEELEY'S ADDITION TO THE CITY OF DES
MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59,
RECORDS OF KING COUNTY, WASHINGTON;
EXCEPT THAT PORTION THEREOF CONVEYED TO THE STATE OF WASHINGTON BY DEED RECORDED UNDER RECORDING NO. 2008040902184.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 768620025009, 768620068009 & 768620070005)
(PER ALTA COMMITMENT FOR TITLE INSURANCE, ISSUED BY REPUBLIC NATIONAL TITLE INSURANCE COMPANY, ORDER NUMBER 5226010560-CB, DATED OCTOBER 26, 2020)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
THE SOUTH 50 FEET OF BLOCK 7, SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED),
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
PARCEL B:
THE NORTH 50 FEET OF BLOCK 16, SEELEY'S ADDITION TO THE CITY OF DES MOINES (VACATED),
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
EXCEPT THAT PORTION THEREOF CONVEYED TO THE STATE OF WASHINGTON BY DEED RECORDED UNDER RECORDING NO. 2008040902184.
PARCEL C:
THE NORTH 50 FEET OF THE SOUTH 200 FEET OF BLOCK 16, SEELEY'S ADDITION TO THE CITY OF DES
MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59,
RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF VACATED ROAD AND ALLEY ADJOINING PER KING COUNTY SUPERIOR COURT CAUSE NO. 85-2-07561-7, RECORDED UNDER RECORDING NO. 8508150435.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 768620088007)
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THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
THE SOUTH 50 FEET OF THE NORTH 150 FEET OF BLOCK 19, SEELEY'S ADDITION TO THE CITY OF DES
MOINES (VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59,
RECORDS OF KING COUNTY, WASHINGTON;
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 7686200295)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
THE SOUTH 125 FEET OF VACATED BLOCK 8, SEELY'S ADDITION TO THE CITY OF DES MOINES,
ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 7686200400 & 7686200420)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
PARCEL A:
VACATED LOTS 6, 7 AND 8, BLOCK 10, SEELEY'S ADDITION TO THE CITY OF DES MOINES
(VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF THE VACATED ALLEY ADJOINING, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW.
PARCEL B:
VACATED LOTS 9, 10, 11 AND 12, BLOCK 10, SEELEY'S ADDITION TO THE CITY OF DES MOINES
(VACATED), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF THE VACATED ALLEY ADJOINING, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW.

BOTH SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 7686200230)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
VACATED LOT 10, BLOCK 7, (ALSO KNOWN AS THE NORTH 25 FEET OF THE SOUTH 75, BLOCK 7, SEELEY'S
ADDITION TO DES MOINES), ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 7686202000)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATAC, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
LOTS 1, 2, 3 AND 4, BLOCK 38, SEELEY'S ADDITION TO DES MOINES, ACCORDING TO THE PLAT
THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THOSE PORTIONS OF VACATED ALLEY AND STREETS ADJOINING, THAT ATTACHED BY
OPERATION OF LAW.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

(APN 7686200360)
THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF KING, CITY OF SEATTLE, STATE OF WASHINGTON, AND IS DESCRIBED AS FOLLOWS:
THE SOUTH 100 FEET OF VACATED BLOCK 9, SEELEY'S ADDITION TO THE CITY OF DES MOINES,
"VACATE", ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 59, RECORDS OF KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF THE VACATED ALLEY ADJOINING, WHICH UPON VACATION, ATTACHED TO SAID PREMISES BY OPERATION OF LAW.
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

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253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:
BRIDGE SEATAC

Client:
BRIDGE DEVELOPMENT PARTNERS, LLC
10655 NE 4TH STREET, SUITE 500
BELLEVUE, WA 98004
KYLE SIEKAWITCH

Job No.
2200531.50

Issue Set & Date:
DECEMBER 8, 2020

DAVID C. FOLLANSBEE STATE OF WASHINGTON 15161 REGISTERED PROFESSIONAL LAND SURVEYOR

4 _____
3 _____
2 _____
1 _____
Revisions:

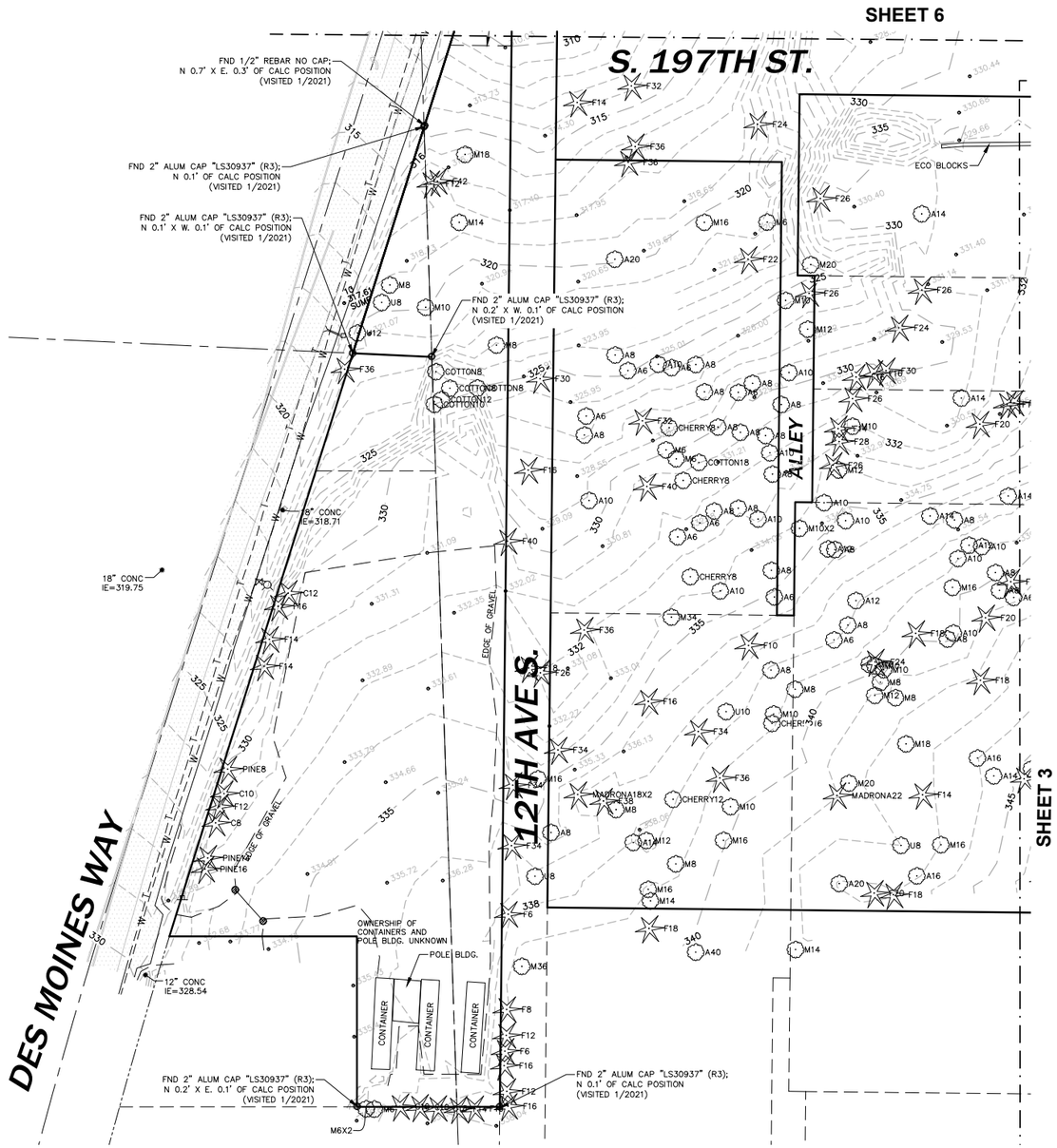
Sheet Title:
TOPOGRAPHIC SURVEY

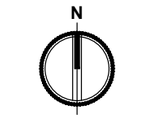
Designed by: | Drawn by: GD | Checked by: DF

Sheet No.
4
4 of 6 Sheets

BRIDGE SEATAC

A PORTION OF THE SE 1/4 OF THE NE 1/4 OF SEC. 5, TWN. 22 N., RGE. 04 E. W.M.
KING COUNTY, WASHINGTON.





GRAPHIC SCALE

0 15 30 60 FEET

1" = 30 FEET

LEGEND

- FOUND MONUMENT AS NOTED
- HUB AND TACK
- SET NAIL AND WASHER
- BOLLARD
- SIGN AS NOTED
- UNKNOWN VAULT
- GATE POST
- SANITARY SEWER MANHOLE
- CLEANOUT
- STORM CATCH BASIN
- YARD DRAIN
- GAS METER
- GAS VALVE
- GUY ANCHOR
- UTILITY POWER POLE
- LUMINAIRE
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- WATER METER
- WATER VALVE
- CONIFEROUS TREE F=FIR M=MADRONA P=PINE C=CEDAR
- DECIDUOUS TREE M=MAPLE U=UNKNOWN A=ALDER
- W — WATER LINE
- G — GAS LINE
- P — ELECTRICAL LINE
- T — COMMUNICATION LINE
- OHP — OVERHEAD UTILITIES
- FENCE
- ASPHALT
- CONCRETE

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10655 NE 4TH STREET, SUITE 500
BELLEVUE, WA 98004

KYLE SIEKAWITCH

Job No.
2200531.50

Issue Set & Date:

DECEMBER 8, 2020

DAVID C. FOLLANSBEE — STATE OF WASHINGTON — 15161 — REGISTERED PROFESSIONAL LAND SURVEYOR

4 _____
3 _____
2 _____
1 _____

Revisions:

Sheet Title:
TOPOGRAPHIC SURVEY

Designed by:	Drawn by:	Checked by:
	GD	DF

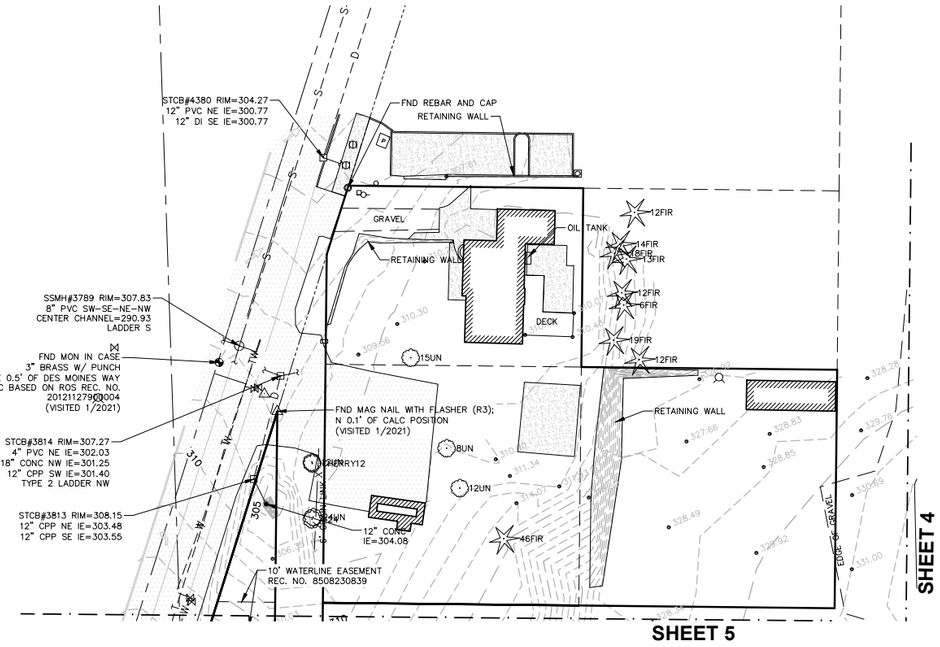
Sheet No.

5

5 of 6 Sheets

BRIDGE SEATAC

A PORTION OF THE SE 1/4 OF THE NE 1/4 OF SEC. 5, TWN. 22 N., RGE. 04 E. W.M.
KING COUNTY, WASHINGTON.



LEGEND

- FOUND MONUMENT AS NOTED
- HUB AND TACK
- SET NAIL AND WASHER
- BOLLARD
- SIGN AS NOTED
- UNKNOWN VAULT
- GATE POST
- SANITARY SEWER MANHOLE
- CLEANOUT
- STORM CATCH BASIN
- YARD DRAIN
- GAS METER
- GAS VALVE
- GUY ANCHOR
- UTILITY POWER POLE
- LUMINAIRE
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- WATER METER
- WATER VALVE
- CONIFEROUS TREE F=FIR M=MADRONA P=PINE C=CEDAR
- DECIDUOUS TREE M=MAPLE U=UNKNOWN A=ALDER

- W — WATER LINE
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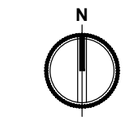
- P — ELECTRICAL LINE
- T — COMMUNICATION LINE
- OHP — OVERHEAD UTILITIES
- x — x — x — x — FENCE
- ASPHALT
- CONCRETE



GRAPHIC SCALE

0 15 30 60 FEET

1" = 30 FEET

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BELLEVUE, WA 98004

KYLE SIEKAWITCH

Job No.
2200531.50

Issue Set & Date:

DECEMBER 8, 2020

DAVID C. FOLLANSBEE — STATE OF WASHINGTON — 15161 — REGISTERED PROFESSIONAL LAND SURVEYOR

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Revisions:

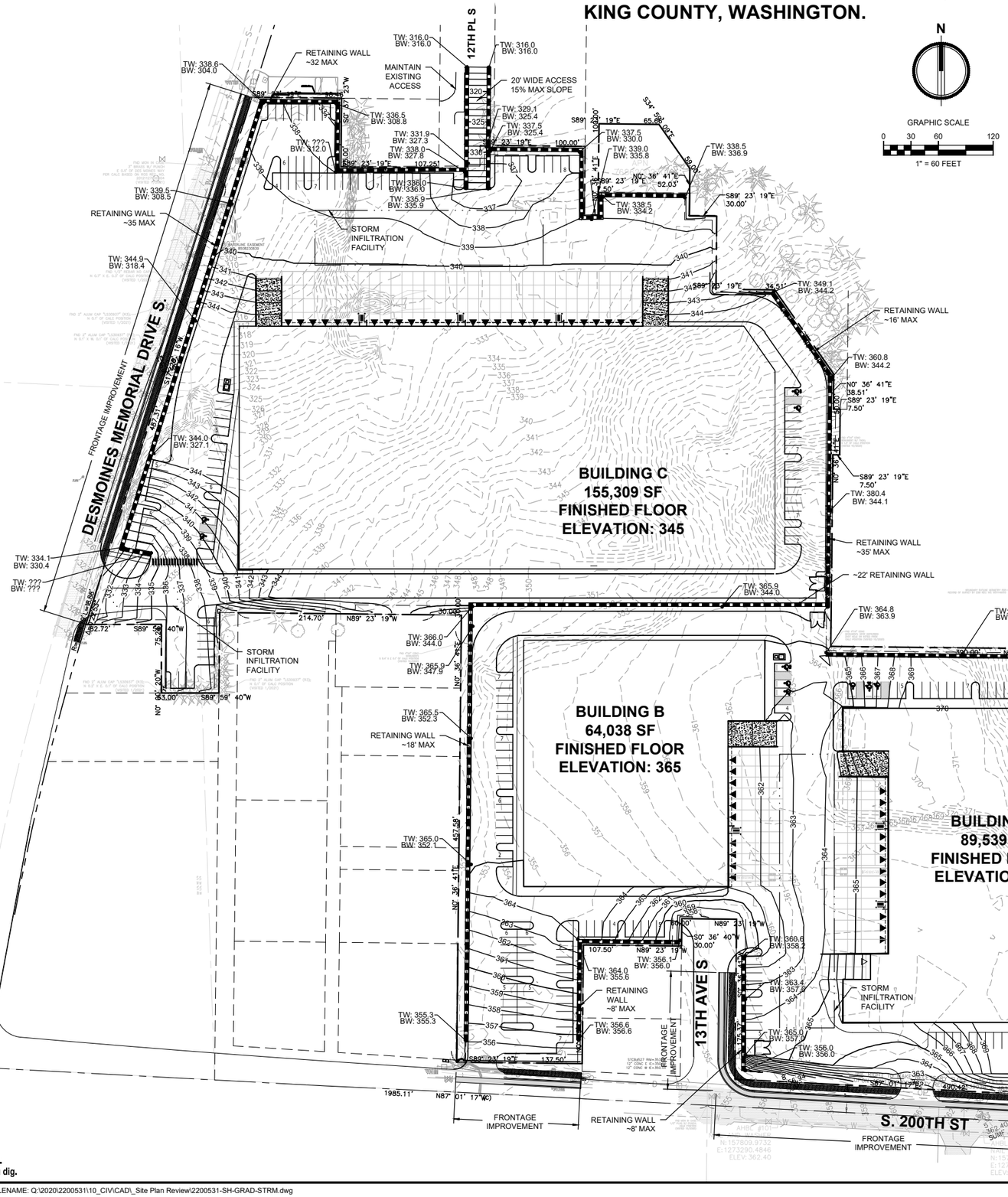
Sheet Title:
TOPOGRAPHIC SURVEY

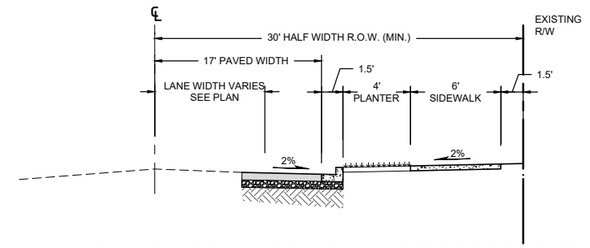
Designed by: | Drawn by: GD | Checked by: DF

Sheet No.
6
5 of 6 Sheets

BRIDGE POINT SEATAC 300

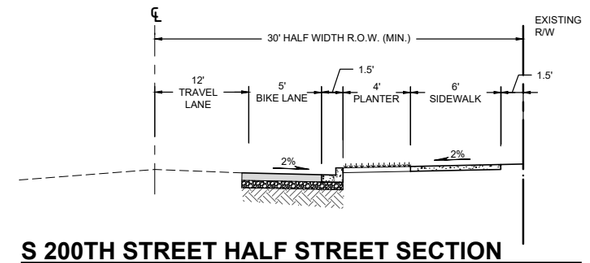
A PORTION OF THE SE 1/4 OF THE NE 1/4 OF SEC. 5, TWN. 22 N., RGE. 04 E. W.M.
KING COUNTY, WASHINGTON.





DES MOINES MEMORIAL DRIVE HALF STREET SECTION

NOT TO SCALE



S 200TH STREET HALF STREET SECTION

NOT TO SCALE

OWNER

BRIDGE DEVELOPMENT PARTNERS, LLC
10655 NE 4TH STREET, SUITE 500
BELLEVUE, WA 98004
CONTACT: KYLE SIEKAWITCH
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SITE ADDRESS

1410 SOUTH 200TH STREET
SEATAC, WA 98198

CIVIL ENGINEER

AHBL
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TACOMA, WA 98403
PH. (253) 383-2422
FAX (253) 383-2572
CONTACT: DAVID FOLLANSBEE, PLS

VERTICAL DATUM

NAVD 1988 VERTICAL DATUM ON ORTHOMETRICALLY CORRECTED GPS OBSERVATIONS USING WSRN AND GEOID 2012A.

BASIS OF BEARING

NAD 1983/11
WASHINGTON STATE PLANE NORTH PROJECTION, BASED ON GPS OBSERVATIONS USING WSRN AND GEOID 2012A. UNITS OF MEASUREMENT ARE US SURVEY FEET.

EARTHWORK QUANTITIES

CUT: 65,500 CY
FILL: 142,500 CY
NET: 77,000 CY FILL

NOTE:
THE ABOVE QUANTITIES ARE ESTIMATES ONLY INTENDED FOR THE PERMITTING PROCESS. DO NOT USE FOR BID PURPOSES. THE QUANTITIES DO NOT HAVE STRIPPING, COMPACTION, OR CUT OR FILL ADJUSTMENT FACTORS APPLIED TO THEM.

811 Know what's below. Call before you dig.

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Project Title:

BRIDGE POINT SEATAC 300

Client:
BRIDGE DEVELOPMENT PARTNERS, LLC
10655 NE 4TH STREET, SUITE 500
BELLEVUE, WA 98004
KYLE SIEKAWITCH
PH: (425) 749-4325

Project No.
2200531.10

Issue Set & Date:
SITE PLAN REVIEW
3/9/2021

J. MATTHEW WEBER — STATE OF WASHINGTON — 24858 — REGISTERED PROFESSIONAL ENGINEER

Revisions:
4
3
2
1

Sheet Title:

PRELIMINARY GRADING AND DRAINAGE PLAN

Designed by:	Drawn by:	Checked by:
MW	TS	BB

Sheet No.

SPR1

1 of 2 Sheets

DATE: March 9, 2021 FILENAME: Q:\2020\2200531\10_CIV\CAD_Site Plan Review\2200531-SH-GRAD-STRM.dwg

Section 2

Conditions and Requirements Summary

2.0 Conditions and Requirements Summary

This project is subject to all core requirements of the *KCSWDM* because it proposes more than 2,000 square feet of new impervious surfaces.

2.1 Core Requirements

2.1.1 CR 1 – Discharge at the Natural Location

The project site will discharge in the natural location. All runoff will be infiltrated onsite. An overflow route from the infiltration facilities will discharge to the ditch along Des Moines Memorial Drive, which is the natural discharge location from the site.

2.1.2 CR 2 – Offsite Analysis

A downstream analysis was performed by AHBL. See Section 3.0 for a description of the downstream and offsite drainage regime.

2.1.3 CR 3 – Flow Control

All runoff will be infiltrated through the proposed onsite infiltration trenches, thus meeting flow control requirements.

2.1.4 CR 4 – Conveyance System

The stormwater facilities have been preliminarily sized as part of this submittal. A full analysis of the conveyance system will be included alongside final engineering plans.

2.1.5 CR 5 – Erosion and Sediment Control

Temporary Erosion and Sediment Control (TESC) Plans and a Stormwater Pollution Prevention Plan (SWPPP) will be prepared under separate cover as a part of the final engineering submittal.

2.1.6 CR 6 – Maintenance and Operations

The onsite stormwater facilities will be maintained by the owner. An Operations and Maintenance manual shall be submitted alongside final engineering plans as required.

2.1.7 CR 7 – Financial Guarantees and Liability

Financial guarantees will be provided, as necessary.

2.1.8 CR 8 – Water Quality

All runoff from pollution generating impervious surfaces (PGIS) will be treated by StormFilter cartridge systems or similar. Facilities have been preliminarily sized as part of this submittal.

2.2 Special Requirements

2.2.1 SR 1 – Other Adopted Area-Specific Requirements

The project is subject to the Des Moines Creek Basin Plan due to its location within that basin. The project is therefore required to provide Level 1 flow control. The project proposes to infiltrate all stormwater onsite, which fulfills the flow control requirement.

2.2.2 SR 2 – Flood Hazard Area Delineation

FEMA Flood Insurance Rate Maps were consulted for this project and show1 the project site within the Zone X area, which is described as areas determined to be outside of the 500-year floodplain. Refer to Figure 2-1 of this section for the Flood Insurance Rate Map.

2.2.3 SR 3 – Flood Protection Facilities

The project does not contain, will not construct, and is not adjacent to any existing flood protection facilities.

2.2.4 SR 4 – Source Controls

The proposed project includes vehicle and trailer parking lots, as well as truck docks. The *King County Stormwater Pollution Prevention Manual (KCSPPM)* will be referenced for source control measures, in addition to erosion and sediment control measures during construction. Construction source controls will be addressed by a Construction SWPPP under separate cover in the final engineering submittal. Post-construction source controls will be addressed by this report during the final engineering plan submittal.

2.2.5 SR 5 – Oil Control

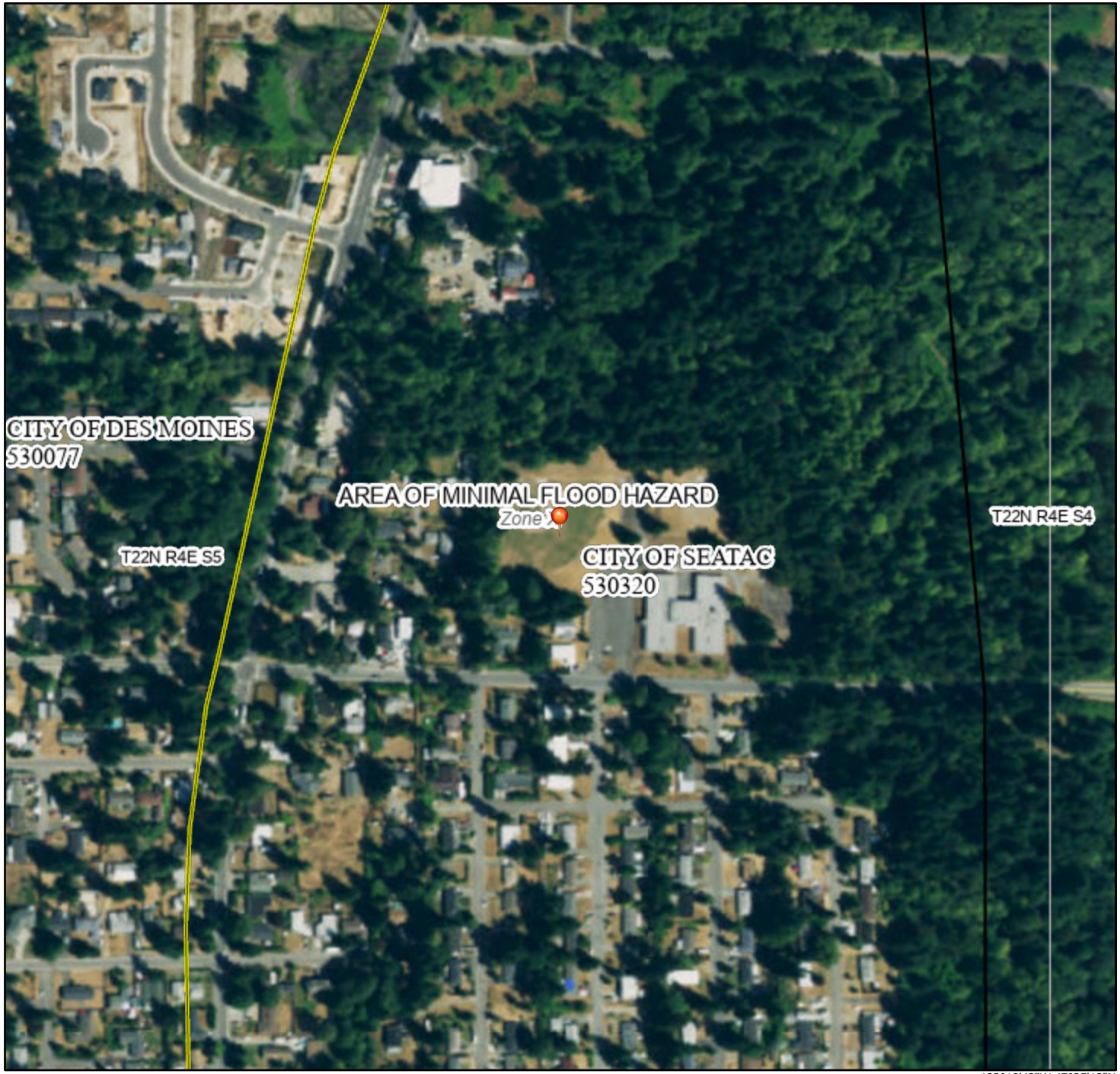
The high-use areas of the site include truck docks and trailer parking. Runoff from these areas will be directed to an oil-water separator prior to treatment. Design of the oil-water separators will be included in the final engineering plans.

Section 2.0 Figures

National Flood Hazard Layer FIRMette

FEMA

122°19'20"W 47°25'38"N



122°18'43"W 47°25'13"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

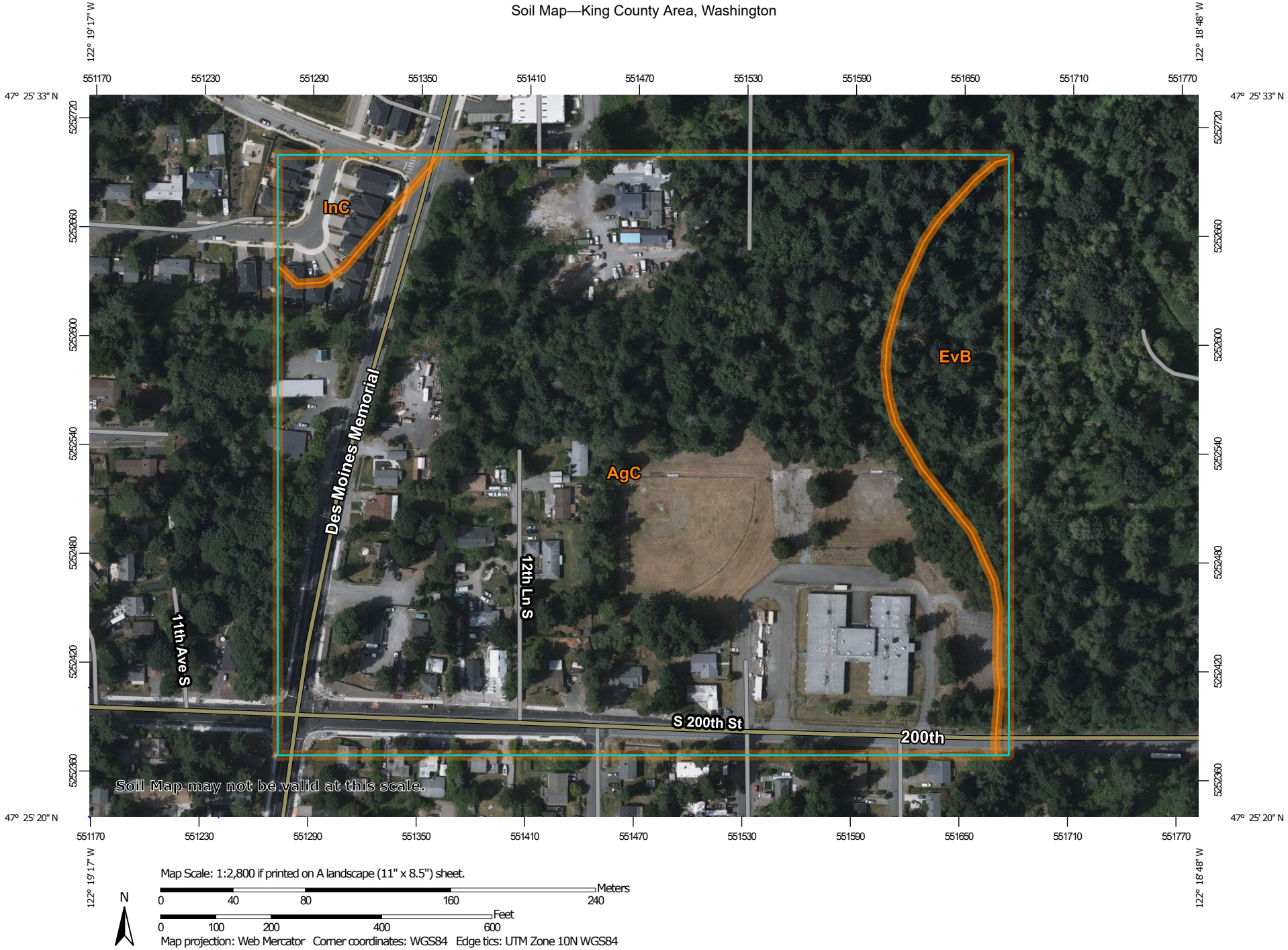
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/17/2021 at 7:29 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 16, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 6, 2020—Jul 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	29.4	88.6%
EvB	Everett very gravelly sandy loam, 0 to 8 percent slopes	2.8	8.3%
InC	Indianola loamy sand, 5 to 15 percent slopes	1.0	3.1%
Totals for Area of Interest		**33.2**	**100.0%**

Water Quality Applications Map

CITY OF SEATAC

Basic Water Quality Treatment Areas

Enhanced Basic Water Quality Treatment Areas

High density single family, multi-family, commercial, and industrial uses, as well as most roads, are subject to Enhanced Basic Water Quality Treatment Requirements. See the Manual for more specific criteria.

Sensitive Lake Treatment Areas
(None)

Identified Sphagnum Bog Wetland
Sunnydale (Tub Lake)

SCALE: 1:28,000

0 0.5 1
Miles

Date prepared November 9, 2009
Data source: King County and City of SeaTac Public Works

Flow Control Applications Map

CITY OF SEATAC

Flow control applications

- Basic Flow Control Areas
- Conservation Flow Control Areas
- Flood Problem Flow Control Areas

Major Receiving Water

(None)

SCALE: 1:28,000

0 0.5 1

Miles

Date prepared November 9, 2009
Data source: King County and City of SeaTac Public Works

Section 3

Offsite Analysis

3.0 Offsite Analysis

AHBL has analyzed offsite drainage to and from the site by reviewing available resources, including the AHBL topographic survey and King County GIS. The site slopes steeply from east to west. In the developed condition, it appears that all runoff is either taken up by vegetation, infiltrated onsite, or drains to the west, with the lowest elevation being the roadside ditch on the east side of Des Moines Memorial Drive. It is likely that frontage improvements will consist of a closed drainage system, replacing the ditch. In the developed condition, all runoff will be infiltrated onsite in stormwater facilities. If an overflow from the infiltration facilities is required, it would likely discharge to the existing storm conveyance system in Des Moines Memorial Drive, as that is as close as possible to the natural downstream location. No drainage from offsite onto the project area is anticipated. AHBL will perform a full Offsite Analysis per the *KCSWDM* along with the final TIR and engineering submittal.

Section 3.0 Figures

Figure 3-1.....Not Used

Section 4

Flow Control and Water Quality Facility Analysis and Design

4.0 Flow Control and Water Quality Facility Analysis and Design

4.1 Flow Control

4.1.1 Existing Site Hydrology (Part A)

The undeveloped portions of the site are forested and generally slope from east to west. It appears that all runoff is infiltrated onsite. Runoff that is not infiltrated may drain to a roadside ditch on the east side of Des Moines Memorial Drive. This will be considered the natural discharge location for any required overflows from infiltration facilities.

4.1.2 Developed Site Hydrology (Part B)

The developed site will consist of three drainage basins. Buildings A and B and their associated paving will comprise a basin, and Building C and its associated paving will comprise another. A third basin will consist of the paved entry area off Des Moines Memorial Drive. Each basin will be served by StormFilter cartridge units (or similar) and underground chamber infiltration facilities. The facilities have been preliminarily sized as a part of this submittal.

4.1.3 Performance Standards (Part C)

Flow Control BMP Requirements

Per the Des Moines Creek Basin Plan, the project is required to provide Level 1 flow control. The project proposes to infiltrate all runoff onsite, which fulfills the flow control requirement.

Water Quality BMP Requirements

All stormwater runoff from PGIS must be treated in accordance with Core Requirement 8 of the 2016 *KCSWDM*. The project is within an Enhanced treatment area according to the City of SeaTac Water Quality Applications Map. Per the *KCSWDM*, Enhanced treatment requirements can be reduced to Basic treatment requirements when stormwater is infiltrated. Since the project proposes to infiltrate all stormwater onsite, Basic treatment will be provided.

Source Controls

The proposed project includes vehicle and trailer parking lots, as well as truck docks. The King County Stormwater Pollution Prevention Manual (KCSPPM) will be referenced for source control measures, in addition to erosion and sediment control measures during construction. Construction source controls will be addressed by a Construction SWPPP under separate cover in the final engineering submittal. Post-construction source controls will be addressed by this report during the final engineering plan submittal.

Oil Controls

The high-use areas of the site include truck docks and trailer parking. Runoff from these areas will be directed to an oil-water separator prior to treatment. Design of the oil-water separators will be included in the final engineering plans.

4.1.4 Flow Control System (Part D)

Flow Control BMPs

All runoff will be infiltrated onsite in three underground gravel infiltration trenches. The trenches have been preliminarily sized using the Western Washington Hydrology Model (WWHM) as part of this submittal.

4.2 Water Quality System (Part E)

Water Quality BMPs

Water quality treatment for PGIS will be achieved through the use of StormFilter cartridge units or similar. The treatment facilities will be sized as part of the final engineering submittal.

4.3 Flow Control BMP (LID)

The project is subject to the requirements of Core Requirement 9. The project will implement the List Approach and will utilize all feasible BMPs required.

The project is subject to the Large Lot BMP Requirements list described in Section 1.2.9.2.2 of the 2016 *KCSWDM.* Each BMP in the list is described below and evaluated for feasibility and applicability. No BMPs are evaluated after full infiltration since it fulfills the BMP requirement for all target surfaces.

1 Full Dispersion

Full dispersion is infeasible because there are no existing forested areas for dispersion.

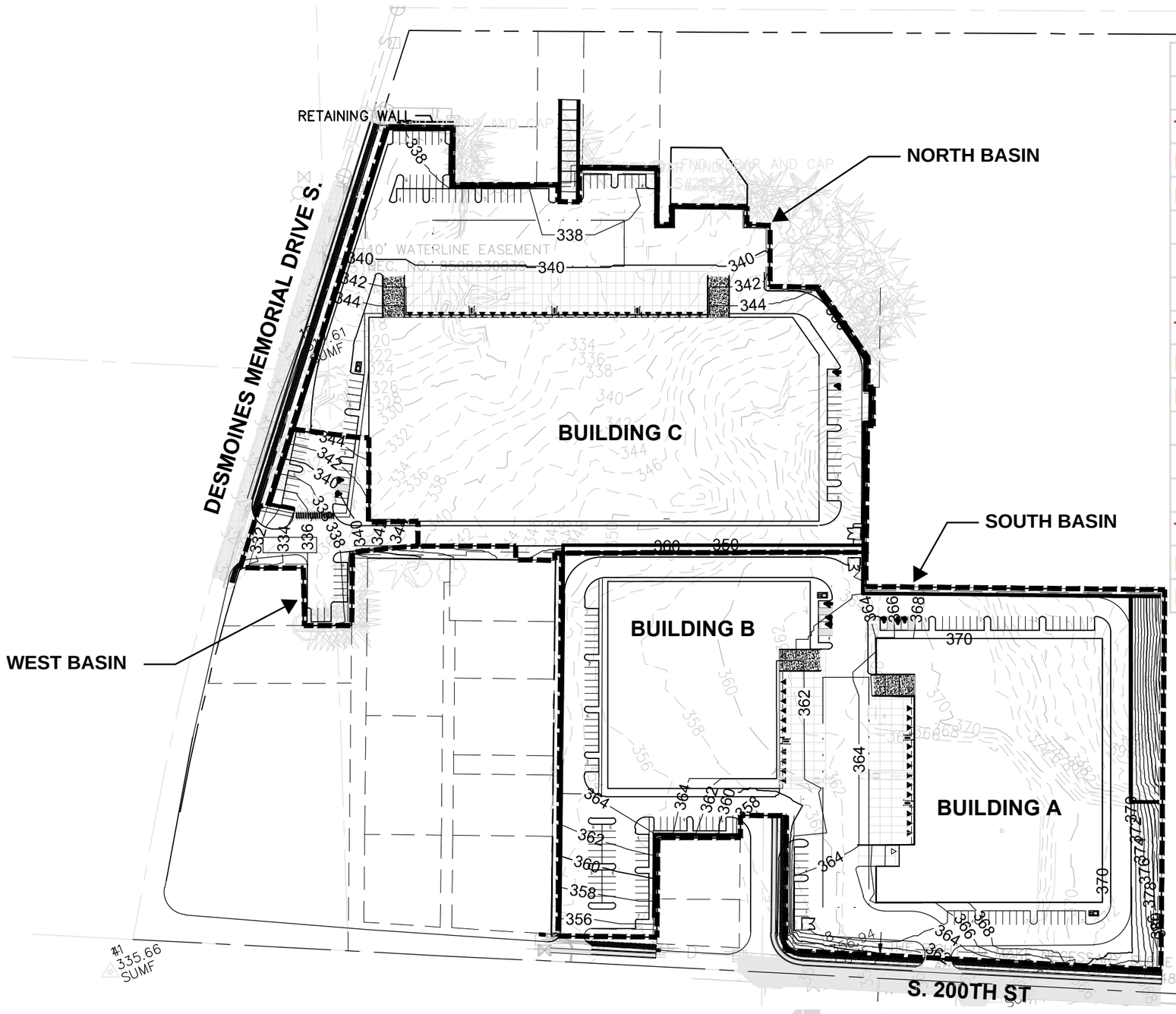
2 Full Infiltration of Roof Runoff

Full infiltration of roof runoff is feasible and is proposed. Roof drains will be directed to the gravel infiltration trenches that will infiltrate all onsite runoff.

3.1 Full Infiltration

Full infiltration is feasible and is proposed. All runoff will be infiltrated onsite in gravel infiltration trenches. The infiltration facilities have been preliminarily sized using WWHM as a part of this submittal. See Figure 4-1 for preliminary facility sizing calculations.

Section 4.0 Figures



North Basin		
	AREA (SF)	AREA (AC)
TOTAL AREA	309639	7.11
IMPERVIOUS (95%)	294157	6.75
PERVIOUS (5%)	15482	0.36

West Basin		
	AREA (SF)	AREA (AC)
TOTAL AREA	30021	0.69
IMPERVIOUS (90%)	27019	0.62
PERVIOUS (10%)	3002	0.07

South Basin		
	AREA (SF)	AREA (AC)
TOTAL AREA	367565	8.44
IMPERVIOUS (95%)	349187	8.02
PERVIOUS (5%)	18378	0.42

N

GRAPHIC SCALE

0 75 150 300

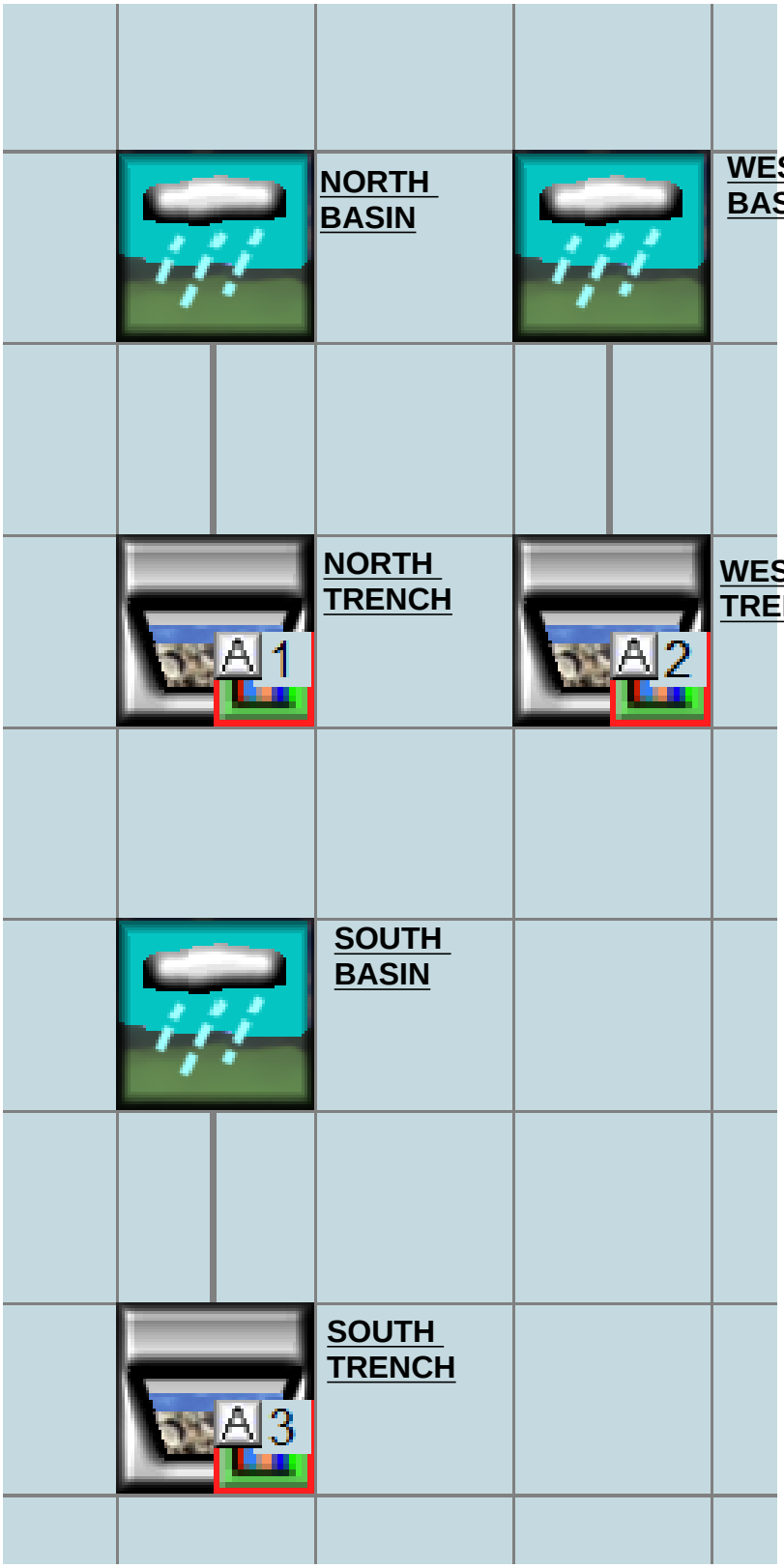
1" = 150 FEET

AHBL
TACOMA.SEATTLE
Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Land Surveyors
Neighbors
2215 North 30th Street, Suite 300, Tacoma, WA 98403 253.383.2422 TEL
316 Occidental Avenue South, Suite 320, Seattle, WA 98104 206.267.2425 TEL

BRIDGE POINT SEATAC 300
2200531.10

BASIN MAP

B-1



AHBL
2215 North 30th Street
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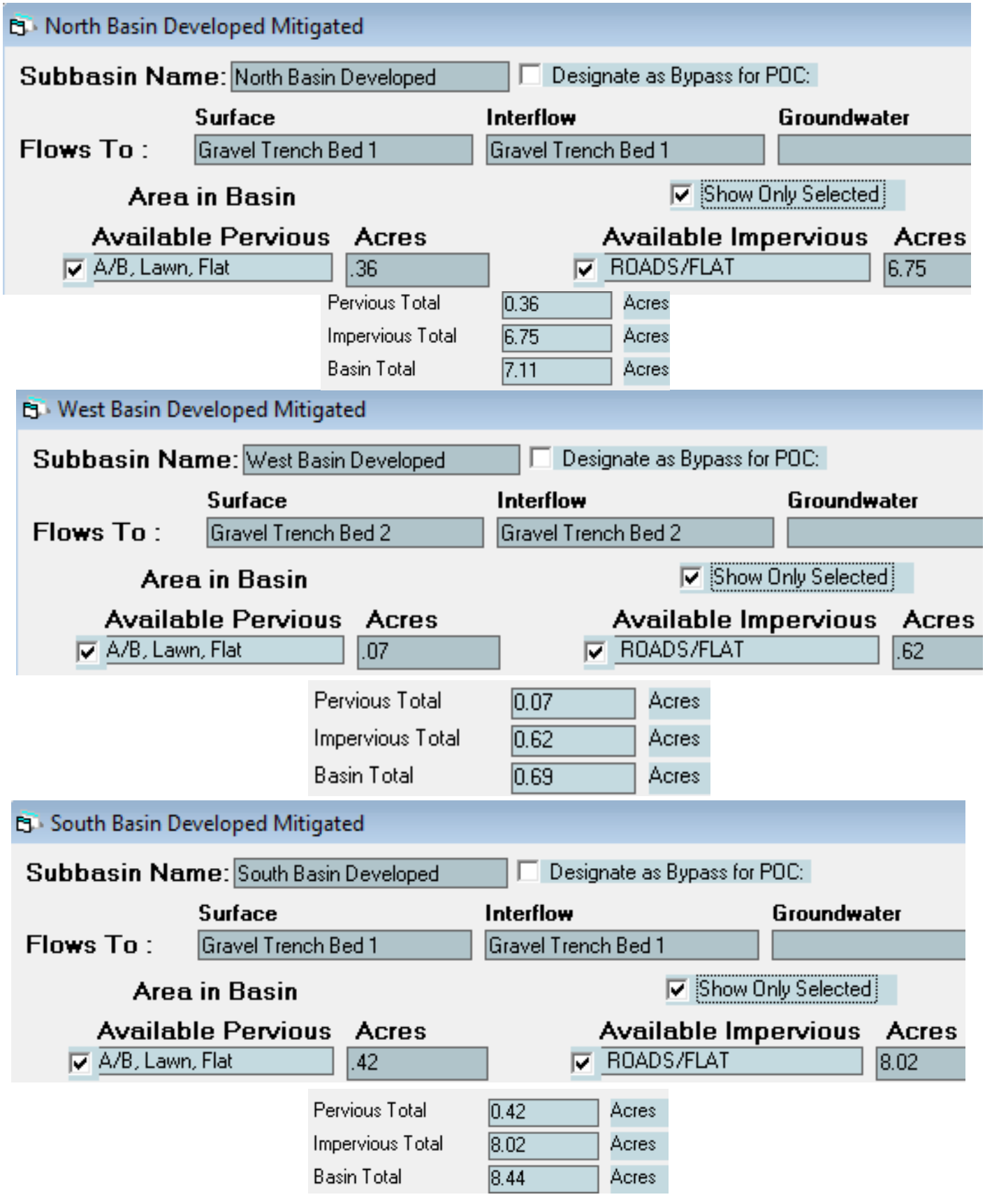
BRIDGE POINT SEATAC 300
2200531.10

PRELIMINARY FLOW CONTROL CALCULATIONS


North Basin Developed Mitigated
Subbasin Name: North Basin Developed
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Gravel Trench Bed 1
Gravel Trench Bed 1
Area in Basin
Show Only Selected
Available Pervious
Acres
Available Impervious
Acres
A/B, Lawn, Flat
.36
ROADS/FLAT
6.75
Pervious Total
0.36
Acres
Impervious Total
6.75
Acres
Basin Total
7.11
Acres
West Basin Developed Mitigated
Subbasin Name: West Basin Developed
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Gravel Trench Bed 2
Gravel Trench Bed 2
Area in Basin
Show Only Selected
Available Pervious
Acres
Available Impervious
Acres
A/B, Lawn, Flat
.07
ROADS/FLAT
.62
Pervious Total
0.07
Acres
Impervious Total
0.62
Acres
Basin Total
0.69
Acres
South Basin Developed Mitigated
Subbasin Name: South Basin Developed
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Gravel Trench Bed 1
Gravel Trench Bed 1
Area in Basin
Show Only Selected
Available Pervious
Acres
Available Impervious
Acres
A/B, Lawn, Flat
.42
ROADS/FLAT
8.02
Pervious Total
0.42
Acres
Impervious Total
8.02
Acres
Basin Total
8.44
Acres

NORTH TRENCH

Gravel Trench Bed 1 Mitigated

Facility Name Gravel Trench Bed 1

	Outlet 1	Outlet 2	Outlet 3
Downstream Connection	0	0	0

Facility Type Gravel Trench/Bed

☐ Precipitation Applied to Facility

☐ Evaporation Applied to Facility

Quick Trench

Facility Dimension Diagram

Facility Dimensions

Trench Length (ft)	60
Trench Bottom Width (ft)	250
Effective Total Depth (ft)	9
Top and bottom slope (H/V)	0
Left Side Slope (H/V)	0
Right Side Slope (H/V)	0

Material Layers for Trench/Bed

Layer 1 Thickness (ft)	8
Layer 1 porosity (0-1)	0.75
Layer 2 Thickness (ft)	0
Layer 2 porosity (0-1)	0.33
Layer 3 Thickness (ft)	0
Layer 3 porosity (0-1)	0.33

Outlet Structure Data

Riser Height (ft)	8
Riser Diameter (in)	48
Riser Type	Flat
Notch Type	

NOTE: PRELIMINARY SIZING IS INTENDED TO APPROXIMATE PORE SPACE OF A STORMTECH CHAMBER SYSTEM OR SIMILAR

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft) 2.101

Infiltration Yes

Measured Infiltration Rate (in/hr)	1
Reduction Factor (infilt*factor)	1
Use Wetted Surface Area (sidewalls)	NO
Total Volume Infiltrated (ac-ft)	1060.934
Total Volume Through Riser (ac-ft)	0.053

Show Trench Open Table

Initial Stage (ft) 0

Total Volume Through Facility (ac-ft) 0

Percent Infiltrated 100

WEST TRENCH

Gravel Trench Bed 2 Mitigated

Facility Name	Gravel Trench Bed 2		
	Outlet 1	**Outlet 2**	**Outlet 3**
Downstream Connection	0	0	0
Facility Type	Gravel Trench/Bed		

☐ Precipitation Applied to Facility

☐ Evaporation Applied to Facility

Quick Trench

Facility Dimension Diagram

Facility Dimensions

Trench Length (ft)	20
Trench Bottom Width (ft)	70
Effective Total Depth (ft)	9
Top and bottom slope (H/V)	0
Left Side Slope (H/V)	0
Right Side Slope (H/V)	0

Material Layers for Trench/Bed

Layer 1 Thickness (ft)	8
Layer 1 porosity (0-1)	0.758
Layer 2 Thickness (ft)	0
Layer 2 porosity (0-1)	0.33
Layer 3 Thickness (ft)	0
Layer 3 porosity (0-1)	0.33

Infiltration

Yes

Measured Infiltration Rate (in/hr)	1
Reduction Factor (infilt*factor)	1
Use Wetted Surface Area (sidewalls)	NO
Total Volume Infiltrated (ac-ft)	97.464
Total Volume Through Riser (ac-ft)	0

Outlet Structure Data

Riser Height (ft)	8
Riser Diameter (in)	48
Riser Type	Flat
Notch Type	

NOTE: PRELIMINARY SIZING IS INTENDED TO APPROXIMATE PORE SPACE OF A STORMTECH CHAMBER SYSTEM OR SIMILAR

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft) .198

Show Trench Open Table

Initial Stage (ft) 0

Total Volume Through Facility (ac-ft) 0

Percent Infiltrated 100

SOUTH TRENCH

Gravel Trench Bed 1 Mitigated

Facility Name	Gravel Trench Bed 1		
	Outlet 1	**Outlet 2**	**Outlet 3**
Downstream Connection	0	0	0
Facility Type	Gravel Trench/Bed		

☐ Precipitation Applied to Facility

☐ Evaporation Applied to Facility

Quick Trench

Facility Dimension Diagram

Facility Dimensions

Trench Length (ft)	60
Trench Bottom Width (ft)	300
Effective Total Depth (ft)	9
Top and bottom slope (H/V)	0
Left Side Slope (H/V)	0
Right Side Slope (H/V)	0

Material Layers for Trench/Bed

Layer 1 Thickness (ft)	8
Layer 1 porosity (0-1)	0.75
Layer 2 Thickness (ft)	0
Layer 2 porosity (0-1)	0.33
Layer 3 Thickness (ft)	0
Layer 3 porosity (0-1)	0.33

Infiltration

Infiltration: Yes

Measured Infiltration Rate (in/hr)	1
Reduction Factor (infilt*factor)	1
Use Wetted Surface Area (sidewalls)	NO
Total Volume Infiltrated (ac-ft)	1260.543
Total Volume Through Riser (ac-ft)	0.031

Outlet Structure Data

Riser Height (ft)	8
Riser Diameter (in)	48
Riser Type	Flat
Notch Type	

NOTE: PRELIMINARY SIZING IS INTENDED TO APPROXIMATE PORE SPACE OF A STORMTECH CHAMBER SYSTEM OR SIMILAR

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft) 2.521

Show Trench Open Table

Initial Stage (ft) 0

Total Volume Through Facility (ac-ft) 0

Percent Infiltrated 100

Section 5

Conveyance System Analysis and Design

5.0 Conveyance System Analysis and Design

All conveyance systems will be sized to convey the 25-year storm event. A full conveyance system analysis will be included with the final engineering submittal.

Section 5.0 Figures

Figure 5-1.....Not Used

Section 6

Special Reports and Studies

6.0 Special Reports and Studies

The Geotechnical Report by Terra Associates, Inc. is included as Appendix A. The report is dated January 25, 2017.

Section 7

Other Permits

7.0 Other Permits

In addition to the site development permit, the following permits will be required:

- Construction Stormwater National Pollutant Discharge Elimination System (NPDES) Permit
- Grading Permit (if early grading is proposed prior to full project approval)
- Building Permits for proposed structures and retaining walls

Section 8

CSWPPP Analysis and Design

8.0 CSWPPP Analysis and Design

A Construction SWPPP will be included with the final engineering submittal.

Section 9

Bond Quantities, Declaration of Covenant, and Facility Summaries

9.0 Bond Quantities, Declaration of Covenant, and Facility Summaries

Bond Quantity Worksheets, Declarations of Covenants and Facility Summary Worksheets will be provided as required with the final engineering submittal.

Section 9.0 Figures

Section 10

Operations and Maintenance Plan

10.0 Operations and Maintenance Plan

The proposed stormwater facilities will be privately owned and maintained. A detailed Operations and Maintenance Plan will be included with the final engineering submittal.

Section 10.0 Figures

Section 11

Conclusion

11.0 Conclusion

This site has been designed to meet the 2016 *KCSWDM*, as adopted by the City of SeaTac. The project incorporates stormwater facilities to treat and infiltrate runoff from the site. Flow calculations/modeling used King County standards for sizing stormwater conveyance networks and treatment facilities.

It was determined using these criteria that:

- Infiltration facilities have been designed to meet the required Flow Control standard.
- Water quality facilities have been designed to meet the basic water quality treatment level for the site.
- Pipe networks are designed to be of adequate size to effectively convey the 25-year storm event.

This analysis is based on data and records either supplied to or obtained by AHBL. These documents are referenced within the text of the analysis. The analysis has been prepared using procedures and practices within the standard accepted practices of the industry. We conclude that this project, as schematically represented, will not create any new problems within the downstream drainage system. This project will not noticeably aggravate any existing downstream problems due to either water quality or quantity.

AHBL, Inc.

Matt Whittlesey
Project Engineer

MKW/

March 2021

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Appendix A

Geotechnical Report
Terra Associates, Inc.
January 25, 2017

DRAFT

GEOTECHNICAL REPORT

Maywood Elementary Site
1410 – South 200th Street
SeaTac, Washington

Project No. T-8402

Terra Associates, Inc.

Prepared for:

Bridge Development Partners
Bellevue, Washington

October 28, 2020
Revised January 25, 2021

TERRA ASSOCIATES, Inc.
Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

October 28, 2020
Revised January 25, 2021
Project No. T-8402

Mr. Kyle Siekawitch
Bridge Development Partners
10655 – NE 4th Street, Suite 500
Bellevue, Washington 98004

DRAFT

Subject: Geotechnical Report
Maywood Elementary Site
1410 – South 200th Street
SeaTac, Washington

Dear Mr. Siekawitch:

As requested, we have conducted a geotechnical engineering study for the subject project. The attached report presents our findings and recommendations for the geotechnical aspects of project design and construction.

In general, the soil conditions at the site consisted of approximately 7 to 12 inches of topsoil overlying approximately 2 to 6 feet of fill material consisting of medium dense silty sand or sand with silt and gravel, overlying dense silty sand with gravel, silty sand, sand with silt and gravel, and sand to the termination of the test pits. The soil conditions observed in the test borings were consistent with those observed in the test pits except no fill material was observed overlying the native soils. The fill material observed in the northern portion of the site (Test Pits TP-102, TP-103, and TP-105) had abundant roots and debris to depths of four to six feet.

No groundwater seepage was observed during our explorations except in test pits TP-101 and TP-103. In these test pits, groundwater was observed at depths of 3 and 6 feet below existing grade, respectively. The groundwater appeared to be perched on top of the underlying medium dense to dense native soils and likely the groundwater, where encountered at the site, is shallower during the wet winter months. However, the volume of the perched groundwater would be expected to be minor with minimal impacts to the proposed development.

In our opinion, the soil conditions we observed at the site will be suitable for support of the proposed development, provided the recommendations presented in this report are incorporated into project design and construction.

We trust the information presented in this report is sufficient for your current needs. If you have any questions or require additional information, please call.

Sincerely yours,
TERRA ASSOCIATES, INC.

Zakeyo Ngoma, P.E.
Project Engineer

Carolyn S. Decker, P.E.
Project Engineer

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Figures

Appendix

Geotechnical Report
Maywood Elementary Site
1410 – South 200th Street
SeaTac, Washington

1.0 PROJECT DESCRIPTION

The project consists of redeveloping the site with three industrial buildings along with associated access and utilities. Review of the site plan prepared by Nelson dated October 30, 2020, shows an approximately 113,000 square-foot building in the northwest portion of the site, a smaller approximately 65,000 square-foot building in the middle of the site, and an approximately 91,000 square-foot building in the southeastern portion of the site. Retaining walls are planned in the northwest corner of the site and along the eastern property lines. Site stormwater will be collected and directed to a stormwater facility in the north-central portion of the site. Based on the existing topography, we expect the grading to achieve building lots and roadway elevations will be around 5 to 20 feet of cut or fill across the majority of the site.

We expect the structures will be constructed using precast concrete tilt-up wall panels with interior isolated columns supporting the roof framing. The floor slab will be constructed at-grade with dock-high loading. Structural loading is expected to be relatively light with isolated building columns carrying 100 to 150 kips and continuous bearing walls carrying 4 to 6 kips per foot. Product loading on the floor slab is not expected to exceed 350 pounds per square foot.

The recommendations in the following sections of this report are based on the design discussed above. If actual features vary or changes are made, we should review the plans in order to modify our recommendations, as required. We should review final design drawings and specifications to verify our recommendations have been properly interpreted and incorporated into the project design.

2.0 SCOPE OF WORK

Our work was completed in accordance with our authorized proposal, revised September 1, 2020. Accordingly, on October 13, 2020, we observed soil and groundwater conditions by excavating 6 test pits to depths of approximately 8 to 14 feet below existing site grades using a track-mounted excavator. On October 15, 2020, we supplemented this data by drilling 3 test borings to a maximum depth of about 41.5 feet. On December 31, 2020, we further supplemented this data by excavating 5 test pits in the northwestern portion of the site to depths of approximately 8 to 10.5 feet below existing site grades using a track-mounted excavator. Using this data, along with laboratory testing, we performed analyses to develop geotechnical recommendations for project design and construction. Specifically, this report addresses the following:

- Soil and groundwater conditions.
- Geologic hazards per the City of SeaTac Municipal Code.

- Seismic
- Site preparation and grading.
- Foundations
- Floor slabs.
- Lateral earth pressures for wall design.
- Infiltration feasibility.
- Subsurface drainage.
- Utilities
- Pavements

It should be noted, recommendations outlined in this report regarding drainage are associated with soil strength, design earth pressures, erosion, and stability. Design and performance issues with respect to moisture as it relates to the structure environment are beyond Terra Associates, Inc.'s purview. A building envelope specialist or contractor should be consulted to address these issues, as needed.

3.0 SITE CONDITIONS

3.1 Surface

The project site consists of 20 tax parcels totaling approximately 15 acres located at and north of 1410 – South 200th Street in SeaTac, Washington. The approximate site location is shown on Figure 1.

The majority of the site is currently developed with an elementary school and associated playfields, parking, and utilities. The northern and eastern-most properties are heavily forested. The western most property is developed as a gravel storage yard. Where developed, site topography is generally flat with some sloping toward the school from the upper play field, located north of the building and the parking located east of the building. The forested areas are steeper than the remainder of the site. Overall topographical relief is about 50 feet, sloping down from east to northwest.

3.2 Subsurface

In general, the soil conditions at the site generally consisted of approximately 7 to 12 inches of topsoil overlying approximately 2 to 6 feet of fill material consisting of medium dense silty sand or sand with silt and gravel, overlying dense silty sand with gravel, silty sand, sand with silt and gravel, and sand to the termination of the test pits. The soil conditions observed in the test borings were consistent with those observed in the test pits except no fill material was observed overlying the native soils. The fill material observed in the northern portion of the site (Test Pits TP-102, TP-103, and TP-105) had abundant roots and debris to depths of four to six feet.

The *Geologic Map of the Tacoma 1:100,000-scale Quadrangle, Washington*, by J. Eric Schuster, Ashley A. Cabibbo, Joseph F. Schilter, and Ian J. Hubert (2015) shows the western half of the site soils are mapped as Vashon Till (Qgt) and the eastern half of the site is mapped as Advance Outwash (Qga). The soils observed in the test pits and test borings are generally consistent with this mapping.

The preceding discussion is intended to be a general review of the soil conditions encountered. For more detailed descriptions, please refer to the Test Pit Logs and Test Boring Logs in Appendix A. The approximate location of the test pits and test borings are shown on Figure 2.

3.3 Groundwater

Minor groundwater seepage was observed in Test Pits TP-101 and TP-103 at depths of 3 and 6 feet below existing grade, respectively. The groundwater appeared to be perched on top of the underlying medium dense to dense native soils. The volume of the perched groundwater would be expected to be minor with minimal impacts to the proposed development.

3.4 Geologic Hazards

While the SeaTac Municipal Code (SMC) does not specifically define geologically hazardous areas. Section 15.700.015 of the SMC defines critical areas as areas including "coal mine hazard areas, erosion hazard areas, flood hazard areas, landslide hazard areas, seismic hazard areas, steep slope hazard areas, streams, volcanic hazard areas, wetlands and critical aquifer recharge areas." Based on these critical areas, we evaluated current site conditions for the presence of geologic hazards including erosion and landslide hazard areas, seismic hazard areas, mine hazard areas, and volcanic hazard areas.

3.4.1 Erosion Hazard Areas

Erosion Hazard Areas are typically defined as areas that are underlain by soils that are classified by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) as having a severe or very severe potential for erosion.

The United States Department of Agriculture NRCS (formerly the SCS) has mapped the site soils as Alderwood gravelly sandy loam, 8 to 15 percent slopes and Everett very gravelly sandy loam, 0 to 8 percent slopes. These soils will have a slight to moderate potential for erosion when disturbed. Therefore, the site does not meet typical definitions for erosion hazard areas. Regardless, erosion protection measures as required by the City of SeaTac will need to be in place prior to initiating grading activities on the site. This would include perimeter silt fencing to contain erosion onsite and cover measures to prevent or reduce soil erosion during and following construction.

3.4.2 Steep Slope Hazard Areas

Section 15.700.015 of the SMC defines a steep slope hazard area as "those areas in the City on slopes of forty percent (40%) or greater within a vertical elevation change of at least twenty (20) feet. A slope is delineated by establishing its toe and top and is measured by averaging the inclination over at least ten (10) feet of vertical relief."

Based on our field observations and review of available topographic information, it is our opinion that slope areas meeting the criteria defining steep slope hazard areas are not present at the site. We did not observe any indications of instability, persistent seepage, or significant active erosion on the site slopes.

3.4.3 Seismic Hazard Areas

Section 15.700.015 of the SMC defines a steep slope hazard area as "those areas in the City subject to severe risk of earthquake damage as a result of soil liquefaction in areas underlain by cohesionless soils of low density and usually in association with a shallow groundwater table or other seismically induced settlement."

Liquefaction is a phenomenon where there is a reduction or complete loss of soil strength due to an increase in water pressure induced by vibrations. Liquefaction mainly affects geologically recent deposits of fine-grained sand that is below the groundwater table. Soils of this nature derive their strength from intergranular friction. The generated water pressure or pore pressure essentially separates the soil grains and eliminates this intergranular friction; thus, eliminating the soil's strength.

Considering the site is underlain by glacially consolidated and overridden sediments, the potential for earthquake damage at the site resulting from seismically induced differential settlement, and ground shaking is negligible in our opinion. Therefore, according to the SMC, the site is not considered a seismic hazard area.

3.5 Seismic Design Parameters

Based on soil conditions observed in the test pits and our knowledge of the area geology, per the current International Building Code (IBC), site class "D" should be used in structural design.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 General

Based on our study, in our opinion, there are no geotechnical considerations that would preclude development of the site, as currently planned. The buildings can then be supported on conventional spread footings bearing on competent native soils below the organic surficial soils or on structural fill placed and compacted above these competent native soils. Floor slabs and pavements can be similarly supported.

The exception to this is in the vicinity of Test Pits TP-102, TP-103, and TP-105 where the fill soils contain abundant roots and debris that would not be suitable for building support. This material will have to be removed to depths of up to six feet below existing grade and replaced with compacted structural fill prior to excavating for foundations.

The sand and gravel soils observed throughout the site would be suitable for use as structural fill during most weather conditions. The upper layers of silty soils contain a sufficient amount of fines such that they will be difficult to compact as structural fill when too wet. Accordingly, the ability to use the soils from site excavations as structural fill will depend on their moisture content and the prevailing weather conditions at the time of construction. Depending on the excavation depth and volume of clean sand soils available, and if grading activities will take place during the winter season, the owner should be prepared to import free-draining granular material for use as structural fill and backfill.

The following sections provide detailed recommendations regarding the preceding issues and other geotechnical design and construction considerations. These recommendations should be incorporated into the final design drawings and construction specifications.

4.2 Site Preparation and Grading

To prepare the site for construction, all vegetation and organic surface soils should be stripped and removed from below the building lots and roadway areas. Surface stripping depths of approximately 7 to 12 inches should be expected to remove the organic surficial soils. Soil containing organic material will not be suitable for use as structural fill, but may be used for limited depths in nonstructural areas. In the developed portions of the site, demolition of existing structures should include removal of existing foundations and abandonment of underground septic systems and other buried utilities. Abandoned utility pipes that fall outside of the new building areas can be left in place provided they are sealed to prevent intrusion of groundwater seepage and soil.

In the northern portion of the site (Test Pits TP-102, TP-103, and TP-105), over-excavation of the fill material consisting of roots and debris will have to be removed to depths of up to six feet below existing grade and replaced with compacted structural fill. The lateral extent of the over-excavation will need to be determined in the field during grading.

Once stripping and demolition operations are complete, cut and fill operations can be initiated to establish desired grades. Prior to placing fill, all exposed bearing surfaces should be observed by a representative of Terra Associates, Inc. to verify soil conditions are as expected and suitable for support of building foundations and pavement elements or placement of structural fill. Our representative may request proofrolling the exposed surface with a heavy rubber-tired vehicle to determine if any isolated soft and yielding areas are present. If unsuitable yielding areas are observed, they should be cut to firm bearing soil and filled to grade with structural fill. If depth of excavation to remove unstable soils is excessive, use of geotextile fabric such as Mirafi 500X or equivalent in conjunction with structural fill can be considered in order to limit the depth of removal. Our experience has shown, in general, a minimum of 18 inches of a clean, granular structural fill placed and compacted over the geotextile fabric should establish a stable bearing surface.

Our study indicates the existing fill material and silty sand native soils contains a sufficient percentage of fines (silt and clay-sized particles) that will make them difficult to compact as structural fill if they are too wet or too dry. Accordingly, the ability to use the existing fill and silty sand soils as structural fill will depend on their moisture content and the prevailing weather conditions when site grading activities take place. If wet soils are encountered, the contractor will need to dry the soils by aeration during dry weather conditions. Alternatively, the use of an additive such as Portland cement or lime to stabilize the soil moisture can be considered. If the soil is amended, additional Best Management Practices (BMPs) addressing the potential for elevated pH levels will need to be included in the Stormwater Pollution Prevention Program (SWPPP) prepared with the Temporary Erosion and Sedimentation Control (TESC) plan. The cleaner sand and gravel should be suitable for use as structural fill year-round.

If grading activities are planned during the wet winter months, or if they are initiated during the summer and extend into fall and winter, the owner should be prepared to import wet-weather structural fill. For this purpose, we recommend importing a granular soil that meets the following grading requirements:

U.S. Sieve Size	Percent Passing
6 inches	100
No. 4	75 maximum
No. 200	5 maximum*

* Based on the ¾-inch fraction.

Prior to use, Terra Associates, Inc. should examine and test all materials imported to the site for use as structural fill.

Structural fill should be placed in uniform loose layers not exceeding 12 inches and compacted to a minimum of 95 percent of the soil's maximum dry density, as determined by American Society for Testing and Materials (ASTM) Test Designation D-1557 (Modified Proctor). The moisture content of the soil at the time of compaction should be within two percent of its optimum, as determined by this ASTM standard. In nonstructural areas, the degree of compaction can be reduced to 90 percent.

4.4 Foundation Support

The buildings may be supported on conventional isolated or continuous footing foundations bearing on competent native soils or new structural fill placed above competent soils. Foundation subgrades should be prepared as recommended in Section 4.2 of this report. Perimeter foundations exposed to the weather should be at a minimum depth of 18 inches below final exterior grades for frost protection. Interior foundations can be constructed at any convenient depth below the floor slab.

As noted above, the existing fill material in the vicinity of Test Pits TP-102, TP-13, and TP-105 would not be suitable for building support. Over-excavation of four to six feet should be expected in the vicinity of these test pits. The lateral extent of the over-excavation should be determined in the field during grading.

We recommend designing foundations supported on competent soils for a net allowable bearing capacity of 2,500 pounds per square foot (psf). For short-term loads, such as wind and seismic, a one-third increase in this allowable capacity can be used. With the anticipated building loads and this bearing stress applied to the soil, we estimate total foundation settlement would not exceed one inch.

For designing foundations to resist lateral loads, a base friction coefficient of 0.35 can be used. Passive earth pressures acting on the side of the footing and buried portion of the foundation stem wall can also be considered. We recommend calculating this lateral resistance using an equivalent fluid weight of 350 pcf. We recommend not including the upper 12 inches of soil in this computation because they can be affected by weather or disturbed by future grading activity. This value assumes the foundation will be constructed neat against competent native soil or backfilled with structural fill as described in Section 4.2 of this report. The values recommended include a safety factor of 1.5.

4.5 Slab-on-Grade Floors

Slab-on-grade floors may be supported on a subgrade as recommended in Section 4.2. Immediately below the floor slab, we recommend placing a four-inch thick capillary break layer composed of clean, coarse sand or fine gravel that has less than three percent passing the No. 200 sieve. This material will reduce the potential for upward capillary movement of water through the underlying soil and subsequent wetting of the floor slab.

The capillary break layer will not prevent moisture intrusion through the slab caused by water vapor transmission. Where moisture by vapor transmission is undesirable, such as covered floor areas, a common practice is to place a durable plastic membrane on the capillary break layer and then cover the membrane with a layer of clean sand or fine gravel to protect it from damage during construction, and to aid in uniform curing of the concrete slab. It should be noted, if the sand or gravel layer overlying the membrane is saturated prior to pouring the slab, it will not be effective in assisting uniform curing of the slab and can actually serve as a water supply for moisture bleeding through the slab, potentially affecting floor coverings. Covering the membrane with a layer of sand or gravel should be avoided if floor slab construction occurs during the wet winter months and the layer cannot be effectively drained. We recommend floor designers and contractors refer to the current American Concrete Institute (ACI) Manual of Concrete Practice for further information regarding vapor barrier installation below slab-on-grade floors.

4.6 Lateral Earth Pressures on Lower-Level Walls

The magnitude of earth pressure development on retaining walls will partly depend on the quality of the wall backfill. We recommend placing and compacting wall backfill as structural fill as described in Section 4.2 of this report. To guard against hydrostatic pressure development, drainage must be installed behind the wall. A typical wall drainage detail is shown on Figure 3.

With wall backfill placed and compacted as recommended and drainage properly installed, we recommend designing unrestrained walls for an active earth pressure equivalent to a fluid weighing 35 pounds per cubic foot (pcf). For restrained walls, an additional uniform load of 100 psf should be added to the 35 pcf. To account for typical traffic surcharge loading, the walls can be designed for an additional imaginary height of two feet (two-foot soil surcharge). For evaluation of wall performance under seismic loading, a uniform pressure equivalent to 8H psf, where H is the height of the below-grade portion of the wall should be applied in addition to the static lateral earth pressure. These values assume a horizontal backfill condition and no other surcharge loading, sloping embankments, or adjacent buildings will act on the wall. If such conditions exist, then the imposed loading must be included in the wall design. Friction at the base of foundations and passive earth pressure will provide resistance to these lateral loads. Values for these parameters are provided in Section 4.4 of this report.

4.7 Infiltration Feasibility

Our evaluation of feasibility for site infiltration as a means for site stormwater disposal was based on review of the Test Pit Logs, Test Boring Logs, and laboratory grain size distribution testing. Based on our evaluation of soil conditions, discharge of development stormwater by use of infiltration may be feasible for facilities that are founded in the sand and gravel formation typically observed approximately 10 feet below current site grades. The ability to utilize infiltration should be based on the proposed location of the facilities with additional analysis undertaken to determine the depth of the infiltratable soils.

We used the Soil Grain Size Analysis Method as outlined in Volume III Section 3.3.6 of the *2014 Washington State Department of Ecology Stormwater Management Manual for Western Washington*, to determine a preliminary long-term design infiltration rate. This method correlates the saturated hydraulic conductivity with the D_{10}, D_{60}, and D_{90} particle sizes determined from gradation testing of the soils in accordance with ASTM Test Designation D-422. The D_{10} particle size represents the grain size below which ten percent of the soil is smaller in size. The D_{60} particle size represents the grain size below which 60 percent of the soil is smaller in size. The D_{90} particle size represents the grain size below which 90 percent of the soil is smaller in size. The particle sizes are put in the Massman formula to determine the saturated hydraulic conductivity. Gradation curves from laboratory testing on the soils are attached in Appendix A. Based on the results of the testing, a long-term design infiltration rate of one inch per hour can be used.

In the absence of a groundwater mounding analysis, the 2016 *King County Surface Water Design Manual* (KCSWDM) requires a minimum five-foot separation between the bottom of the infiltration facility and the seasonal high groundwater elevation. A separation of three feet may be considered if a groundwater mounding analysis demonstrates the facility would function and not overflow. Groundwater was not observed at the time of exploration. For design purposes, we recommend placing the groundwater at 30 feet below current site grades.

We recommend a representative of Terra Associates, Inc. observe the subgrade of the infiltration facility during construction to ensure the soils exposed are as expected and suitable for infiltration of development stormwater.

Our analysis included size factors that were assumed based on our experience. Once the facilities have been sized and located, we will need to perform onsite infiltration tests in accordance with the 2016 KCSWDM to confirm the design infiltration rates.

The permeability of the native sand and gravel soils will be significantly impacted by the intrusion of soil fines (silt- and clay-sized particles). Even a relatively minor amount of soil fines can reduce the permeability of the formation by a factor of ten. The greatest exposure to soil fines contamination will occur during mass grading and construction. Therefore, we recommend that the Temporary Erosion and Sedimentation Control (TESC) plans route construction stormwater to a location other than the permanent infiltration trenches.

4.8 Drainage

Subsurface

Installation of perimeter foundation drains will not be required where site pavements extend to the building perimeters and positive drainage away from the building is provided. Where landscaping is placed adjacent the buildings, we recommend installing a continuous drain along the outside lower edge of the perimeter building foundations. The drains can be laid to grade at an invert elevation equivalent to the bottom of footing grade. The drains can consist of four-inch diameter perforated PVC pipe that is enveloped in washed pea gravel-sized drainage aggregate. The aggregate should extend six inches above and to the sides of the pipe. Roof and foundation drains should be tightlined separately to the storm drains. All drains should be provided with cleanouts at easily accessible locations.

4.9 Utilities

Utility pipes should be bedded and backfilled in accordance with American Public Works Association (APWA) or the local jurisdiction's specifications. At a minimum, trench backfill should be placed and compacted as structural fill, as described in Section 4.2 of this report. As noted, depending on the soil moisture when excavated most inorganic native soils on the site should be suitable for use as backfill material during dry weather conditions. However, if utility construction takes place during the wet winter months, it will likely be necessary to import suitable wet-weather fill for utility trench backfilling. The deeper sands and gravels should be suitable to reuse as structural fill in most weather conditions.

4.10 Pavement

Pavements should be constructed on subgrades prepared as recommended in Section 4.2 of this report. Regardless of the degree of relative compaction achieved, the subgrade must be firm and relatively unyielding before paving. Proofrolling the subgrade with heavy construction equipment should be completed to verify this condition.

The pavement design section is dependent upon the supporting capability of the subgrade soils and the traffic conditions to which it will be subjected. We expect traffic at the facility will consist of cars and light trucks, along with heavy traffic in the form of semi-trucks. For design considerations, we have assumed traffic in parking and in car/light truck access pavement areas can be represented by an 18-kip Equivalent Single Axle Loading (ESAL) of 50,000 over a 20-year design life. For heavy traffic pavement areas, we have assumed an ESAL of 300,000 would be representative of the expected loading. These ESALs represent loading approximately equivalent to 3 and 18, loaded (80,000-pound GVW) tractor-trailer rigs traversing the pavement daily in each area, respectively.

With a stable subgrade prepared as recommended for the design ESAL values, we recommend the following pavement sections:

Light Traffic/Car Access:

- Two inches of hot mix asphalt (HMA) over four inches of crushed rock
- Full depth HMA – 3.5 inches

Heavy Traffic/Truck Access:

- Three inches of HMA over six inches of crushed rock
- Full depth HMA – 5 inches

For exterior Portland cement concrete (PCC) pavement, we recommend the following:

- 6 inches of PCC over two inches of crushed surfacing top course
    - 28 day compressive strength – 4,000 psi
    - Control joints spaced at a maximum of 15 feet

The paving materials used should conform to the Washington State Department of Transportation (WSDOT) specifications for half-inch class HMA, PCC, and CRB.

Long-term pavement performance will depend on surface drainage. A poorly drained pavement section will be subject to premature failure resulting from surface water infiltrating the subgrade soils and reducing their supporting capability. For optimum performance, we recommend surface drainage gradients of at least two percent. Some degree of longitudinal and transverse cracking of the pavement surface should be expected over time. Regular maintenance should be planned to seal cracks as they occur.

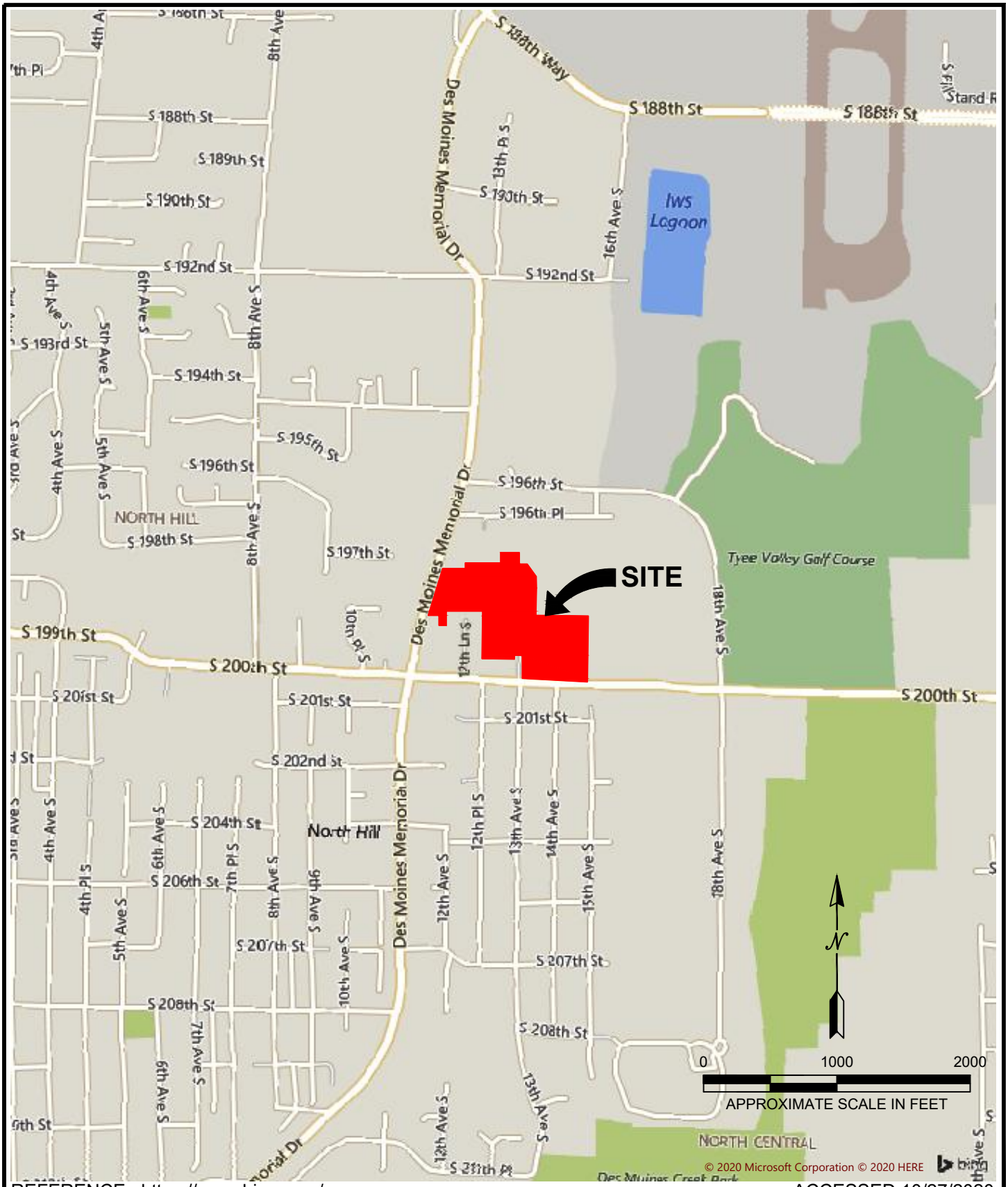
5.0 ADDITIONAL SERVICES

Terra Associates, Inc. should review the final design drawings and specifications in order to verify that earthwork and foundation recommendations have been properly interpreted and implemented in project design. We should also provide geotechnical service during construction to observe compliance with our design concepts, specifications, and recommendations. This will allow for design changes if subsurface conditions differ from those anticipated prior to the start of construction.

6.0 LIMITATIONS

We prepared this report in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made. This report is the copyrighted property of Terra Associates, Inc. and is intended for specific application to the Maywood Elementary Site project in SeaTac, Washington. This report is for the exclusive use of Bridge Development Partners, LLC and their authorized representatives.

The analyses and recommendations presented in this report are based on data obtained from the subsurface explorations completed on the site. Variations in soil conditions can occur, the nature and extent of which may not become evident until construction. If variations appear evident, Terra Associates, Inc. should be requested to reevaluate the recommendations in this report prior to proceeding with construction.



REFERENCE: https://www.bing.com/maps ACCESSED 10/27/2020

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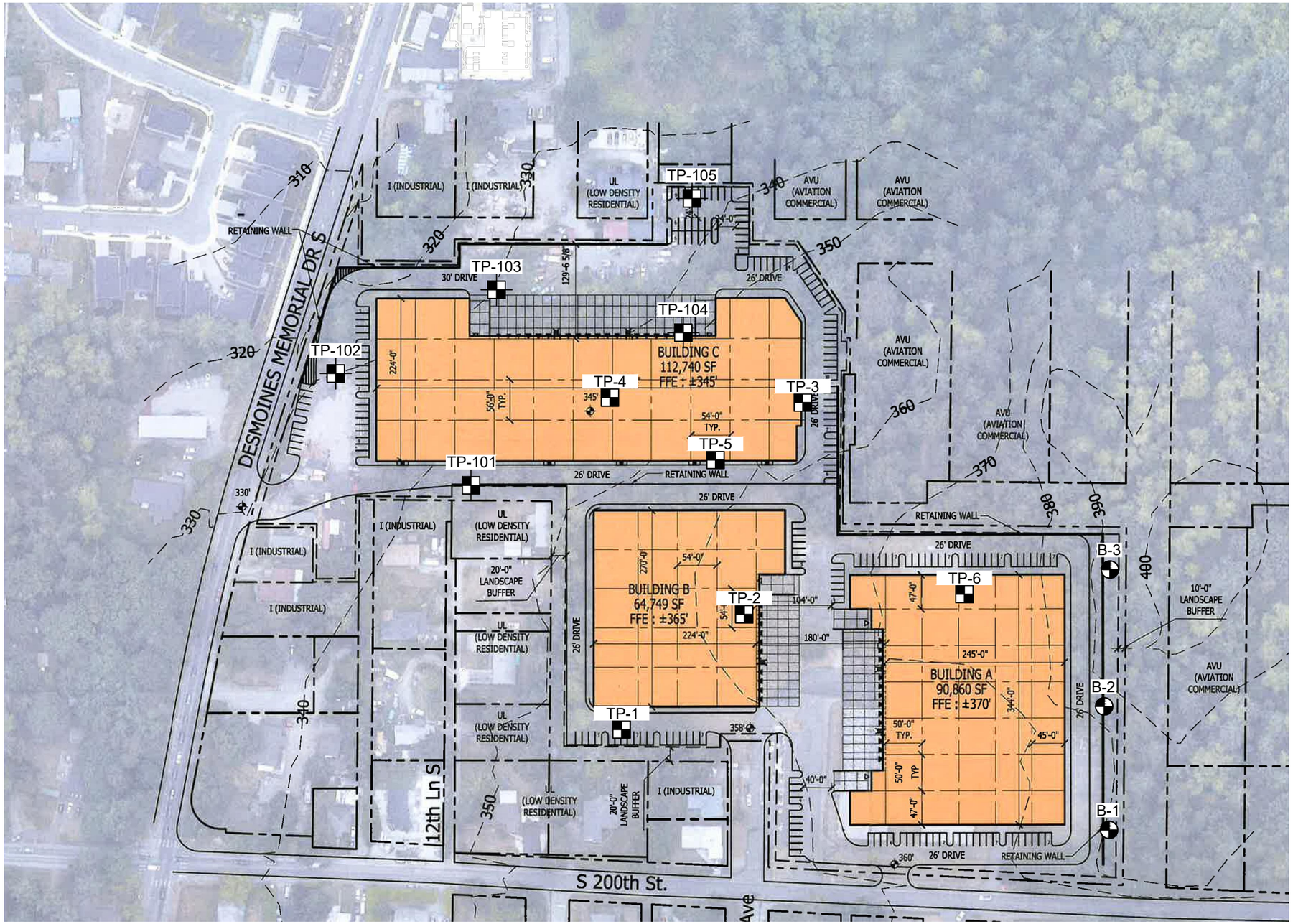
Environmental Earth Sciences

VICINITY MAP
MAYWOOD ELEMENTARY SITE
SEATAC, WASHINGTON

Proj.No. T-8402	Date: JAN 2021	Figure 1



NOTE:

THIS SITE PLAN IS SCHEMATIC. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE. IT IS INTENDED FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR DESIGN OR CONSTRUCTION PURPOSES.

REFERENCE: SITE PLAN PROVIDED BY NELSON.

LEGEND:

- APPROXIMATE TEST PIT LOCATION
- APPROXIMATE BORING LOCATION
- APPROXIMATE TEST PIT LOCATION

0 150 300

APPROXIMATE SCALE IN FEET

N

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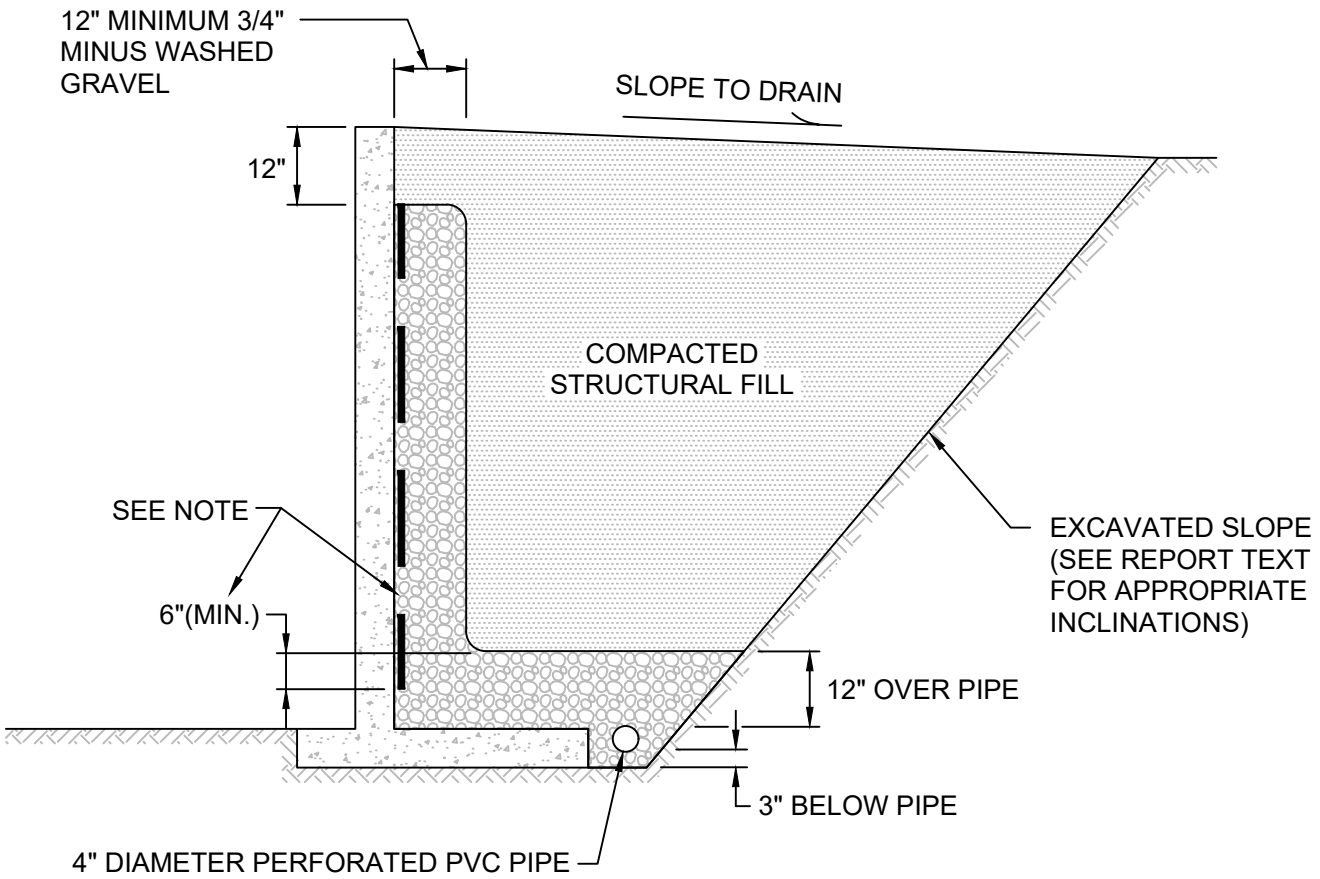
EXPLORATION LOCATION PLAN
MAYWOOD ELEMENTARY SITE
SEATAC, WASHINGTON

Proj.No. T-8402	Date: JAN 2021	Figure 2



NOT TO SCALE

NOTE:

MIRADRAIN G100N PREFABRICATED DRAINAGE PANELS OR SIMILAR PRODUCT CAN BE SUBSTITUTED FOR THE 12-INCH WIDE GRAVEL DRAIN BEHIND WALL. DRAINAGE PANELS SHOULD EXTEND A MINIMUM OF SIX INCHES INTO 12-INCH THICK DRAINAGE GRAVEL LAYER OVER PERFORATED DRAIN PIPE.

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TYPICAL WALL DRAINAGE DETAIL
MAYWOOD ELEMENTARY SITE
SEATAC, WASHINGTON

Proj.No. T-8402	Date: JAN 2021	Figure 3

APPENDIX A
FIELD EXPLORATION AND LABORATORY TESTING

Maywood Elementary Site
SeaTac, Washington

On October 13, 2020, we explored subsurface conditions at the site by excavating 6 test pits to depths of approximately 8 to 14 feet below existing site grades using a track-mounted excavator. The Test Pits at the northern portion of the site had 1-inch diameter PVC pipes installed to an approximate maximum depth of 10 feet upon completion of the test pit. On October 15, 2020 we supplemented this data by drilling 3 test borings to a maximum depth of about 41.5 feet below current site grades. On December 31, 2020, we further supplemented this data by excavating 5 test pits in the northwest portion of the site to depths of approximately 8 to 10.5 feet below existing site grades using a track-mounted excavator.

The Test Pit and Test Boring locations were approximately determined in the field using GPS tracking and by pacing and sighting from existing site features. The approximate locations of the Test Pit and Test Borings are shown on the attached Exploration Location Plan, Figure 2. Test Pit Logs and Test Boring Logs are attached as Figures A-2 through A-15.

A geotechnical engineer from our office conducted the field exploration. Our representative classified the soil conditions encountered, maintained a log of each test pit/boring, obtained representative soil samples, and recorded water levels observed during subsurface exploration. During drilling, soil samples were obtained in general accordance with ASTM Test Designation D-1586. Using this procedure, a 2-inch (outside diameter) split barrel sampler is driven into the ground 18 inches using a 140-pound hammer free-falling from a height of 30 inches. The number of blows required to drive the sampler 12 inches after an initial 6-inch set is referred to as the Standard Penetration Resistance value or N value. This is an index related to the consistency of cohesive soils and relative density of cohesionless materials. N values obtained for each sampling interval are recorded on the Test Boring Logs, Figures A-13 through A-15. The test pits were excavated using a track-mounted excavator and representative grab samples were obtained from the excavator bucket. The Test Pit logs are represented in Figures A-2 through A-12. All soil samples were visually classified in accordance with the Unified Soil Classification System (USCS) described on Figure A-1.

Representative soil samples obtained from the test borings/pits were placed in closed containers and taken to our laboratory for further examination and testing. The moisture content of each sample was measured and is reported on the individual Test Boring/Pit Logs. Grain size analyses were completed on select samples. The results of the grain size analyses are shown on Figures A-16 through A-20.

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTION
COARSE GRAINED SOILS: More than 50% material larger than No. 200 sieve size	**GRAVELS** More than 50% of coarse fraction is larger than No. 4 sieve	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS More than 50% of coarse fraction is smaller than No. 4 sieve	Clean Sands (less than 5% fines)	SW	Well-graded sands, sands with gravel, little or no fines.
			SP	Poorly-graded sands, sands with gravel, little or no fines.
		Sands with fines	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS: More than 50% material smaller than No. 200 sieve size	**SILTS AND CLAYS** Liquid Limit is less than 50%		ML	Inorganic silts, rock flour, clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity. (Lean clay)
			OL	Organic silts and organic clays of low plasticity.
	SILTS AND CLAYS Liquid Limit is greater than 50%		MH	Inorganic silts, elastic.
			CH	Inorganic clays of high plasticity. (Fat clay)
			OH	Organic clays of high plasticity.
HIGHLY ORGANIC SOILS			PT	Peat.

DEFINITION OF TERMS AND SYMBOLS

COHESIONLESS

Density	Standard Penetration Resistance in Blows/Foot
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	>50

COHESIVE

Consistancy	Standard Penetration Resistance in Blows/Foot
Very Soft	0-2
Soft	2-4
Medium Stiff	4-8
Stiff	8-16
Very Stiff	16-32
Hard	>32

I	2" OUTSIDE DIAMETER SPILT SPOON SAMPLER
II	2.4" INSIDE DIAMETER RING SAMPLER OR SHELBY TUBE SAMPLER
▼	WATER LEVEL (Date)
Tr	TORVANE READINGS, tsf
Pp	PENETROMETER READING, tsf
DD	DRY DENSITY, pounds per cubic foot
LL	LIQUID LIMIT, percent
PI	PLASTIC INDEX
N	STANDARD PENETRATION, blows per foot

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UNIFIED SOIL CLASSIFICATION SYSTEM
MAYWOOD ELEMENTARY SITE
SEATAC, WASHINGTON

Proj.No. T-8402	Date: JAN 2021	Figure A-1

LOG OF TEST PIT NO. TP-1

FIGURE A-2

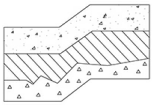
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** SLK

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Grass **APPROX. ELEV:** 357 Feet

DATE LOGGED: October 13, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(8 inches TOPSOIL)		
1		FILL: Red/brown silty SAND with gravel, fine to medium sand, coarse gravel, moist, scattered cobbles. (SM)		
2			Medium Dense	4.3
3		Light brown silty SAND with gravel, fine to medium sand, fine to coarse gravel, dry, scattered cobbles and roots. (SM)		
4				
5		Gray silty SAND with gravel, fine to medium sand, coarse gravel, moist, weakly cemented. (SM)	Dense	
6				7.4
7				
8		Brown SAND with gravel, fine to medium sand, coarse gravel, moist. (SP)	Medium Dense to Dense	6.7
9				
10				
11		Brown/gray SAND with gravel and silt, fine to coarse sand, coarse gravel, moist, trace mottling, weakly cemented. (SP-SM)	Dense	
12				
13				11.9
14		Test pit terminated at approximately 13 feet. No groundwater seepage observed. No caving observed.		
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-2

FIGURE A-3

PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** SLK

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Grass **APPROX. ELEV:** 363 Feet

DATE LOGGED: October 13, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(7 inches TOPSOIL) FILL: Red/brown silty SAND with gravel, fine to medium sand, fine gravel, moist, scattered roots. (SM)		
2		*Broken 6-inch diameter concrete pipe observed at 2 feet, residual water seepage observed.	Medium Dense	13.4
4		FILL(?): Brown SAND with silt, fine to medium sand, moist to wet, some gravel, weakly cemented. (SP-SM)		11.5
5		Gray silty SAND with gravel, fine to medium sand, coarse gravel, moist, weakly cemented, trace faint mottling. (SM)		
10		Gray SAND with silt and gravel, fine to coarse sand, coarse gravel, wet, trace silt. (SP-SM)	Medium Dense to Dense	
13				11.4
15		Test pit terminated at approximately 15 feet. No groundwater seepage observed. No caving observed.		
20				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.

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LOG OF TEST PIT NO. TP-3

FIGURE A-4

PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** SLK

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Grass **APPROX. ELEV:** 355 Feet

DATE LOGGED: October 13, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(12 inches TOPSOIL)		
1		FILL: Brown silty SAND with gravel, fine to medium sand, coarse gravel, moist, scattered roots. (SM)		
2			Medium Dense	7.2
3				
4				8.1
5		Light brown/gray silty SAND with gravel, fine to medium sand, coarse gravel, moist, weakly cemented. (SM)		
6		*Roots observed to 6 feet.		
7			Dense	
8				
9				
10				14.7
11		Brown silty SAND, fine to medium sand, moist, trace gravel. (SM)	Medium Dense to Dense	
12				8.4
13		Test pit terminated at approximately 12 feet. No groundwater seepage observed. No caving observed.		
14				
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.

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LOG OF TEST PIT NO. TP-4

FIGURE A-5

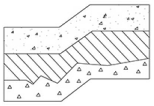
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** SLK

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Vegetation **APPROX. ELEV:** 344 Feet

DATE LOGGED: October 13, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(12 inches TOPSOIL)		
1		Red/brown SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist, scattered roots. (SP-SM)	Medium Dense	6.8
2		Gray sandy SILT, fine to medium sand, moist, some gravel, cemented, mottled. (ML)		
3				
4				19.3
5		Gray silty SAND with gravel, fine to medium sand, coarse gravel, moist, cemented. (SM)	Dense	
6				
7				
8		Brown/gray SAND with silt and gravel, fine to medium sand, coarse gravel, moist to wet. (SP-SM)		
9				
10			Medium Dense to Dense	
11				
12				
13				10.6
14		Test pit terminated at approximately 13 feet. No groundwater seepage observed. No caving observed.		
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-5

FIGURE A-6

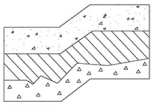
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** SLK

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Vegetation **APPROX. ELEV:** 355 Feet

DATE LOGGED: October 13, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(12 inches TOPSOIL)		
1		Red/brown SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist. (SP-SM)	Medium Dense	
2				5.4
3		Brown gravelly SAND, fine to coarse sand and gravel, moist to wet. (SP)		
4				
5		*Scattered roots observed at 5 feet.		
6			Medium Dense to Dense	4.0
7				
8				
9				6.8
10		Test pit terminated at approximately 10 feet. No groundwater seepage observed. No caving observed.		
11				
12				
13				
14				
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-6

FIGURE A-7

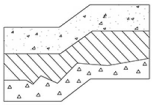
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** SLK

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Grass **APPROX. ELEV:** 375 Feet

DATE LOGGED: October 13, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(7 inches TOPSOIL)		
1		FILL: Brown silty SAND with gravel, fine to medium sand, fine gravel, moist. (SM)	Medium Dense	
2		Gray silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist, slightly cemented. (SM)		3.4
3				
4		*Scattered roots observed to 4 feet.		
5		*Boulders observed at 5 feet.	Dense	
6				3.4
7				
8				
9		Brown/gray SAND, fine to medium sand, moist, trace gravel. (SP)		
10				5.8
11			Medium Dense to Dense	
12				
13				
14		Test pit terminated at approximately 14 feet. No groundwater seepage observed. No caving observed.		5.6
15				
16				
17				
18				
19				
20				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-101

FIGURE A-8

PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** ZN

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Trees and shrubs **APPROX. ELEV:** N/A

DATE LOGGED: December 31, 2020 **DEPTH TO GROUNDWATER:** 3 feet **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0	1	(12 inches TOPSOIL) Yellow-brown, silty SAND, fine to medium sand, moist. (SM)	Loose	20.7
3	2	Olive-gray, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist, slightly cemented. (SM)	Medium Dense	16.8
6	3	Olive-gray, SILT, moist. (ML)	Hard	26.5
8	4	Olive-brown, SAND, fine sand, moist. (SP)	Dense	8.3
9		Olive-brown, silty SAND, fine sand, moist. (SM)		
10	5			4.6
11		Test pit terminated at approximately 10.5 feet. Minor groundwater seepage observed at approximately 3 feet. No caving observed.		
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.

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LOG OF TEST PIT NO. TP-102

FIGURE A-9

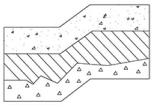
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** ZN

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Gravel **APPROX. ELEV:** N/A

DATE LOGGED: December 31, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0				
1		FILL: Dark olive-brown, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist, abundant roots and debris. (SM)		
2	1		Medium Dense	31.3
3				
4	2			10.0
5		Olive-gray, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist, slightly cemented. (SM)		
6	3		Dense	14.2
7				
8		Becomes very dense at 7.5 feet.	Very Dense	
9	4			11.5
10		Test pit terminated at approximately 9.5 feet. No groundwater seepage observed. No caving observed.		
11				
12				
13				
14				
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-103

FIGURE A-10

PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** ZN

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Gravel **APPROX. ELEV:** N/A

DATE LOGGED: December 31, 2020 **DEPTH TO GROUNDWATER:** 6 feet **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(6 inches TOPSOIL)		
1		FILL: Red-brown, silty SAND, fine to medium sand, moist, abundant roots and debris. (SM)		
2				
3			Medium Dense	
4				
5				
	1			18.3
▼ 6				
		Yellow-brown, silty SAND with gravel, fine to medium sand, fine to coarse gravel, wet. (SM)		
7				
8	2		Dense	7.4
9				
10				
		Test pit terminated at approximately 10 feet. Minor to moderate groundwater seepage observed at approximately 6 feet. No caving observed.		
11				
12				
13				
14				
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.

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LOG OF TEST PIT NO. TP-104

FIGURE A-11

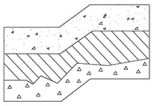
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** ZN

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Trees and shrubs **APPROX. ELEV:** N/A

DATE LOGGED: December 31, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0	1	(12 inches TOPSOIL) Olive-gray, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist. (SM)	Loose	9.9
4	2	Olive-brown, SAND with gravel, fine to medium sand, fine to coarse gravel, moist. (SP)	Medium Dense	4.1
7	3	Olive-gray, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist. (SM)	Dense to Very Dense	8.5
8		Test pit terminated at approximately 8 feet. No groundwater seepage observed. No caving observed.		
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-105

FIGURE A-12

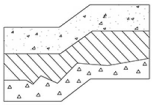
PROJECT NAME: Maywood Elementary Site **PROJ. NO:** T-8402 **LOGGED BY:** ZN

LOCATION: SeaTac, Washington **SURFACE CONDITIONS:** Trees and shrubs **APPROX. ELEV:** N/A

DATE LOGGED: December 31, 2020 **DEPTH TO GROUNDWATER:** N/A **DEPTH TO CAVING:** N/A

Depth (ft)	Sample No.	Description	Consistency/ Relative Density	W (%)
0		(12 inches TOPSOIL)		
1		FILL: Olive-gray, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist, abundant roots and debris. (SM)		
2			Loose	
3	1			18.1
4		Yellow-brown, silty SAND, fine to medium sand, moist. (SM)		
5				
6	2	Olive-brown, silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist. (SM)	Medium Dense	16.9
7				
8	3	Olive-gray, SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist. (SP-SM)	Dense to Very Dense	8.9
9	4			12.2
10		Test pit terminated at approximately 9 feet. No groundwater seepage observed. No caving observed.		
11				
12				
13				
14				
15				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF BORING NO. B-1

Figure No. A-13

Project: Maywood Elementary Site **Project No:** T-8402 **Date Drilled:** October 15, 2020

Client: Bridge Development Partners **Driller:** Boretec **Logged By:** SLK

Location: SeaTac, Washington **Depth to Groundwater:** N/A **Approx. Elev:** 378 Feet

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	SPT (N) Blows / foot (10 / 30 / 50)	Moisture Content (%)
0		Dark brown SILT with gravel and sand, fine to medium sand, fine gravel, moist. (ML)			
		Red/brown silty SAND with gravel, fine to medium sand, fine gravel, moist. (SM)		50/6"	22.5
5		Gray/brown gravelly SAND with silt, fine to medium sand, fine to coarse gravel, dry. (SP-SM)	Very Dense	50/6"	8.2
		Gray SAND, fine to coarse sand, moist, weakly cemented. (SP)		63	3.8 5.6 7.0
10		Gray to gray/brown SAND with gravel, fine to coarse sand, fine gravel, moist, trace silt, weakly cemented. (SP)		54	6.2
			Dense	37	5
15		Brown/gray SAND, fine to coarse sand, trace silt and gravel, moist, cemented. (SP) *Trace mottling observed at 16.5 feet.		68	7.0
20		Brown/gray SAND with silt and gravel, fine to medium sand, fine gravel, moist, cemented. (SP-SM)	Very Dense	92/10"	5.5
25		*Continued on Next Page.		77	11.8

NOTE: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site

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LOG OF BORING NO. B-1

Figure No. A-13

Project: Maywood Elementary Site **Project No:** T-8402 **Date Drilled:** October 15, 2020

Client: Bridge Development Partners **Driller:** Boretec **Logged By:** SLK

Location: SeaTac, Washington **Depth to Groundwater:** N/A **Approx. Elev:** 378 Feet

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	SPT (N) Blows / foot (10 30 50)	Moisture Content (%)
25		Brown/gray SAND with silt and gravel, fine to medium sand, fine gravel, moist, some to trace, silt, cemented. (SP-SM)	Very Dense		
			Dense		
30				41	8.5
			Very Dense		
35				53	4.4
			Dense		
40				36	8.1
		Test boring terminated at approximately 41.5 feet. No groundwater seepage observed.			
45					
50					

NOTE: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site

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LOG OF BORING NO. B-2

Figure No. A-14

Project: Maywood Elementary Site **Project No:** T-8402 **Date Drilled:** October 15, 2020

Client: Bridge Development Partners **Driller:** Boretec **Logged By:** SLK

Location: SeaTac, Washington **Depth to Groundwater:** N/A **Approx. Elev:** 385 Feet

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	SPT (N) Blows / foot (10 / 30 / 50)	Moisture Content (%)
0		Dark brown SILT with gravel and sand, fine to medium sand, fine gravel, moist. (ML)			
		Brown silty SAND, fine to medium sand, dry, trace gravel. (SM)		50/6"	23.7 5.6
5			Very Dense	50/6"	4.4
		Brown SAND with silt and gravel, fine to medium sand, fine gravel, dry to moist. (SP-SM)		51	2.9
10		Gray silty SAND with gravel, fine to medium sand, fine to coarse gravel, moist, moderately cemented, trace mottling. (SM)		54	3.1 6.5
			Dense	37	
15		Gray to gray/brown SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist, weakly cemented. (SP-SM)		68	9.8
20			Very Dense	92/10"	10.4
		*Continued on Next Page.		77	7.9
25					

NOTE: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site

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LOG OF BORING NO. B-2

Figure No. A-14

Project: Maywood Elementary Site **Project No:** T-8402 **Date Drilled:** October 15, 2020

Client: Bridge Development Partners **Driller:** Boretec **Logged By:** SLK

Location: SeaTac, Washington **Depth to Groundwater:** N/A **Approx. Elev:** 385 Feet

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	SPT (N) Blows / foot (10 / 30 / 50)		Moisture Content (%)
25		Gray SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist, weakly cemented. (SP-SM)	Very Dense			
			Dense			
30		Gray/brown gravelly SAND, fine to coarse sand and gravel, moist, trace silt. (SP)			41	2.9
			Very Dense			
35					53	4.9
			Dense			
40		Interbedded layers of brown silty SAND, fine sand and brown/gray SAND, fine to medium sand, moist. (SM/SP)			36	16.7 8.2
		Test boring terminated at approximately 41.5 feet. No groundwater seepage observed.				
45						
50						

NOTE: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site

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LOG OF BORING NO. B-3

Figure No. A-15

Project: Maywood Elementary Site **Project No:** T-8402 **Date Drilled:** October 15, 2020

Client: Bridge Development Partners **Driller:** Boretec **Logged By:** SLK

Location: SeaTac, Washington **Depth to Groundwater:** N/A **Approx. Elev:** 395 Feet

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	SPT (N) Blows / foot (10 / 30 / 50)	Moisture Content (%)
0		Dark brown SILT with gravel and sand, fine to medium sand, fine gravel, moist. (ML)			
		Red/brown silty SAND with gravel, fine to medium sand, fine gravel, moist, weakly cemented. (SM)	Medium Dense	30	41.5 11.9 8.1
5		Gray/brown SAND with silt, fine to medium sand, dry, some gravel, weakly cemented. (SP-SM)		26	16.4 8.7
			Very Dense	53	5.1
10		Gray/brown gravelly SAND, fine to medium sand, fine gravel, moist., trace silt, weakly cemented. (SP)		33	8.1
		Brown/gray SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist, weakly cemented. (SP-SM)	Dense	44	8.6
15				43	11.8
20			Very Dense	92/10"	6.8
		*Continued on Next Page.		53	
25					

NOTE: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site

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LOG OF BORING NO. B-3

Figure No. A-15

Project: Maywood Elementary Site **Project No:** T-8402 **Date Drilled:** October 15, 2020

Client: Bridge Development Partners **Driller:** Boretec **Logged By:** SLK

Location: SeaTac, Washington **Depth to Groundwater:** N/A **Approx. Elev:** 395 Feet

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	SPT (N) Blows / foot (10 / 30 / 50)	Moisture Content (%)
25		Brown/gray SAND with silt and gravel, fine to medium sand, fine to coarse gravel, moist, weakly cemented. (SP-SM)			5.8
30				59	5.3
			Very Dense		
35				78	6.0
		*Faint mottling observed at about 36 feet.			
40		Brown/gray SAND with gravel, fine to coarse sand, fine to coarse gravel, moist, weakly cemented. (SP)		50/6"	4.9
		Test boring terminated at approximately 41 feet. No groundwater seepage observed.			
45					
50					

NOTE: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site

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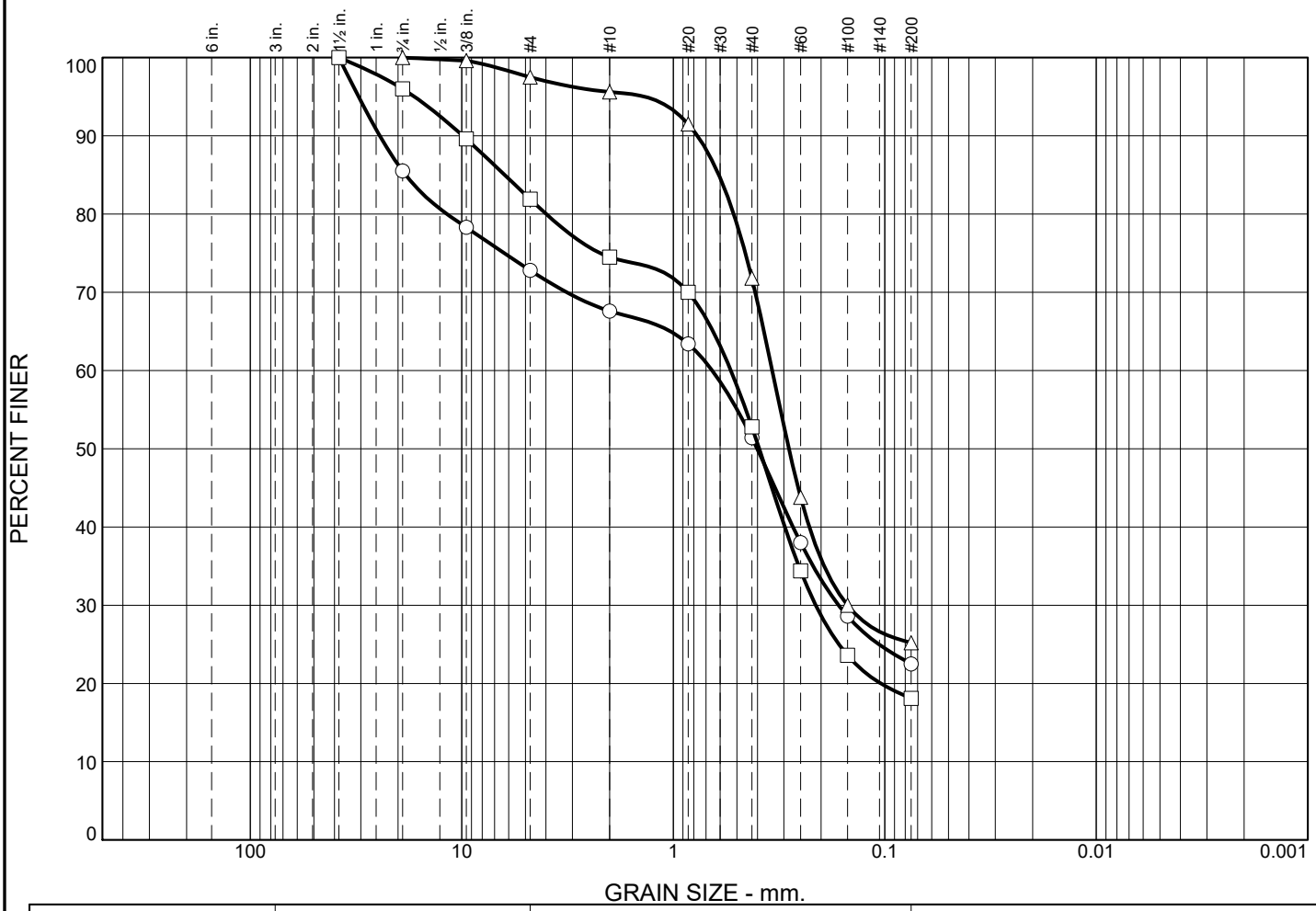
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	14.5	12.7	5.2	16.2	28.9	22.5	
□	0.0	4.0	14.1	7.4	21.7	34.7	18.1	
△	0.0	0.0	2.5	1.9	23.8	46.6	25.2	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			18.4348	0.6545	0.4012	0.1654				
□			6.2697	0.5343	0.3923	0.2121				
△			0.6087	0.3405	0.2840	0.1500				

Material Description	USCS	AASHTO
○ silty SAND with gravel	SM	
□ silty SAND with gravel	SM	
△ silty SAND	SM	

Project No. T-8402 **Client:** Bridge Development Partners

Project: Maywood Elementary Site

○ **Location:** TP-1 **Depth:** -2 feet

□ **Location:** TP-2 **Depth:** -4 feet

△ **Location:** TP-3 **Depth:** -12 feet

Remarks:

○ Tested on October 27, 2020

□ Tested on October 27, 2020

△ Tested on October 27, 2020

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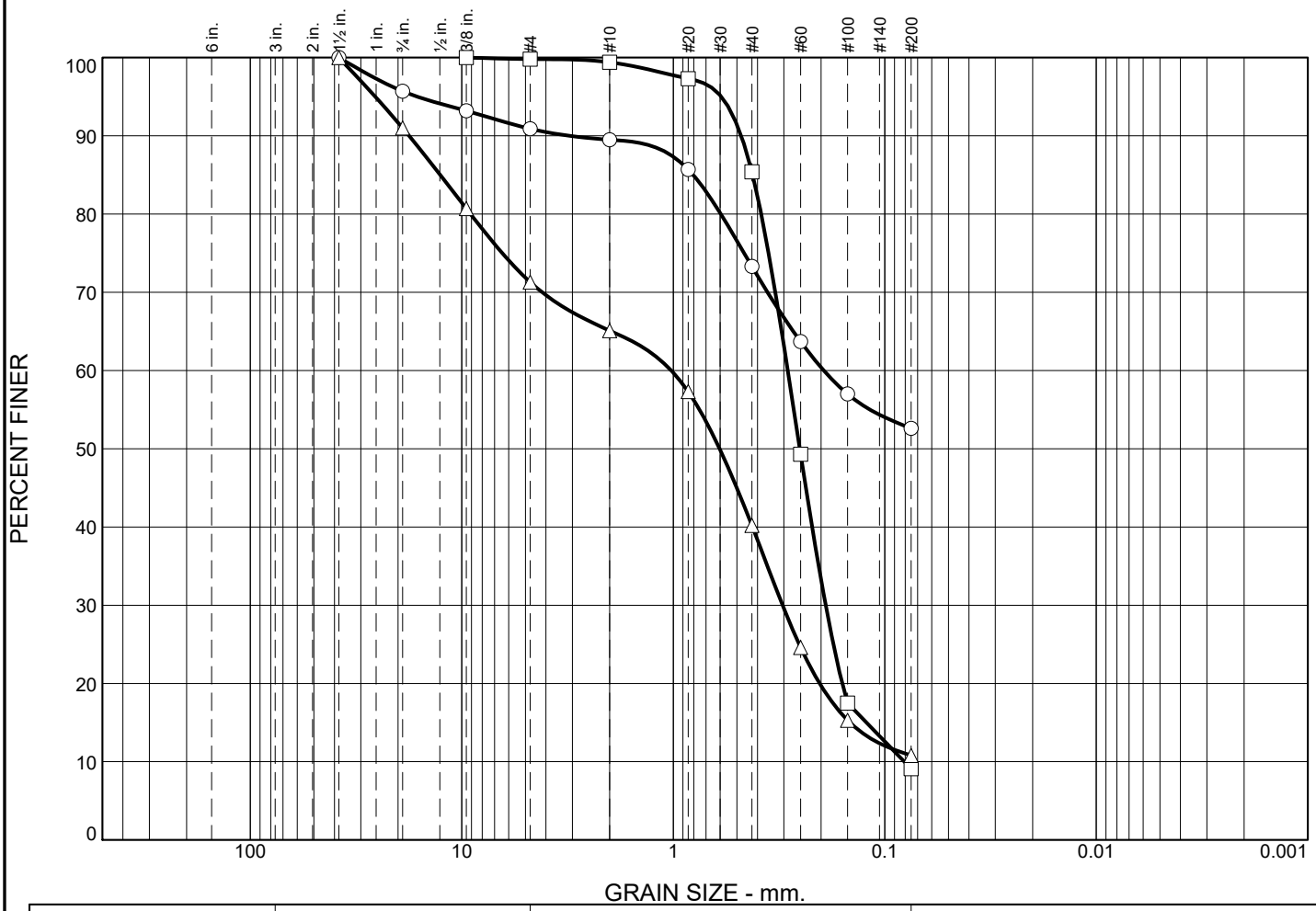
Kirkland, WA

Figure A-16

Tested By: FQ

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	4.3	4.8	1.4	16.2	20.7	52.6	
□	0.0	0.0	0.2	0.4	14.0	76.3	9.1	
△	0.0	9.0	19.7	6.2	24.9	29.4	10.8	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8050	0.1943						
□			0.4214	0.2876	0.2523	0.1903	0.1220	0.0808	1.56	3.56
△			12.6483	1.0222	0.6036	0.3042	0.1461			

	Material Description	USCS	AASHTO
○	sandy SILT	ML	
□	poorly graded SAND with silt	SP-SM	
△	poorly graded SAND with silt and gravel	SP-SM	

Project No. T-8402 **Client:** Bridge Development Partners

Project: Maywood Elementary Site

○ **Location:** TP-4 **Depth:** -4 feet

□ **Location:** B-1 **Depth:** -40 feet **Sample Number:** S-11

△ **Location:** B-2 **Depth:** -15 feet **Sample Number:** S-5

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Kirkland, WA

Remarks:

○ Tested on October 27, 2020

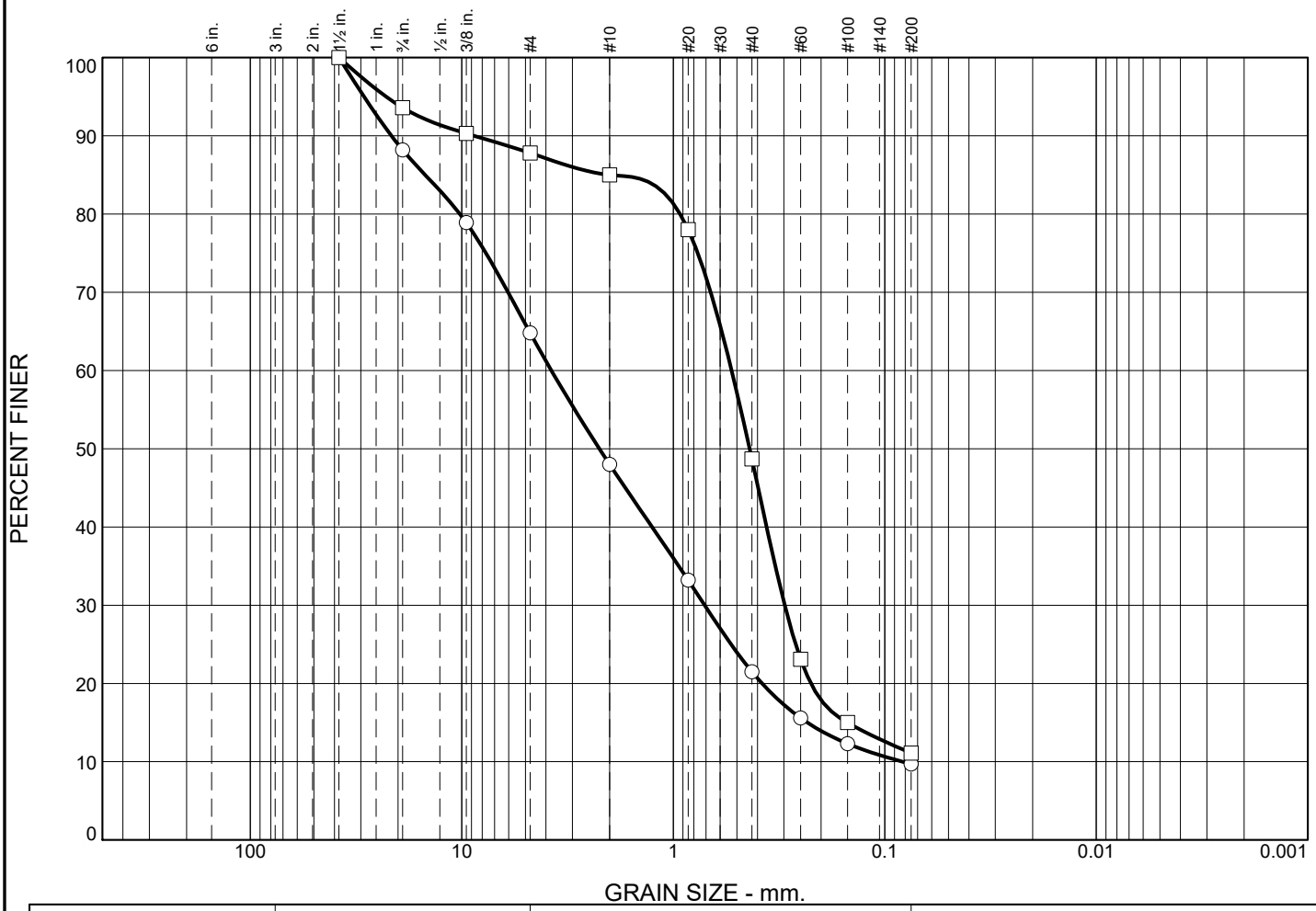
□ Tested on October 27, 2020

△ Tested on October 27, 2020

Figure A-17

Tested By: FQ

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	11.8	23.4	16.8	26.5	11.8	9.7	
□	0.0	6.4	5.8	2.8	36.3	37.6	11.1	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			14.9004	3.7697	2.2356	0.7104	0.2321	0.0824	1.63	45.76
□			2.0000	0.5299	0.4355	0.2971	0.1500			

Material Description	USCS	AASHTO
○ well graded SAND with silt and gravel	SW-SM	
□ poorly graded SAND with silt	SP-SM	

Project No. T-8402 **Client:** Bridge Development Partners

Project: Maywood Elementary Site

○ **Location:** B-3 **Depth:** -20 feet **Sample Number:** S-7

□ **Location:** B-3 **Depth:** -30 feet **Sample Number:** S-9

Terra Associates, Inc.

Kirkland, WA

Remarks:

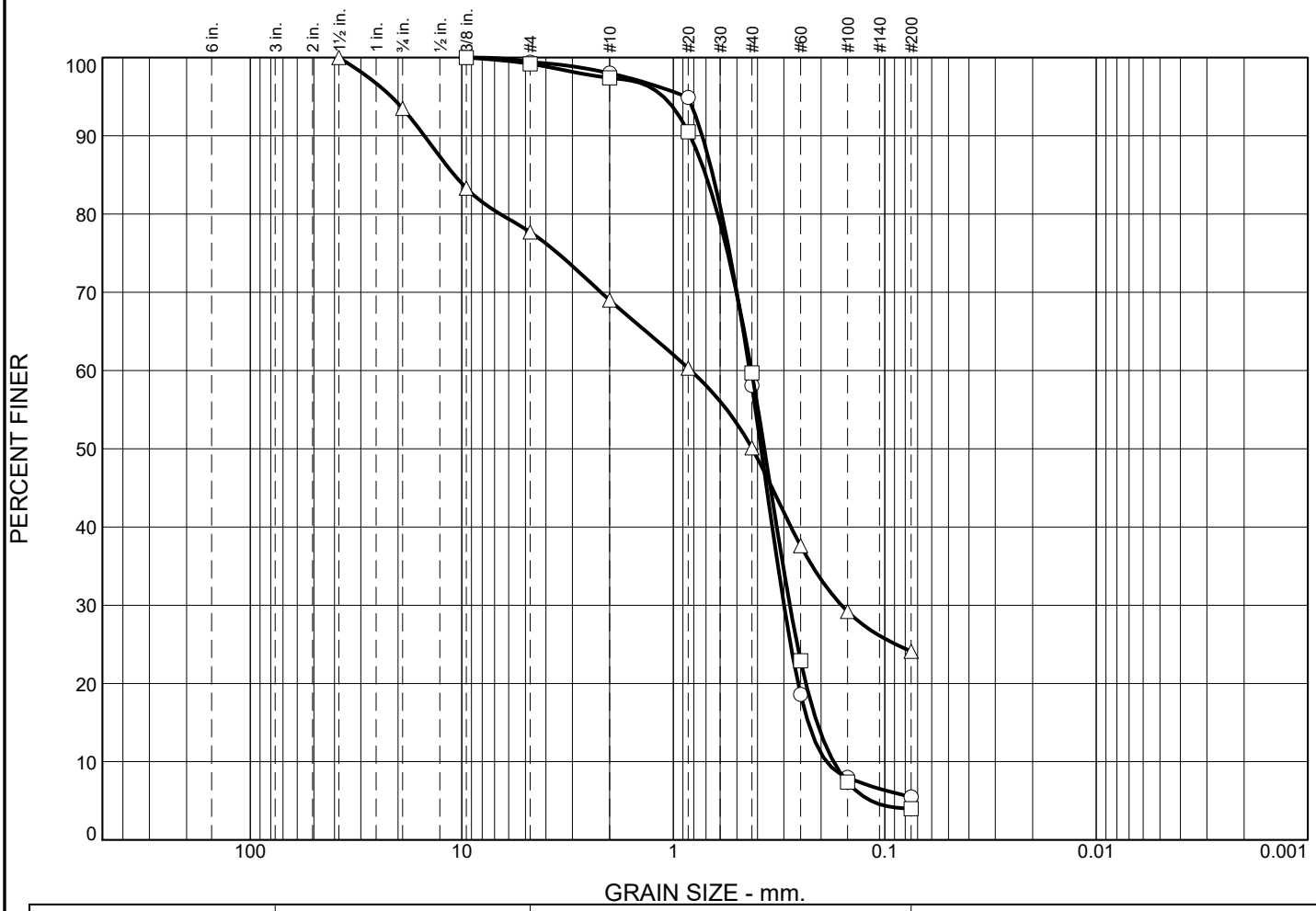
○ Tested on October 27, 2020

□ Tested on October 27, 2020

Figure A-18

Tested By: FQ

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.6	1.4	39.9	52.6	5.5	
□	0.0	0.0	0.8	1.8	37.7	55.7	4.0	
△	0.0	6.5	15.8	8.7	18.9	26.0	24.1	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6498	0.4356	0.3843	0.2995	0.2302	0.1886	1.09	2.31
□			0.7021	0.4269	0.3708	0.2811	0.2091	0.1746	1.06	2.44
△			10.8527	0.8270	0.4230	0.1603				

	Material Description	USCS	AASHTO
○	SAND	SP	
□	SAND	SP	
△	Silty SAND with gravel	SM	

Project No. T-8402 **Client:** Bridge Development Partners, LLC

Project: Maywood Elementary Site

○ **Location:** TP-101 **Depth:** 8.0 **Sample Number:** 4

□ **Location:** TP-101 **Depth:** 10 **Sample Number:** 5

△ **Location:** TP-102 **Depth:** 9.0 **Sample Number:** 4

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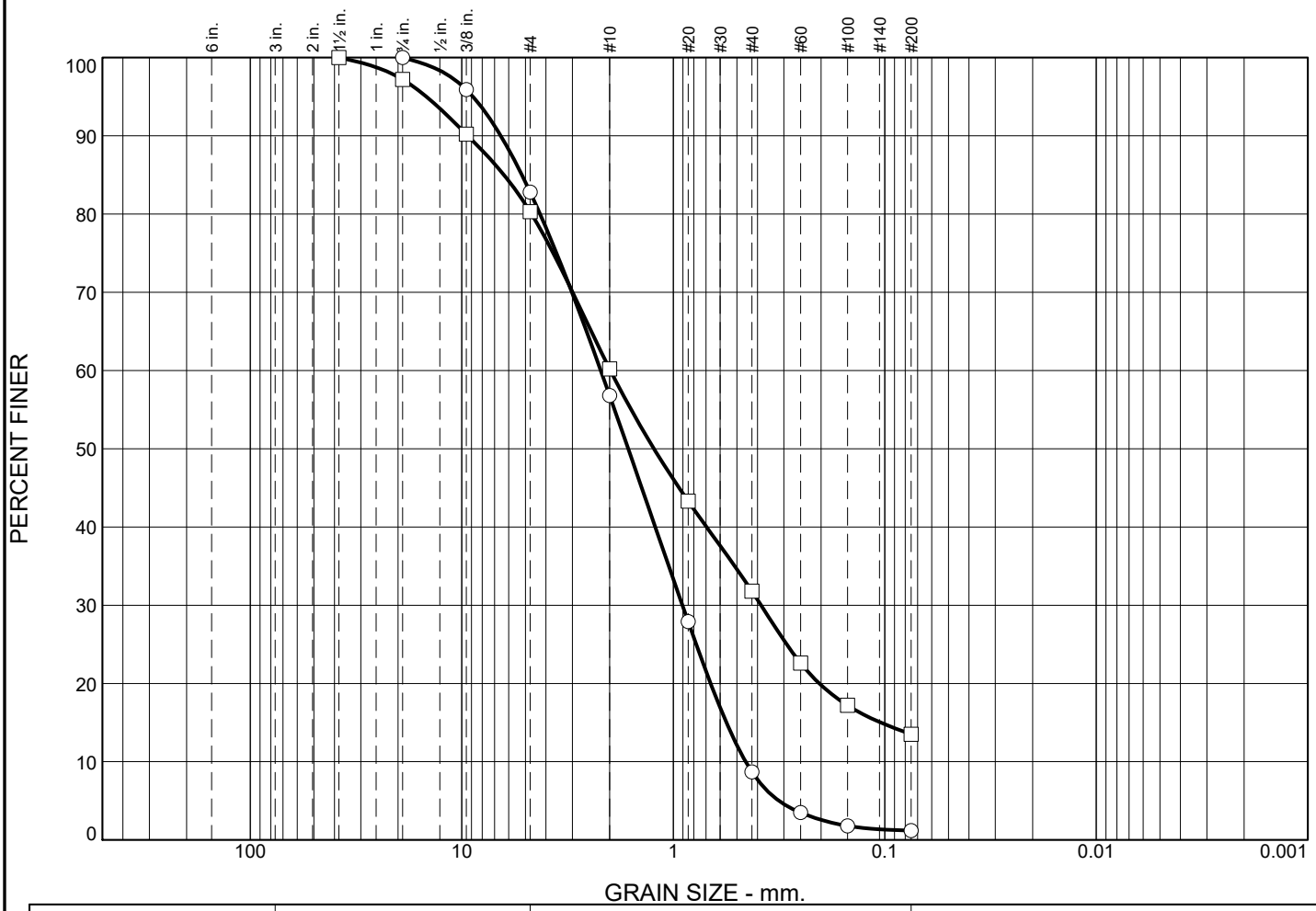
Kirkland, WA

Remarks:

Figure A-19

Tested By: FQ **Checked By:** ZN

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	17.2	26.0	48.1	7.5	1.2	
□	0.0	2.8	16.9	20.1	28.4	18.3	13.5	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			5.1972	2.2032	1.6333	0.9052	0.5605	0.4549	0.82	4.84
□			6.3201	1.9829	1.2339	0.3846	0.1044			

Material Description	USCS	AASHTO
○ SAND with gravel	SP	
□ SAND with silt and gravel	SP-SM	

Project No. T-8402 **Client:** Bridge Development Partners, LLC

Project: Maywood Elementary Site

○ **Location:** TP-104 **Depth:** 4.5 **Sample Number:** 2

□ **Location:** TP-105 **Depth:** 9 **Sample Number:** 4

Terra Associates, Inc.

Kirkland, WA

Remarks:

Figure A-20

Tested By: FQ **Checked By:** ZN