



CITY OF BAINBRIDGE ISLAND
DESIGN REVIEW BOARD
Regularly Scheduled Meeting
Monday, February 22, 2016 at 2:00 p.m.



Location: Council Conference Room
Bainbridge Island City Hall
280 Madison Avenue North
Bainbridge Island, Washington 98110

AGENDA

- 2:00 – 2:05 p.m. Call to Order (Attendance, Agenda, Ethics)**
- 2:05 – 3:00 p.m. BIFD Station 21 – Site Plan Review**
Project Location: 8895 Madison Ave NE
Project Manager: Josh Machen
- 3:00 – 3:30 p.m. BIFD Station 22 – Site Plan Review**
Project Location: 7934 NE Bucklin Hill Road
Project Manager: Josh Machen
- 3:30 – 4:30 p.m. Wyatt Cottages PLN50165 SPR**
Project Location: Wyatt Way and Madison Ave
Applicant Agent: Bruce Anderson
Project Manager: Josh Machen
- 4:30 – 4:45 p.m. Old and New Business**
- 4:45 p.m. Adjournment**

For special accommodations, please contact Jane Rasely, Planning & Community Development
206-780-3758 or at jrasely@bainbridgewa.gov

MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED

SITE PLAN AND DESIGN REVIEW NARRATIVE

To

City of Bainbridge Island,
Washington

For

Bainbridge Island Fire
Department Station 21

Date

January 13, 2016

Project Number

2150124.00



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EXHIBITS

- A. SEPA Checklist
- B. Geotechnical Report
- C. Design Guidelines Checklist
- D. Civil Engineering Plans
- E. Architectural Plans
- F. Landscape Plans
- G. Photometric Plan
- H. Materials Board

I. PROJECT SUMMARY

Applicant:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Owner:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Site Address:	8895 Madison Avenue N Bainbridge Island, WA 98110
Assessor Site Acreage:	3.91 acres
Zoning:	2 Units per Acre Zone (20,000 square feet; R-2)
Comprehensive Plan:	2 Units per Acre Zone (20,000 square feet; OSR-2)
Adjacent Zoning:	R-2 to the north and east and Business/Industrial District (B/I) to the south and west
Existing Structures:	Fire station, living quarters, generator building, circulation and parking areas, helicopter landing pad, and other site improvements
Request:	Site Plan and Design Review Approval
Project Contact:	Mackenzie, Applicant's Representative Michael Chen, Senior Planner Logan Building 500 Union Street, Suite 545 Seattle, WA 98101 (206) 749-9993, Extension 513 MChen@mcknze.com

II. INTRODUCTION

Description of Request

The applicant, Bainbridge Island Fire Department (BIFD), seeks approval of site plan and design review for the proposed redevelopment of the existing fire station, Station 21, at 8895 Madison Avenue N in Bainbridge Island, Washington.

As articulated in the City of Bainbridge Island Comprehensive Plan, one of the City's primary goals is to "[p]rovide adequate public facilities [...] which maximize public safety and minimize adverse environmental impacts." In a Strategic Plan Update, the BIFD identified critical needs at Station 21 and recommended a formal needs assessment, which the applicant's representative, Mackenzie, was involved in producing. The proposed redevelopment of Station 21 will ensure not only that the buildings meet the BIFD's operational needs, but also that the redeveloped fire station will serve the needs of the Bainbridge Island community for decades to come.

Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 21.

Existing Site & Surrounding Land Use

The subject site is located northwest of Madison Avenue N, southwest of Highway 305, and north of NE New Brooklyn Road in Bainbridge Island. The site comprises two tax lots, 4169-000-050-0206 and 222502-1-023-2000.

There are approximately four existing buildings on the site, including a fire station, living quarters, a generator building, and an accessory building; there are a memorial, a helicopter landing pad, a fence, and vehicle circulation areas on the site, as well.

The site and the tax lots to the north and east are zoned 2 Units per Acre Zone (20,000 square feet; R-2), and the tax lots to the south and west are zoned Business/Industrial District (B/I). The site comprises approximately 3.91 acres. The site is currently in use by the BIFD as the existing Station 21.

Existing land use decisions on the site include the following:

- Kitsap County Conditional Use Permit 936A (4/26/1977)
- Zoning Variance VAR10-05-93-1
- Conditional Use Permit CUP05-14-99-1
- Conditional Use Permit CUP11791 (11/21/2002)

Description of Proposed Development

The land is proposed for redevelopment under the same use as a fire station. Pending the required approvals, construction is expected to start in the fall of 2016 and to be complete in 2018. The subject property is and will continue to be owned by the BIFD. No permanent dwelling units or commercial buildings will be provided within the development either during or after construction.

Aerial Image – Project Site



III. NARRATIVE & COMPLIANCE

The land is proposed for redevelopment under the same use as a fire station. The site is currently served by Madison Avenue N to the east. The existing size of Madison Avenue N meets the required right-of-way width of 60 feet. No public street improvements or road construction are proposed for this development. The existing driveway will be redeveloped as two separate driveways, both approximately 26 feet wide, one at the southern end of the existing driveway and one at the northern end of the existing driveway. Landscape area will separate the two newly created driveways from the emergency access area to be used by the fire apparatus and passenger vehicles.

The site is currently served by public water utility infrastructure provided by the City of Bainbridge Island that is available and adequate to meet the needs of the proposed development; therefore, no new water system extensions are proposed. The site is also currently served by public sewer utility infrastructure provided by the City of Bainbridge Island that is available and adequate to meet the needs of the proposed development; therefore, no new sewer system extensions are proposed.

Internal sidewalks ranging in width from five to seven feet are proposed with the development. These sidewalks will be constructed with the redevelopment of the existing fire station and with the associated site improvements. No off-site improvements are proposed. Pending the required approvals, construction is expected to start in the fall of 2016 and to be complete in 2018.

IV. CONCLUSION

The applicant submits this narrative and the attached Exhibits in seeking approval of site plan and design review for the proposed redevelopment of the existing fire station located at 8895 Madison Avenue N. This application demonstrates that the proposal is in compliance with the relevant standards provided by the City of Bainbridge Island.

CITY OF BAINBRIDGE ISLAND

ENVIRONMENTAL (SEPA) CHECKLIST - *UPDATED 2014*
FORM MUST BE COMPLETED IN INK, PREFERABLY BLUE
PENCIL WILL NOT BE ACCEPTED

**PLEASE READ THE FOLLOWING CAREFULLY BEFORE FILLING OUT THE CHECKLIST****Purpose of checklist:**

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

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ENVIRONMENTAL (SEPA) CHECKLIST**

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A. Background

1. Name of proposed project, if applicable:

Bainbridge Island Fire Department Station 21

2. Name of applicant:

Bainbridge Island Fire Department

3. Address and phone number of applicant and contact person:

Applicant:

*Bainbridge Island Fire
Department*

8895 Madison Avenue N

Bainbridge Island, WA

98110

(206) 842-7686

Contact Person:

*Mackenzie, Applicant's
Representative*

Michael Chen, Senior

Planner

Logan Building

500 Union Street

Suite 545

Seattle, WA 98101

(206) 749-9993,

Extension 513

MChen@mcknze.com

4. Date checklist prepared:

January 13, 2016

5. Agency requesting checklist:

City of Bainbridge Island Planning & Community Development

6. Proposed timing or schedule (including phasing, if applicable):

*Pending the required approvals, construction on the proposal is expected to start
in the fall of 2016 and to be complete in 2018.*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

*No plans for future additions, expansion, or further activity are associated with
this proposal.*

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8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

A geotechnical report dated December 30, 2015, has been prepared for this proposal, and an NPDES permit will be obtained prior to commencing construction on the proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No known applications for governmental approvals of other proposals directly affecting the property covered by this proposal are known at the time of this application.

10. List any government approvals or permits that will be needed for your proposal, if known.

The applicant seeks approval of the following approvals and permits:

- *Conditional Use Permit*
- *Site Plan and Design Review Board Approval*
- *NPDES Permit*
- *Building Permit*

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposal includes redevelopment of an existing fire station as a two-story, approximately 30,760-square foot building with living quarters, meeting spaces, offices, storage areas, and an apparatus bay, with associated site improvements. The existing memorial and the site will be preserved, and the existing flagpoles on the site will be relocated. The existing helicopter pad and fence in the southern portion of the site will be preserved.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not

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required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The proposal is located at 8895 Madison Avenue N in Bainbridge Island. The site comprises two tax lots, 222502-1-023-2000 and 4169-000-050-0206. The site is located in Section 22, Township 25N, and Range 2E.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site

(circle one): Flat, rolling, hilly, steep slopes, mountainous,

other _____

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slope on the site is approximately 15 percent or greater (located at the southern property line and south of Madison Avenue N), with the majority of the site at two to four percent grades. The proposed grading includes slopes of no greater than five percent (with the exception of the slopes surrounding stormwater facilities).

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

According to the USDA Web Soil Survey, the site is constituted almost entirely of Kapowsin gravelly ashy loam, 0–6% slopes, with a small amount of Kitsap silt loam, 15–30% slopes, in the southwest corner of the site. Geotechnical information on the site is available from Aspect Consulting; soil types found on the site include sand, gravel, and silt.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no known surface indications or history of unstable soils in the immediate vicinity of the site.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

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The purpose of the proposed cut and fill is to provide a site that is as balanced as possible while maintaining the appropriate slopes where relevant. Approximately 116,500 square feet (2.67 acres) of the site will be affected by grading, which will include both cut and fill.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur; however, the possibility of erosion will be minimized by implementing Best Management Practices (BMPs) as described in Section B. 1. h. of this application. The project will comply with City of Bainbridge Island erosion control requirements and requirements of the NPDES Construction Stormwater permit to be obtained.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 43.5% of the site will be covered with impervious surfaces after project construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The project team will develop erosion control plans, which will be reviewed by the City of Bainbridge Island through the site plan review process. Prior to beginning any earth-disturbing activities, the applicant will obtain a NPDES Construction Stormwater permit.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Some air emissions will result from the use of equipment during construction, and some air emissions from the fire station use, passenger and delivery vehicles, and the fire apparatus will result from the completed project.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The proposal is located in the immediate vicinity of residential properties, a church site, and a commercial self-storage site, which could be off-site sources of emissions and/or odor related to the respective land uses as well as to passenger and delivery vehicles.

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c. Proposed measures to reduce or control emissions or other impacts to air, if any:
An erosion control plan will be prepared for the project and reviewed by the City of Bainbridge Island; in order to comply with the conditions of approval from this review, the project will employ standard techniques to minimize dust generation during construction. Emissions from vehicles related to the proposed use are regulated under U.S. EPA and Washington Department of Licensing emission standards (Clean Car Law, RCW 46.16A.060).

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is no known surface water body on or in the immediate vicinity of the site (Puget Sound is located approximately 2,000 feet to the east).

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

There is no known surface water body on or in the immediate vicinity of the site; thus, the project will not require any work over, in, or adjacent to any waters.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material will be placed in or removed from surface water or wetlands for this proposal; thus, no source of fill or dredge material is indicated.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals are anticipated to be required for the proposal. Stormwater will be treated on-site and then discharged into existing stormwater lines that connect into the existing stormwater system.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposal is not known to lie within a 100-year floodplain.

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- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not involve any discharges of waste materials to surface waters.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No groundwater will be withdrawn from a well for drinking water or other purposes related to this proposal.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground from septic tanks or other sources for this proposal.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff will primarily be from pavements and roof areas. Pavement areas will sheet flow to catchbasins and will then be conveyed to stormwater facilities. Stormwater from roof areas will be collected in downspouts and may be infiltrated on-site.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials could possibly enter ground or surface waters by being spilled from vehicles on-site, though such spills are unexpected.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

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The proposal does not alter or otherwise affect drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

The project team will prepare a stormwater control plan that will comply with City of Bainbridge Island requirements; this plan will be reviewed by the City of Bainbridge Island.

4. Plants

a. Check the types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ orchards, vineyards or other permanent crops
- ☐ wet soil plants: cattail, buttercup, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Approximately 34 trees will be removed for the proposal.

c. List threatened and endangered species known to be on or near the site.

No threatened or endangered species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Landscaping is proposed to cover 56.5% of the site. An entry plaza and gardens are proposed on the east side of the building, and a staff patio is proposed in the northwest corner of the building. The existing forest buffer on the eastern side of the site will be preserved, and full screen buffers will be provided on the northern and western sides of the site, with a partial screen buffer surrounding the southern portion of the site. Interior circulation areas will also be landscaped. The landscaping is designed by a licensed landscape architect to comply with the City

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of Bainbridge Island requirements, and landscape plans will be reviewed by the City of Bainbridge Island.

e. List all noxious weeds and invasive species known to be on or near the site.
No noxious weeds or invasive species are known to be on or near the site.

5. Animals

a. List any birds and other animals which have been observed, or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other: barred owls
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened and endangered species known to be on or near the site.
No threatened or endangered species are known to be on or near the site.

c. Is the site part of a migration route? If so, explain.
The entire Puget Sound region is located within the Pacific Flyway for migratory birds.

d. Proposed measures to preserve or enhance wildlife, if any:
The proposed landscaping will include species native to the Pacific Northwest.

e. List any invasive animal species known to be on or near the site.
No invasive animal species is known to be on or near the site.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.
Electric and natural gas energy will be used to meet the completed project's energy needs.

b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.
The project is not expected to affect the potential use of solar energy by adjacent properties.

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c. What kinds of energy conservation features are included in the plans of this proposal?

List other proposed measures to reduce or control energy impacts, if any:

This proposal will comply with the current adopted building and energy codes and standards, and the plans prepared for the proposal will be reviewed by the City of Bainbridge Island.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

No environmental health hazards are expected to occur as a result of this proposal.

- 1) Describe any known or possible contamination at the site from present or past uses.

There is no known contamination at the site from present or past uses, and no contamination is anticipated from this proposal.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are no known existing hazardous chemicals or conditions that might affect development and design of the proposed project.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, an existing above-ground fueling system will be stored on the site for incorporation into the proposed project. An existing fuel generator with a fuel tank will be retained on the site both during construction and for the completed project. For the completed project, wash soap, firefighting foam, small engine lubricant, and propane will be stored on the site. The above materials are necessary to support the fire apparatus.

- 4) Describe special emergency services that might be required.

The proposal is not anticipated to require any special emergency services. The proposal is for redevelopment of a fire station, which provides an emergency service to the community.

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- 5) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are anticipated from this proposal.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise exists in the area from the existing fire apparatus use, from the traffic on Madison Avenue N, and from the occasional takeoff and landing of helicopters using the helipad on the site; but the noise is not anticipated to affect this proposal.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise will be created by or associated with the project construction, and long-term noise will be created by or associated with the fire apparatus use, with traffic to and from the completed project, and with operations on the site (including the helipad described above). Consistent with City of Bainbridge Island regulations, construction will occur between the hours of 7:00 a.m. and 7:00 p.m. on weekdays that do not constitute legal holidays and between 9:00 a.m. and 6:00 p.m. on Saturdays that do not constitute legal holidays. Operations at the completed project will occur 24 hours per day, seven days per week.

- 3) Proposed measures to reduce or control noise impacts, if any:

Any noise related to the fire station use that can be defined as "[s]ounds created by emergency equipment and work necessary [...] for healthy safety or welfare of the community" are exempt from all provisions of the Washington Administrative Code adopted by the City of Bainbridge Island governing maximum environmental noise levels (See Bainbridge Island Municipal Code Section 16.16.020. and WAC Section 173-60-050 [4] [f].).

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current use of the site is as a fire station, which is the same as the proposed use. There is a residential subdivision to the north, commercial storage to the south, a church to the east, and a residential area to the west of the site. The fire station use has been compatible with the current land uses on nearby or adjacent

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properties, and the compatibility of the fire station use with the nearby or adjacent uses will be preserved through this proposal.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

To the best of knowledge, the project site has not been used as working farmlands or forest lands in the recent past. No agricultural or forest land of long-term commercial significance will be converted to other uses as a result of this proposal, and no acres in farmland or forest land tax status will be converted to nonfarm or nonforest use as a result of this proposal.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

There are no known surrounding working farm or forest land normal business operations nearby or adjacent to the project site; therefore, no affects are anticipated with this proposal.

c. Describe any structures on the site.

There are approximately four existing buildings on the site, including a fire station, living quarters, a generator building, and an accessory building; there are a memorial, a helicopter landing pad, a fence, and vehicle circulation areas on the site, as well.

d. Will any structures be demolished? If so, what?

All existing buildings and vehicle circulation areas will be demolished, and the buildings and vehicle circulation areas will be redeveloped. The memorial, helicopter landing pad, and fence will be preserved.

e. What is the current zoning classification of the site?

The current zoning classification of the site is 2 Units per Acre Zone (20,000 square feet; R-2).

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation of the site is 2 Units per Acre Zone (20,000 square feet; OSR-2).

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g. If applicable, what is the current shoreline master program designation of the site?

The site is not within shoreline jurisdiction.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No part of the site has been classified as a critical area by the City of Bainbridge Island or by Kitsap County.

i. Approximately how many people would reside or work in the completed project?

Approximately 11 employees will work in the completed project and reside in the living quarters to be provided with the project during on-duty shifts.

j. Approximately how many people would the completed project displace?

The completed project will not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

The completed project will not displace any people; therefore, no measures to avoid or reduce displacement impacts are necessary.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposal is for redevelopment of an existing use that has been previously approved by the City of Bainbridge Island and Kitsap County. The proposed use is conditionally allowed in the zone, and the applicant seeks approval of a Conditional Use Permit through compliance with the relevant standards and requirements.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no known agricultural or forest lands of long-term commercial significance near the project site, so no measures to ensure compatibility are necessary.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be provided with this proposal; living quarters to be used periodically by employees are proposed.

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- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated with this proposal.

- c. Proposed measures to reduce or control housing impacts, if any:

No housing will be provided or eliminated with this proposal, so no measures to reduce or control housing impacts are necessary.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the proposed fire station building is approximately 34 feet at the maximum, measured from the highest overhang of the roofline. The proposed principal exterior building materials are metal panels, fiber cement boards, and board-formed concrete.

- b. What views in the immediate vicinity would be altered or obstructed?

No views in the immediate vicinity of this proposal are anticipated to be altered or obstructed.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

The proposed building is designed for compatibility with contemporary architecture characteristic of the Pacific Northwest in general and the Bainbridge Island community specifically.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The proposal includes exterior building lights which will be present during hours of darkness for the purposes of public safety and security. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

The exterior building lights for this proposal are intended to enhance the safety and security of the site, and these lights will not interfere with views. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

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c. What existing off-site sources of light or glare may affect your proposal?

No existing off-site sources of light or glare are expected to affect this proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

A lighting plan for the project will be reviewed by the City of Bainbridge Island.

Lights will be shielded in order to prevent impacts on adjacent properties.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The site is within one mile of Murden Cove, Manitou Park, and Rotary Park.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No recreational uses currently exist on the subject site, so the proposed project would not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No impacts on recreation are anticipated to result from the project, and the applicant is not providing any public recreation opportunities.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

No known buildings, structures, or sites located on or near the site that are over 45 years old are listed in or eligible for listing in national, state, or local preservation registers.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No landmarks, features, or other evidence of Indian or historic use or occupation or material evidence, artifacts, or areas of cultural importance are known to exist on or near the site. If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

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- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The site is currently in use as a fire station, and no cultural or historic resources are known to exist on the site; thus, no potential impacts to cultural or historic resources on the site are anticipated, and no methods to assess the potential impacts to cultural or historic resources on the site have been used. If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site is served by Madison Avenue N to the east, which is functionally classified as a secondary arterial street according to the draft update of the City's Island Wide Transportation Plan (IWTP). The existing driveway will be redeveloped as two separate driveways, both approximately 26 feet wide, one at the southern end of the existing driveway and one at the northern end of the existing driveway.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site is currently served by public transit: there are three existing transit stops within one quarter-mile of the site, one near the intersection of Madison Avenue N at NE New Brooklyn Road, one near the intersection of Madison Avenue N at Highway 305, and one slightly further to the southeast on Highway 305.

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- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The completed project will provide 40 parking spaces, eliminating 35 spaces.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The proposal will not require any new or improved transportation facilities. Internal circulation will be provided for pedestrians and bicycles, in addition to passenger and emergency vehicles.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will not use or occur in the immediate vicinity of water, rail, or air transportation.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Station 21 – 30,760 ksf x 3.49 daily trips/ksf = 107 daily trips

~10% peak hour = 11 peak hour trips

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no known movements of agricultural or forest products on roads or streets in the area, so the proposal will not interfere with, affect, or be affected by the movement of such products on roads or streets in the area.

- h. Proposed measures to reduce or control transportation impacts, if any:

None proposed at this time.

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The project is a redevelopment of an existing use, so the project will not result in a significantly increased need for public services. As a redeveloped fire station, the project provides a public service to the community.

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b. Proposed measures to reduce or control direct impacts on public services, if any.
The proposed redevelopment of the fire station is a response to an identified need to enhance public services in the community of Bainbridge Island.

16. Utilities

a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The site is currently served by utility infrastructure that is adequate to meet the needs of the proposed development; therefore, no new utilities or utility connections are proposed. There is an existing utility pole in the center of the site that is proposed to be relocated. Water and sewer service are provided by the City of Bainbridge Island.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

Name of signee Michael Chen

Position and Agency/Organization Senior Planner, Mackenzie

Date Submitted: 1/13/2016

CHECKLIST REVIEWED BY:

Project Manager, Department of Planning and Community Development

GEOTECHNICAL ENGINEERING REPORT FIRE STATION 21

8895 Madison Avenue North
Bainbridge Island, Washington

Prepared for: Bainbridge Island Fire Department

Project No. 150136-01 • December 30, 2015 FINAL





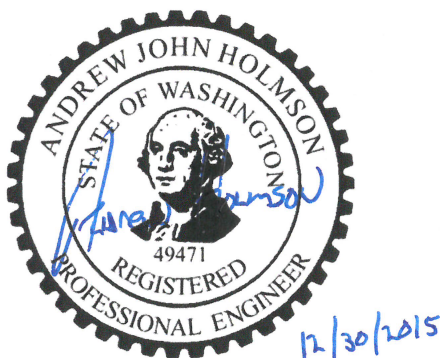
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Aspect Consulting, LLC



A handwritten signature in blue ink that reads "Erik O. Andersen".

Andrew J. Holmson, PE
Senior Project Geotechnical Engineer
aholmson@aspectconsulting.com

Erik O. Andersen, PE
Senior Associate Geotechnical Engineer
eandersen@aspectconsulting.com

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1 Introduction

This report presents the results of a geotechnical engineering study performed by Aspect Consulting, LLC (Aspect) for the Fire Station 21 Replacement Project (Project) located at 8895 Madison Avenue North, Bainbridge Island, Washington (Site).

The Project location is shown on Figure 1, *Site Location Map*. The purpose of the Project is to replace the existing fire station with a new, modern facility.

This report summarizes the results of the completed field explorations and presents Aspect's geotechnical engineering conclusions and recommendations.

1.1 Scope of Services and Authorization

Our scope of work included gathering and reviewing existing subsurface information near the Site; drilling and sampling exploratory borings; excavating and performing pilot infiltration testing; performing laboratory testing; completing engineering analyses to develop geotechnical conclusions and recommendations for design and construction of the Project; and preparing this report. Our work was completed in general accordance with our agreed-upon scope of work, authorized by Assistant Chief Luke Carpenter on June 19, 2015.

1.2 Project Description

The project is currently in the concept-level planning stage. Our Project understanding was developed through our review of concept drawings, discussions with Fire Department personnel, and discussions with the Project architect, Mackenzie Architects.

We understand the new fire station will include a west-to-east aligned multibay vehicle and equipment staging area, a two-story office and living space, and a single-story lobby with community hall. The new fire station will be located across the northwest portion of the existing fire station footprint and extending westward. No changes are planned near the existing helipad and western edge of the Site. New public parking is planned in the southeast corner of the Site with staff and secured parking planned in the northeast corner of the Site. We understand that the existing stormwater, sewer, and water utilities at the Site will be utilized by the new fire station. On-Site stormwater infiltration will be completed to the extent possible at the Site as a supplement to the existing stormwater facilities. Significant cuts or fills are not anticipated for the Project.

We assume the new fire station will be designed using the standards and criteria set forth in the current version of the International Building Code (IBC; IBC 2012). The Project vertical datum is the City of Bainbridge Island Vertical Control Network and is the basis for all references to elevations contained herein.

2 Site Conditions

The Site is located on the interior of Bainbridge Island west and southwest of the intersection between State Route 305 and Madison Avenue North. The Site is bordered by a large-acreage residential/farm property to the west, by the Northtown Woods residential development to the northwest, by SR 305 to the north/northeast, by Madison Avenue North to the southeast, and by New Brooklyn Road to the south.

The Site currently contains the existing Fire Station 21 building, parking areas, living quarters, small outbuilding, a fueling station, and a helicopter landing pad. A review of historical drawings indicates the Site has been reworked and configured multiple times during the last several decades. The northern and northeastern portions of the Site contained various wetlands and constructed ponds in the past.

The Site is relatively flat with a high elevation of 186 near the existing helicopter landing pad and also in the northeast corner of the Site and a low elevation of 173 near the southern Site boundary. The average elevation across the majority of the Site is approximately 179. The layout and location of the existing Site features, topography, and the completed subsurface explorations are shown on Figure 2, *Site Exploration Plan*.

2.1 Subsurface Conditions

Subsurface conditions at the Site were inferred from the completed field explorations, review of applicable geologic literature, and our local geologic experience. More detailed descriptions of the field exploration, methodologies, and conditions encountered are presented in Appendix A.

2.1.1 Geology

The Project area is located in the Puget Lowland. The Puget Lowland is a complex area of tectonic subsidence flanked by two mountain ranges—the Cascades to the east, and the Olympics to the west. The sediments within the Puget Lowland result from repeated cycles of glacial and nonglacial deposition and erosion. During nonglacial cycles, the area was dominated by lowland forests and broad river valleys. During glacial cycles, ice sheets up to 3,000 feet thick occupied the Puget Lowland and surrounding areas, and carved out the deep marine waterways and river valleys, and sculpted the uplands. Deposits from these glacial and nonglacial cycles are present in the subsurface of the Project area.

The available geologic mapping (Haugerud, 2005) indicates that subsurface conditions at the Site generally consist of recent (Holocene) deposits, overlying glacial soils from the Fraser glaciation age.

2.1.2 Stratigraphy

The subsurface soils, based on the completed subsurface explorations, can be grouped into five units consisting of the following: fill, wetland deposits, glacial ice-contact

deposits, glacial till deposits, and advance outwash deposits. Details of the composition and distribution of these units are presented in more detail below.

Fill

At the ground surface, we encountered fill in each of the completed borings. The fill varied in thickness from 3.5 to 9 feet. It generally consisted of loose to medium, dry to moist, brown to gray, silty SAND (SM)¹ with trace gravel and scattered organics. The fill in boring B-2 mostly consisted of loose, dry, brown, sandy, subangular to angular GRAVEL (GP). The fill likely includes reworked native soils and imported soils associated with previous Site development activities.

The SPT² blow counts from the explorations in the fill ranged from 6 to 29 blows per foot, indicating the fill was typically loose to medium dense and variable in its relative density and composition. The presence of fine-grained soil (soil particles passing the U.S. No. 200 sieve) makes the fill typically susceptible to disturbance during construction (it is moisture sensitive). Scattered fine organics were present throughout the fill. The majority of the fill can generally be expected to have low to moderate shear strength, moderate compressibility, and moderate to high permeability.

Wetland Deposits

In our boring B-2 we encountered Holocene (recent) wetland deposits underlying the fill extending from 3.5 to 7 feet below ground surface (bgs). The wetland deposits consisted of medium stiff to stiff, moist, dark brown to gray, sandy SILT (ML) and organic SILT (OL) with numerous organics and wood fragments.

The SPT blow counts from the explorations in the wetland deposits were 7 and 13 blows per foot, indicating the wetland deposits were typically medium stiff to stiff. The wetland deposits can be expected to have low to moderate shear strength, moderate to high compressibility, low to moderate permeability, and high moisture sensitivity.

Glacial Ice-Contact Deposits

We encountered glacial ice-contact deposits underlying the fill or wetland deposits in each of the completed borings. The ice-contact deposits ranged from 4.75 to 31.25 feet bgs and typically consisted of medium dense to dense, moist, brown to gray, slightly sandy SILT (ML) with variable gravel content and zones of dense, moist, brown, slightly silty SAND (SP-SM) with gravel.

The SPT blow count from the explorations in the ice-contact deposits ranged from 11 to 54 blows per foot with an average value of 25 blows per foot, indicating the ice-contact deposits were typically medium dense to dense. The glacial ice-contact deposits can be expected to have moderate to high shear strength, low to moderate compressibility, low permeability, and moderate to high moisture sensitivity.

¹ Soil Classification per the Unified Soil Classification System (USCS). Refer to ASTM D-2488.

² SPT blow count refers to standard penetration test (SPT) N-values, in accordance with ASTM D-1586.

Glacial Till

We encountered glacial till underlying the glacial ice-contact deposits in each of the completed borings and underlying the wetland deposits in PIT-1 and PIT-2. Borings B-2 through B-4 were terminated in the glacial till unit at depths ranging from 40.5 to 41.5 feet bgs. The glacial till in PIT-1 and PIT-2 was encountered closer to the ground surface between 3.5 and 8 feet bgs, indicating a highly variable contact surface and highlighting the Holocene-era infilling (wetland) of the Site and more recent historic filling and grading at the Site. The glacial till typically consisted of very dense, moist to very moist, gray, gravelly, silty SAND (SM) with a diamict texture.

The SPT blow counts from the explorations in the glacial till ranged from 38 to greater than 100 blows per foot, indicating the glacial till was typically very dense. The glacial till can be expected to have high shear strength, low compressibility, low permeability, and moderate moisture sensitivity.

Glacial Outwash

We encountered glacial outwash underlying the glacial till in boring B-1. Boring B-1 was terminated in the glacial outwash at a depth of 41.5 feet bgs. The glacial outwash consisted of medium dense, wet, gray SAND (SW) with trace silt and gravel.

The SPT blow count from the exploration in the glacial outwash was 28 blows per foot, indicating the glacial outwash was medium dense. The glacial outwash can be expected to have moderate to high shear strength, low compressibility, moderate to high permeability, and low moisture sensitivity.

2.1.3 Groundwater

Groundwater was not encountered in any of the completed explorations. Although not encountered during drilling in August, it is possible that shallow “perched” groundwater could develop within the upper fill and wetland soils overlying the relatively fine-grained and less permeable ice-contact deposits. Slight seepage and wet soil conditions were noted in the upper 5 feet of PIT-1 and PIT-2 during the pilot infiltration testing program, which was completed in December. The presence of perched groundwater would fluctuate seasonally with precipitation as well as with changes in Site and near-Site usage.

3 Seismic Design Considerations

The Site is located in a seismically active area and is approximately 2 miles north of the Seattle Fault zone, a shallow crustal tectonic structure that is considered active (meaning it has the potential to cause earthquakes in the future). The recurrence interval of earthquakes on this fault zone is believed to be on the order of a thousand years or more.

The Site also lies within the zone of strong shaking from subduction zone earthquakes. The recurrence interval of these earthquakes is thought to be on the order of about 500 years. The most recent subduction zone earthquake occurred in 1700.

Deep intraslab earthquakes also occur in the region every decade or two, including the 2001 Nisqually earthquake. These earthquakes are generally less severe than the shallow crustal and subduction zone earthquakes, but have the potential to cause damage to older structures built before modern seismic codes were enacted, and those in liquefaction-sensitive areas.

In our opinion, design of the new structures in accordance with the current version of the IBC will mitigate seismic hazards to acceptable risk levels.

3.1 Surficial Ground Rupture

The nearest known active fault trace is a structure associated with the Seattle Fault zone and locally known as the “Welfare Strand,” approximately 2 miles south of the Site. Recent studies made by the United States Geological Survey (USGS) (e.g., Johnson et al., 1994, and Johnson et al., 1999) suggest that a northern trace of an east-west trending thrust fault zone (Seattle fault) may project in the vicinity of Eagle Harbor on Bainbridge Island. Due to the suspected long recurrence interval, and the offset of the Site from the known preferred rupture surface, the potential for surficial ground rupture at the Site is considered low during the expected life of the improvements.

3.2 Landslides and Liquefaction

3.2.1 *Seismically Induced Landslides*

Due to the relatively flat and gently sloping topography of the Site and presence of moderate to high shear-strength glacial soils near the ground surface, the Site slopes present a low risk of seismically induced landslides.

3.2.2 *Liquefaction*

Due to the grain-size distribution and inherent density of the glacial soils underlying the Site and the general absence of shallow, continuous groundwater, the liquefaction potential for the soils at the Site is considered low.

3.3 Ground Response

IBC code-based seismic design is based on the “Maximum Considered Earthquake (MCE)” with a two-percent probability of exceedance (PE) in 50 years (2,475-year return period). The USGS (USGS, 2008) has completed probabilistic ground motion studies and maps for Washington.

Current IBC design methodologies express the effects of site-specific subsurface conditions on the ground motion response in terms of the “Site Class.” The Site Class can be correlated to the average density in the upper 100 feet of the soil profile. Based on the results of our subsurface exploration program, our regional experience with the geologic materials underlying the Site, and using the 2012 IBC criteria, the Site would be characterized as Seismic Site Class D. The proposed fire station requires designation as a risk category IV (essential) structure.

The mapped, maximum considered earthquake spectral response accelerations for short period (S_s) = 1.391g; and for 1-second period (S_1) = 0.547g. Site coefficients for this Site are $F_a = 1.0$, $F_v = 1.5$. The maximum considered earthquake spectral response accelerations adjusted for Site class effects are $S_{ds} = 0.927g$, $S_{d1} = 0.547g$.

4 Conclusions and Recommendations

4.1 General

The following sections present the results of our engineering analyses and recommendations for earthwork, foundation support, and other pertinent geotechnical design issues.

4.2 Earthwork

Site excavation and grading can be completed with standard construction equipment. The fill that mantles the Site should be anticipated to be variable and, although not encountered in our explorations, the fill may contain oversized cobbles, small boulders, wood debris, or other remnant debris. Excavation activities will be significantly easier and more cost-effective during the drier summer months. Appropriate erosion control measures should be implemented prior to beginning earthwork activities in accordance with the local regulations.

4.2.1 *Wet Weather Earthwork*

Earthwork is typically most economical when performed under dry weather conditions; however, earthwork may proceed during wet weather conditions provided the appropriate provisions are in place. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations apply:

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean structural fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance.
- The ground surface within the construction area should be graded to promote runoff of surface water and to prevent the ponding of water.
- Material used as structural fill should consist of clean, granular soil containing less than 7 percent fines. Gravel Borrow in accordance with Section 9-03.14(1) of the Washington State Department of Transportation (WSDOT) Standard Specifications (WSDOT, 2014) is a suitable wet weather structural fill.
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils that become too wet for compaction should be removed and replaced with clean granular materials.

- Excavation and placement of fill should be observed by the Geotechnical Engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved.
- Appropriate erosion and sedimentation best management practices (BMPs) should be strategically implemented in accordance with the local regulations.

4.2.2 Temporary Excavation Stability and Permanent Slopes

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor. All temporary cuts in excess of 4 feet in height that are not protected by trench boxes or otherwise shored, should be sloped in accordance with Part N of Washington Administrative Code (WAC) 296-155 (WAC, 2009).

In general, soils across the Site classify as OSHA Soil Classification Type B and C. Temporary excavation cut slopes are anticipated to stand as steep as 1.5H:1V (Horizontal:Vertical) within the fill and wetland deposits, and as steep as 1H:1V within the glacial ice-contact deposits. The cut slope inclinations estimated above are applicable to excavations without groundwater seepage, or runoff, and assume dewatered conditions.

With time and the presence of seepage and/or precipitation, the stability of temporary unsupported cut slopes can be significantly reduced. Therefore, all temporary slopes should be protected from erosion by installing a surface water diversion ditch or berm at the top of the slope. In addition, the Contractor should monitor the stability of the temporary cut slopes, and adjust the construction schedule and slope inclination accordingly. Vibrations created by traffic and construction equipment may cause caving and raveling of the temporary slopes. In such an event, lateral support for the temporary slopes should be provided by the Contractor to prevent loss of ground support.

Permanent slopes for the Project should be no steeper than 2H:1V.

4.2.3 Structural Fill

Portions of the existing fill material that will be excavated for the Project may be suitable for reuse as structural fill. Excavated material should be visually inspected by the Geotechnical Engineer to determine its potential use as structural fill.

In general, suitable structural fill material for the Project is fill placed within 3 percent of its optimum moisture content per the American Society for Testing and Materials (ASTM) ASTM D-1557 (modified Proctor test) and does not contain deleterious materials, greater than 5 percent organics, or particles larger than 3 inches in diameter. Structural fill should be placed and compacted to at least 95 percent of the maximum dry density (MDD) as determined by test method ASTM D-1557.

Imported material should be granular material with less than 10 percent fines such as Select Borrow as specified in Section 9-03.14(3) of the WSDOT Standard Specifications. In wet weather conditions or situations requiring free-draining backfill, we recommend using import material meeting the criteria for Gravel Borrow as specified in Section 9-03.14(1) of the WSDOT Standard Specifications.

Class A Gravel Backfill for Foundations as specified in Section 9-03.12(1)A of the WSDOT Standard Specifications should be used for base rock underneath structures. Crushed Surfacing Base Course (CSBC) as specified in Section 9-03.9(3) of the WSDOT Standard Specifications should be used as base rock for new pavement. If desired, lean concrete or controlled density fill (CDF) can also be used as structural fill.

Within a lateral distance of 3 feet of any wall, smaller, possibly hand-operated equipment should be used in conjunction with thinner soil lifts to achieve the required compaction so as not to damage the structure.

The procedure to achieve the specified minimum relative compaction depends on the size and type of compacting equipment, the number of passes, thickness of the layer being compacted, and certain soil properties. When size of the excavation restricts the use of heavy equipment, smaller equipment can be used, but the soil must be placed in thin enough lifts to achieve the required compaction. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved. The frequency of the in-place density testing can be determined at the time of final design when more details of the Project grading and backfilling plans are available.

4.3 Foundations

Although the current project plans are conceptual, the following general foundation criteria are provided. Spread footings and/or structural slabs may be used for building support. Bearing surfaces for the footings should be prepared as described below.

4.3.1 *Site Preparation*

Site preparation within the proposed foundation areas should include removal of all topsoil, debris, fill and wetland soils, and any other deleterious materials. Based on our completed explorations, the removal of the existing fill and wetland soils will require excavations on the order of 3.5 to 9 feet bgs in order to reach the suitable bearing stratum of glacial ice-contact deposits or glacial till. For planning purposes, the average excavation depth to reach the suitable bearing stratum will be on the order of 5 feet bgs or to about Elevation 174.

The on-Site soils contain a moderate amount of fine-grained particles, which makes them moisture sensitive and subject to disturbance when wet. The Contractor must use care during Site preparation and excavation operations, so that any bearing surfaces are not disturbed. If this occurs, the disturbed material should be removed to expose undisturbed material.

All bearing surfaces should be trimmed neat, and carefully prepared. All loose or softened soil should be removed from the bearing surface prior to placing concrete, structural fill, or capillary break materials. We recommend that all bearing surfaces be observed by the Geotechnical Engineer to verify that the recommendations of this report have been followed.

If bearing surfaces are open during the winter season or periods of wet weather, it may be helpful to provide a layer of crushed rock or gravel to help preserve the subgrade. If

gravel is used to protect the bearing surfaces, it should meet the gradation requirements for Class A Gravel Backfill for Foundations, as described in Section 9-03.12(1)A of the WSDOT Standard Specifications.

4.3.2 Foundation Design Criteria

Based on our observations of the Site soil conditions, the bearing stratum is approximately 3.5 to 9 feet bgs. The overlying fill and wetland deposits should be removed from the footprint of the new fire station structure. The variability and low relative density of the fill and presence of organics/wood debris in the wetland deposits create a hazard for total and differential settlement of the new structures.

To achieve foundation bearing at the depths described above, we recommend overexcavation of the unsuitable fill and wetland deposits and replacement with structural fill. Guidance of overexcavation and replacement is shown on Figure 3, *Typical Overexcavation Details*.

As an alternative to overexcavation and replacement, footings may also be deepened to the bearing layer, and foundation stem walls would be made taller to extend up above finished ground surface.

For spread footings, we recommend an allowable foundation bearing pressure of 2,500 pounds per square foot (psf) be utilized for design purposes, including both dead and live loads for the proposed structures. An increase in the above-mentioned bearing pressure of one-third may be used for short-term wind or seismic loading. Perimeter footings should be buried at least 18 inches into the surrounding soil for frost protection; interior footings require only 12 inches burial below adjacent finished grade. No footing should be founded in or above yielding/loose or organic soils.

We estimate the total settlement of the foundation designed in accordance with our recommendations will be less than $\frac{1}{2}$ -inch. Differential settlements can be expected to be less than half the total settlement. The majority of these settlements will occur during construction as the loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, an ultimate coefficient of friction of 0.50 may be assumed along the interface between the base of the footing and subgrade soils. An ultimate passive earth pressure of 450 pounds per cubic foot (pcf) may be assumed for undisturbed soils adjacent to below-grade elements. The upper 1 foot of passive resistance should be neglected in design, unless the ground is protected/surfaced by pavement. The recommended coefficient of friction and passive pressure values are ultimate values that do not include a safety factor. We recommend applying a factor of safety of at least 1.5 in design for determining allowable values for coefficient of friction and passive pressure.

4.3.3 Slabs-on-Grade

Concrete slabs-on-grade should be designed in accordance with the American Concrete Institute (ACI) Technical Committee 360R-10 *Guide to Design of Slabs-on-Ground*. We

recommend overexcavation of the unsuitable fill and wetland deposits and replacement with structural fill beneath all structural slabs. To provide uniform support for the floor slab and to provide a capillary break, we recommend the floor slab be underlain by a capillary break. The capillary break material should consist of a minimum of 6 inches of free-draining, crushed rock or well-graded sand and gravel compacted to at least 95 percent MDD. The capillary break material should have a maximum particle size of $\frac{3}{4}$ inch, with no more than 80 percent passing the No. 4 sieve and less than 5 percent fines (material passing the U.S. Standard No. 200 sieve). In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structures, a 10-mil polyethylene vapor barrier should be placed directly over the capillary break. The vapor barrier should be installed in accordance with the manufacturer's recommendations.

For slabs that are designed as beam on elastic foundation, a modulus of vertical subgrade reaction of 200 pounds per cubic inch (pci) may be utilized.

4.4 Wall Considerations

Yielding walls, such as cantilever retaining walls, should be designed using a lateral earth pressure based on an equivalent fluid having a unit weight of 35 pcf. Nonyielding or restrained walls should be designed for an equivalent fluid weight of 55 pcf. For these values to be used, a subsurface drain combined with a free-draining wall backfill material that meets the gradation requirements described in Section 9-03.12(2) of the WSDOT Standard Specifications for Gravel Backfill for Walls should be utilized. Refer to Section 4.5, *Drainage Considerations* for subsurface drain recommendations.

Earthquake shaking will subject retaining walls to a temporary additional earth pressure. We estimated the lateral seismic soil pressure increment using the Mononobe-Okabe method, with consideration of the possible backfill soil properties, design earthquake, and assuming a relatively level backslope. We recommend an average seismic soil pressure increment of $8H$ (where H is the height of the wall) represented by a uniform rectangular pressure along the height of the wall.

Overcompaction of the backfill behind walls should be avoided. In this regard, we recommend compacting the backfill to about 90 percent of the MMD (ASTM D-1557). Heavy compactors and large pieces of construction equipment should not operate within 5 feet of any embedded wall to avoid the buildup of excessive lateral pressures. Compaction close to the walls should be accomplished using hand-operated vibratory plate compactors.

Lateral forces that may be induced on the wall due to other surcharge loads should be considered by the Structural Engineer.

4.5 Drainage Considerations

We understand the existing stormwater systems and facilities at the Site will be utilized for the Project. The existing stormwater facilities should be evaluated for capacity and function and all new Site stormwater generated by the Project should be directed appropriately.

The outside edge of all perimeter footings and embedded walls should be provided with a drainage system consisting of a 4-inch-diameter, perforated, rigid pipe embedded in free-draining gravel meeting the requirements of Section 9-03.12(4) of the WSDOT Standard Specifications for Gravel Backfill for Drains. The footing and wall drains should be a minimum of 1 foot thick, and a layer of low permeability soils should be used over the upper foot of the drain section to reduce potential for surface water to enter the drain curtain. Prefabricated drain mats combined with relatively free-draining backfill may be used as an alternative to washed-rock footings and wall drains.

Final grades around the proposed structures should be sloped such that surface water drains away from the structures. Downspouts and roof drains should not be connected to the foundation drains in order to reduce the potential for flooding foundation drains and clogging. The footing drains should include clean-outs to allow periodic maintenance and inspection.

4.5.1 Stormwater Infiltration

As part of our study, we investigated the feasibility of stormwater infiltration at the Site through the completion of two small-scale pilot infiltration tests (PITs). Our field testing and analyses indicate that the Site conditions do not readily accept infiltrating stormwater and we recorded unfactored infiltration rates of 0 inches per hour. Based on the results of the field infiltration testing, the completed soil borings, and the historic presence of wetlands and ponds on the Site, stormwater infiltration is not recommended. Appendix C presents a more detailed discussion and numeric results of our field infiltration testing.

4.6 Pavement Considerations

The near-surface fill will provide suitable support for new pavement sections. All pavement subgrades should be carefully prepared. Prior to placing base course and pavement, all standard pavement subgrades should be proof-rolled with a fully loaded dump truck or equivalent. Any soft areas detected by the proof-rolling or other methods should be subexcavated to relatively firm and unyielding subgrade and backfilled with compacted structural fill to the design subgrade elevation. To provide for quality construction practices and materials, we recommend all pavement work and mix-design considerations conform to City of Bainbridge Island Public Works and/or WSDOT standards.

In nonroadway parking areas, a pavement section consisting of 3 inches of hot mix asphalt (HMA) over 6 inches of base course would be appropriate. However, along access drives and in areas where the fire trucks travel frequently and/or turn a tight radius, we recommend a minimum section of 4 inches of HMA over 8 inches of base course. We recommend CSBC for the pavement base course and Crushed Surfacing Top Course (CSTC) may be used over the CSBC for the upper 2 to 3 inches of the base course section. CSBC and CSTC should be as specified in Section 9-03.9(3) of the Standard Specifications should be used as base course for pavements.

For rigid (concrete) pavement sections, we recommend a minimum of 6 inches of concrete over 6 inches of base course. The concrete should have a minimum 28-day compressive strength of 4,000 pounds per square inch (psi).

The recommended pavement section is not intended to support extensive construction traffic, such as dump trucks and concrete Redit-mix trucks. Pavements subject to heavy construction traffic may be damaged and require repair.

Drainage is an essential aspect of pavement performance. We recommend providing all paved areas with positive drainage to remove surface water and water within the base course. This will be particularly important in cut sections or at low points within the paved areas, such as at catch basins.

5 Additional Project Design and Construction Monitoring

At the time of this report, site plans, site grading, structural plans, and construction methods have not been finalized and the recommendations presented herein are based on preliminary Project information. If Project developments result in changes to the assumptions made herein, we should be contacted to determine if our recommendations should be revised.

This letter report is issued with the understanding that the information and recommendations contained herein will be brought to the attention of the appropriate design team personnel and incorporated into the project plans and specifications, and the necessary steps will be taken to verify that the Contractor and subcontractors carry out such recommendations in the field. We do not direct the Contractor's operations, and we cannot be responsible for the safety of personnel other than our own on the Site; the safety of others is the responsibility of the Contractor. The Contractor should notify the property owner if he considers any of the recommended actions presented herein unsafe.

We are available to provide geotechnical engineering and monitoring services during construction. The integrity of the foundation depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent.

6 References

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- Johnson et al., 1994, Origin and Evolution of the Seattle Fault and Seattle Basin, Washington, *Geology*, v. 22, p. 71-74.
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- Washington State Legislature, 2009, Washington Administrative Code (WAC), April 1, 2009.

7 Limitations

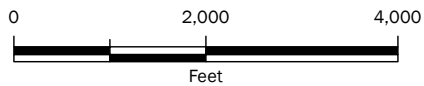
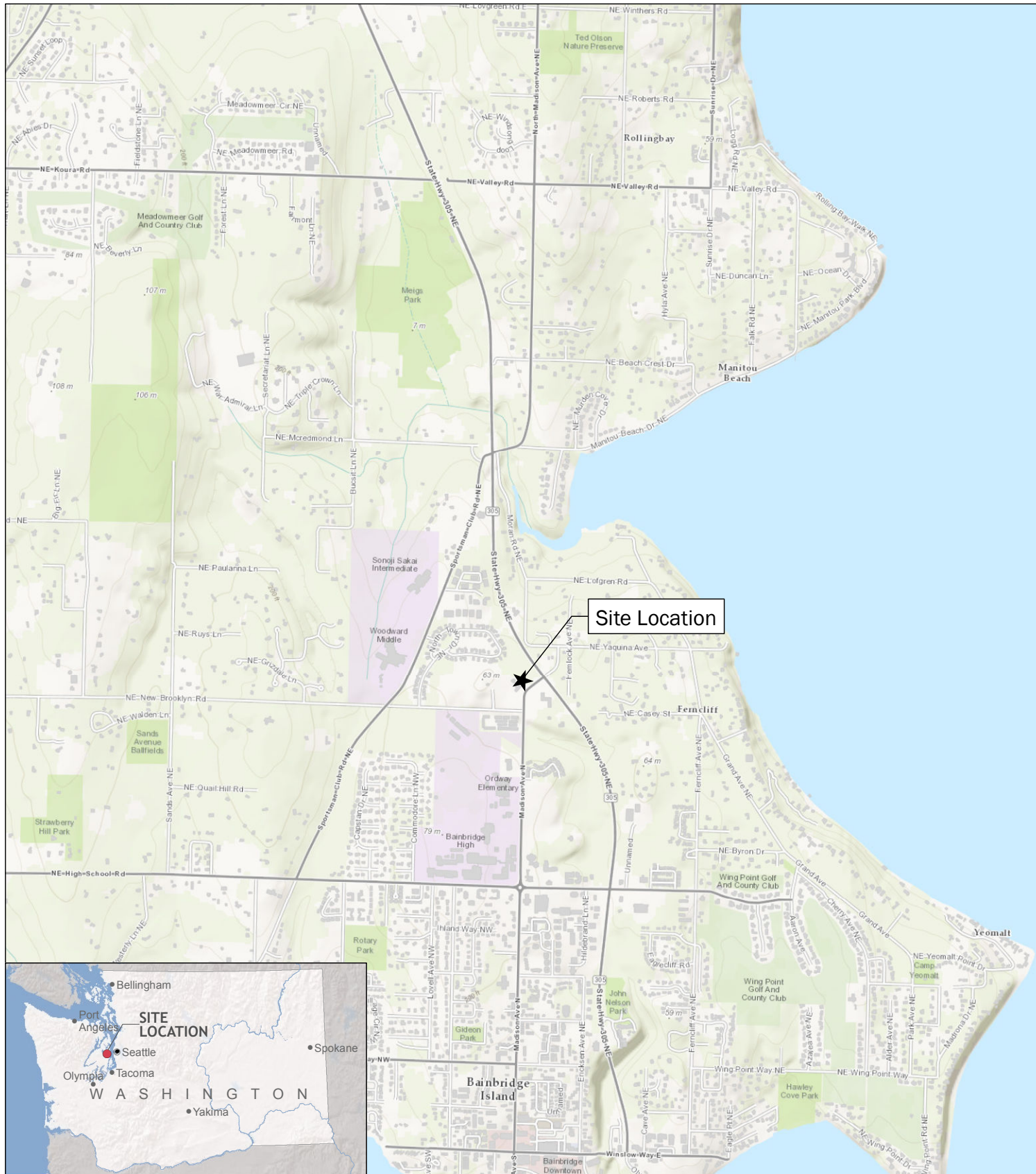
Work for this project was performed for the Bainbridge Island Fire Department (Client), and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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This report and our conclusions and interpretations should not be construed as a warranty of the subsurface conditions. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations and may not be detected by a geotechnical study. Further geotechnical evaluations, analyses, and recommendations may be necessary for the final design of this project.

If there is a substantial lapse of time between the submission of this report and the start of construction, or if conditions have changed due to construction operations at or near the Site, it is recommended that this report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

FIGURES



Site Location Map

Bainbridge Island Fire Department, Station 21
8895 Madison Avenue North
Bainbridge Island, Washington



OCT-2015

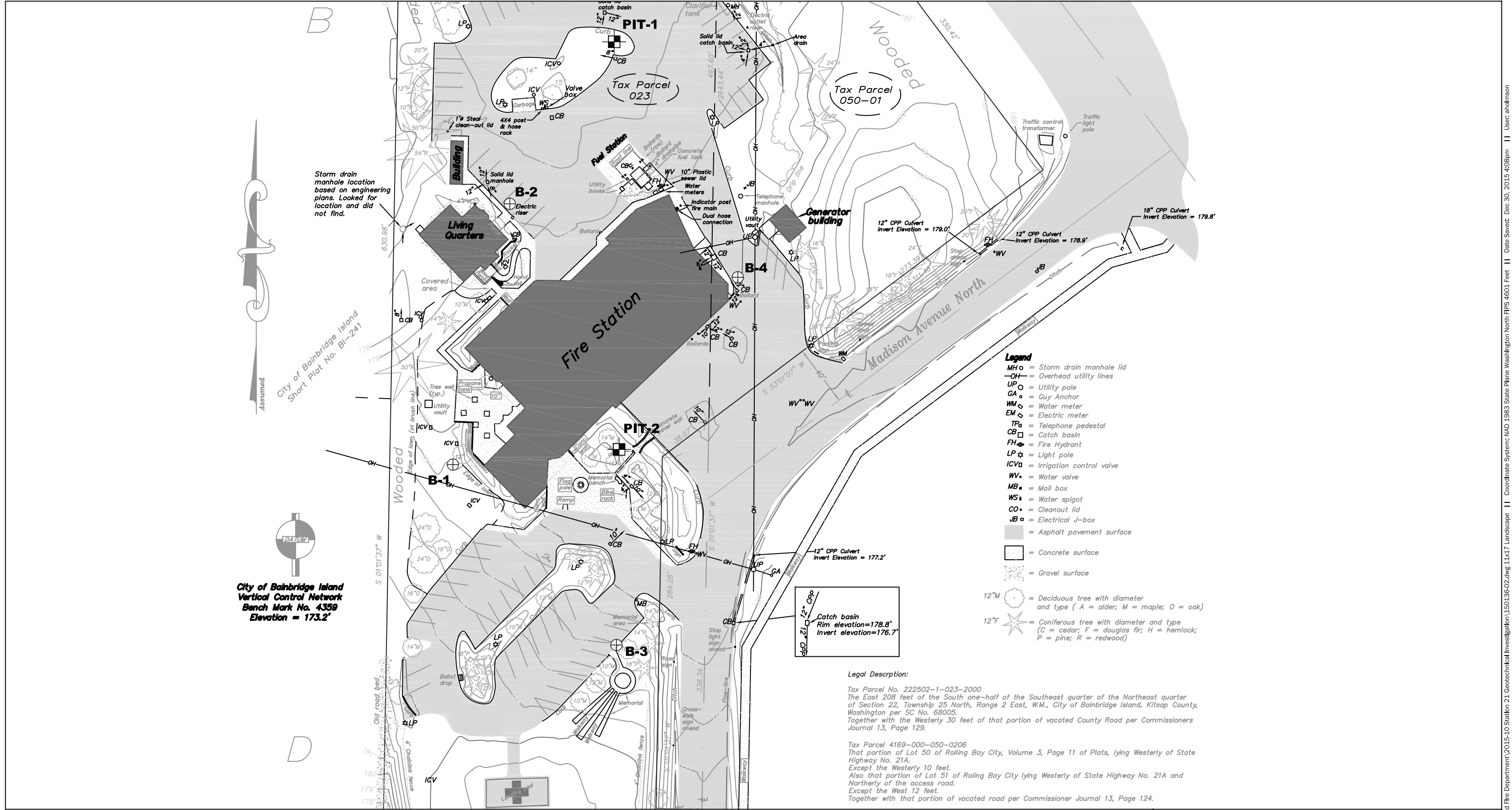
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FIGURE NO.

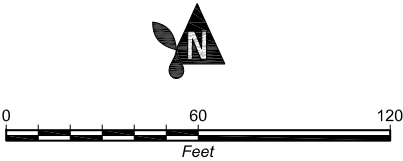
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Base map provided by Adam & Goldsworthy, Inc., Land Surveying, Poulsbo, Washington.

Legend

- ⊕ Soil Boring Location (August, 2015)
- ⊠ Pilot Infiltration Test (PIT) Location (December, 2015)



Site Exploration Plan
Bainbridge Island Fire Department, Station 21
8895 Madison Ave North
Bainbridge Island, Washington

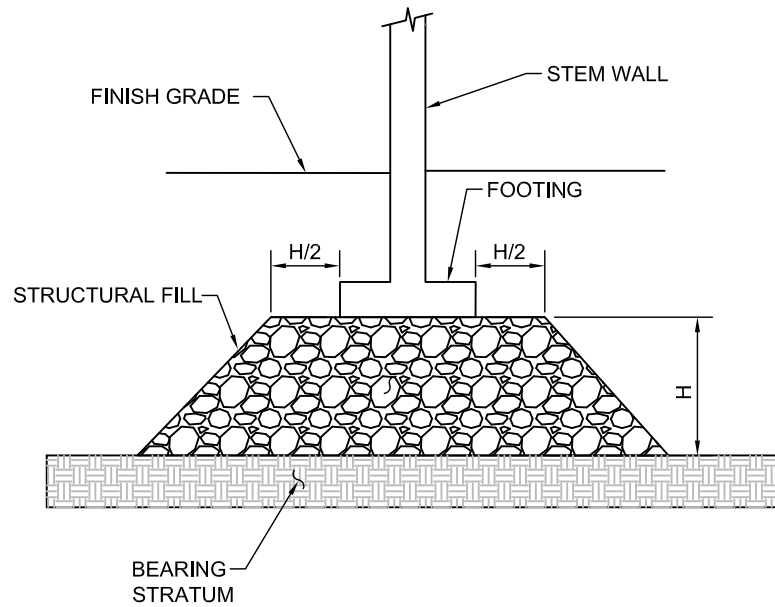


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FIGURE NO.
2

OVEREXCAVATION AND REPLACEMENT FOR SPREAD FOOTING

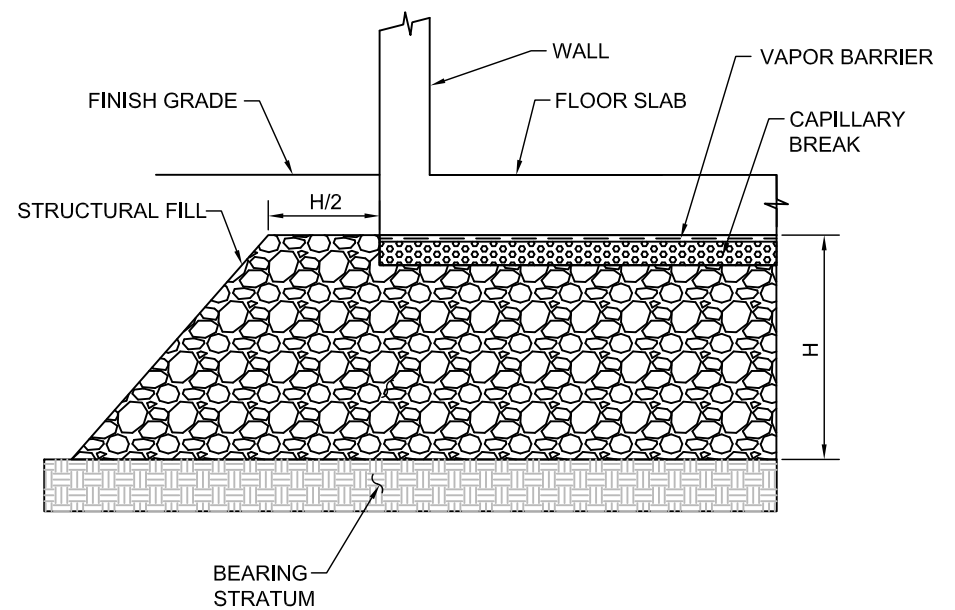


NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

OVEREXCAVATION AND REPLACEMENT FOR STRUCTURAL SLAB



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- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

Typical Overexcavation Details

Bainbridge Island Fire Department, Station 21
8895 Madison Avenue North
Bainbridge Island, Washington



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FIGURE NO.

3

APPENDIX A

Subsurface Explorations

A.1 Field Exploration Program

A.1.1 Geotechnical Borings

Geotechnical borings B-1 through B-4 were drilled using hollow-stem auger drilling techniques. The drilling was subcontracted to Geologic Drill, an experienced and licensed local driller. Drilling was completed with a trailer-mounted drill rig and 8-inch-diameter (3¹/₄-inch-inside-diameter) hollow-stem auger equipment. The locations of the four borings are shown on Figure 2. The borings were all advanced to depths ranging between 40.5 and 41.5 feet bgs.

Sampling was completed at selected depth intervals using the Standard Penetration Test (SPT) in general accordance with ASTM Method D-1586. This involves driving a 2-inch-outside-diameter split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling from a distance of 30 inches. The number of blows for each 6-inch interval is recorded and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance (“N”) or blow count. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils.

An Aspect geologist was present throughout the field exploration program to observe the drilling procedure, assist in sampling, and to prepare descriptive logs of the exploration. Soils were classified in general accordance with ASTM D-2488, *Standard Practice for Description and Identification of Soils* (Visual-Manual Procedure). The summary exploration log represents our interpretation of the contents of the field logs. The stratigraphic contacts shown on the individual summary logs represent the approximate boundaries between soil types; actual transitions may be more gradual. The subsurface conditions depicted are only for the specific date and locations reported, and therefore, are not necessarily representative of other locations and times.

Coarse-Grained Soils - More than 50% ⁽¹⁾ Retained on No. 200 Sieve				Terms Describing Relative Density and Consistency								
Gravels - More than 50% ⁽¹⁾ of Coarse Fraction Retained on No. 4 Sieve		⁽⁵⁾		GW	Well-graded gravel and gravel with sand, little to no fines	Density		SPT ⁽²⁾ blows/foot		Test Symbols		
						Coarse-Grained Soils	Very Loose	0 to 4	Loose		4 to 10	Medium Dense
Fine-Grained Soils	Very Soft	0 to 2	Soft	2 to 4	Medium Stiff					4 to 8		
						Consistency		SPT ⁽²⁾ blows/foot				
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾		SW	Well-graded sand and sand with gravel, little to no fines	Descriptive Term		Size Range and Sieve Number				
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾		SP	Poorly-graded sand and sand with gravel, little to no fines		Boulders	
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾		SM	Silty sand and silty sand with gravel					Cobbles		3" to 12"
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾		SC	Clayey sand and clayey sand with gravel	Gravel		3" to No. 4 (4.75 mm)
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel					Coarse Gravel		3" to 3/4"
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾		CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay	Fine Gravel		3/4" to No. 4 (4.75 mm)
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾		OL	Organic clay or silt of low plasticity					Sand		No. 4 (4.75 mm) to No. 200 (0.075 mm)
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt	Coarse Sand		No. 4 (4.75 mm) to No. 10 (2.00 mm)
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾		CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel					Medium Sand		No. 10 (2.00 mm) to No. 40 (0.425 mm)
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾		OH	Organic clay or silt of medium to high plasticity	Fine Sand		No. 40 (0.425 mm) to No. 200 (0.075 mm)
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾		PT	Peat, muck and other highly organic soils					Silt and Clay		Smaller than No. 200 (0.075 mm)
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Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve		⁽⁵⁾										
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve						⁽⁵⁾						

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.



Exploration Log Key

DATE:	PROJECT NO.
DESIGNED BY:	
DRAWN BY:	FIGURE NO.
REVISED BY:	A-1

**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 28 FT SW of STA 21

47.64387, -122.521701

B-1

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

181'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

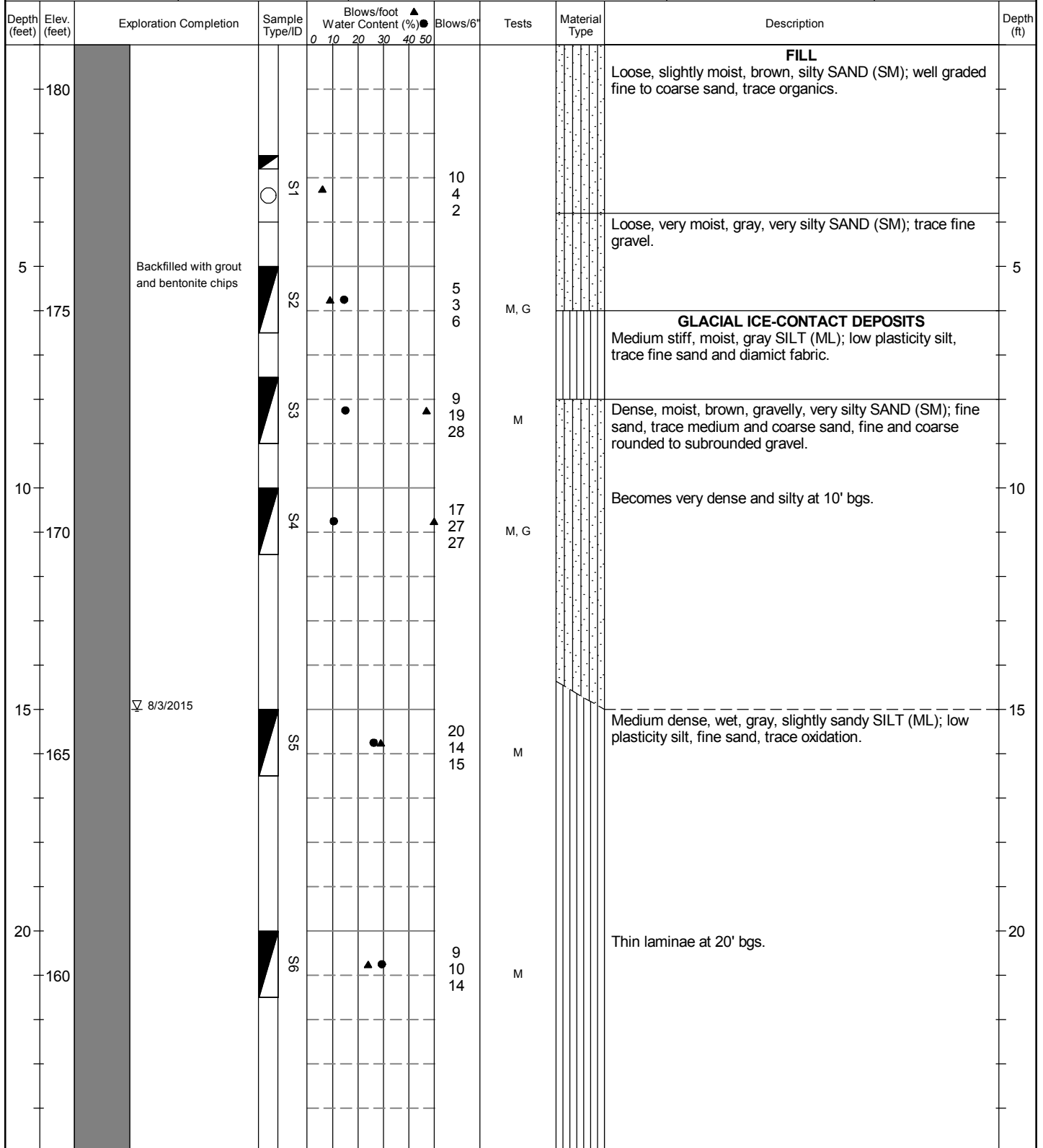
Blaine

Hollow-stem auger

8/3/2015

NA

15' (ATD)

**Legend**

- ☐ No Soil Sample Recovery
☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

Water Level (ATD)

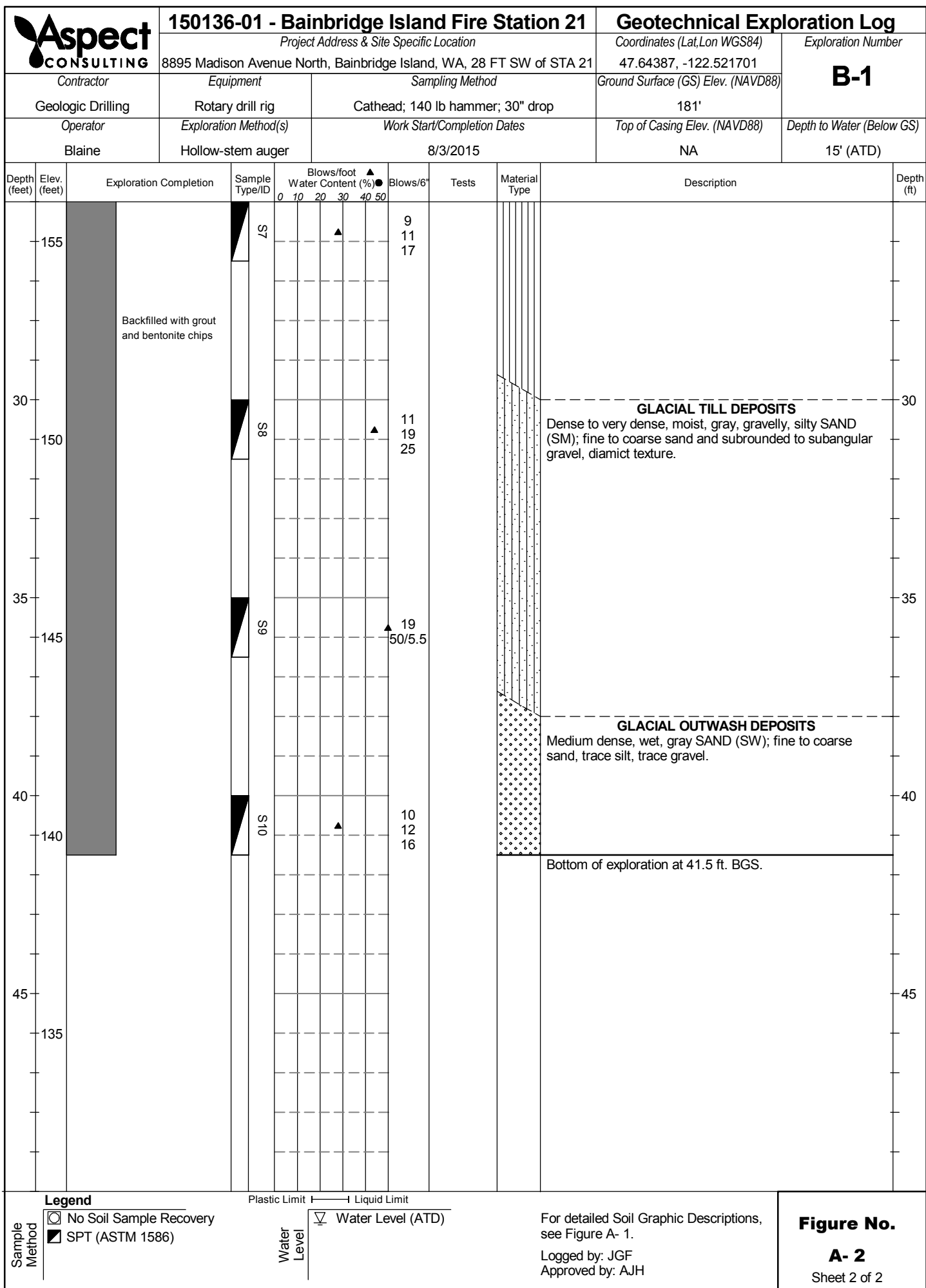
Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

Figure No.**A- 2**

Sheet 1 of 2



**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 65 FT NW of STA 21

47.64434, -122.52153

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

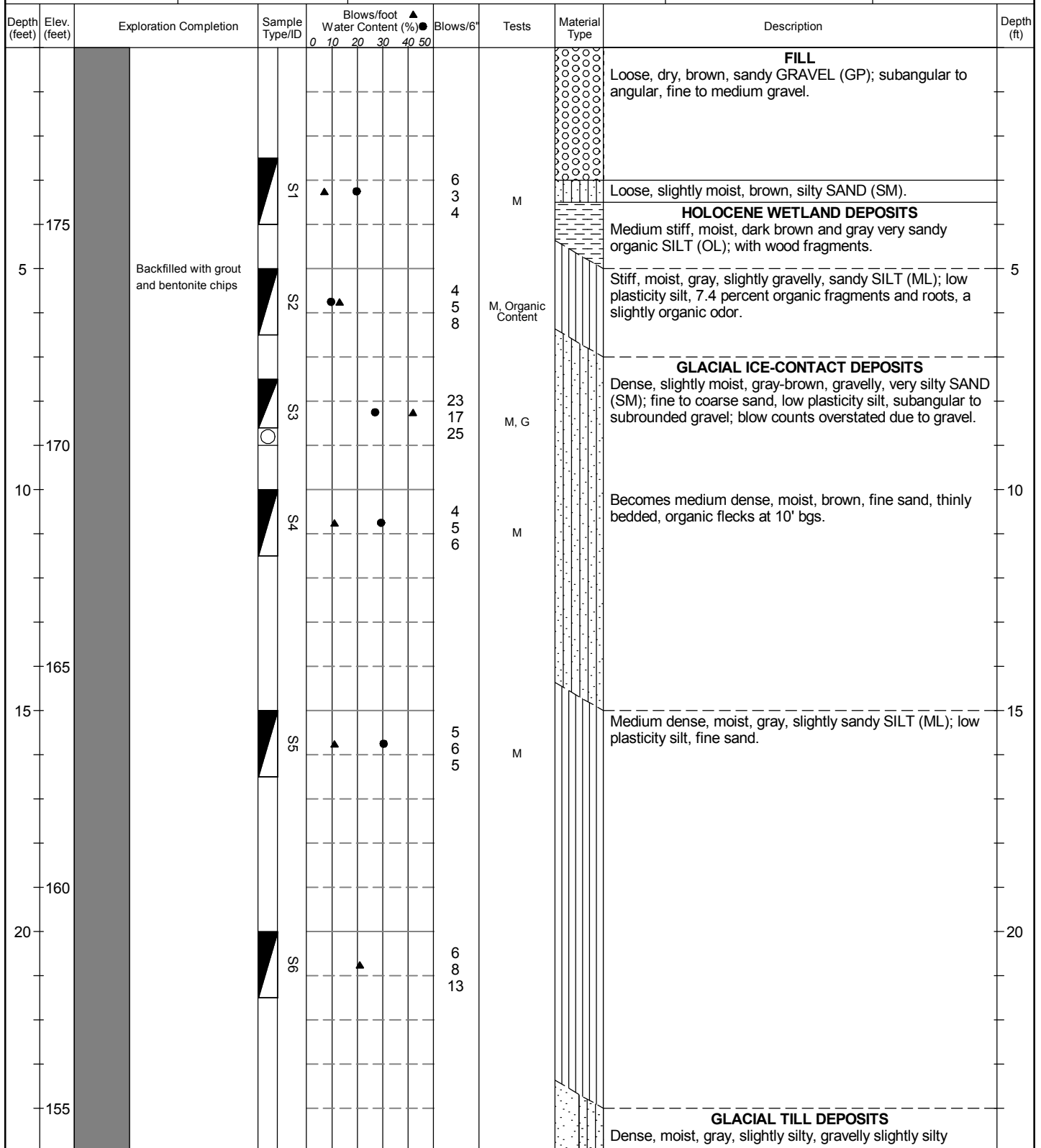
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**Figure No.****A- 3**

Sheet 1 of 2



150136-01 - Bainbridge Island Fire Station 21

Geotechnical Exploration Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 65 FT NW of STA 21

47.64434, -122.52153

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

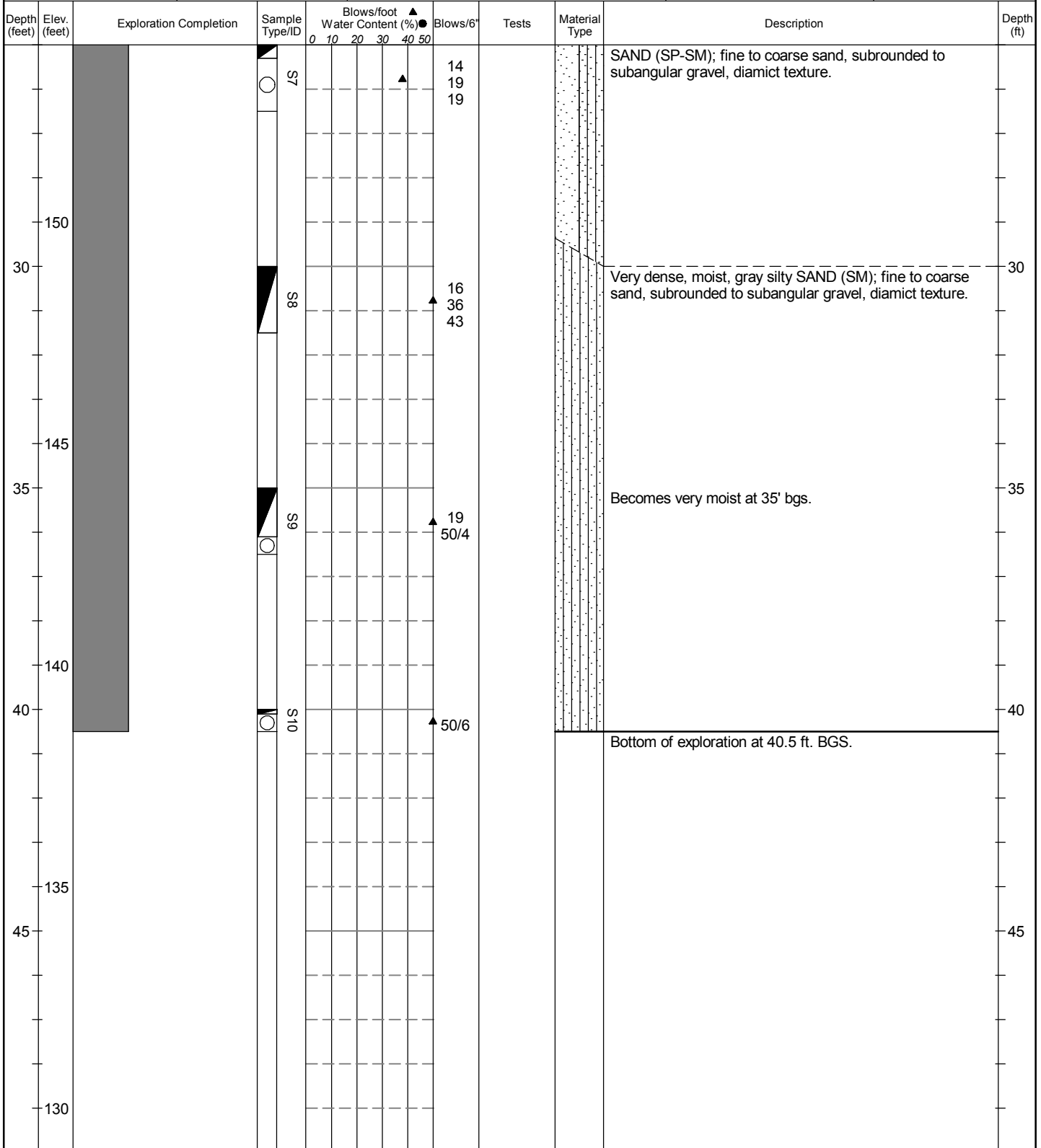
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

Figure No.

A- 3

Sheet 2 of 2

		150136-01 - Bainbridge Island Fire Station 21 <i>Project Address & Site Specific Location</i> 8895 Madison Avenue North, Bainbridge Island, WA, 95 FT S of STA 21				Geotechnical Exploration Log <i>Coordinates (Lat,Lon WGS84)</i> 47.64355, -122.52123				<i>Exploration Number</i> B-3	
<i>Contractor</i> Geologic Drilling		<i>Equipment</i> Rotary drill rig		<i>Sampling Method</i> Cathead; 140 lb hammer; 30" drop		<i>Ground Surface (GS) Elev. (NAVD88)</i> 182'					
<i>Operator</i> Blaine		<i>Exploration Method(s)</i> Hollow-stem auger		<i>Work Start/Completion Dates</i> 8/3/2015		<i>Top of Casing Elev. (NAVD88)</i> NA					
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)	
180			S1			7 10 19			FILL Medium dense, dry, brown, slightly silty SAND (SM); fine to medium sand.		
5		Backfilled with grout and bentonite chips	S2			4 7 9	M, G		GLACIAL ICE-CONTACT DEPOSITS Medium dense, slightly moist, brown, slightly sandy, SILT (ML); low plasticity silt, fine to medium sand and rare medium sandy layers oxidized, organic flecks.	5	
175			S3			4 7 8	M		Becomes moist at 7.5' bgs.		
10			S4			6 5 6	M		Becomes very moist and gray at 10' bgs.	10	
170			S5			6 13 15	M		Becomes finely laminated to very thinly bedded sand at 15' bgs.	15	
165			S6			6 10 14				20	
20											
160											

Legend

☐ No Soil Sample Recovery

☒ SPT (ASTM 1586)

Plastic Limit ——— Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

Figure No.

A- 4

Sheet 1 of 2

Aspect CONSULTING		150136-01 - Bainbridge Island Fire Station 21				Geotechnical Exploration Log				
		Project Address & Site Specific Location				Coordinates (Lat, Lon WGS84)		Exploration Number		
		8895 Madison Avenue North, Bainbridge Island, WA, 95 FT S of STA 21				47.64355, -122.52123		B-3		
Contractor		Equipment		Sampling Method		Ground Surface (GS) Elev. (NAVD88)				
Geologic Drilling		Rotary drill rig		Cathead; 140 lb hammer; 30" drop		182'				
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)		
Blaine		Hollow-stem auger		8/3/2015		NA		No Water Encountered		
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)
155			S7	7		11				
30			S8	9		15			Becomes dense, trace subrounded to rounded gravel at 31' bgs.	30
150						20			GLACIAL TILL DEPOSITS Very dense, very moist, gray slightly silty slightly silty SAND (SP-SM); fine to medium poorly graded sand, trace subrounded to subangular coarse sand and gravel.	
35			S9			50			Very dense, very moist, gray, gravelly, silty SAND (SM); fine to coarse sand in layers, subrounded to subangular gravel.	35
145										
40			S10	9		20			Trace wood at 41' bgs.	40
140						38			Bottom of exploration at 41.5 ft. BGS.	
45										45
135										

Legend

☐ No Soil Sample Recovery

☒ SPT (ASTM 1586)

Plastic Limit ——— Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

Figure No.

A- 4

Sheet 2 of 2

**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 10 FT E of STA 21

47.64421, -122.52093

B-4

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

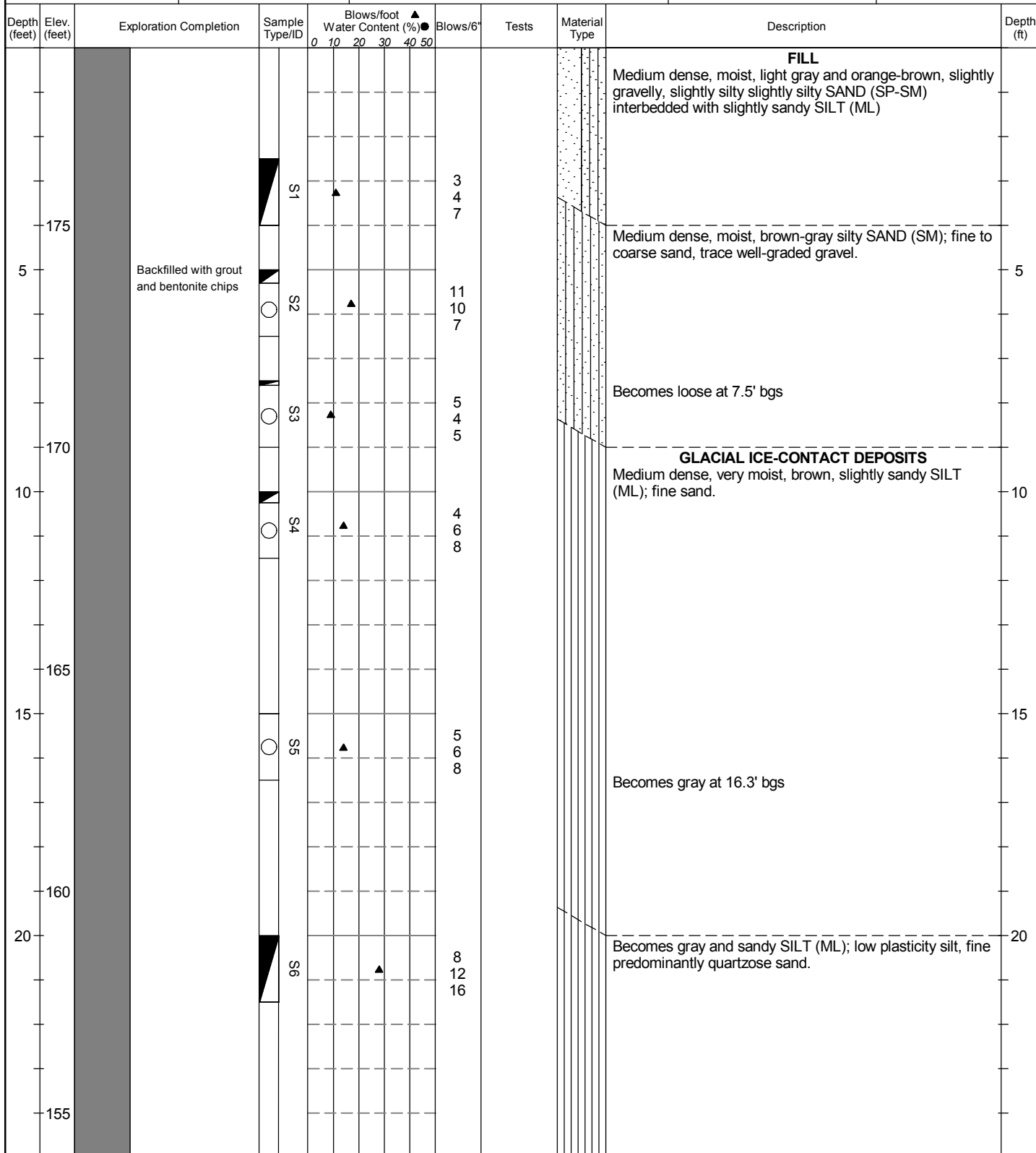
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**Figure No.****A- 5**

Sheet 1 of 2



150136-01 - Bainbridge Island Fire Station 21

Geotechnical Exploration Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 10 FT E of STA 21

47.64421, -122.52093

B-4

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

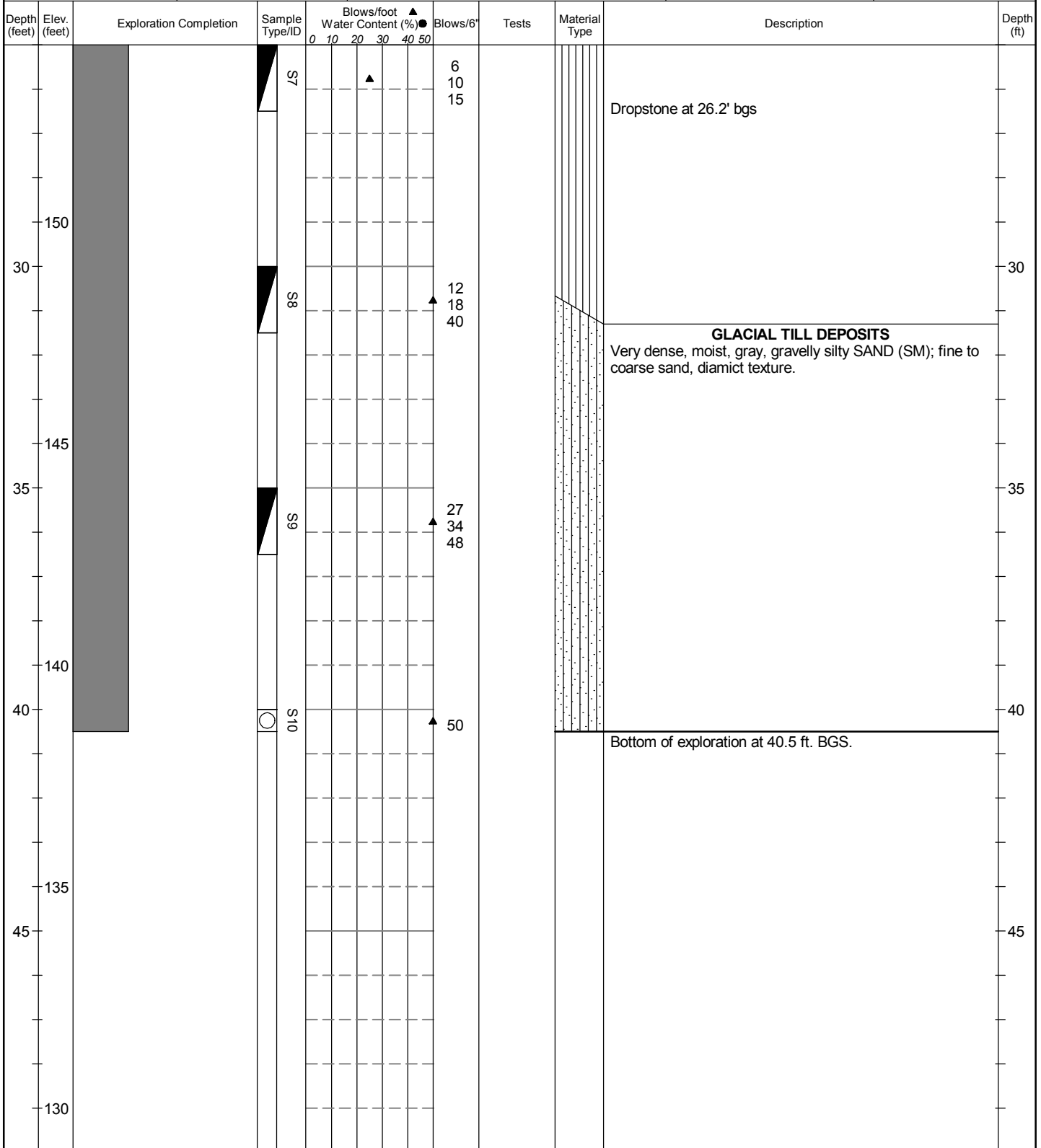
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

Figure No.

A- 5

Sheet 2 of 2

Aspect CONSULTING		150136-01 - Bainbridge Island Fire Station 21				Geotechnical Exploration Log							
Contractor		Equipment				Sampling Method				Coordinates		Exploration Number	
BIFD		Case 580 Super M				Grab				NA		PIT-1	
Operator		Exploration Method(s)				Work Start/Completion Dates				Ground Surface (GS) Elev. (NAVD88)			
Lee Rosenbaum		Test Pit				12/16/2015				Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
NA										177'		No Water Encountered	
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)			
1	176	Test pit backfilled with native soil.	1-S	0	10	20	30	40	50	HOLOCENE FILL	1		
2	175			Medium dense, moist, gray-brown, slightly sandy, gravelly SILT (ML).	2								
3	174			HOLOCENE WETLAND DEPOSITS	3								
4	173			Soft to medium stiff, very moist, brown and dark brown, clayey SILT (ML); low to medium plasticity silt.	4								
5	172			GLACIAL TILL	5								
6	171			Very dense, slightly moist to moist, gray, gravelly, very silty SAND (SM); 5 to 7 percent cobbles, trace boulders.	6								
7	170			GLACIAL OUTWASH DEPOSITS	7								
8	169			Dense, slightly moist, brown, sandy SILT (ML); non-plastic silt, east dipping contact with overlying Vashon till, 1.5 vertical feet over 7 horizontal feet.	8								
9	168			Bottom of exploration at 9 ft. BGS.	9								
10	167									10			
11	166									11			
12	165									12			
13	164									13			
14	163									14			

Legend

Grab Sample

Plastic Limit Liquid Limit

No Water Encountered

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

Figure No.

A- 6

Sheet 1 of 1

Aspect CONSULTING		150136-01 - Bainbridge Island Fire Station 21				Geotechnical Exploration Log							
Contractor		Equipment				Sampling Method				Coordinates		Exploration Number	
BIFD		Case 580 Super M				Grab				NA		PIT-2	
Operator		Exploration Method(s)				Work Start/Completion Dates				Ground Surface (GS) Elev. (NAVD88)			
Lee Rosenbaum		Test Pit				12/16/2015				Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
NA										180'		No Water Encountered	
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)			
1	179	Test pit backfilled with native soil.	1-S-1	0	10	20	30	40	50	Small Scale Pit, GS	HOLOCENE FILL Loose, moist, brown, gravelly SAND (SW); trace silt.	1	
2	178			Medium dense, moist, gray, gravelly, silty SAND (SM); reworked till.	2								
3	177			HOLOCENE WETLAND DEPOSITS Medium stiff, very moist, wet, clayey SILT (ML); low plasticity silt, trace peat lenses.	3								
4	176			GLACIAL TILL Medium dense to dense, moist, gray, slightly gravelly, silty SAND (SM); diamict texture, 5 percent cobbles, trace boulders.	4								
5	175			Very dense.	5								
6	174				6								
7	173				7								
8	172			GLACIAL OUTWASH DEPOSITS Dense, very moist, brown, slightly sandy SILT (ML); non-plastic silt.	8								
9	171			Bottom of exploration at 9 ft. BGS.	9								
10	170									10			
11	169									11			
12	168									12			
13	167									13			
14	166									14			

Legend

Grab Sample

Plastic Limit ——— Liquid Limit
 No Water Encountered

Sample Method
 Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
 Approved by: AJH

Figure No.

A- 7

Sheet 1 of 1

APPENDIX B

Laboratory Testing Results

B.1 Geotechnical Laboratory Testing

Laboratory tests were conducted on selected soil samples to characterize certain engineering (physical) properties of the Site soils. Laboratory testing included determination of grain-size distribution, moisture content, and organic content. The laboratory tests were conducted in general accordance with appropriate ASTM test methods. Test procedures are discussed below.

The grain-size distribution of selected samples was analyzed in general accordance with ASTM D-422, *Standard Test Method for Particle-Size Analysis of Soils* without hydrometer determination of fines content. The moisture content of selected samples was analyzed in general accordance with ASTM D-2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*. The organic content of selected samples was analyzed in general accordance with ASTM C 40, *Standard Test Method for Organic Impurities in Fine Aggregates*.

The results of the grain-size distribution tests are presented as curves in Appendix B, plotting percent finer by weight versus grain size. The results of the moisture content tests are presented in tabular form in Appendix B and graphically on the boring logs in Appendix A. The results of the organic content tests are presented in Appendix B.

Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Bainbridge Island Fire Station 21 Madison P#150136/08-175

HMA Sample #	Aspect Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7802-1	S-2	B-1/5'-6.5'	8/11/2015	8/12/2015	2AA	214.3	1170.0	1049.1	14.5
7802-2	S-3a	B-1/7'-5'-8'	8/11/2015	8/12/2015	JZ	114.4	260.9	241.8	15.0
7802-3	S-4	B-1/10'-11.5'	8/11/2015	8/12/2015	S8	110.2	818.9	751.9	10.4
7802-4	S-5	B-1/15'-16.5'	8/11/2015	8/12/2015	5A	113.4	1025.5	836.1	26.2
7802-5	S-6	B-1/20'-21.5'	8/11/2015	5/12/2015	S1	116.1	1064.3	848.9	29.4
7802-6	S-2	B-2/5'-6.5'	8/11/2015	8/12/2015	S5	116.0	877.3	752.0	19.7
7802-7	S-3	B-2/7'-5'-9'	8/11/2015	8/12/2015	M5	121.2	637.9	592.8	9.6
7802-8	S-4	B-2/10'-11.5'	8/11/2015	8/12/2015	6A	113.40	1020.60	827.80	27.0
7802-9	S-5	B-2/15'-16.5'	8/11/2015	8/12/2014	S6	117.30	944.70	756.6	29.4
7802-10	S-6	B-2/20'-21.5	8/11/2015	8/12/2015	S3	118.4	933.00	743.30	30.4
7802-11	S-2	B-3/5'-6.5'	8/11/2015	8/12/2015	M6	116.8	1053.8	899.6	19.7
7802-12	S-3	B-3/7'-5'-9'	8/11/2015	8/12/2015	S4	117.5	1058.3	868.70	25.2
7802-13	S-4	B-3/10'-11.5'	8/11/2015	8/12/2015	S7	111.5	1118.4	905.8	26.8
7802-14	S-5	B-3/15'-16.5'	8/11/2015	8/12/2015	S9	109.6	1040.0	836.2	28.0

Moisture, Ash, and Organic Matter (ASTM D 2974-00)

Project Name:	Bainbridge Island Fire Station 21 Medi	HMA Project No:	08-175
Client:	Aspect Consultants	HMA Lab No:	7802-6
Sample ID:	B-2 S-2 5'-6.5'	Date Tested:	8/14/2015
Tested by:	B.H	Equipment ID #:	N/A
Checked by:	JAM	Data Entry by:	B.H
		Project No:	150136

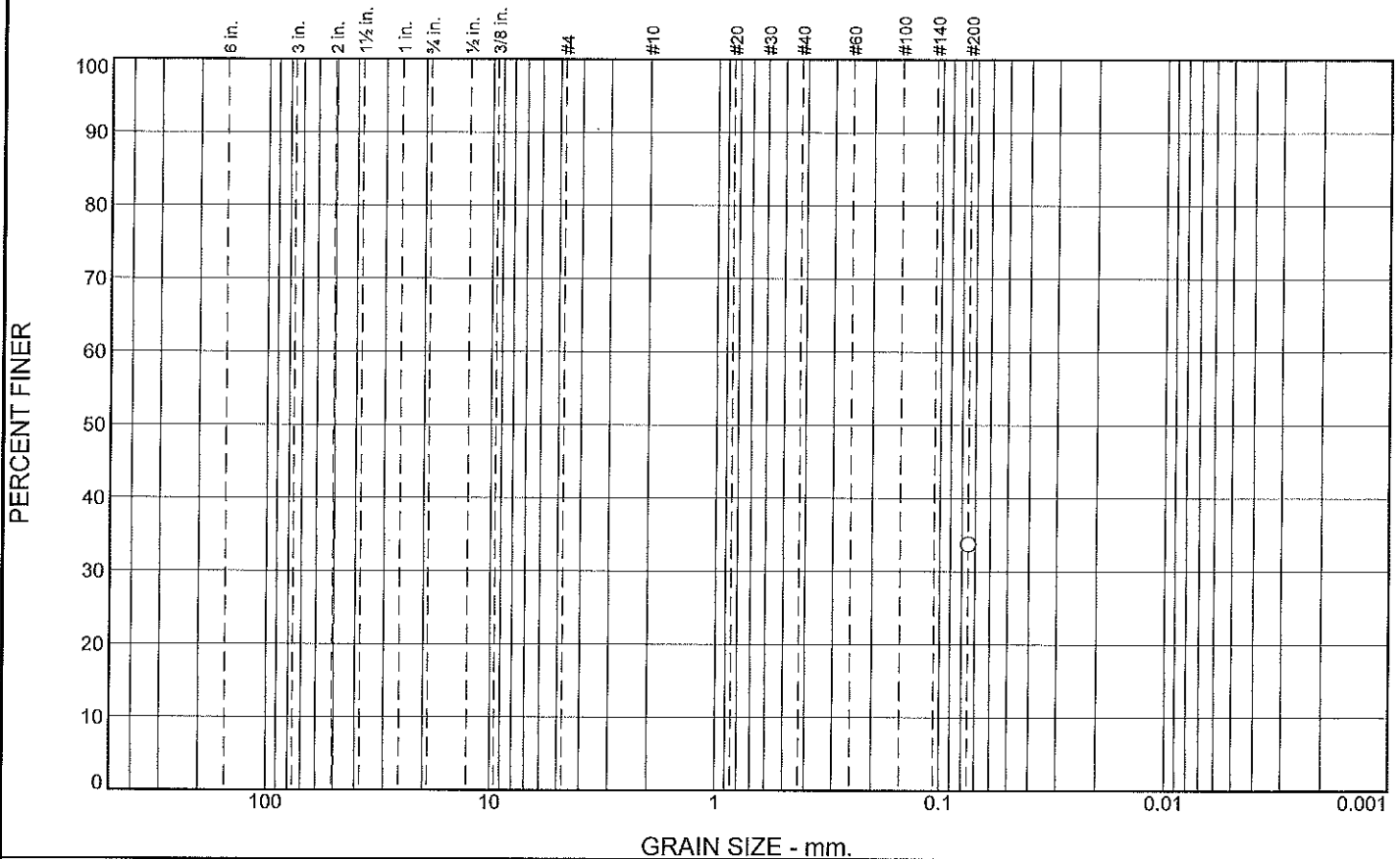
Total Wet Wt + Tare	208.4	grams
Total Oven Dried Wt + Tare	188.5	grams
Wt of Tare	87.3	grams
Moisture Loss	19.9	grams
Moisture Content	19.7	%
Initial Oven Dried Wt	101.2	grams

Burn attempt	Sample wt + tare (g)	Sample weight (g)	Ash (g)
1	188.5	101.2	0.0
2	182.2	94.9	6.3
3	182.0	94.7	6.5
4	181.6	94.3	6.9
5	181.0	93.7	7.5
6	180.5	93.2	8.0
7	180.1	92.8	8.4
8	180.0	92.7	8.5
9			
10			
11			
12			

Ash = initial sample wt - sample wt after final burn attempt

Ash Content, % = $(\text{Ash} \times 100) / B = \underline{7.4} \%$

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						33.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	33.8		

* (no specification provided)

Soil Description
B-1 S-2 5-6.5'

Atterberg Limits
PL= LL= PI=

Coefficients
D₉₀= D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification
USCS= AASHTO=

Remarks
Station 21 Madison

Location: B-1 S-2
Sample Number: 7802-1

Depth: 5-6.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
Project: Bainbridge Island Fire Station 21 and 22
Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-1 S-2

Depth: 5-6.5'

Sample Number: 7802-1

Material Description: B-1 S-2 5-6.5'

Date: 08/12/2015

Testing Remarks: Station 21 Madison

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 767.30
Tare Wt. = 214.30
Minus #200 from wash = 33.8%

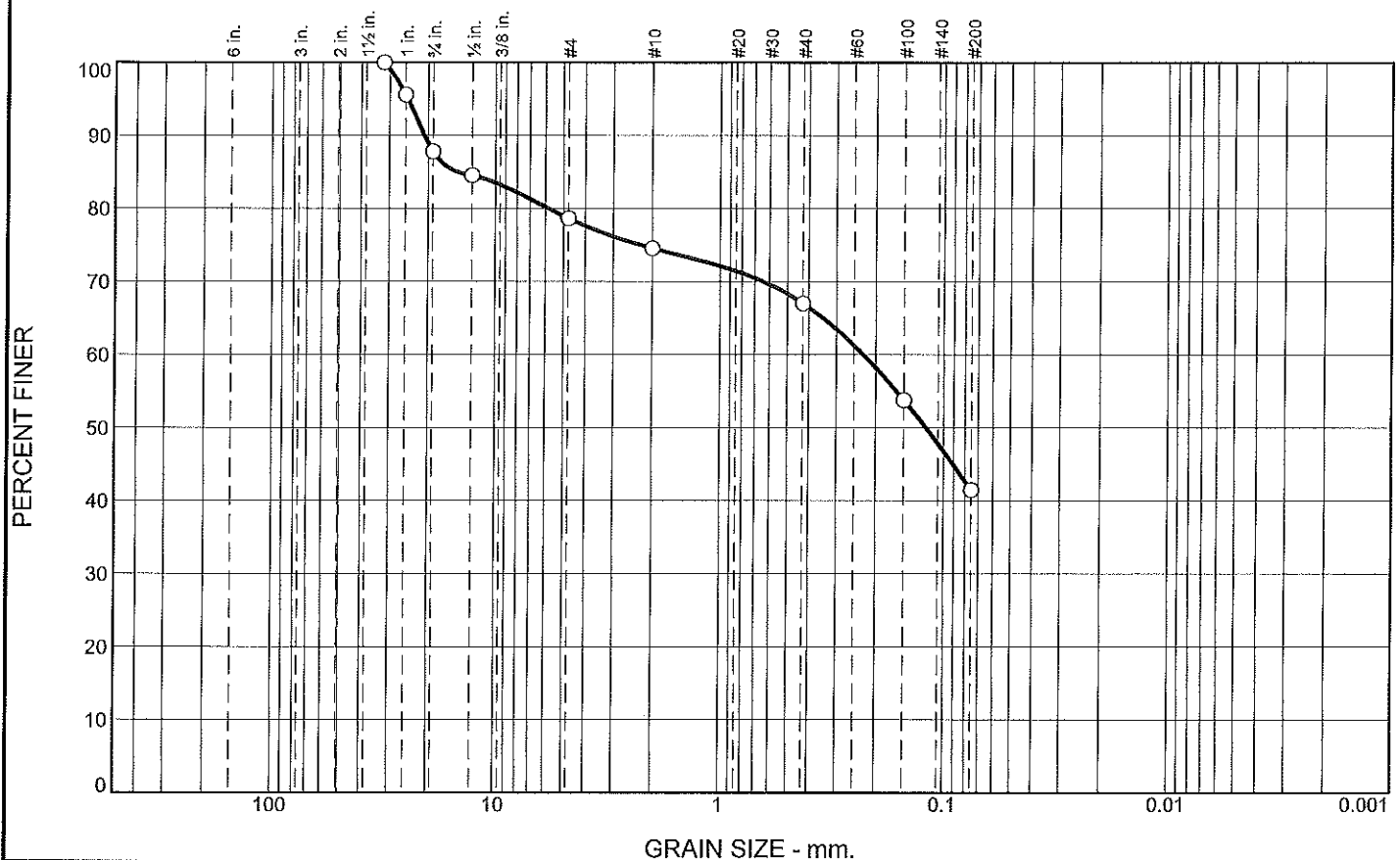
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
1049.10	214.30	#200			33.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										33.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.2	9.2	4.0	7.6	25.5	41.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/4"	100.0		
1"	95.6		
3/4"	87.8		
1/2"	84.5		
#4	78.6		
#10	74.6		
#40	67.0		
#100	53.8		
#200	41.5		

* (no specification provided)

<u>Soil Description</u>		
Silty Sand with Gravel		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D ₉₀ = 20.8491	D ₈₅ = 14.8736	D ₆₀ = 0.2275
D ₅₀ = 0.1201	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
Station 21 Madison B-1 S-4 10-11.5'		

Location: B-1 S-4
Sample Number: 7802-3

Depth: 10-11.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-1 S-4

Depth: 10-11.5'

Sample Number: 7802-3

Material Description: Silty Sand with Gravel

Date: 08/12/2015

USCS Classification: SM

Testing Remarks: Station 21 Madison

B-1 S-4 10-11.5'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 507.50

Tare Wt. = 110.20

Minus #200 from wash = 38.1%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
751.90	110.20	1-1/4"	0.00	0.00	100.0
		1"	28.40	0.00	95.6
		3/4"	50.00	0.00	87.8
		1/2"	21.00	0.00	84.5
		#4	37.80	0.00	78.6
		#10	26.10	0.00	74.6
		#40	48.40	0.00	67.0
		#100	85.00	0.00	53.8
		#200	79.00	0.00	41.5

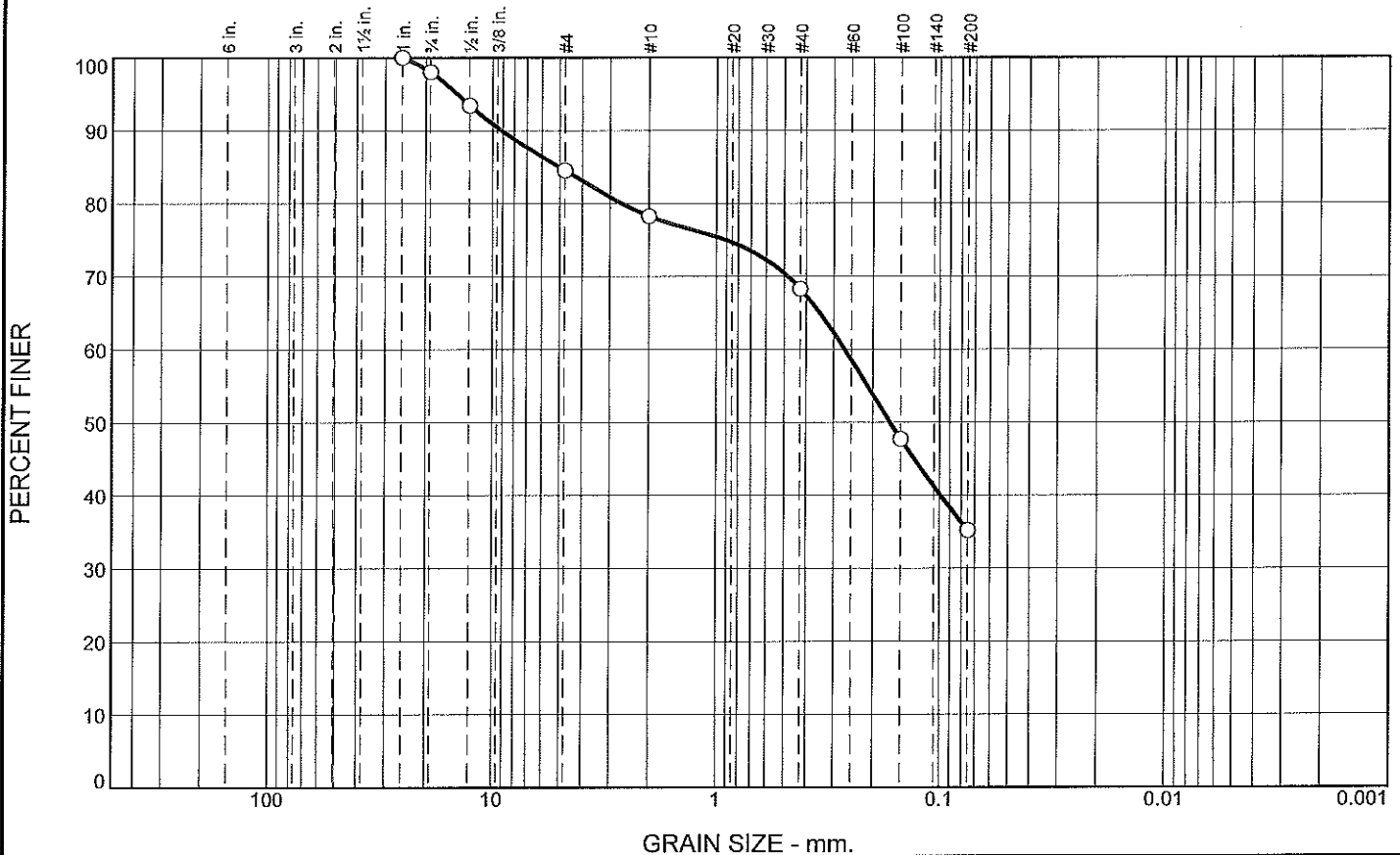
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	12.2	9.2	21.4	4.0	7.6	25.5	37.1			41.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1201	0.2275	5.8333	14.8736	20.8491	24.8418

Fineness Modulus
2.16

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.0	13.5	6.3	9.9	33.1	35.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	98.0		
1/2"	93.4		
#4	84.5		
#10	78.2		
#40	68.3		
#100	47.7		
#200	35.2		

* (no specification provided)

Soil Description		
Silty Sand with Gravel		
Atterberg Limits PL= LL= PI=		
Coefficients D₉₀= 9.1397 D₈₅= 5.0430 D₆₀= 0.2684 D₅₀= 0.1677 D₃₀= D₁₅= D₁₀= C_u= C_c=		
Classification USCS= SM AASHTO=		
Remarks Station 21 Madison B-2 S-3 7.5'-9'		

Location: B-2 S-3
Sample Number: 7802-7

Depth: 7.5-9'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-2 S-3

Depth: 7.5-9'

Sample Number: 7802-7

Material Description: Silty Sand with Gravel

Date: 08/12/2015

USCS Classification: SM

Testing Remarks: Station 21 Madison

B-2 S-3 7.5'-9'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 444.90

Tare Wt. = 121.20

Minus #200 from wash = 31.4%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
592.80	121.20	1"	0.00	0.00	100.0
		3/4"	9.40	0.00	98.0
		1/2"	21.60	0.00	93.4
		#4	42.00	0.00	84.5
		#10	29.60	0.00	78.2
		#40	46.90	0.00	68.3
		#100	97.10	0.00	47.7
		#200	59.00	0.00	35.2

Fractional Components

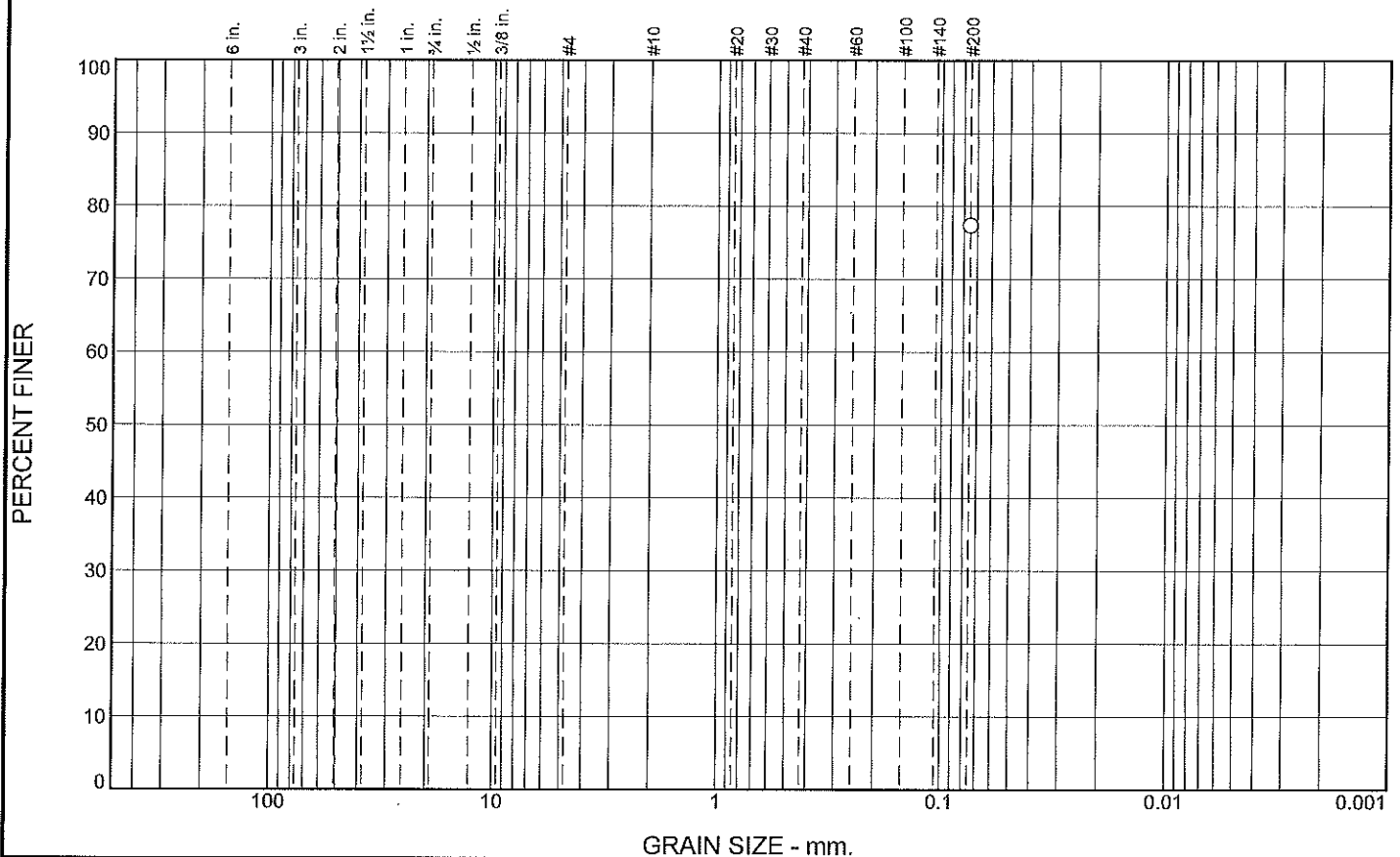
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.0	13.5	15.5	6.3	9.9	33.1	49.3			35.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1677	0.2684	2.6570	5.0430	9.1397	14.4872

Fineness Modulus

1.90

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						77.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	77.4		

* (no specification provided)

Soil Description
B-3 S-2 5-6.5'

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= D₈₅= D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= AASHTO=

Remarks
 Station 21 Madison
 B-3 S-2 5-6.5'

Location: B-3 S-2
 Sample Number: 7802-11 Depth: 5-6.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
 Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-3 S-2

Depth: 5-6.5'

Sample Number: 7802-11

Material Description: B-3 S-2 5-6.5'

Date: 08/12/2015

Testing Remarks: Station 21 Madison

B-3 S-2 5-6.5'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 293.80
Tare Wt. = 116.80
Minus #200 from wash = 77.4%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
899.60	116.80	#200			77.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										77.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

APPENDIX C

Infiltration Testing Results

C.1 Pilot Infiltration Tests (PITs)

Two small-scale PITs were completed at the Site in the locations shown on Figure 2. The PITs were completed in general accordance with the small-scale pilot infiltration test (PIT) methods described in the *2014 Stormwater Management Manual for Western Washington* with minor modifications to facilitate more expedited testing and to provide more reliable estimates of infiltration rate.

The PITs were excavated to the approximate proposed receptor depth for the infiltration facilities being considered, filled with water from the on-Site facilities, soaked/saturated for several hours, and then falling-head tests were performed.

Excavation for the small-scale PITs was completed with a Case 580 backhoe and water for the testing was supplied by the Fire Department on-Site facilities. The excavations were completed in PIT-1 and PIT-2 at depths ranging from 4.5 to 6 feet bgs and samples were obtained at the receptor depths. The receptor soils in the bottom of PIT-1 consisted of moist, slightly gravelly, silty SAND (SM). The receptor soils in the bottom of PIT-2 consisted of moist, sandy SILT (ML). The excavations were typically 5 feet square in dimension. The excavations were filled with at least one foot of water and soaked for several hours and then inflow was stopped to allow for falling-head testing. The water level (stage) within the pits was monitored and recorded with a manual staff gauge as well as a submergible pressure transducer (diver) setup to take readings every minute during the testing. Upon completion of the falling-head testing, the pits were excavated an additional 3 to 4 feet in depth to further characterize the soil conditions below the receptor depth.

Logs of the test pits are shown in Appendix A. Plots of the infiltration test data are shown in Appendix C.

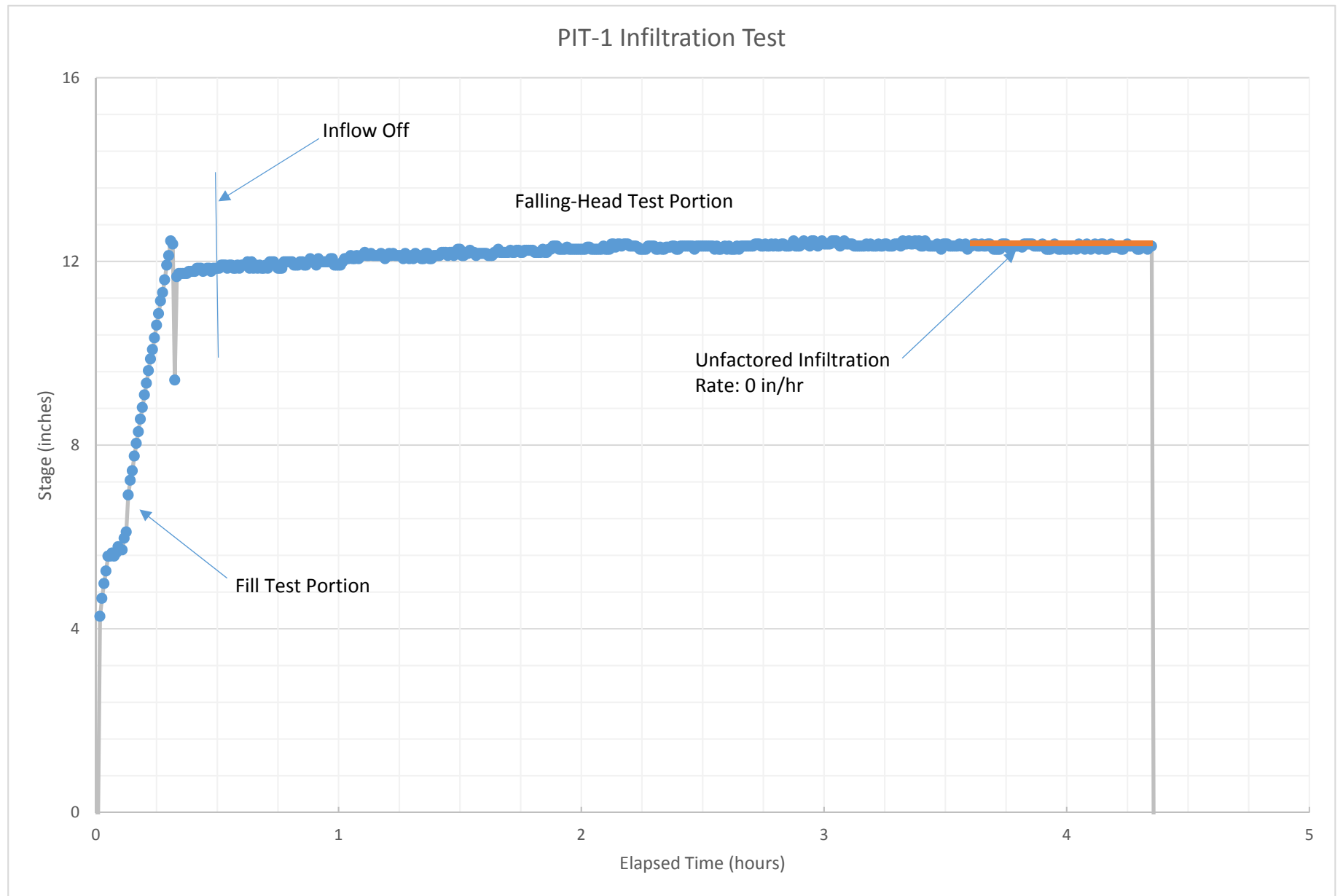


Figure C-1
PIT-1 Infiltration Test Data
BIFD Station 21
150136-01

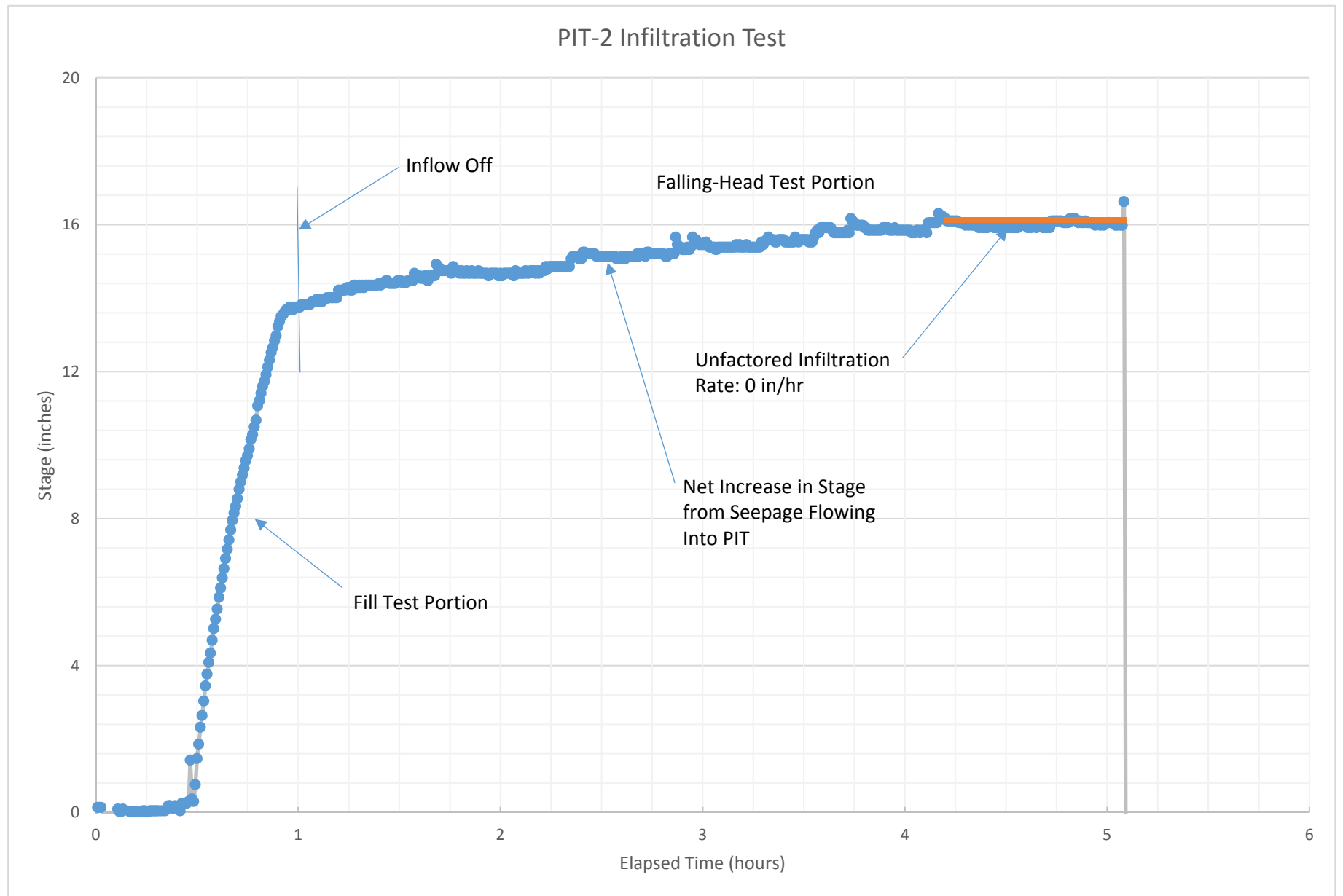


Figure C-2
PIT-2 Infiltration Test Data
BIFD Station 21
150136-01

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

EXHIBIT C

☒ “Pre-App” Meeting Checklist

☐ “Post-App” Meeting Checklist

Project Name/Case #: Bainbridge Island Fire Department – Station 21

Land Use Application
(Pre-app, Site Plan
Review etc.):

CUP/SEPA/Site Plan

Project Description:

This project surrounds the redevelopment of the existing Bainbridge Island Fire Department, Station 21. The redeveloped fire station is a two story structure with a gross floor area of approximately 30,760 square feet. The site area consists of 56.6 percent landscape area and 39 parking spaces. The building will be approximately 34 feet in height at the maximum. The building consists of living quarters, meeting spaces, offices, storage areas, and the apparatus bay.

Applicable Design Guidelines				
Design Guideline	Intent	Description	Applicant Response	DRB Action (Y/N)
1.	To develop variation in façade treatment to provide visual interest.	Vary building materials or patterns to produce variations in texture.	The proposed design utilizes varying materials; wood, concrete, concrete composite paneling and a mix of metal paneling that additionally offers alternating textures and visual interest to the buildings prime façade treatments. Coupled with the materials and textures, the design team has sought to introduce fenestration gestures that additionally add interest through shadows, sheens and general massing.	

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

2.	To modulate the scale of building masses.	Building elevations shall be vertically modulated in no more than 20' increments or horizontally in no more than 30' increments. Modulation is defined as a change in plane or articulation (such as bands, cornices, setbacks or changes in material).	The proposed design integrates massing elements that seek to best align with the intended building modulation, while maintaining the forms necessary of the building use as a emergency response fire facility. Due to the required special functions required of a fire facility, vertical modulation for such facilities directly affect the functionality. To offset these functional demands, material changes, insets and structural elements have been pronounced to provide visual modulation to the building façade.	
Applicable Design Guidelines				
Design Guideline	Intent	Description	Applicant Response	DRB Action (Y/N)
3.	To limit the visual impact of blank walls and facades and better assure aesthetic appeal.	Blank walls shall not be visible to public spaces. Blank facades should otherwise be limited to the back of buildings or where required by the building code. Treatments to alleviate blank walls shall be similar in materials to facades normally in view of the public.	The building orientation, functions and fenestration design eliminate any publicly facing blank walls.	
4.	To establish visually prominent ground floor facades.	The first floor of multi-storied buildings should be taller than upper floors. Minimum ceiling height should be at least 10' to allow transom or larger display windows. Other elements such as transom windows, canopies, cornices, and prominent entries are encouraged. First floor uses shall be pedestrian oriented and include substantial shop windows. Display windows on the first floor of retail and commercial buildings should be the predominant surface of the first floor.	As a emergency response fire facility, much of which is necessitated by commercial or retail design standards do not readily apply. The design team has, however, sought to utilize entry canopies, exaggerated overhangs, and public facing glazing as a strategy to still align the design with this guideline's intent. The street facing apparatus bay, a prominent design disseminator for any fire station, has be emphasized to showcase the function of the facility but also visually illustrated the fire departments presence	

Design Review Board Design Guideline Checklist
Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

			within the community.	
5.	To maintain pedestrian scale along facades facing public ways.	Facades facing public ways shall incorporate setbacks or articulation that establishes a pattern of bays or window openings. Facades shall include features such as display windows, columns or bays, recessed entries or canopies or other recesses. The use of a variety of materials at the sidewalk level is encouraged. Multiple building entrances are encouraged.	The building itself is setback from the public way to provide both a buffer but also allow opportunities for inclusion of a pedestrian friendly entry plaza. Incorporation of landscape features, seating, stormwater features and canopies seek to provide a pedestrian friendly entry sequence to the property and building lobby.	
Applicable Design Guidelines				
Design Guideline	Intent	Description	Applicant Response	DRB Action (Y/N)
6.	To maintain the pedestrian activities by encouraging continuous frontages along sidewalks.	Where parking fronts onto a public street, the maximum separation between buildings shall be 80 feet. Greater separations are permitted if landscape setbacks are increased or other design features such as low walls, trellises and public spaces are created along the street frontage.	The building is a standalone structure on the site. Inclusion of landscape features have been incorporated where feasible and appropriate. The building facades constitute the majority of the frontage facing.	
7.	To reduce overall scale of the building into multiple building masses.	Facades over 128' in length shall be separated by pedestrian passage or open space. Passages should be at least 12' wide and two stories in height if covered. Façade setback should be expressed at the roof line by changes in plane. Passage should connect to public open space.	Due to the building function and ground floor operational necessities, the building itself cannot be parceled or split as it would negatively affect the functionality of the fire department and their response times. The design team, however, has sought to introduce jogs in the building foot print and noted façade modulations to visually offset the overall scale of the building mass. In addition, the building height, where allowable by program	

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

			functions, has been stepped in height to add visual impression of multiple building masses.	
8.	To encourage the creation of public outdoor spaces.	Building setbacks may be increased for the creation of public outdoor seating areas. Entry alcoves and small outdoor spaces may be located between the building and the sidewalk.	The design team has introduced a pedestrian oriented plaza space that serves as the entry sequence and breakout space for the abutting community room space. We have additionally provide enlarged planting areas adjacent the building to breakdown the overall scale of the building, showcase native vegetation and illustrate stormwater treatment solutions.	
9.	To soften the impact of the built environment.	Encourage public pedestrian passageways and vegetation between buildings.	The design team has utilized the noted public entry plaza as a break between the building and adjacent vegetated spaces. The lawn space is bordered by seating elements, which seek to create defined outdoor spaces and edges to the adjacent landscape zones. Selective vegetation, lighting and pedestrian scaled trees have been incorporated to further break down the building scale.	
10.	To encourage compatibility of development with both community and neighborhood characteristics.	Building designs should respond to nearby buildings that meet the upgraded design standards by using shared elements, materials or massing.	The exterior building materials have been selected to compliment the communities design attributes, while still maintaining a high level of durability and be low maintenance to the fire department. The materials and their accompanying structural system have additionally been selected to complement the island's design aesthetic. Such materials as glu-lam girders, timber bracing, formed concrete and composite wood siding have been paired with metal roofing, composite siding and metal paneling for a balance	

Design Review Board Design Guideline Checklist

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			between warm and cool materials. Exaggerated overhangs, bracing and canopies have further been incorporated to take on many of the attributes of community structures.	
Applicable Design Guidelines				
Design Guideline	Design Guideline	Design Guideline	Design Guideline	Design Guideline
11.	To minimize the intrusiveness of commercial signage.	Signage, corporate colors and other icons of the business may not dominate the exterior of the building. including canopies and separate outdoor structures covering activities associated with the business. Color should be used to express changes in detail or material but exterior building or structure colors may not be used as signs, or the extension of signs. When businesses are sold or tenants are changed, any sign modification shall trigger this requirement.	This facility is designed to serve as a single user building for the Bainbridge Island Fire Department. Selection and incorporation of signage on this facility is aimed at providing a consistent signage solution between the stations and clearly illustrating the particular station numbers to ensure easily distinguishable facilities to the community and its visitors. These signage solutions do not serve to advertise but rather to easily identify them for the particular emergency response facilities they are.	
12.	To improve the pedestrian environment around buildings and minimize curb cuts.	Where a drive through facility is allowed, drive throughs must be in conjunction with a parking lot that serves the same business, must be to the side or rear of the building and should not be visible from public streets. Drive throughs should consist of no more than a single vehicle lane.	Not applicable.	
13.	To provide pedestrian access to buildings.	Provide multiple entrances along streets. Pedestrian passageways are encouraged.	The bulk of the fire station is primarily a secure facility and not accessible by the public. Where public elements exist, such as the lobby and community room, pedestrian access and entry sequences have been provided.	

Design Review Board Design Guideline Checklist
Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

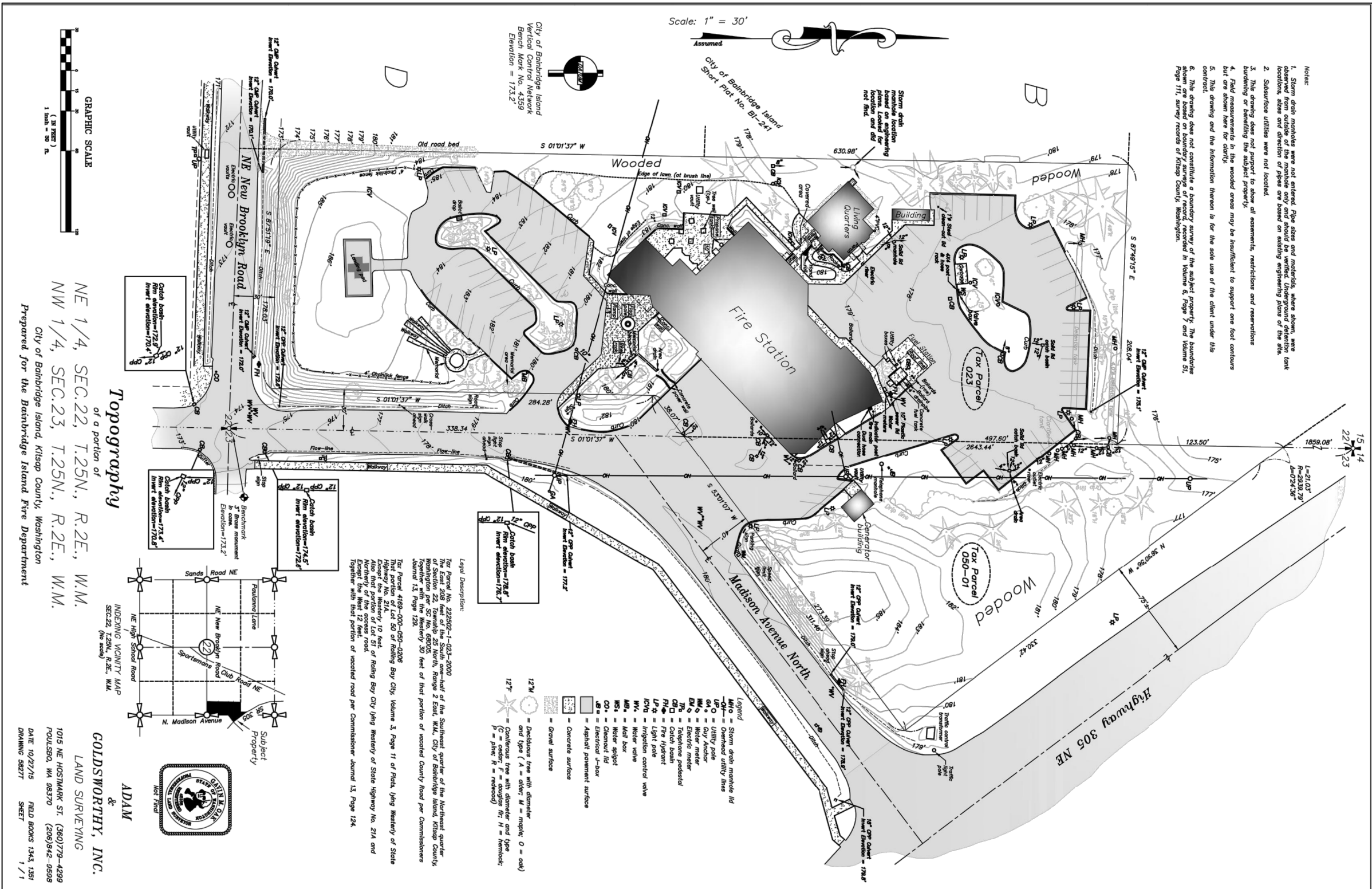
14.	To provide weather protection for pedestrians.	Recessed entries and/or overhead weather protection above the sidewalk entrances shall be used.	Entry canopies have been provided for the public entries to the facility.	
15.	To maintain smaller scale commercial buildings.	Buildings in excess of a 10,000 square foot footprint should be visually split into two or more distinct elements.	As noted in additional guidelines, the building's operational program necessities define the building proper and its general massing. The design team has included steps in building height where functionally or programmatically feasible. These massing changes aid in visually breaking down the overall scale of the structure.	
Applicable Design Guidelines				
Design Guideline	Design Guideline	Design Guideline	Design Guideline	Design Guideline
16.	To reduce the visual impact of parking areas.	Create small parking clusters connected by vegetated landscaping and pedestrian walkways. Internal streets that connect or serve parking areas shall be designed as streets with sidewalks, planters and pedestrian scale lighting.	The design team has located the public parking to the edge of the public entry and placed it back from the street to provide a visual buffer and allow incorporation of increased landscape buffering. Additional operation parking for fire staff has been located within the secure lot, which reduces the overall visual impact of the parking areas.	

**Guidelines Requiring
Action per DRB:**

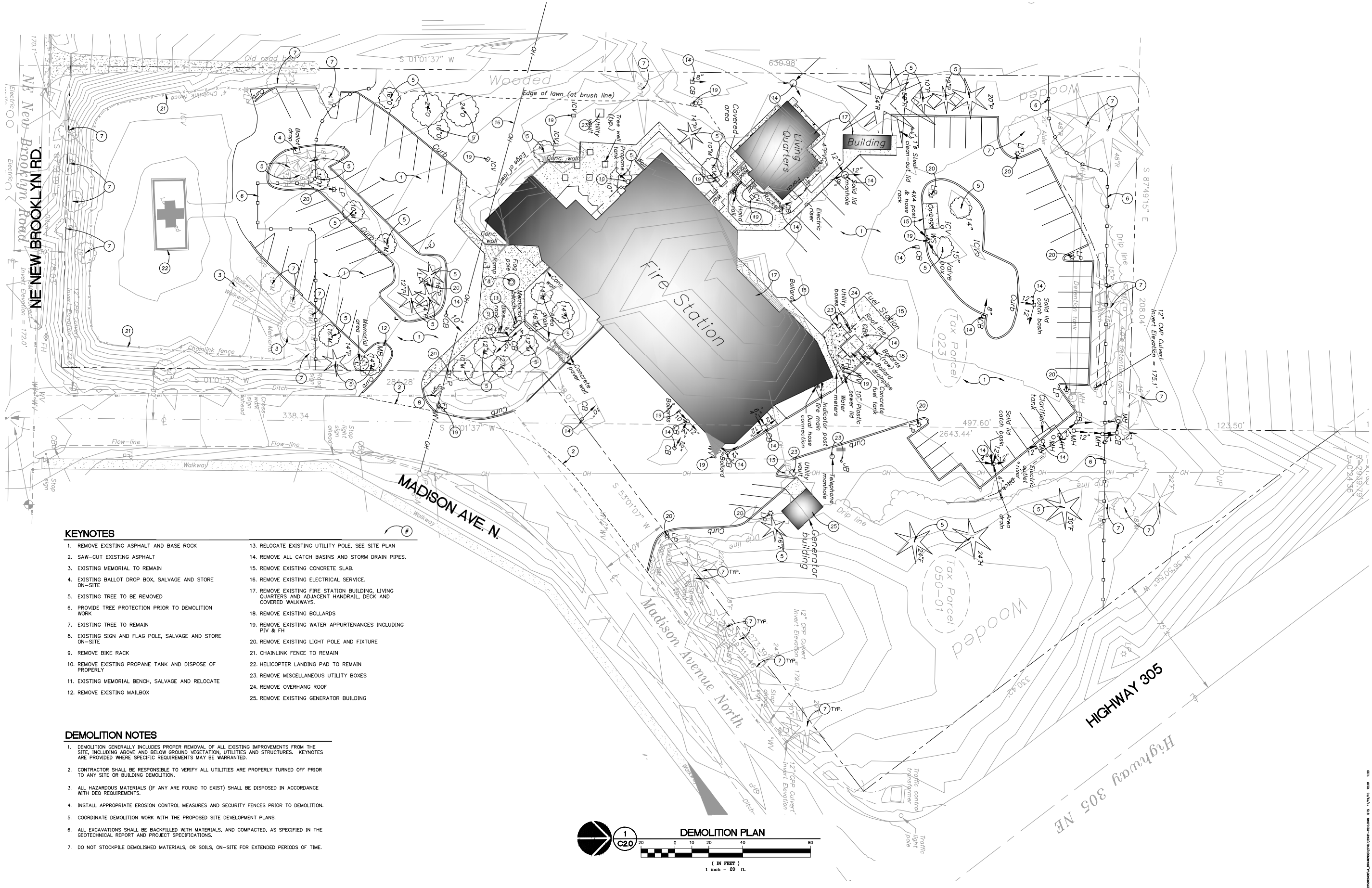
**DRB Summary Motion
on Actions:**

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030



6/13 10/13 5/16/17 1/18 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KEYNOTES

1. REMOVE EXISTING ASPHALT AND BASE ROCK
2. SAW-CUT EXISTING ASPHALT
3. EXISTING MEMORIAL TO REMAIN
4. EXISTING BALLOT DROP BOX, SALVAGE AND STORE ON-SITE
5. EXISTING TREE TO BE REMOVED
6. PROVIDE TREE PROTECTION PRIOR TO DEMOLITION WORK
7. EXISTING TREE TO REMAIN
8. EXISTING SIGN AND FLAG POLE, SALVAGE AND STORE ON-SITE
9. REMOVE BIKE RACK
10. REMOVE EXISTING PROPANE TANK AND DISPOSE OF PROPERLY
11. EXISTING MEMORIAL BENCH, SALVAGE AND RELOCATE
12. REMOVE EXISTING MAILBOX
13. RELOCATE EXISTING UTILITY POLE, SEE SITE PLAN
14. REMOVE ALL CATCH BASINS AND STORM DRAIN PIPES.
15. REMOVE EXISTING CONCRETE SLAB.
16. REMOVE EXISTING ELECTRICAL SERVICE.
17. REMOVE EXISTING FIRE STATION BUILDING, LIVING QUARTERS AND ADJACENT HANDRAIL, DECK AND COVERED WALKWAYS.
18. REMOVE EXISTING BOLLARDS
19. REMOVE EXISTING WATER APPURTENANCES INCLUDING PIV & FH
20. REMOVE EXISTING LIGHT POLE AND FIXTURE
21. CHAINLINK FENCE TO REMAIN
22. HELICOPTER LANDING PAD TO REMAIN
23. REMOVE MISCELLANEOUS UTILITY BOXES
24. REMOVE OVERHANG ROOF
25. REMOVE EXISTING GENERATOR BUILDING

DEMOLITION NOTES

1. DEMOLITION GENERALLY INCLUDES PROPER REMOVAL OF ALL EXISTING IMPROVEMENTS FROM THE SITE, INCLUDING ABOVE AND BELOW GROUND VEGETATION, UTILITIES AND STRUCTURES. KEYNOTES ARE PROVIDED WHERE SPECIFIC REQUIREMENTS MAY BE WARRANTED.
2. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL UTILITIES ARE PROPERLY TURNED OFF PRIOR TO ANY SITE OR BUILDING DEMOLITION.
3. ALL HAZARDOUS MATERIALS (IF ANY ARE FOUND TO EXIST) SHALL BE DISPOSED IN ACCORDANCE WITH DEQ REQUIREMENTS.
4. INSTALL APPROPRIATE EROSION CONTROL MEASURES AND SECURITY FENCES PRIOR TO DEMOLITION.
5. COORDINATE DEMOLITION WORK WITH THE PROPOSED SITE DEVELOPMENT PLANS.
6. ALL EXCAVATIONS SHALL BE BACKFILLED WITH MATERIALS, AND COMPACTED, AS SPECIFIED IN THE GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS.
7. DO NOT STOCKPILE DEMOLISHED MATERIALS, OR SOILS, ON-SITE FOR EXTENDED PERIODS OF TIME.

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH, SUITE A
BAINBRIDGE ISLAND, WA
98110

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Client

BAINBRIDGE ISLAND FIRE
DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
8895 MADISON AVE. NE

REVISIONS:

NO.	REVISIONS THIS SHEET	REVISION DATE CLOSING DATE
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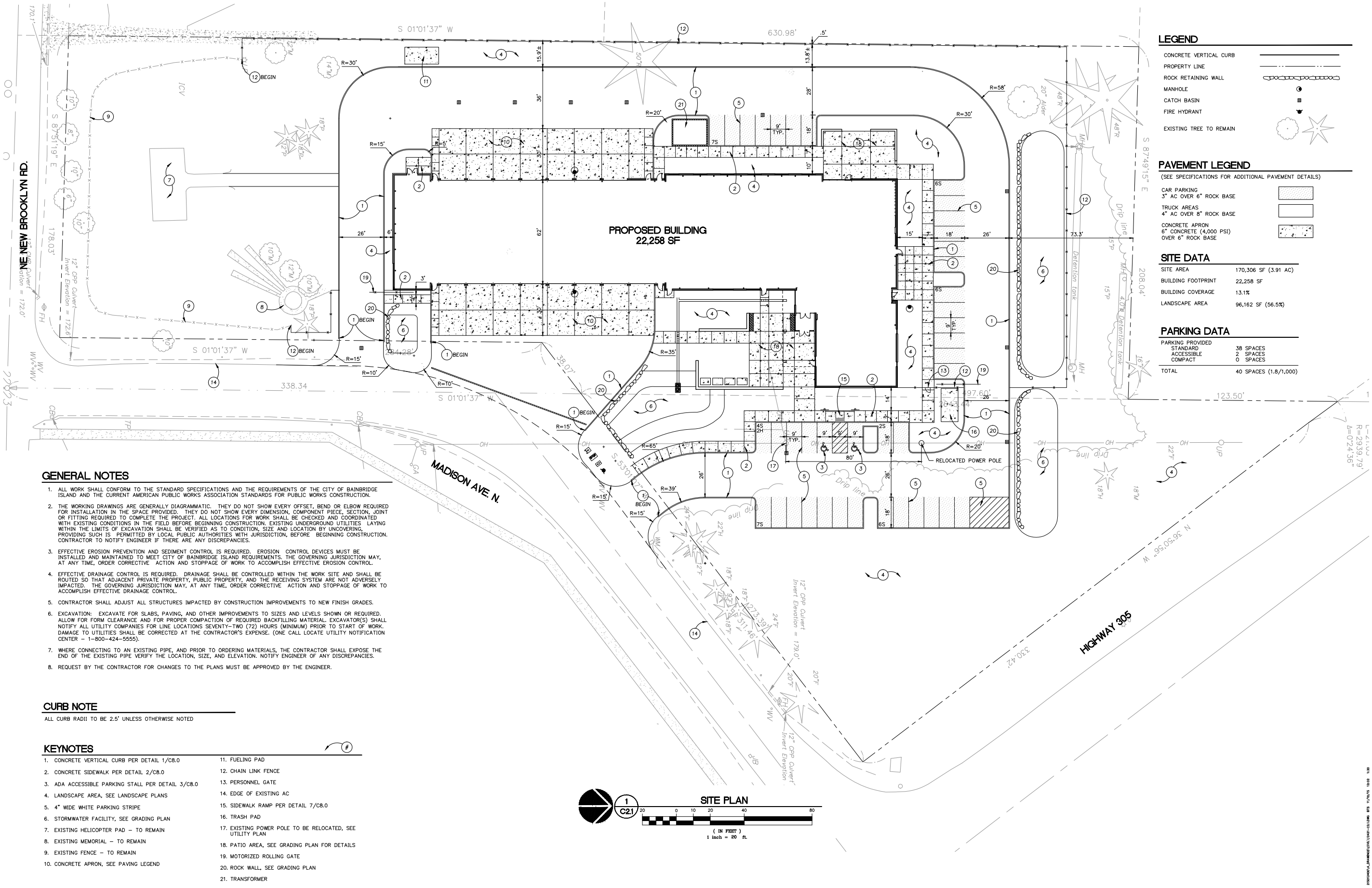
SHEET TITLE:

DEMOLITION PLAN

SHEET

C2.0

JOB NO. 2150124.00



GENERAL NOTES

- ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED TO MEET CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY-TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. (ONE CALL LOCATE UTILITY NOTIFICATION CENTER - 1-800-424-5555).
- WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE END OF THE EXISTING PIPE VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.

CURB NOTE

ALL CURB RADII TO BE 2.5' UNLESS OTHERWISE NOTED

KEYNOTES

- CONCRETE VERTICAL CURB PER DETAIL 1/C8.0
- CONCRETE SIDEWALK PER DETAIL 2/C8.0
- ADA ACCESSIBLE PARKING STALL PER DETAIL 3/C8.0
- LANDSCAPE AREA, SEE LANDSCAPE PLANS
- 4" WIDE WHITE PARKING STRIPE
- STORMWATER FACILITY, SEE GRADING PLAN
- EXISTING HELICOPTER PAD - TO REMAIN
- EXISTING MEMORIAL - TO REMAIN
- EXISTING FENCE - TO REMAIN
- CONCRETE APRON, SEE PAVING LEGEND
- FUELING PAD
- CHAIN LINK FENCE
- PERSONNEL GATE
- EDGE OF EXISTING AC
- SIDEWALK RAMP PER DETAIL 7/C8.0
- TRASH PAD
- EXISTING POWER POLE TO BE RELOCATED, SEE UTILITY PLAN
- PATIO AREA, SEE GRADING PLAN FOR DETAILS
- MOTORIZED ROLLING GATE
- ROCK WALL, SEE GRADING PLAN
- TRANSFORMER

LEGEND

- CONCRETE VERTICAL CURB
- PROPERTY LINE
- ROCK RETAINING WALL
- MANHOLE
- CATCH BASIN
- FIRE HYDRANT
- EXISTING TREE TO REMAIN

PAVEMENT LEGEND

(SEE SPECIFICATIONS FOR ADDITIONAL PAVEMENT DETAILS)

- CAR PARKING
3" AC OVER 6" ROCK BASE
- TRUCK AREAS
4" AC OVER 8" ROCK BASE
- CONCRETE APRON
6" CONCRETE (4,000 PSI)
OVER 6" ROCK BASE

SITE DATA

SITE AREA	170,306 SF (3.91 AC)
BUILDING FOOTPRINT	22,258 SF
BUILDING COVERAGE	13.1%
LANDSCAPE AREA	96,162 SF (56.5%)

PARKING DATA

PARKING PROVIDED	
STANDARD	36 SPACES
ACCESSIBLE	2 SPACES
COMPACT	0 SPACES
TOTAL	40 SPACES (1.8/1,000)

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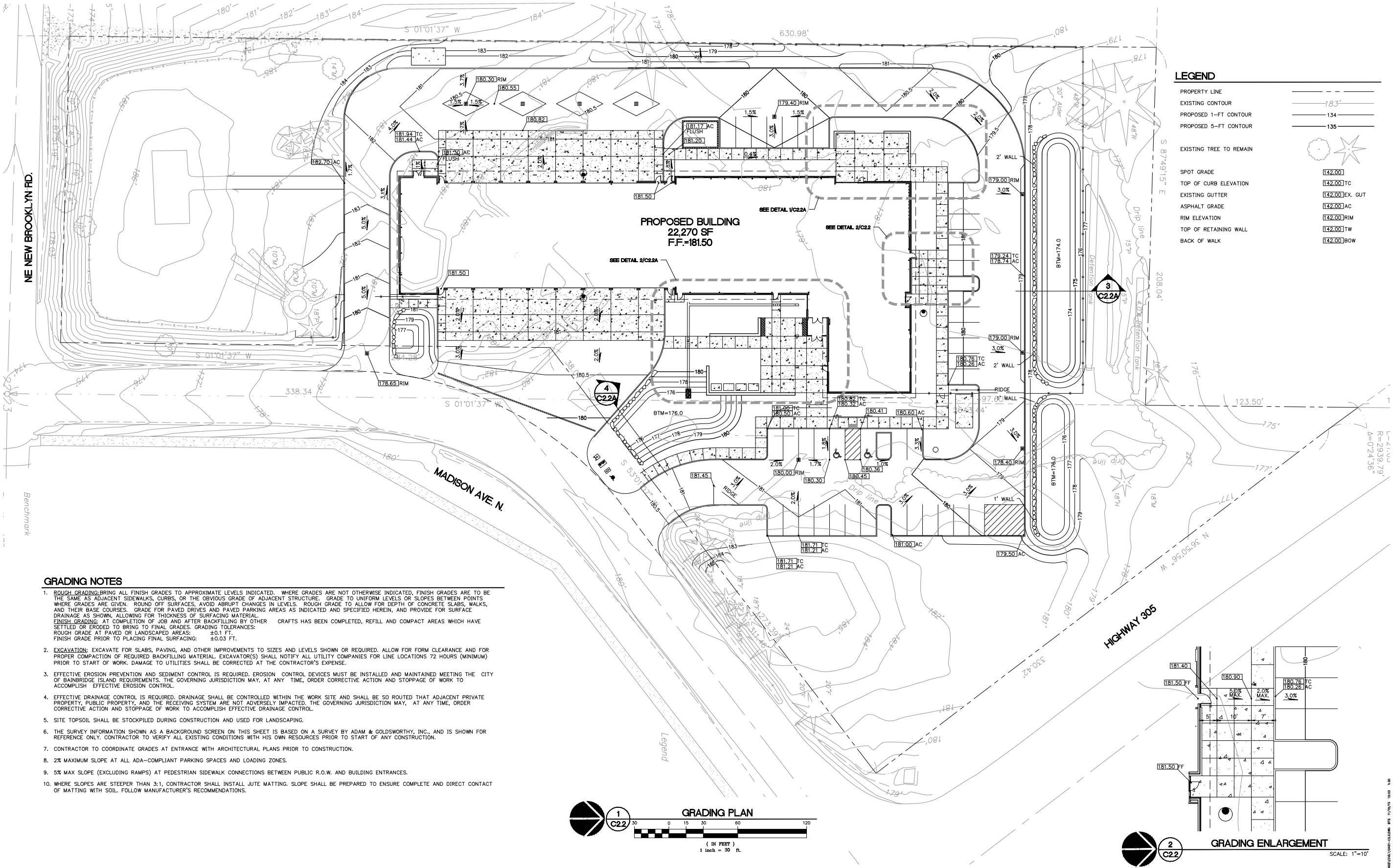
SITE PLAN

SHEET

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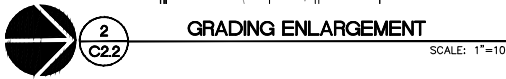
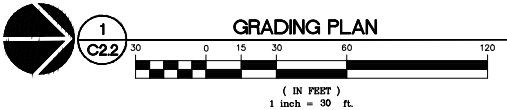
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SITE PLAN REVIEW: 1/13/16



GRADING NOTES

- ROUGH GRADING: BRING ALL FINISH GRADES TO APPROXIMATE LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. ROUGH GRADE TO ALLOW FOR DEPTH OF CONCRETE SLABS, WALKS, AND THEIR BASE COURSES. GRADE FOR PAVED DRIVES AND PAVED PARKING AREAS AS INDICATED AND SPECIFIED HEREIN, AND PROVIDE FOR SURFACE DRAINAGE AS SHOWN, ALLOWING FOR THICKNESS OF SURFACING MATERIAL.
FINISH GRADING: AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER CRAFTS HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES. GRADING TOLERANCES:
ROUGH GRADE AT PAVED OR LANDSCAPED AREAS: ±0.1 FT.
FINISH GRADE PRIOR TO PLACING FINAL SURFACING: ±0.03 FT.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS 72 HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE SO ROUTED THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- SITE TOPSOIL SHALL BE STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING.
- THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY BY ADAM & GOLDSWORTHY, INC., AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS WITH HIS OWN RESOURCES PRIOR TO START OF ANY CONSTRUCTION.
- CONTRACTOR TO COORDINATE GRADES AT ENTRANCE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
- 2% MAXIMUM SLOPE AT ALL ADA-COMPLIANT PARKING SPACES AND LOADING ZONES.
- 5% MAX SLOPE (EXCLUDING RAMPS) AT PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES.
- WHERE SLOPES ARE STEEPER THAN 3:1, CONTRACTOR SHALL INSTALL JUTE MATTING. SLOPE SHALL BE PREPARED TO ENSURE COMPLETE AND DIRECT CONTACT OF MATTING WITH SOIL. FOLLOW MANUFACTURER'S RECOMMENDATIONS.



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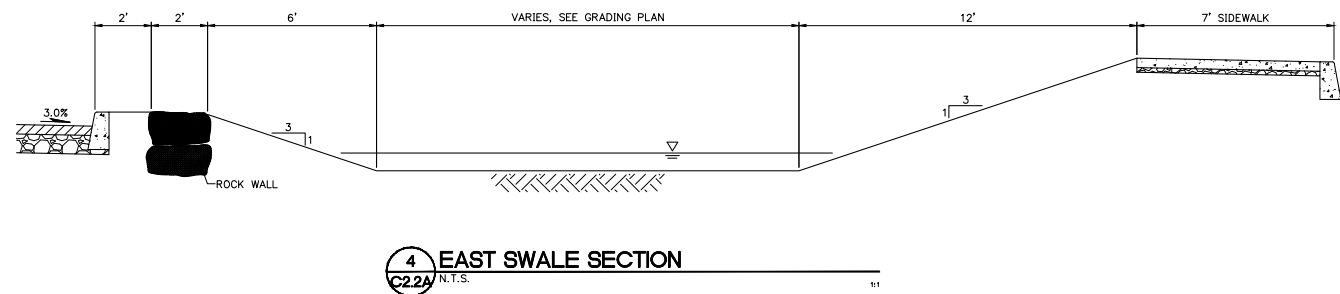
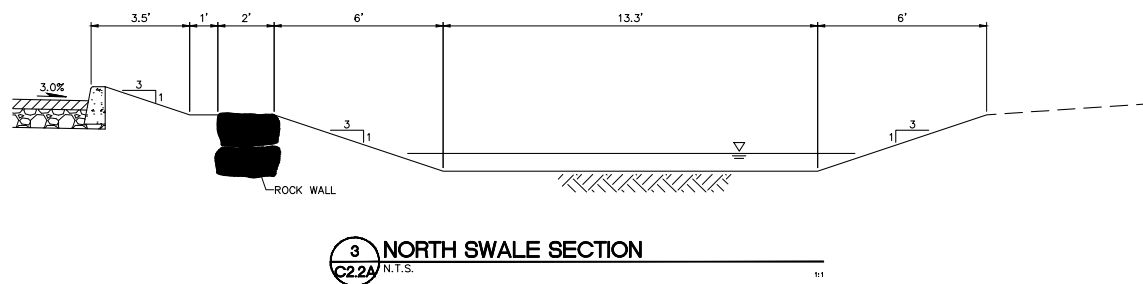
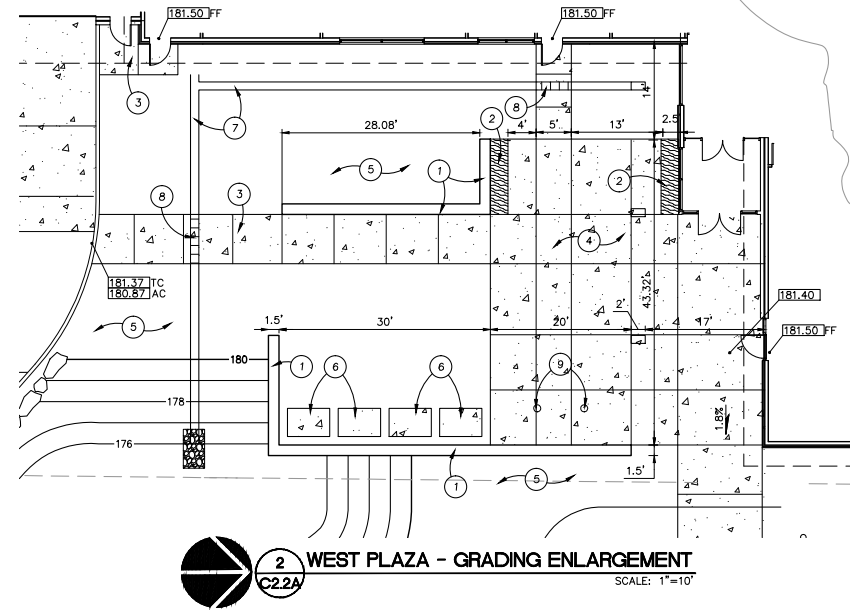
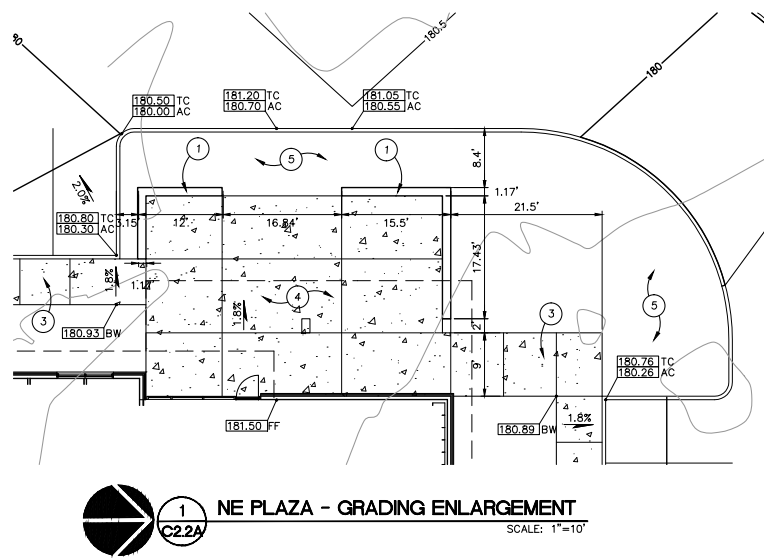
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GRADING PLAN

SHEET

C2.2

JOB NO. 2150124.00



- KEYNOTES**
1. CONCRETE SEAT WALL
 2. WOOD BENCH ATTACHED TO WALL
 3. CONCRETE SIDEWALK
 4. CONCRETE PLAZA AREA
 5. LANDSCAPE AREA
 6. 4' X 6' CONCRETE PANELS IN LAWN
 7. STORMWATER RUNNEL
 8. DECORATIVE GRATE
 9. FLAG POLE

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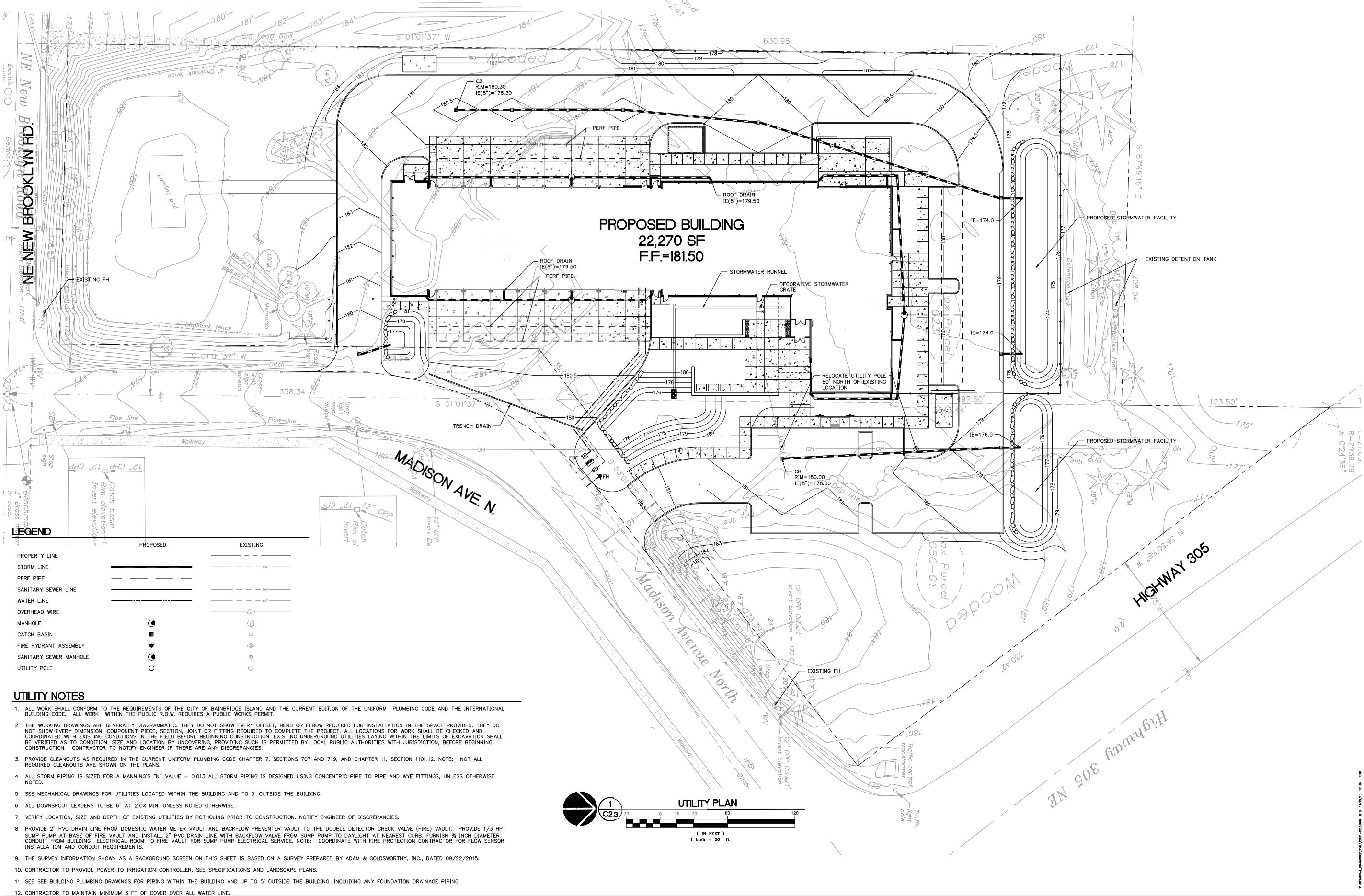
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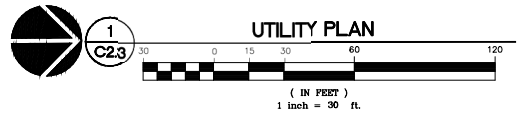


LEGEND

PROPOSED	EXISTING
PROPERTY LINE	---
STORM LINE	---
PERF PIPE	---
SANITARY SEWER LINE	---
WATER LINE	---
OVERHEAD WIRE	---
MANHOLE	○
CATCH BASIN	■
FIRE HYDRANT ASSEMBLY	⦿
SANITARY SEWER MANHOLE	⊙
UTILITY POLE	○

UTILITY NOTES

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT EDITION OF THE UNIFORM PLUMBING CODE AND THE INTERNATIONAL BUILDING CODE. ALL WORK WITHIN THE PUBLIC R.O.W. REQUIRES A PUBLIC WORKS PERMIT.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- PROVIDE CLEANOUTS AS REQUIRED IN THE CURRENT UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1101.12. NOTE: NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS.
- ALL STORM PIPING IS SIZED FOR A MANNING'S "N" VALUE = 0.013 ALL STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE NOTED.
- SEE MECHANICAL DRAWINGS FOR UTILITIES LOCATED WITHIN THE BUILDING AND TO 5' OUTSIDE THE BUILDING.
- ALL DOWNSPOUT LEADERS TO BE 6" AT 2.0% MIN. UNLESS NOTED OTHERWISE.
- VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES BY POTHOLES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
- PROVIDE 2" PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH ¾ INCH DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS.
- THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY PREPARED BY ADAM & GOLDSWORTHY, INC., DATED 09/22/2015.
- CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE SPECIFICATIONS AND LANDSCAPE PLANS.
- SEE SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP TO 5' OUTSIDE THE BUILDING, INCLUDING ANY FOUNDATION DRAINAGE PIPING.
- CONTRACTOR TO MAINTAIN MINIMUM 3 FT OF COVER OVER ALL WATER LINE.



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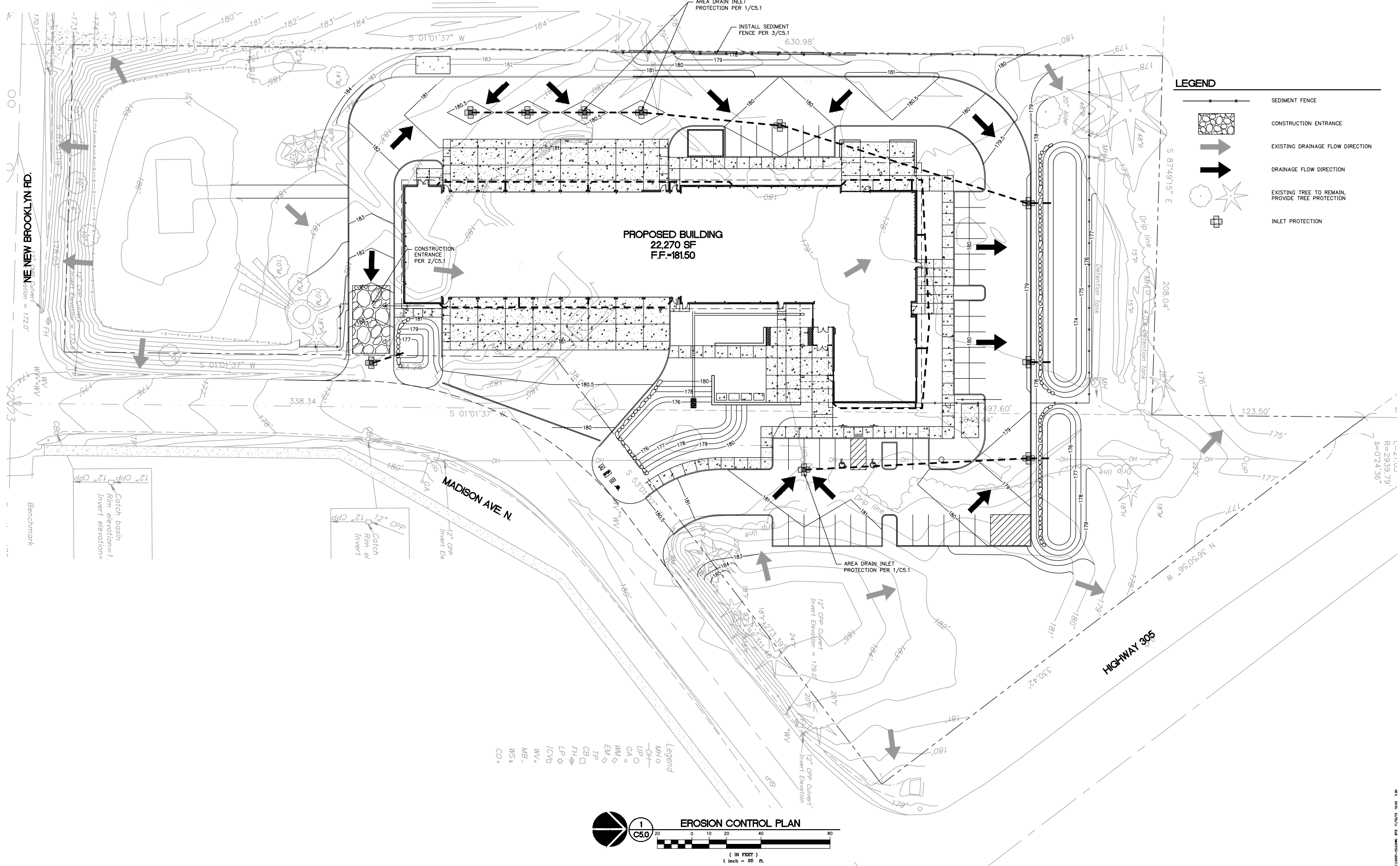
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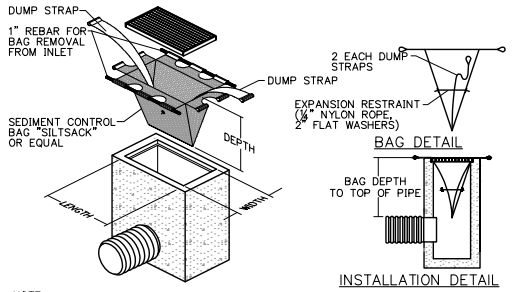
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EROSION CONTROL PLAN

SHEET
C5.0

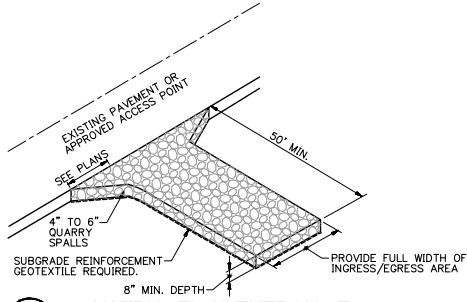
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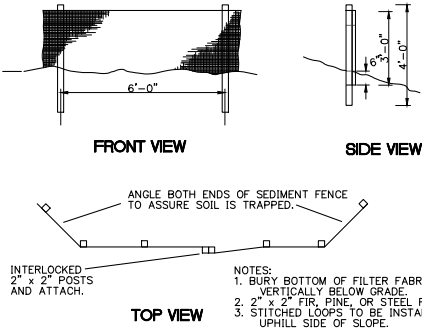


- NOTE:
1. THE DIMENSION CHART ABOVE IS FOR STANDARD CATCH BASINS AND INLETS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET.
 2. THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
 3. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF NORMAL FLOW DESIGN, 40 GAL/MIN/SF WITH NO OVERFLOWS.
 4. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
 5. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.

1 AREA DRAIN SEDIMENT FILTER BAG
C5.1 N.T.S. OBSACKS



2 CONSTRUCTION ENTRANCE
C5.1 N.T.S. E-ENTRY



- NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" MIN. VERTICALLY BELOW GRADE.
 2. 2" x 2" FIR, PINE, OR STEEL FENCE POSTS.
 3. STITCHED LOOPS TO BE INSTALLED UPHILL SIDE OF SLOPE.
 4. COMPACT NATIVE FILL IN ALL AREAS OF FILTER FABRIC TRENCH.
 5. ACCUMULATED SEDIMENT CAN BE ALLOWED TO REACH NO MORE THAN ONE-THIRD THE HEIGHT OF THE SEDIMENT FENCE.

3 FILTER FABRIC SEDIMENT FENCE
C5.1 N.T.S. SED-FENCE

TREE PROTECTION MEASURES
UNLESS OTHERWISE INDICATED FOR REMOVAL ALL TREES SHALL RECEIVE PROTECTIVE MEASURES FOR THE DURATION OF THE PROJECT IN ACCORDANCE WITH THE CITY OF GRESHAM REQUIREMENTS.

6" HIGH MINIMUM ORANGE PLASTIC CONSTRUCTION FENCING, SHALL BE ERECTED AND MAINTAINED. FENCING SHALL COMPLETELY SURROUND AT MINIMUM THE TREE DRIP LINE FOR EACH TREE OR GROUP OF EXISTING TREES.

IN AREAS WHERE ROOT ZONE ENCROACHMENT IS UNAVOIDABLE A CERTIFIED ARBORIST SHALL DESIGNATE THE FENCING LOCATION PRIOR TO START OF WORK.

NO ACTIVITY MAY BE CONDUCTED WITHIN ANY DESIGNATED TREE PROTECTION AREA INCLUDING BUT NOT LIMITED TO PARKING EQUIPMENT, PLACING SOLVENTS, STORING MATERIALS AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT, OR OTHER DEBRIS, OR ANY EXCAVATION OR COMPACTION WORK.

DURING CONSTRUCTION NO OBJECTS SHALL BE ATTACHED TO ANY TREE DESIGNATED TO BE RETAINED AND PROTECTED.

MULCH COVER TO MINIMUM DEPTH OF 6", PLYWOOD, OR OTHER SIMILAR MATERIAL REQUIRED AT AREAS ADJOINING DESIGNATED TREE PROTECTION AREAS TO PROTECT ROOTS FROM DAMAGE CAUSED BY HEAVY EQUIPMENT. COORDINATE PLACEMENTS AND LOCATION WITH LANDSCAPE ARCHITECT.

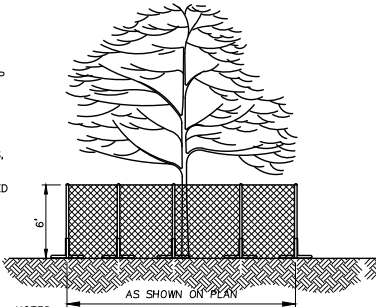
PROTECTION FENCE SHALL BE MAINTAINED IN PLACE UNTIL REMOVAL IS AUTHORIZED BY CITY OR UNTIL A FINAL CERTIFICATE OF OCCUPANCY IS ISSUED.

EXCAVATION / TRENCHING AROUND TREES
PROPOSED TRENCHING AND EXCAVATION AROUND TREES SHALL BE COORDINATED WITH CONSULTING ARBORIST.

WHERE TRENCHING IS REQUIRED WITHIN CRITICAL ROOT ZONE, TUNNEL UNDER OR AROUND ROOTS BY HAND DIGGING OR BORING. DO NOT CUT MAIN LATERAL ROOTS OR TAP ROOTS. CLEANLY CUT/SEVER SMALLER ROOTS.

RELOCATE ROOTS IN BACKFILL AREAS WHEREVER POSSIBLE. DO NOT ALLOW EXPOSED ROOTS TO DRY OUT BEFORE PERMANENT BACKFILL IS PLACED. PROVIDE TEMPORARY EARTH COVER, OR PACK WITH PEAT MOSS AND WRAP WITH BURLAP. WATER AND MAINTAIN IN MOIST CONDITION UNTIL RELOCATED AND COVERED WITH BACKFILL.

4 TREE PROTECTION
C5.1 N.T.S.



- NOTES:
1. TEMPORARY FENCE SHALL BE 6' IN HEIGHT AND SET AS SHOWN.

CITY SHALL APPROVE INSTALLED TREE PROTECTION FENCING PRIOR TO ON-SITE GRADING ACTIVITIES.

FENCE MATERIALS SHALL CONSIST OF ORANGE PLASTIC CONSTRUCTION FENCING SECURED TO A BRACKET ANCHORING SYSTEM OR METAL T-POSTS.

FENCE SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES. MOVEMENT OR REMOVAL OF FENCE REQUIRES APPROVAL BY CITY'S AUTHORIZED REPRESENTATIVE.

5 EROSION CONTROL DETAILS
C5.1 N.T.S.

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98110

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BAINBRIDGE ISLAND FIRE DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

Project

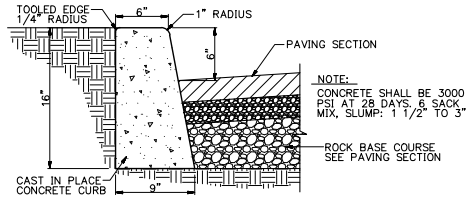
BAINBRIDGE ISLAND FIRE DEPT STATION 21
8895 MADISON AVE. NE

REVISIONS:		
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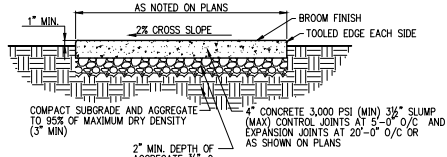
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EROSION CONTROL DETAILS

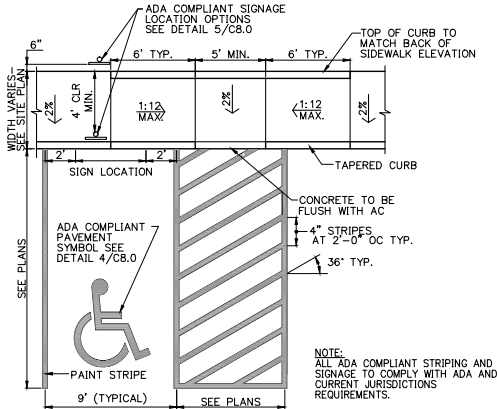
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C5.1
JOB NO. 2150124.00



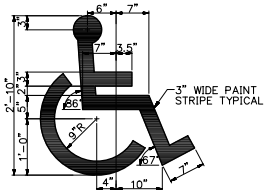
1 CONCRETE VERTICAL CURB
C8.0 N.T.S. VCURB



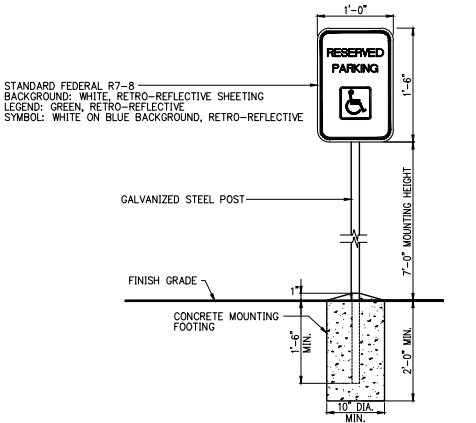
2 CONCRETE SIDEWALK
C8.0 N.T.S. SIDEWALK



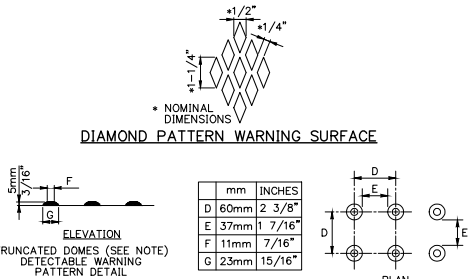
3 ADA COMPLIANT PARKING STALL
C8.0 N.T.S. WITH SQUARE WING RAMP INSTALL



4 ADA COMPLIANT PARKING SYMBOL
C8.0 N.T.S. HSYM

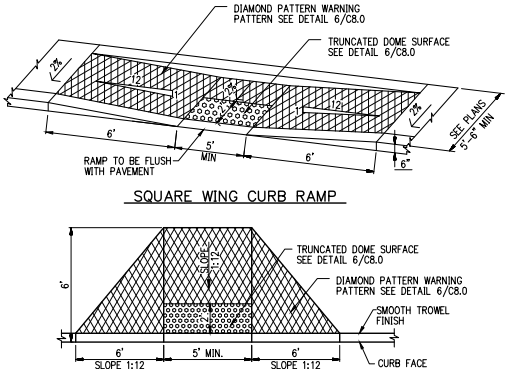


5 ADA COMPLIANT PARKING SIGN
C8.0 N.T.S. HSDM



NOTE:
1. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 600MM (2') OF THROAT OF RAMP ONLY. ARRANGE DOMES USING IN-LINE PATTERN ONLY AS SHOWN IN DETAIL ABOVE. COLOR OF TEXTURE TO BE SAFETY YELLOW.
2. DIAMOND RAMP TEXTURING IS TO BE DONE WITH AN EXPANDED METAL GRATE. PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE PERPENDICULAR TO THE CURB. GROOVES SHALL BE 1/8\"/>

6 ADA COMPLIANT WARNING SURFACE
C8.0 N.T.S. TACTILE-SURFACE



7 ADA COMPLIANT CURB RAMP
C8.0 N.T.S. CURB-RAMP-WING

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BAINBRIDGE, WA 98110

Project

**BAINBRIDGE ISLAND FIRE DEPT
STATION 21**
8895 MADISON AVE. NE

REVISIONS:

NO.	REVISIONS THIS SHEET	REVISION DELTA CLOSING DATE

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SHEET TITLE:

CIVIL DETAILS

SHEET

C8.0

JOB NO. **2150124.00**



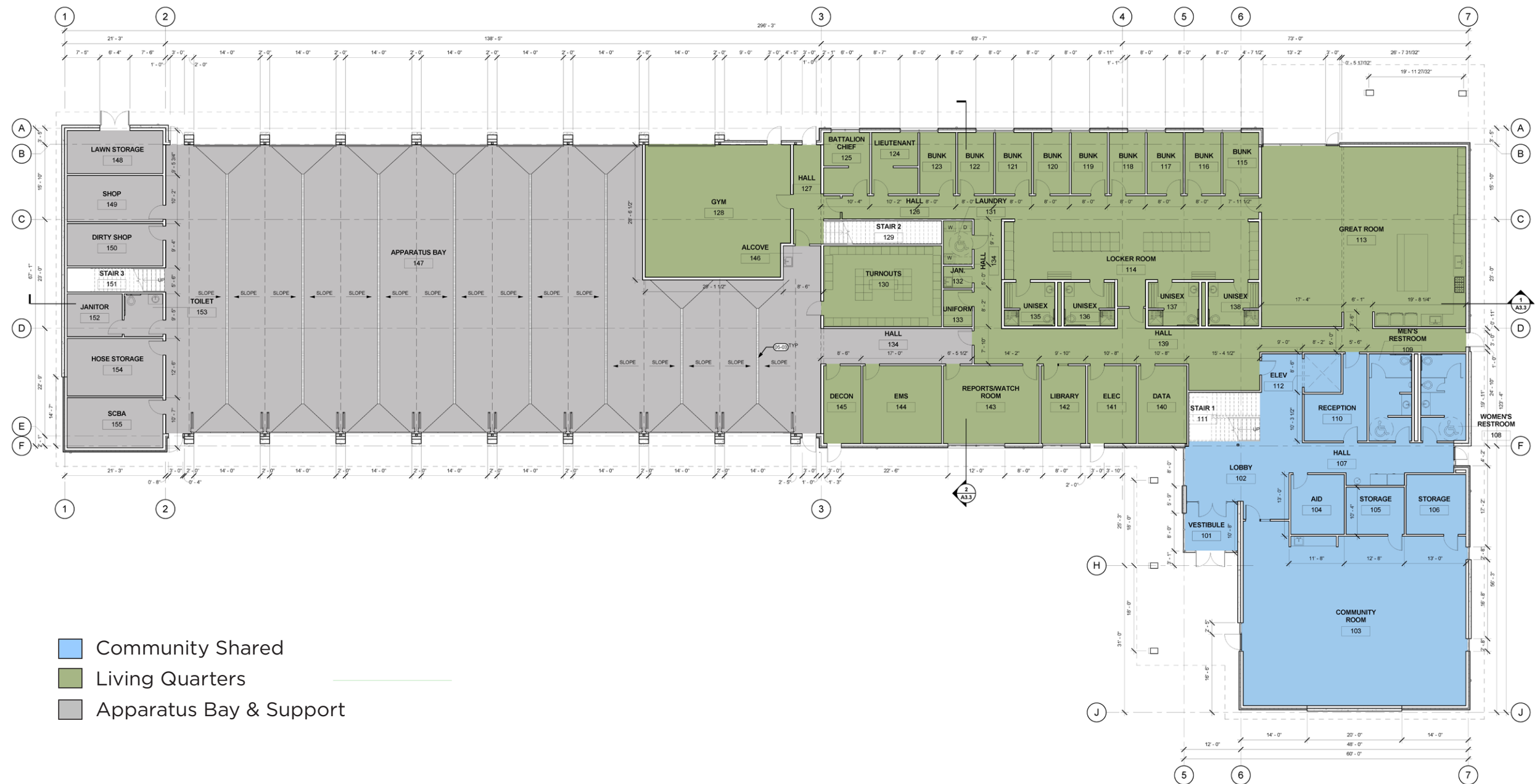
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 SCALE 1" = 50'-0"

January 13 2016

SITE PLAN

BIFD Station 21
 2150124.00

M.



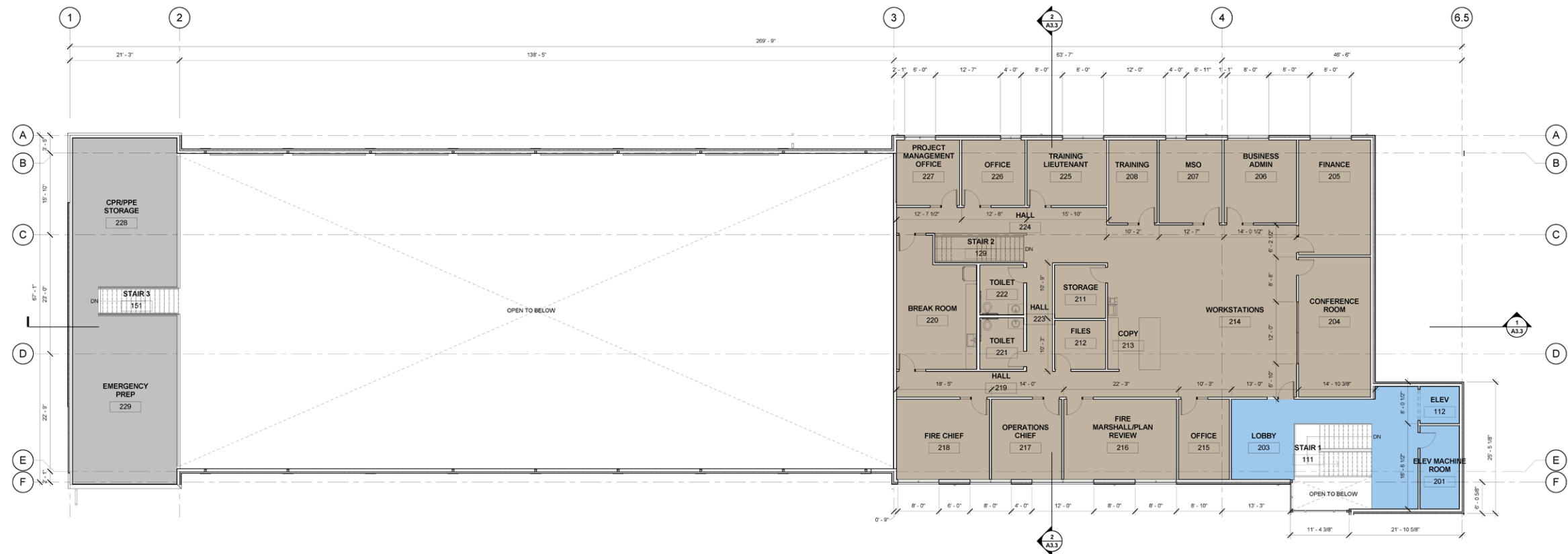
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SCALE 1" = 25'-0"

January 13 2016

FIRST FLOOR PLAN

BIFD Station 21
2150124.00





- Community Shared
- Administration
- Apparatus Bay & Support

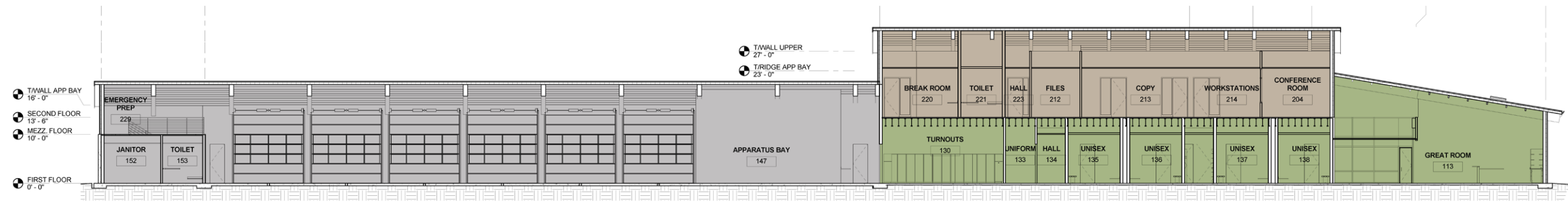
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January 13 2016

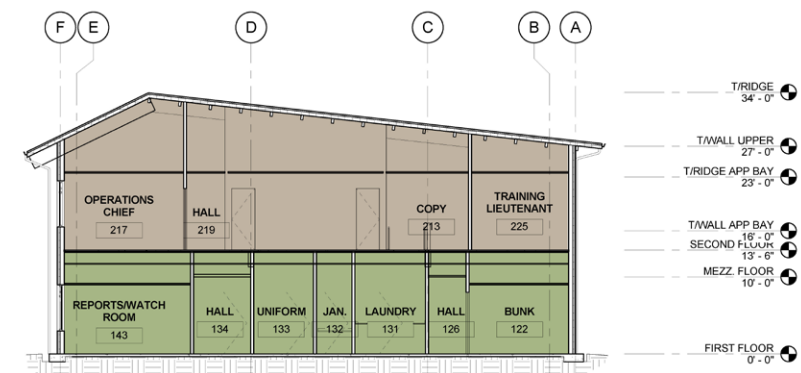
SECOND FLOOR PLAN

BIFD Station 21
2150124.00





- Community Shared
- Living Quarters
- Apparatus Bay & Support
- Administration



SCALE 1" = 25'-0"

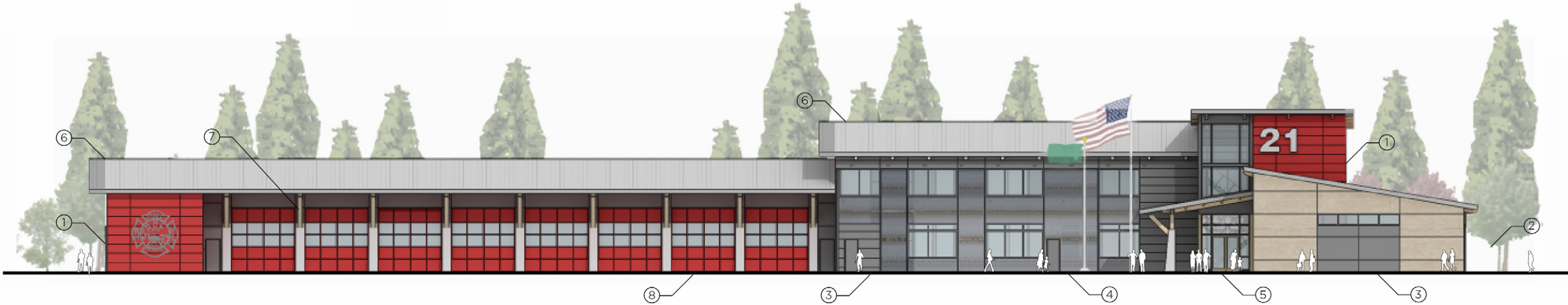
January 13 2016

SECTIONS



NORTH ELEVATION

SOUTH ELEVATION

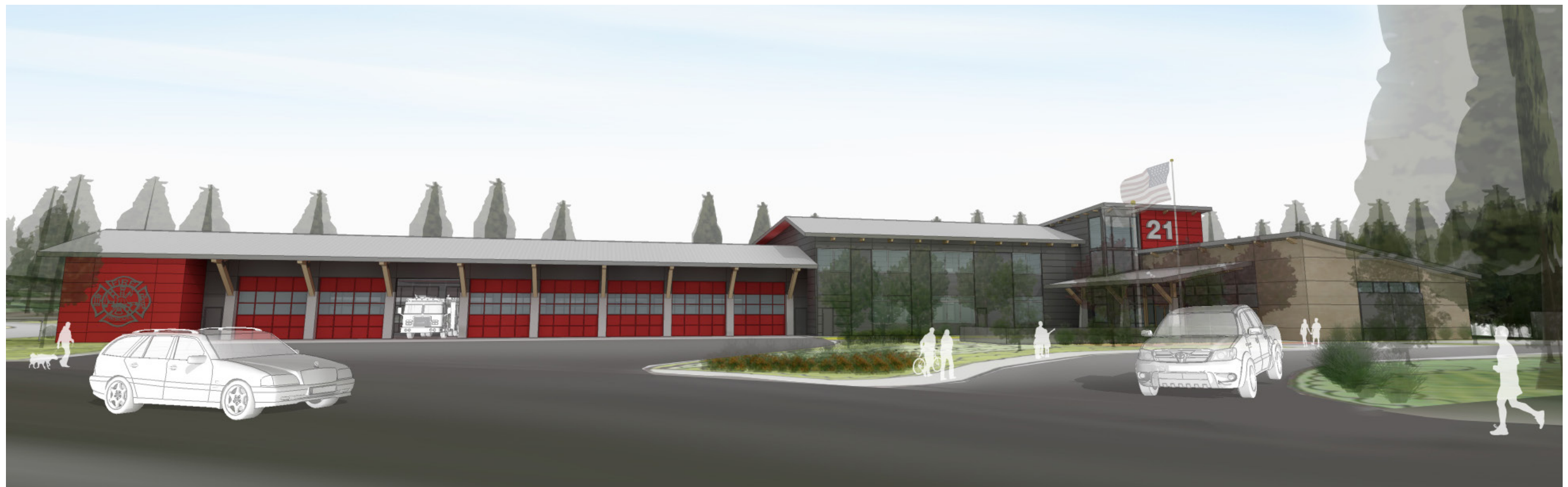


EAST ELEVATION



WEST ELEVATION

① RED FIBER CEMENT PANEL ② WOOD FIBER CEMENT PANEL ③ RED FIBER CEMENT PANEL ④ CORRUGATED METAL SYSTEM ⑤ GLASS STOREFRONT SYSTEM ⑥ STANDING SEAM METAL ROOF ⑦ WOOD GLUELAM BEAM
SCALE 1" = 25'-0"



Bainbridge Island Fire Department- Stations 21 & 22 Landscape Buffers

January 8, 2016

The following memo is a summary of the landscape buffers (perimeter and roadside frontage) as required by BIMC 18.15.010 and how they are applied to each of the stations using buffer averaging, when necessary. The following table identifies our understanding of the buffer requirements for each property line of each project site. This memo also addresses comments (dated December 30, 2015) provided by Josh Machen of the City's Planning Department per their review of the Pre-App submittal. Landscape plans (sheets L2.0 series for each station) in the Pre-App submittal did not adequately demonstrate how the buffer requirements below were being met through site design and planting. These dimensions have been added to a new drawings sheet (L3.0 for each station) entitled Landscape Buffer Diagram which are being submitted for Site Plan Review. The information below is also included on these drawing sheets.

STATION 21 (ZONED R-2) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	319.2	50'	15,960 SF	16,021 SF
SOUTHEAST	595.8	25'	14,895 SF	8,730 SF

Summary:

The north, east and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 13'-6" (10' min. is allowable). The southeast buffer along Madison Avenue is impacted by significant site access, and helipad clear areas requirements.



STATION 22 (ZONED R-1) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	R-1 (Am Legion)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	R-0.4 (school)	NA b/c Bucklin Rd	25' AVG/ 15' MIN (PS) Bucklin
EAST	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.6	25'	5,205 SF	5,205 SF
WEST	638.5	20'	12,770 SF	12,779 SF
SOUTH	208.6	25'	5,205 SF	4,417 SF + Road Access
EAST	638.5	25'	15,963 SF	15,983 SF

Summary:

The north and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 10' (10' min. is allowable). The east buffer will require averaging with a minimum width of 15' (15' min. is allowable).

Bainbridge Island Fire Department- Stations 21 & 22 Tree Retention Analysis Status

January 8, 2016

The following is a summary of the status of the tree retention analysis for the Site Plan Review (SPR) submittal. At this time, the analysis has not been completed but will be provided as a supplemental submittal as part of the SPR process.

Tree retention plans (sheets L1.0 for both stations) were submitted as part of the Pre-App package showing trees that were going to be removed and those that are planned to be retained. However, a specific analysis of tree units per BIMC 18.15.010 cannot be completed until Fischer Bouma Partnership (FBP) receives all necessary data. All tree locations were not originally surveyed and shown on the base survey for each station. While we currently indicate “areas” that tree stands will be retained on the tree retention plans, we cannot calculate the tree units within those stands until all trees are surveyed. BIFD staff provided an inventory of trees in those areas; however, the recently adopted changes to the tree retention code no longer allows trees retained within the perimeter or roadside buffer landscapes to count towards the required project tree units. As such, BIFD is in the process of having a surveyor identify the specific location of all trees on site. Once that data is provided, we will update the tree retention plans (L1.0) and provide an analysis of tree units retained/replanted.

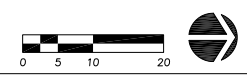
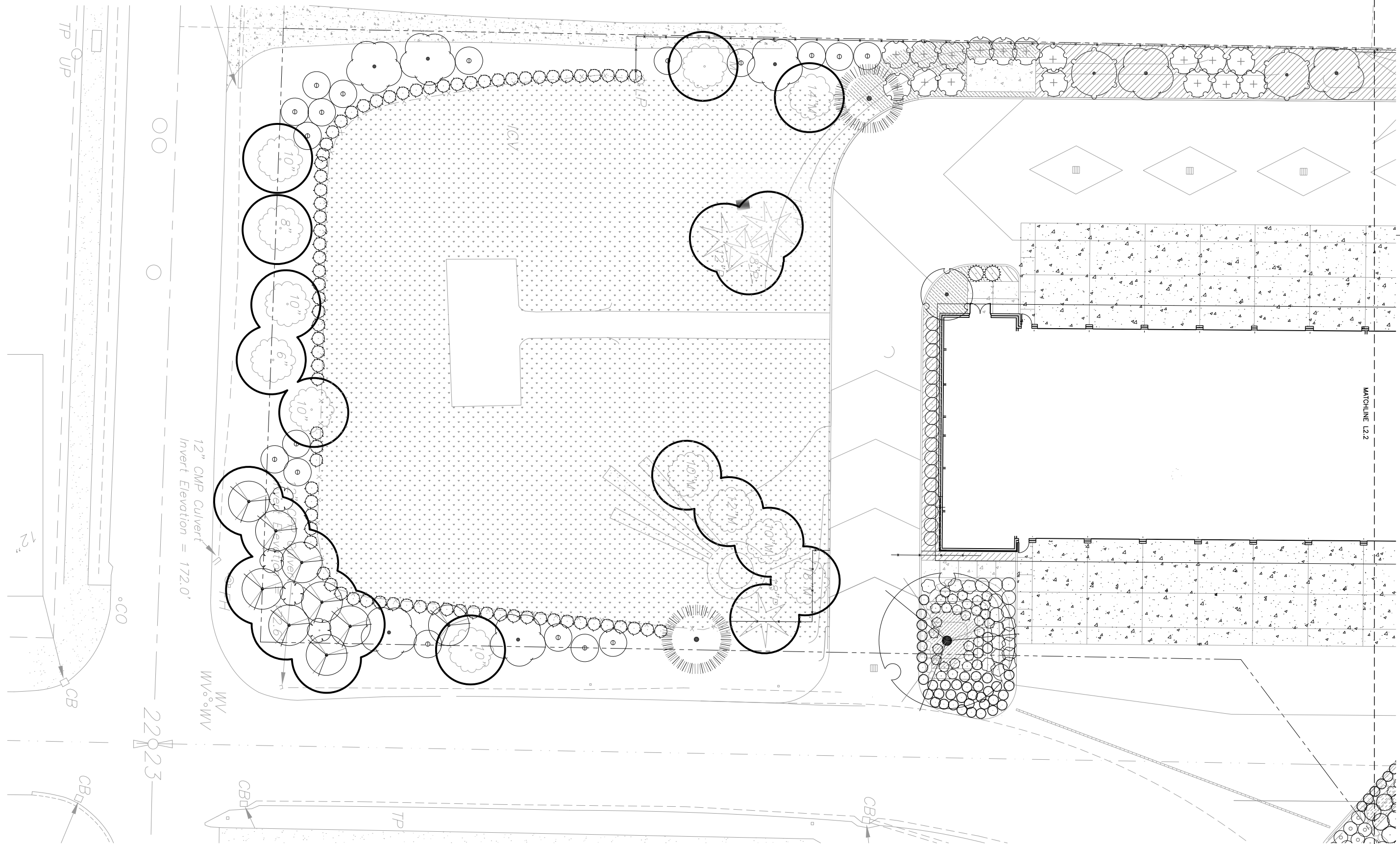
[illegible]

1. SEE PLANT SCHEDULES FOR SPECIES, QUANTITIES, AND MINIMUM SPACING. SEE PLANTING DETAILS FOR INSTALLATION AND LAYOUT.
2. DO NOT USE EXISTING TOPSOIL-- STRIP & REMOVE.
3. CONTRACTOR SHALL ALLOW FOR THE ADDITION OF SOIL AMENDMENTS AND CONDITIONERS IN SOIL PREPARATION AND FINISH GRADING.
4. ALL CONSTRUCTION MATERIAL SHALL BE EXCLUDED FROM TOPSOIL.
5. LAYOUT FOR ALL PLANTING AREAS TO BE VERIFIED ON SITE BY LANDSCAPE ARCHITECT DUE TO VARYING FIELD CONDITIONS AND DENSITIES OF EXISTING VEGETATION.
6. ALL PLANT MATERIAL SHALL CONFORM TO ANSI STANDARDS FOR NURSERY STOCK, LATEST EDITION.
7. LANDSCAPE ARCHITECT WILL SUPERVISE THE PLANTING PROCESS. MODIFICATIONS TO THE PLANTING PLAN MAY OCCUR BASED ON FIELD CONDITIONS AND THE AVAILABILITY OF PLANT MATERIAL.
8. ALL PLANTING WILL BE BAB AND CONTAINERIZED NATIVE PLANT MATERIAL, AS APPROPRIATE AND SPECIFIED, FROM REGIONAL GENETIC STOCK. PLASTIC NURSERY IDENTIFICATION TAGS WILL BE ATTACHED TO THE STEM OF EACH PLANTING.
9. LOCAL NURSERY STOCK WILL BE USED TO ENSURE THAT THE MATERIAL HAS ACCUMULATED TO LOCAL CONDITIONS (REDUCING PLANTING STRESS) AND IS GENETICALLY COMPARABLE WITH PLANTS IN THE LOCAL AREA.
10. FINAL PLANT LISTS WILL BE CONTINGENT UPON PLANT AVAILABILITY. IF SELECTED SPECIES ARE UNAVAILABLE TO LOCAL NURSERIES, THEN UPON PRIOR APPROVAL OTHER GENUS OR SPECIES WITH SIMILAR HYDROLOGICAL REQUIREMENTS MAY BE SUBSTITUTED.
11. TREES WILL BE STAKED ONLY IF A PLANT CANNOT STAND ALONE IN A MODERATE WIND PER PLANTING DETAILS.
12. ALL PLANTINGS WILL BE MULCHED WITH A MINIMUM OF 3 INCHES OF ORGANIC MULCH AS SPECIFIED TO DISCOURAGE WEED GROWTH, MINIMIZE SOIL EROSION, AND RETAIN MOISTURE. THE MULCH IS NOT TO MAKE CONTACT WITH THE PLANT STEM.
13. DO NOT DISTURB TREES AND VEGETATION OUTSIDE LIMIT OF WORK.
14. IF TREES HAVE NOT BEEN DESIGNATED AS SAVE OR REMOVE ON DEMO OR OTHER PLANTS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.
15. SAVE OR REMOVE ON DEMO OR OTHER PLANTS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.
16. THE ENTIRE WIDTH OF THE PLANTING ISLANDS SHALL CONTAIN ONLY SOIL, AND BY WAY OF ILLUSTRATION ONLY AND NOT LIMITATION, BE FREE OF GRAVEL, CONCRETE, CONSTRUCTION DEBRIS, OR OTHER FOREIGN MATERIALS.
17. ALL PLANTING AREAS TO BE IRRIGATED-- IRRIGATION PLANS ARE NOT INCLUDED. IRRIGATION WILL BE DESIGN/BUILD BY CONTRACTOR BASED ON PERFORMANCE SPECIFICATIONS.
18. DO NOT DIG BEFORE LOCATING UTILITIES.
19. ALL LANDSCAPE AREAS DESIGNED FOR INSTALLATION OF TREES SHALL HAVE A MINIMUM SOIL DEPTH OF 18" PLUS 8" SCARIFIED SUBGRADE. MINIMUM SOIL DEPTH SHALL INCLUDE SOILS THAT MEET SOIL SPECIFICATIONS.
20. FOR ALL TOPSOIL, THE CONTRACTOR SHALL OBTAIN A LANDSCAPE SOIL ANALYSIS CERTIFYING THAT THE SOIL MEETS THE SOIL SPECIFICATIONS. THE CERTIFICATION SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT AND APPROVED PRIOR TO SOIL DELIVERY.
21. APPLY 3" DEPTH OF ORGANIC BARK MULCH IN ALL PLANTING AREAS. MULCH TO BE FREE OF WEED SEED, SAWDUST, RESIN OR TANNIN, AND SHALL NOT CONTAIN ANY COMPOUNDS DETRIMENTAL TO PLANT GROWTH. PULL MULCH 3" AWAY FROM BASE OF PLANT.
22. ALL PLANT MATERIAL SHOULD BE DISEASE FREE AND ARRIVE IN A VIGOROUS GROWING CONDITION.
23. LANDSCAPE CONTRACTOR SHALL MAINTAIN THE SITE UNTIL FINAL INSPECTION AND ACCEPTANCE BY THE OWNER.
24. ALL LANDSCAPE INSTALLATION SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.
25. A PRE-CONSTRUCTION CONFERENCE PRIOR TO THE START OF ANY LANDSCAPE CONSTRUCTION IS REQUIRED.
26. PLANTS SHALL BE INSPECTED PRIOR TO PLANTING TO VERIFY CONFORMANCE WITH PLANTING SIZE AND OTHER REQUIREMENTS.
27. ALL LANDSCAPING SHALL BE WARRANTED FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE BY THE OWNER.
28. PRIOR TO THE END OF THE WARRANTY PERIOD, THE LANDSCAPE WILL BE INSPECTED AND DEAD OR UNHEALTHY PLANTS WILL BE REQUIRED TO BE REPLACED WITH SAME SPECIES AND SIZES.

1. REFER TO ARCHITECTURAL & CIVIL DRAWINGS FOR LIMITS OF WORK AND DEMOLITION OF EXISTING SITE ITEMS.
2. REFER TO CIVIL DRAWINGS FOR LANDSCAPE GRADING AND DRAINAGE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR SITE HARDSCAPE DETAILS.

 EXISTING TREES TO BE PROTECTED – REFER TO PLANTING PLAN AND TREE RETENTION PLAN.

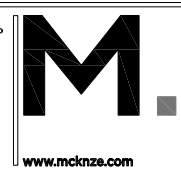
SITE PLAN REVIEW: 1/13/16



PLANTING PLAN - SOUTH
1"=10'-0"

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
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LANDSCAPE
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Project
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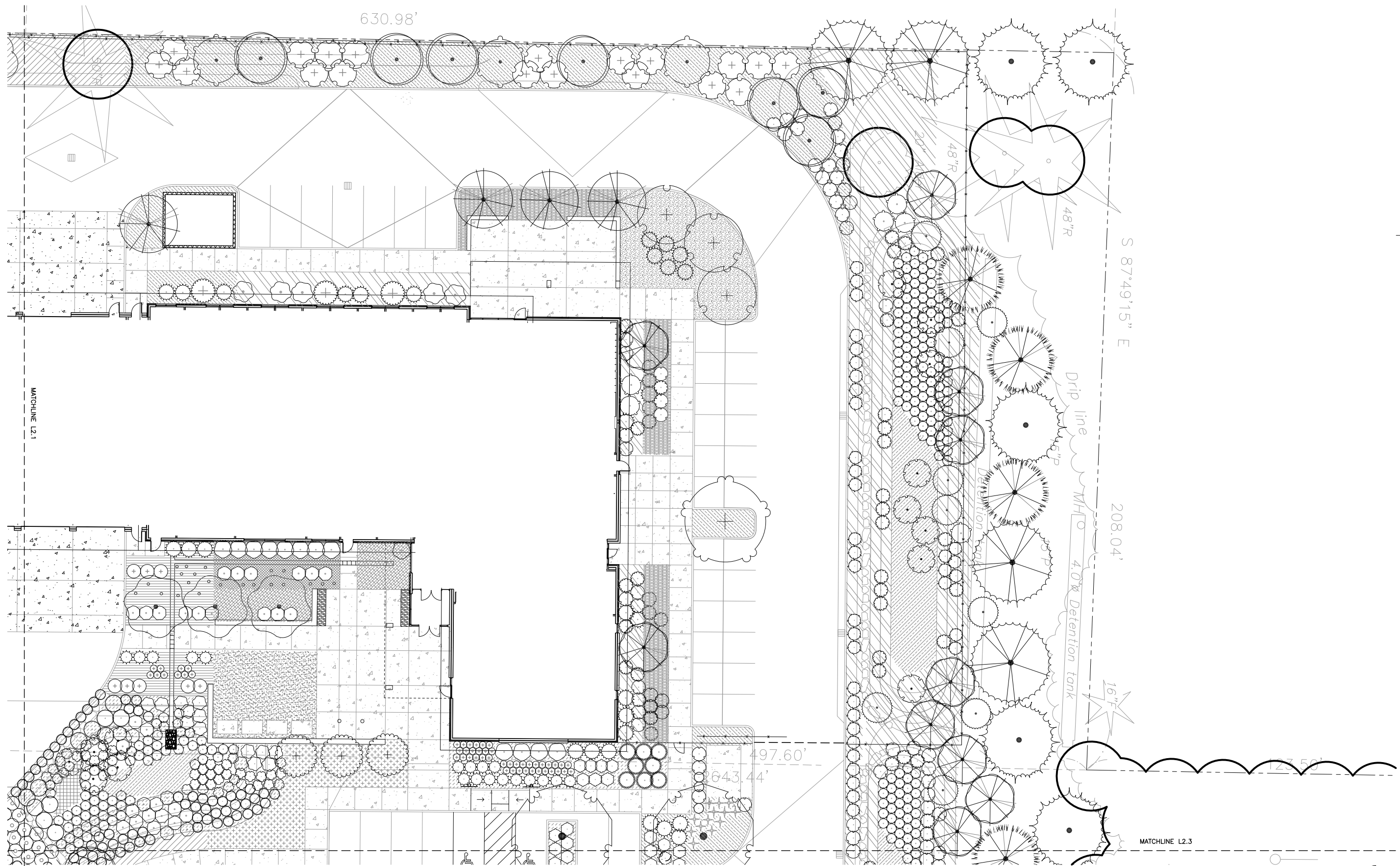
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SHEET TITLE:
PLANTING PLAN - SOUTH

SHEET
L2.1

JOB NO.
2150124.00

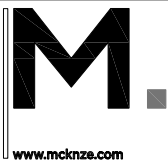


PLANTING PLAN - NORTH

1"=10'-0"

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LANDSCAPE
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STATION 21
8895 MADISON AVE. NE



JEFFREY R. BOUMA
CERTIFICATE NO. 947

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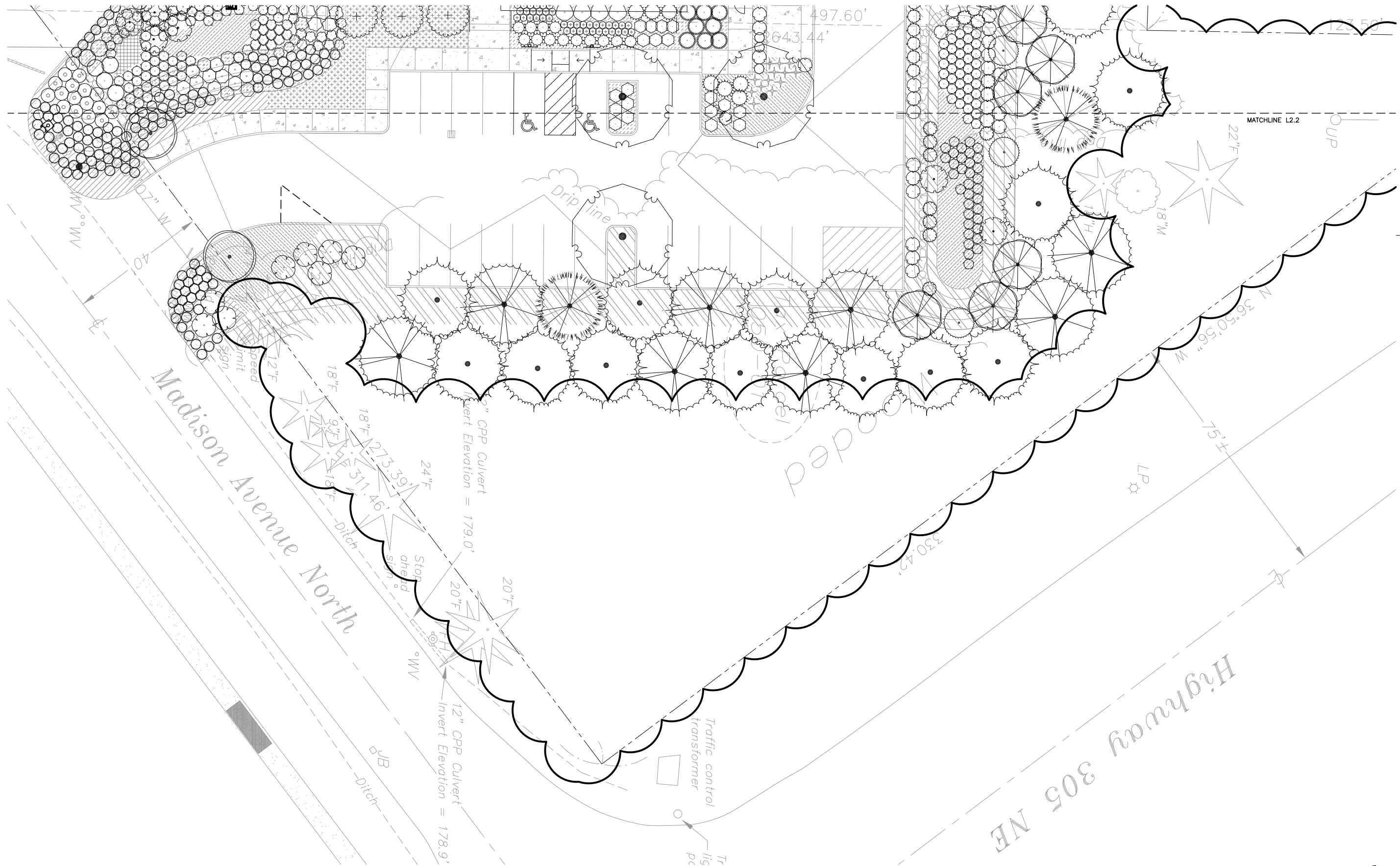
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PLANTING PLAN - NORTH

SHEET

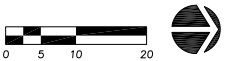
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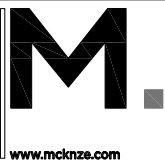
PLANTING PLAN - EAST

1"=10'-0"



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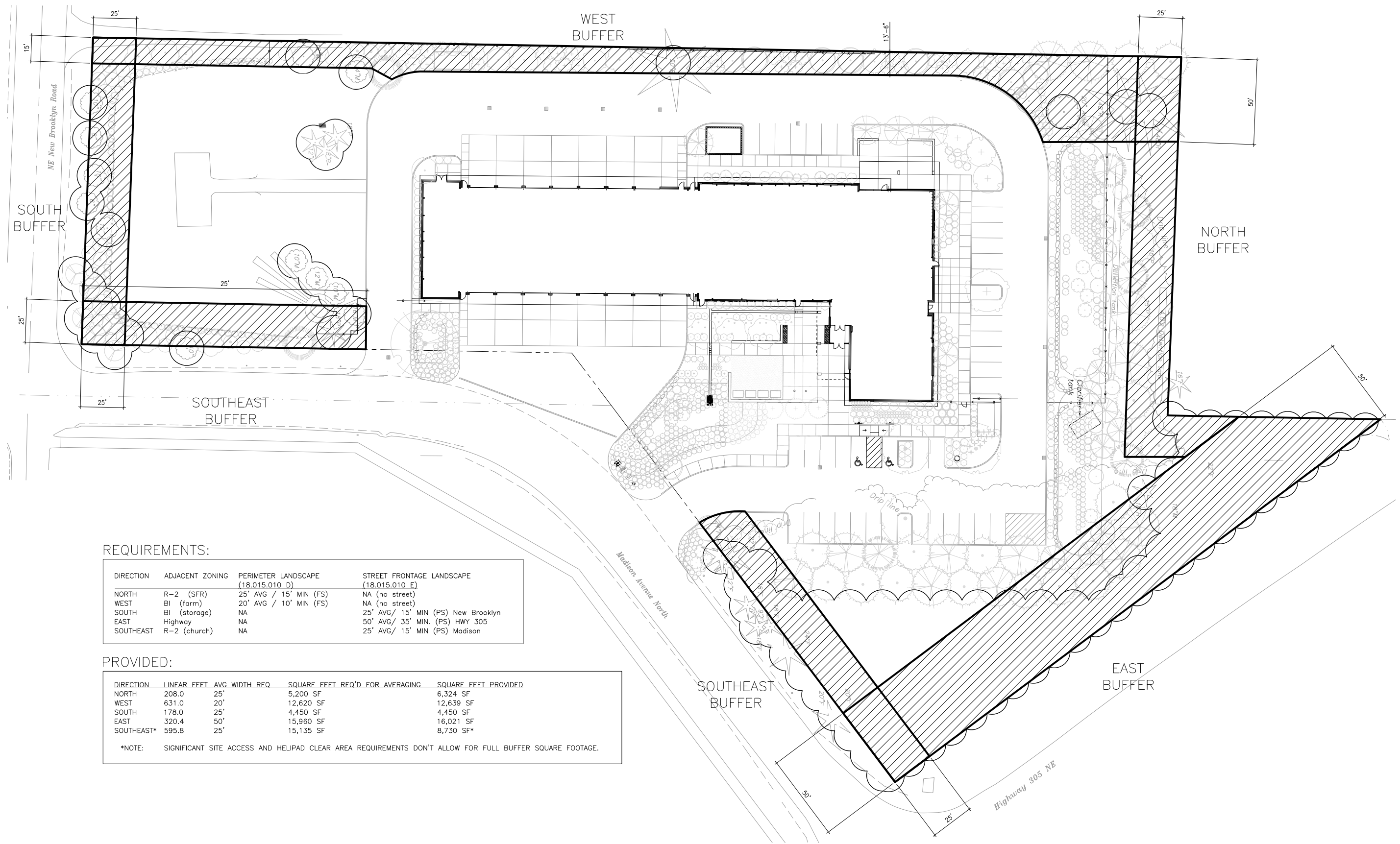
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PLANTING PLAN - EAST

SHEET

L2.3

JOB NO. 2150124.00



REQUIREMENTS:

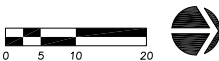
DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

PROVIDED:

DIRECTION	LINEAR FEET	AVG WIDTH REQ	SQUARE FEET REQ'D FOR AVERAGING	SQUARE FEET PROVIDED
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	320.4	50'	15,960 SF	16,021 SF
SOUTHEAST*	595.8	25'	15,135 SF	8,730 SF*

*NOTE: SIGNIFICANT SITE ACCESS AND HELIPAD CLEAR AREA REQUIREMENTS DON'T ALLOW FOR FULL BUFFER SQUARE FOOTAGE.

LANDSCAPE BUFFER DIAGRAM
1"=20'-0"



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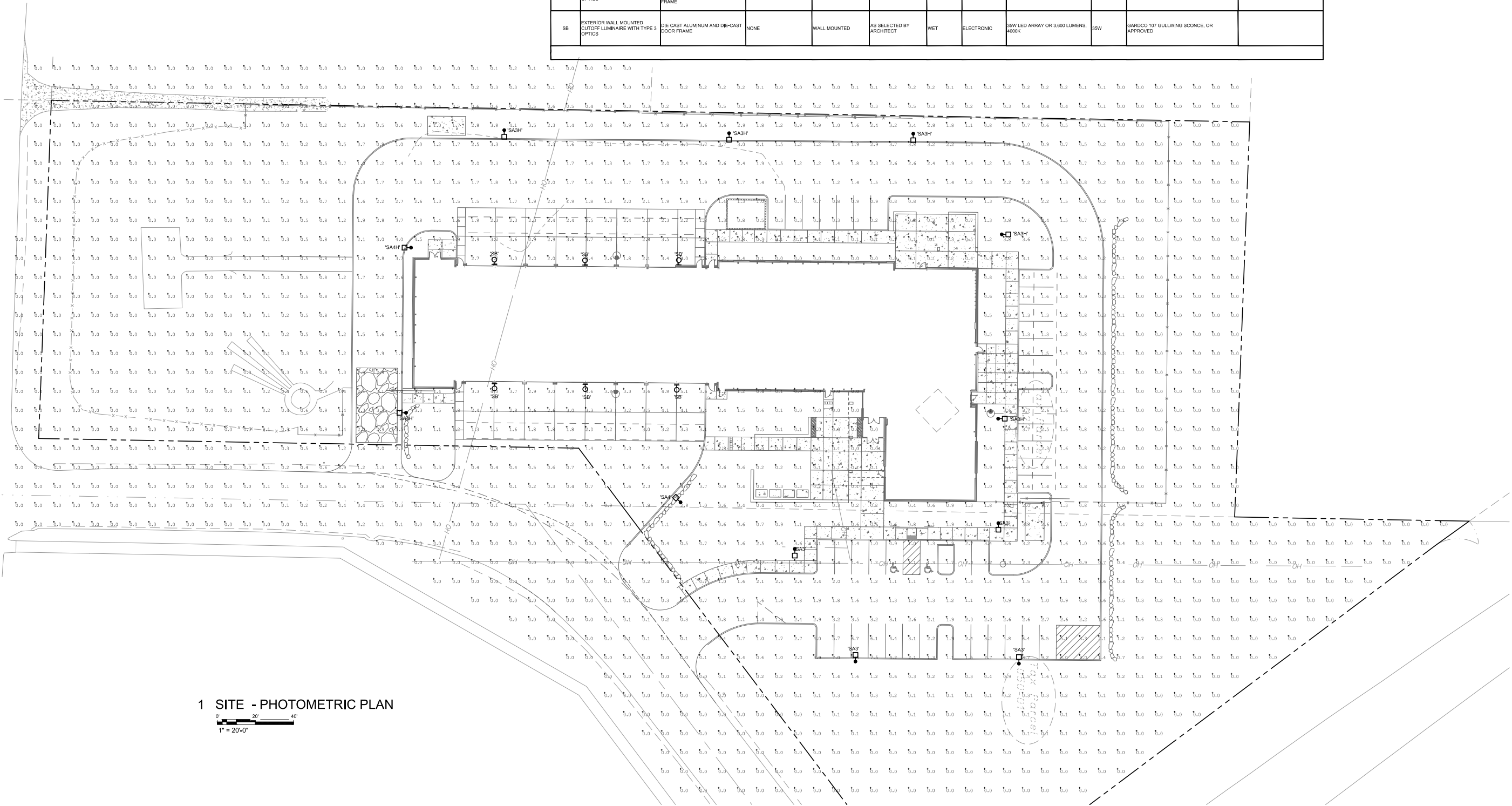
LANDSCAPE BUFFER
DIAGRAM

SHEET

L3.0

JOB NO. 2150124.00

LUMINAIRE SCHEDULE											
TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/P RATING	BALLAST	LAMP(S)	INPUT WATTS	MFG/CATALOG #	NOTES
SA3	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SA3H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SA4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SA4H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SB	EXTERIOR WALL MOUNTED CUTOFF LUMINAIRE WITH TYPE 3 OPTICS	DIE CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	WALL MOUNTED	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	35W LED ARRAY OR 3,600 LUMENS, 4000K	35W	GARDCO 107 GULLIVING SCONCE, OR APPROVED	



1 SITE - PHOTOMETRIC PLAN

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH, SUITE A
BAINBRIDGE ISLAND, WA
98110



Architecture • Interiors • Planning • Engineering

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MACKENZIE
DESIGN DRIVEN | CLIENT FOCUSED

Client

BAINBRIDGE ISLAND FIRE DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
8895 MADISON AVE. NE

REVISIONS:

NO.	REVISION	DATE
1	REVISION DELTA CLOSING DATE	

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CHECKED BY:

SHEET TITLE:

SHEET

JOB NO. 2150124.00

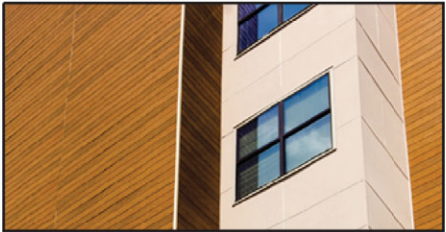
① RED FIBER CEMENT PANEL



⑤ GLASS STOREFRONT SYSTEM



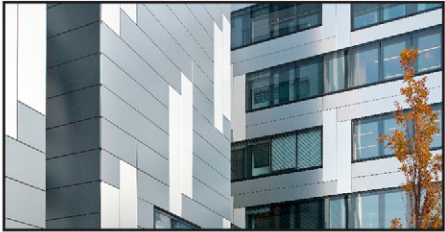
② WOOD FIBER CEMENT PANEL



⑥ STANDING SEAM METAL ROOF



③ METAL PANEL



⑦ WOOD GLUELAM BEAM



④ CORRUGATED METAL SYSTEM



⑧ OVERHEAD ROLL UP DOORS



MACKENZIE.

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CONDITIONAL USE PERMIT NARRATIVE

To

City of Bainbridge Island,
Washington

For

Bainbridge Island Fire
Department Station 21

Date

January 13, 2016

Project Number

2150124.00



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Logan Building | 500 Union Street, Suite 545, Seattle, WA 98101
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EXHIBITS

- A. SEPA Checklist
- B. Civil Engineering Plans
- C. Architectural Plans
- D. Landscape Plans
- E. Photometric Plan
- F. Geotechnical Report

I. PROJECT SUMMARY

Applicant:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Owner:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Site Address:	8895 Madison Avenue N Bainbridge Island, WA 98110
Assessor Site Acreage:	3.91 acres
Zoning:	2 Units per Acre Zone (20,000 square feet; R-2)
Comprehensive Plan:	2 Units per Acre Zone (20,000 square feet; OSR-2)
Adjacent Zoning:	R-2 to the north and east and Business/Industrial District (B/I) to the south and west
Existing Structures:	Fire station, living quarters, generator building, circulation and parking areas, helicopter landing pad, and other site improvements
Request:	Conditional Use Permit
Project Contact:	Mackenzie, Applicant's Representative Michael Chen, Senior Planner Logan Building 500 Union Street, Suite 545 Seattle, WA 98101 (206) 749-9993, Extension 513 MChen@mcknze.com

II. INTRODUCTION

Description of Request

The applicant, Bainbridge Island Fire Department (BIFD), seeks approval of a Conditional Use Permit for the proposed redevelopment of the existing fire station, Station 21, at 8895 Madison Avenue N in Bainbridge Island, Washington.

As articulated in the City of Bainbridge Island Comprehensive Plan, one of the City's primary goals is to "[p]rovide adequate public facilities [...] which maximize public safety and minimize adverse environmental impacts." In a Strategic Plan Update, the BIFD identified critical needs at Station 21 and recommended a formal needs assessment, which the applicant's representative, Mackenzie, was involved in producing. The proposed redevelopment of Station 21 will ensure not only that the buildings meet the BIFD's operational needs, but also that the redeveloped fire station will serve the needs of the Bainbridge Island community for decades to come.

Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 21.

Existing Site & Surrounding Land Use

The subject site is located northwest of Madison Avenue N, southwest of Highway 305, and north of NE New Brooklyn Road in Bainbridge Island. The site comprises two tax lots, 4169-000-050-0206 and 222502-1-023-2000.

There are approximately four existing buildings on the site, including a fire station, living quarters, a generator building, and an accessory building; there are a memorial, a helicopter landing pad, a fence, and vehicle circulation areas on the site, as well.

The site and the tax lots to the north and east are zoned 2 Units per Acre Zone (20,000 square feet; R-2), and the tax lots to the south and west are zoned Business/Industrial District (B/I). The site comprises approximately 3.91 acres. The site is currently in use by the BIFD as the existing Station 21.

Existing land use decisions on the site include the following:

- Kitsap County Conditional Use Permit 936A (4/26/1977)
- Zoning Variance VAR10-05-93-1
- Conditional Use Permit CUP05-14-99-1
- Conditional Use Permit CUP11791 (11/21/2002)

Description of Proposed Development

The applicant proposes to redevelop the existing fire station on the site, Station 21. The redeveloped fire station will have a gross floor area of approximately 30,760 square feet, 56.6 percent landscape area, and 40 parking spaces. The fire station use is conditionally allowed in the R-2 zone; therefore, the applicant seeks approval of a Conditional Use Permit in addition to the site plan and design review application.

Aerial Image – Project Site



III. NARRATIVE & COMPLIANCE

1. *In what manner is the requested conditional use harmonious and compatible in design, character and appearance with the existing or intended character and quality of development in the vicinity of the subject property and with the physical characteristics of the subject property?*

Response: The proposed building is designed for compatibility with contemporary architecture characteristic of the Pacific Northwest in general and the Bainbridge Island community specifically. In a precedent study early in the development process, the applicant considered aesthetic features of the Bainbridge Island City Hall building, some elements of which may be incorporated into the final design of the fire station. Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. As part of the community meeting, the applicant will present their ideas for the proposed fire station to both participants and the City of Bainbridge Island Design Review Board, all of whom will have the opportunity to comment on the proposal. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 21.

2. *How has the proposed conditional use made adequate provision for the following facilities: a) roads, b) water availability, c) fire protection, d) sewage disposal facilities, and e) storm drainage facilities?*

Response:

- a) Roads: The site is currently served by Madison Avenue N to the east, which is functionally classified as a secondary arterial street according to the draft update of the City's Island Wide Transportation Plan (IWTP). The existing size of Madison Avenue N meets the required right-of-way width of 60 feet. The existing driveway will be redeveloped as two separate driveways, both approximately 26 feet wide, one at the southern end of the existing driveway and one at the northern end of the existing driveway. Landscape area will separate the two newly created driveways from the emergency access area to be used by BIFD apparatus.
 - b) Water availability: The site is currently served by public water utility infrastructure provided by the City of Bainbridge Island that is adequate to meet the needs of the proposed development; therefore, no new water utilities or utility connections are proposed.
 - c) Fire protection: The proposed building is designed for compliance with the Washington State Building Code, which includes fire protection measures. The building will be fully sprinklered, and some walls will be fire-rated.
 - d) Sewage disposal facilities: The site is currently served by public sewer utility infrastructure provided by the City of Bainbridge Island that is adequate to meet the needs of the proposed development; therefore, no new sewer utilities or utility connections are proposed.
 - e) Storm drainage facilities: Stormwater facilities are proposed in the landscape area, including stormwater planters in the primary landscape island between the vehicle accesses and in the landscape buffer in the northern portion of the site. As required according to jurisdictional erosion control standards, Best Management Practices (BMPs) and the relevant standard details will be utilized throughout the site and in construction activity.
3. *Describe how the proposed conditional use will not be materially detrimental to uses or property in the vicinity of the subject property.*

Response: The subject property is surrounded by a residential subdivision to the north, commercial storage to the south, a church to the east, and residential property to the west. The proposed fire station use will be limited to 13.1 percent building coverage and 43.5 percent impervious area coverage on the site. Any noise related to the fire station use that can be defined as "[s]ounds created by

emergency equipment and work necessary [...] for healthy safety or welfare of the community” are exempt from all provisions of the Washington Administrative Code adopted by the City of Bainbridge Island governing maximum environmental noise levels (see Bainbridge Island Municipal Code Section 16.16.020. and WAC Section 173-60-050 [4] [f]).

4. *Relate how the proposed conditional use will meet all the criteria otherwise applicable to the zone in which it is to be developed.*

Response: The proposed use is designed in compliance with the dimensional standards for the base zone, R-2, as presented in the abridged version of Bainbridge Island Municipal Code (BIMC) Table 18.12.020-2 below.

TABLE 18.12.020-2: STANDARD LOT DIMENSIONAL STANDARDS FOR RESIDENTIAL ZONE DISTRICTS (ABRIDGED)		
Standard	Requirement	Proposal
Maximum Lot Coverage	20%	13.1%
Minimum Setbacks		
Front/Street	25 feet	~46.5 feet
Side	5–15 feet	~139’ (N), ~195’ (S)
Rear	15 feet	~83.5 feet
Maximum Building Height	35 feet	34 feet

5. *How is the conditional use in conformance with the Comprehensive Plan?*

Response: As articulated in the Comprehensive Plan, one of the City’s primary goals is to “[p]rovide adequate public facilities [...] which maximize public safety and minimize adverse environmental impacts.” In the Strategic Plan Update, BIFD identified critical needs at Station 21 and recommended a formal needs assessment, which the applicant’s representative, Mackenzie, was involved in producing. The proposed redevelopment of Station 21 will ensure not only that the buildings meet BIFD’s operational needs, but also that the redeveloped fire station will serve the needs of the Bainbridge Island community for decades to come.

6. *How does the conditional use comply with all of the other provisions of the city code?*

Response: The proposed use is designed in compliance with the development standards and guidelines as presented in the responses to excerpts from the BIMC below.

- Landscaping, screening, and tree retention, protection, and replacement: The existing forest buffer on the eastern side of the site will be preserved, and full screen buffers will be provided on the northern and western sides of the site, with a partial screen buffer surrounding the southern portion of the site.
- Parking and loading: 40 parking spaces have been determined necessary and will be provided for the proposed development. No loading will be necessary for the development; therefore, no loading area is proposed.
- Mobility and access: Five- to seven-foot-wide internal sidewalks will be provided for the proposed development, and the development will be accessible via the existing driveway, to be redesigned as described above. Two accessible parking spaces will be provided in the eastern parking area. Bicycle parking will be provided in close proximity to each building entrance.
- Outdoor lighting: A photometric lighting plan is included with this application. Lighting design minimizes spillover to neighboring properties.

- Signs: Exterior building signage is proposed.

7. *Describe how the conditional use will not adversely affect the area or alter the area's predominantly residential nature?*

Response: The fire station use is surrounded by a residential subdivision to the north, commercial storage to the south, a church to the east, and residential property to the west. The station is strategically located so as to be able to respond to emergencies in both residential and non-residential areas of the City as rapidly as possible. The residential uses on two sides of the property and the church use on one side of the property have existed adjacent to the property in its current use as a fire station without adverse effects to the area or alterations to the area's predominately residential nature. The proposed building will be located in the center of the property, and landscape buffers will be provided on the perimeter of the property in order to reduce any potential impacts on adjacent uses.

8. *How is the subject property suitable for the proposed conditional use and will it be detrimental to surrounding land uses or sensitive areas? Consideration shall include items such as topography, streets and adjacent land uses.*

Response: The subject property is relatively flat, fully developed, with no known geological concerns. There are no known critical areas on the site. The site is served by Madison Avenue N to the east; the existing size of Madison Avenue N meets the required right-of-way width of 60 feet. The existing access to the site from Madison Avenue N will be redeveloped but preserved. The proposed redevelopment of the subject property as a fire station will be fully contained on the site and will not conflict with any of the uses in the vicinity.

9. *Describe how all necessary measures have been taken to eliminate the impacts that issuance of the conditional use permit may have on the area in which it is to be located.*

Response: As described above, the proposed development is designed in compliance with the dimensional standards of the base zone. Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. As part of the community meeting, the applicant will present their ideas for the proposed fire station to both participants and the City of Bainbridge Island Design Review Board, all of whom will have the opportunity to comment on the proposal. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 21.

IV. CONCLUSION

The applicant submits this narrative and the attached Exhibits in seeking approval of a Conditional Use Permit for the proposed redevelopment of the existing fire station located at 8895 Madison Avenue N. The preliminary land use application to follow will continue to demonstrate that the proposal is in compliance with the relevant standards provided by the City of Bainbridge Island.

CITY OF BAINBRIDGE ISLAND

ENVIRONMENTAL (SEPA) CHECKLIST - *UPDATED 2014*
FORM MUST BE COMPLETED IN INK, PREFERABLY BLUE
PENCIL WILL NOT BE ACCEPTED

**PLEASE READ THE FOLLOWING CAREFULLY BEFORE FILLING OUT THE CHECKLIST****Purpose of checklist:**

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

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A. Background

1. Name of proposed project, if applicable:

Bainbridge Island Fire Department Station 21

2. Name of applicant:

Bainbridge Island Fire Department

3. Address and phone number of applicant and contact person:

Applicant:

Bainbridge Island Fire

Department

8895 Madison Avenue N

Bainbridge Island, WA

98110

(206) 842-7686

Contact Person:

Mackenzie, Applicant's

Representative

Michael Chen, Senior

Planner

Logan Building

500 Union Street

Suite 545

Seattle, WA 98101

(206) 749-9993,

Extension 513

MChen@mcknze.com

4. Date checklist prepared:

January 13, 2016

5. Agency requesting checklist:

City of Bainbridge Island Planning & Community Development

6. Proposed timing or schedule (including phasing, if applicable):

Pending the required approvals, construction on the proposal is expected to start in the fall of 2016 and to be complete in 2018.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No plans for future additions, expansion, or further activity are associated with this proposal.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

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8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

A geotechnical report dated December 30, 2015, has been prepared for this proposal, and an NPDES permit will be obtained prior to commencing construction on the proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No known applications for governmental approvals of other proposals directly affecting the property covered by this proposal are known at the time of this application.

10. List any government approvals or permits that will be needed for your proposal, if known.

The applicant seeks approval of the following approvals and permits:

- *Conditional Use Permit*
- *Site Plan and Design Review Board Approval*
- *NPDES Permit*
- *Building Permit*

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposal includes redevelopment of an existing fire station as a two-story, approximately 30,760-square foot building with living quarters, meeting spaces, offices, storage areas, and an apparatus bay, with associated site improvements. The existing memorial and the site will be preserved, and the existing flagpoles on the site will be relocated. The existing helicopter pad and fence in the southern portion of the site will be preserved.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

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required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The proposal is located at 8895 Madison Avenue N in Bainbridge Island. The site comprises two tax lots, 222502-1-023-2000 and 4169-000-050-0206. The site is located in Section 22, Township 25N, and Range 2E.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site

(circle one): Flat, rolling, hilly, steep slopes, mountainous,

other _____

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slope on the site is approximately 15 percent or greater (located at the southern property line and south of Madison Avenue N), with the majority of the site at two to four percent grades. The proposed grading includes slopes of no greater than five percent (with the exception of the slopes surrounding stormwater facilities).

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

According to the USDA Web Soil Survey, the site is constituted almost entirely of Kapowsin gravelly ashy loam, 0–6% slopes, with a small amount of Kitsap silt loam, 15–30% slopes, in the southwest corner of the site. Geotechnical information on the site is available from Aspect Consulting; soil types found on the site include sand, gravel, and silt.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no known surface indications or history of unstable soils in the immediate vicinity of the site.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

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The purpose of the proposed cut and fill is to provide a site that is as balanced as possible while maintaining the appropriate slopes where relevant. Approximately 116,500 square feet (2.67 acres) of the site will be affected by grading, which will include both cut and fill.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur; however, the possibility of erosion will be minimized by implementing Best Management Practices (BMPs) as described in Section B. 1. h. of this application. The project will comply with City of Bainbridge Island erosion control requirements and requirements of the NPDES Construction Stormwater permit to be obtained.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 43.5% of the site will be covered with impervious surfaces after project construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The project team will develop erosion control plans, which will be reviewed by the City of Bainbridge Island through the site plan review process. Prior to beginning any earth-disturbing activities, the applicant will obtain a NPDES Construction Stormwater permit.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Some air emissions will result from the use of equipment during construction, and some air emissions from the fire station use, passenger and delivery vehicles, and the fire apparatus will result from the completed project.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The proposal is located in the immediate vicinity of residential properties, a church site, and a commercial self-storage site, which could be off-site sources of emissions and/or odor related to the respective land uses as well as to passenger and delivery vehicles.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

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c. Proposed measures to reduce or control emissions or other impacts to air, if any:
An erosion control plan will be prepared for the project and reviewed by the City of Bainbridge Island; in order to comply with the conditions of approval from this review, the project will employ standard techniques to minimize dust generation during construction. Emissions from vehicles related to the proposed use are regulated under U.S. EPA and Washington Department of Licensing emission standards (Clean Car Law, RCW 46.16A.060).

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is no known surface water body on or in the immediate vicinity of the site (Puget Sound is located approximately 2,000 feet to the east).

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

There is no known surface water body on or in the immediate vicinity of the site; thus, the project will not require any work over, in, or adjacent to any waters.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material will be placed in or removed from surface water or wetlands for this proposal; thus, no source of fill or dredge material is indicated.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals are anticipated to be required for the proposal. Stormwater will be treated on-site and then discharged into existing stormwater lines that connect into the existing stormwater system.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposal is not known to lie within a 100-year floodplain.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

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- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not involve any discharges of waste materials to surface waters.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No groundwater will be withdrawn from a well for drinking water or other purposes related to this proposal.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground from septic tanks or other sources for this proposal.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff will primarily be from pavements and roof areas. Pavement areas will sheet flow to catchbasins and will then be conveyed to stormwater facilities. Stormwater from roof areas will be collected in downspouts and may be infiltrated on-site.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials could possibly enter ground or surface waters by being spilled from vehicles on-site, though such spills are unexpected.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

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The proposal does not alter or otherwise affect drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

The project team will prepare a stormwater control plan that will comply with City of Bainbridge Island requirements; this plan will be reviewed by the City of Bainbridge Island.

4. Plants

a. Check the types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ orchards, vineyards or other permanent crops
- ☐ wet soil plants: cattail, buttercup, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Approximately 34 trees will be removed for the proposal.

c. List threatened and endangered species known to be on or near the site.

No threatened or endangered species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Landscaping is proposed to cover 56.5% of the site. An entry plaza and gardens are proposed on the east side of the building, and a staff patio is proposed in the northwest corner of the building. The existing forest buffer on the eastern side of the site will be preserved, and full screen buffers will be provided on the northern and western sides of the site, with a partial screen buffer surrounding the southern portion of the site. Interior circulation areas will also be landscaped. The landscaping is designed by a licensed landscape architect to comply with the City

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of Bainbridge Island requirements, and landscape plans will be reviewed by the City of Bainbridge Island.

e. List all noxious weeds and invasive species known to be on or near the site.
No noxious weeds or invasive species are known to be on or near the site.

5. Animals

a. List any birds and other animals which have been observed, or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other: barred owls
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened and endangered species known to be on or near the site.
No threatened or endangered species are known to be on or near the site.

c. Is the site part of a migration route? If so, explain.
The entire Puget Sound region is located within the Pacific Flyway for migratory birds.

d. Proposed measures to preserve or enhance wildlife, if any:
The proposed landscaping will include species native to the Pacific Northwest.

e. List any invasive animal species known to be on or near the site.
No invasive animal species is known to be on or near the site.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric and natural gas energy will be used to meet the completed project's energy needs.

b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.

The project is not expected to affect the potential use of solar energy by adjacent properties.

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c. What kinds of energy conservation features are included in the plans of this proposal?

List other proposed measures to reduce or control energy impacts, if any:

This proposal will comply with the current adopted building and energy codes and standards, and the plans prepared for the proposal will be reviewed by the City of Bainbridge Island.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

No environmental health hazards are expected to occur as a result of this proposal.

1) Describe any known or possible contamination at the site from present or past uses.

There is no known contamination at the site from present or past uses, and no contamination is anticipated from this proposal.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are no known existing hazardous chemicals or conditions that might affect development and design of the proposed project.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, an existing above-ground fueling system will be stored on the site for incorporation into the proposed project. An existing fuel generator with a fuel tank will be retained on the site both during construction and for the completed project. For the completed project, wash soap, firefighting foam, small engine lubricant, and propane will be stored on the site. The above materials are necessary to support the fire apparatus.

4) Describe special emergency services that might be required.

The proposal is not anticipated to require any special emergency services. The proposal is for redevelopment of a fire station, which provides an emergency service to the community.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

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- 5) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are anticipated from this proposal.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise exists in the area from the existing fire apparatus use, from the traffic on Madison Avenue N, and from the occasional takeoff and landing of helicopters using the helipad on the site; but the noise is not anticipated to affect this proposal.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise will be created by or associated with the project construction, and long-term noise will be created by or associated with the fire apparatus use, with traffic to and from the completed project, and with operations on the site (including the helipad described above). Consistent with City of Bainbridge Island regulations, construction will occur between the hours of 7:00 a.m. and 7:00 p.m. on weekdays that do not constitute legal holidays and between 9:00 a.m. and 6:00 p.m. on Saturdays that do not constitute legal holidays. Operations at the completed project will occur 24 hours per day, seven days per week.

- 3) Proposed measures to reduce or control noise impacts, if any:

Any noise related to the fire station use that can be defined as "[s]ounds created by emergency equipment and work necessary [...] for healthy safety or welfare of the community" are exempt from all provisions of the Washington Administrative Code adopted by the City of Bainbridge Island governing maximum environmental noise levels (See Bainbridge Island Municipal Code Section 16.16.020. and WAC Section 173-60-050 [4] [f].).

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current use of the site is as a fire station, which is the same as the proposed use. There is a residential subdivision to the north, commercial storage to the south, a church to the east, and a residential area to the west of the site. The fire station use has been compatible with the current land uses on nearby or adjacent

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properties, and the compatibility of the fire station use with the nearby or adjacent uses will be preserved through this proposal.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

To the best of knowledge, the project site has not been used as working farmlands or forest lands in the recent past. No agricultural or forest land of long-term commercial significance will be converted to other uses as a result of this proposal, and no acres in farmland or forest land tax status will be converted to nonfarm or nonforest use as a result of this proposal.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

There are no known surrounding working farm or forest land normal business operations nearby or adjacent to the project site; therefore, no affects are anticipated with this proposal.

c. Describe any structures on the site.

There are approximately four existing buildings on the site, including a fire station, living quarters, a generator building, and an accessory building; there are a memorial, a helicopter landing pad, a fence, and vehicle circulation areas on the site, as well.

d. Will any structures be demolished? If so, what?

All existing buildings and vehicle circulation areas will be demolished, and the buildings and vehicle circulation areas will be redeveloped. The memorial, helicopter landing pad, and fence will be preserved.

e. What is the current zoning classification of the site?

The current zoning classification of the site is 2 Units per Acre Zone (20,000 square feet; R-2).

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation of the site is 2 Units per Acre Zone (20,000 square feet; OSR-2).

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g. If applicable, what is the current shoreline master program designation of the site?

The site is not within shoreline jurisdiction.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No part of the site has been classified as a critical area by the City of Bainbridge Island or by Kitsap County.

i. Approximately how many people would reside or work in the completed project?

Approximately 11 employees will work in the completed project and reside in the living quarters to be provided with the project during on-duty shifts.

j. Approximately how many people would the completed project displace?

The completed project will not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

The completed project will not displace any people; therefore, no measures to avoid or reduce displacement impacts are necessary.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposal is for redevelopment of an existing use that has been previously approved by the City of Bainbridge Island and Kitsap County. The proposed use is conditionally allowed in the zone, and the applicant seeks approval of a Conditional Use Permit through compliance with the relevant standards and requirements.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no known agricultural or forest lands of long-term commercial significance near the project site, so no measures to ensure compatibility are necessary.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be provided with this proposal; living quarters to be used periodically by employees are proposed.

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- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated with this proposal.

- c. Proposed measures to reduce or control housing impacts, if any:

No housing will be provided or eliminated with this proposal, so no measures to reduce or control housing impacts are necessary.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the proposed fire station building is approximately 34 feet at the maximum, measured from the highest overhang of the roofline. The proposed principal exterior building materials are metal panels, fiber cement boards, and board-formed concrete.

- b. What views in the immediate vicinity would be altered or obstructed?

No views in the immediate vicinity of this proposal are anticipated to be altered or obstructed.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

The proposed building is designed for compatibility with contemporary architecture characteristic of the Pacific Northwest in general and the Bainbridge Island community specifically.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The proposal includes exterior building lights which will be present during hours of darkness for the purposes of public safety and security. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

The exterior building lights for this proposal are intended to enhance the safety and security of the site, and these lights will not interfere with views. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

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c. What existing off-site sources of light or glare may affect your proposal?

No existing off-site sources of light or glare are expected to affect this proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

A lighting plan for the project will be reviewed by the City of Bainbridge Island.

Lights will be shielded in order to prevent impacts on adjacent properties.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The site is within one mile of Murden Cove, Manitou Park, and Rotary Park.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No recreational uses currently exist on the subject site, so the proposed project would not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No impacts on recreation are anticipated to result from the project, and the applicant is not providing any public recreation opportunities.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

No known buildings, structures, or sites located on or near the site that are over 45 years old are listed in or eligible for listing in national, state, or local preservation registers.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No landmarks, features, or other evidence of Indian or historic use or occupation or material evidence, artifacts, or areas of cultural importance are known to exist on or near the site. If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

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- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The site is currently in use as a fire station, and no cultural or historic resources are known to exist on the site; thus, no potential impacts to cultural or historic resources on the site are anticipated, and no methods to assess the potential impacts to cultural or historic resources on the site have been used. If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site is served by Madison Avenue N to the east, which is functionally classified as a secondary arterial street according to the draft update of the City's Island Wide Transportation Plan (IWTP). The existing driveway will be redeveloped as two separate driveways, both approximately 26 feet wide, one at the southern end of the existing driveway and one at the northern end of the existing driveway.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site is currently served by public transit: there are three existing transit stops within one quarter-mile of the site, one near the intersection of Madison Avenue N at NE New Brooklyn Road, one near the intersection of Madison Avenue N at Highway 305, and one slightly further to the southeast on Highway 305.

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- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The completed project will provide 40 parking spaces, eliminating 35 spaces.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The proposal will not require any new or improved transportation facilities. Internal circulation will be provided for pedestrians and bicycles, in addition to passenger and emergency vehicles.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will not use or occur in the immediate vicinity of water, rail, or air transportation.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Station 21 – 30,760 ksf x 3.49 daily trips/ksf = 107 daily trips

~10% peak hour = 11 peak hour trips

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no known movements of agricultural or forest products on roads or streets in the area, so the proposal will not interfere with, affect, or be affected by the movement of such products on roads or streets in the area.

- h. Proposed measures to reduce or control transportation impacts, if any:

None proposed at this time.

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The project is a redevelopment of an existing use, so the project will not result in a significantly increased need for public services. As a redeveloped fire station, the project provides a public service to the community.

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b. Proposed measures to reduce or control direct impacts on public services, if any.
The proposed redevelopment of the fire station is a response to an identified need to enhance public services in the community of Bainbridge Island.

16. Utilities

a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The site is currently served by utility infrastructure that is adequate to meet the needs of the proposed development; therefore, no new utilities or utility connections are proposed. There is an existing utility pole in the center of the site that is proposed to be relocated. Water and sewer service are provided by the City of Bainbridge Island.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

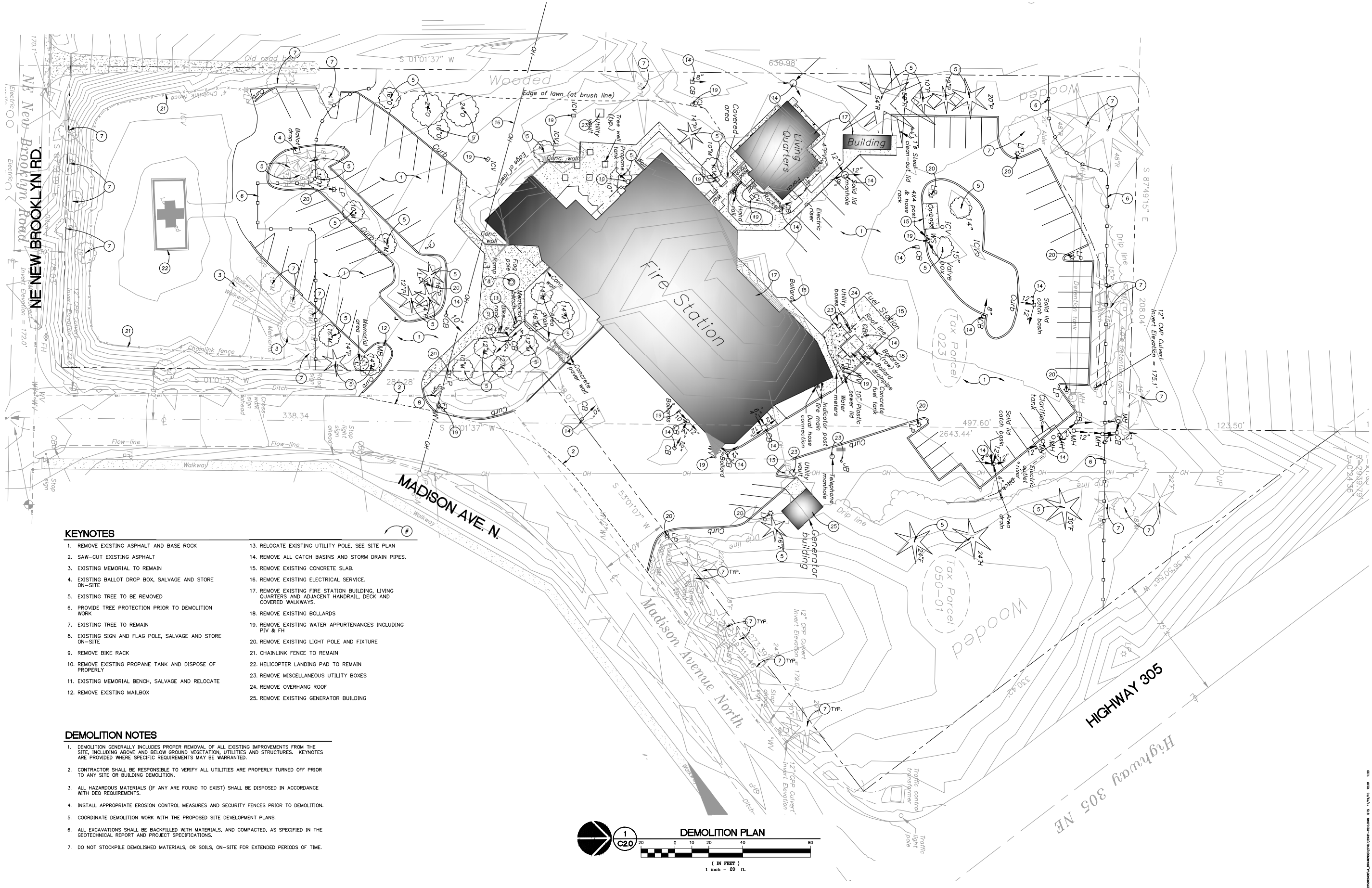
Name of signee Michael Chen

Position and Agency/Organization Senior Planner, Mackenzie

Date Submitted: 1/13/2016

CHECKLIST REVIEWED BY:

Project Manager, Department of Planning and Community Development

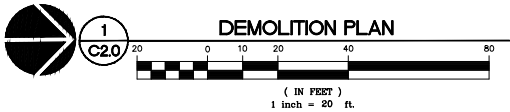


KEYNOTES

1. REMOVE EXISTING ASPHALT AND BASE ROCK
2. SAW-CUT EXISTING ASPHALT
3. EXISTING MEMORIAL TO REMAIN
4. EXISTING BALLOT DROP BOX, SALVAGE AND STORE ON-SITE
5. EXISTING TREE TO BE REMOVED
6. PROVIDE TREE PROTECTION PRIOR TO DEMOLITION WORK
7. EXISTING TREE TO REMAIN
8. EXISTING SIGN AND FLAG POLE, SALVAGE AND STORE ON-SITE
9. REMOVE BIKE RACK
10. REMOVE EXISTING PROPANE TANK AND DISPOSE OF PROPERLY
11. EXISTING MEMORIAL BENCH, SALVAGE AND RELOCATE
12. REMOVE EXISTING MAILBOX
13. RELOCATE EXISTING UTILITY POLE, SEE SITE PLAN
14. REMOVE ALL CATCH BASINS AND STORM DRAIN PIPES.
15. REMOVE EXISTING CONCRETE SLAB.
16. REMOVE EXISTING ELECTRICAL SERVICE.
17. REMOVE EXISTING FIRE STATION BUILDING, LIVING QUARTERS AND ADJACENT HANDRAIL, DECK AND COVERED WALKWAYS.
18. REMOVE EXISTING BOLLARDS
19. REMOVE EXISTING WATER APPURTENANCES INCLUDING PIV & FH
20. REMOVE EXISTING LIGHT POLE AND FIXTURE
21. CHAINLINK FENCE TO REMAIN
22. HELICOPTER LANDING PAD TO REMAIN
23. REMOVE MISCELLANEOUS UTILITY BOXES
24. REMOVE OVERHANG ROOF
25. REMOVE EXISTING GENERATOR BUILDING

DEMOLITION NOTES

1. DEMOLITION GENERALLY INCLUDES PROPER REMOVAL OF ALL EXISTING IMPROVEMENTS FROM THE SITE, INCLUDING ABOVE AND BELOW GROUND VEGETATION, UTILITIES AND STRUCTURES. KEYNOTES ARE PROVIDED WHERE SPECIFIC REQUIREMENTS MAY BE WARRANTED.
2. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL UTILITIES ARE PROPERLY TURNED OFF PRIOR TO ANY SITE OR BUILDING DEMOLITION.
3. ALL HAZARDOUS MATERIALS (IF ANY ARE FOUND TO EXIST) SHALL BE DISPOSED IN ACCORDANCE WITH DEQ REQUIREMENTS.
4. INSTALL APPROPRIATE EROSION CONTROL MEASURES AND SECURITY FENCES PRIOR TO DEMOLITION.
5. COORDINATE DEMOLITION WORK WITH THE PROPOSED SITE DEVELOPMENT PLANS.
6. ALL EXCAVATIONS SHALL BE BACKFILLED WITH MATERIALS, AND COMPACTED, AS SPECIFIED IN THE GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS.
7. DO NOT STOCKPILE DEMOLISHED MATERIALS, OR SOILS, ON-SITE FOR EXTENDED PERIODS OF TIME.



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INTERFACE ENGINEERING
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LANDSCAPE
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Client

BAINBRIDGE ISLAND FIRE
DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
8895 MADISON AVE. NE

REVISIONS:

REVISION	DATE	BY	DESCRIPTION
1	11/13/16	BTS	ISSUED FOR PERMIT

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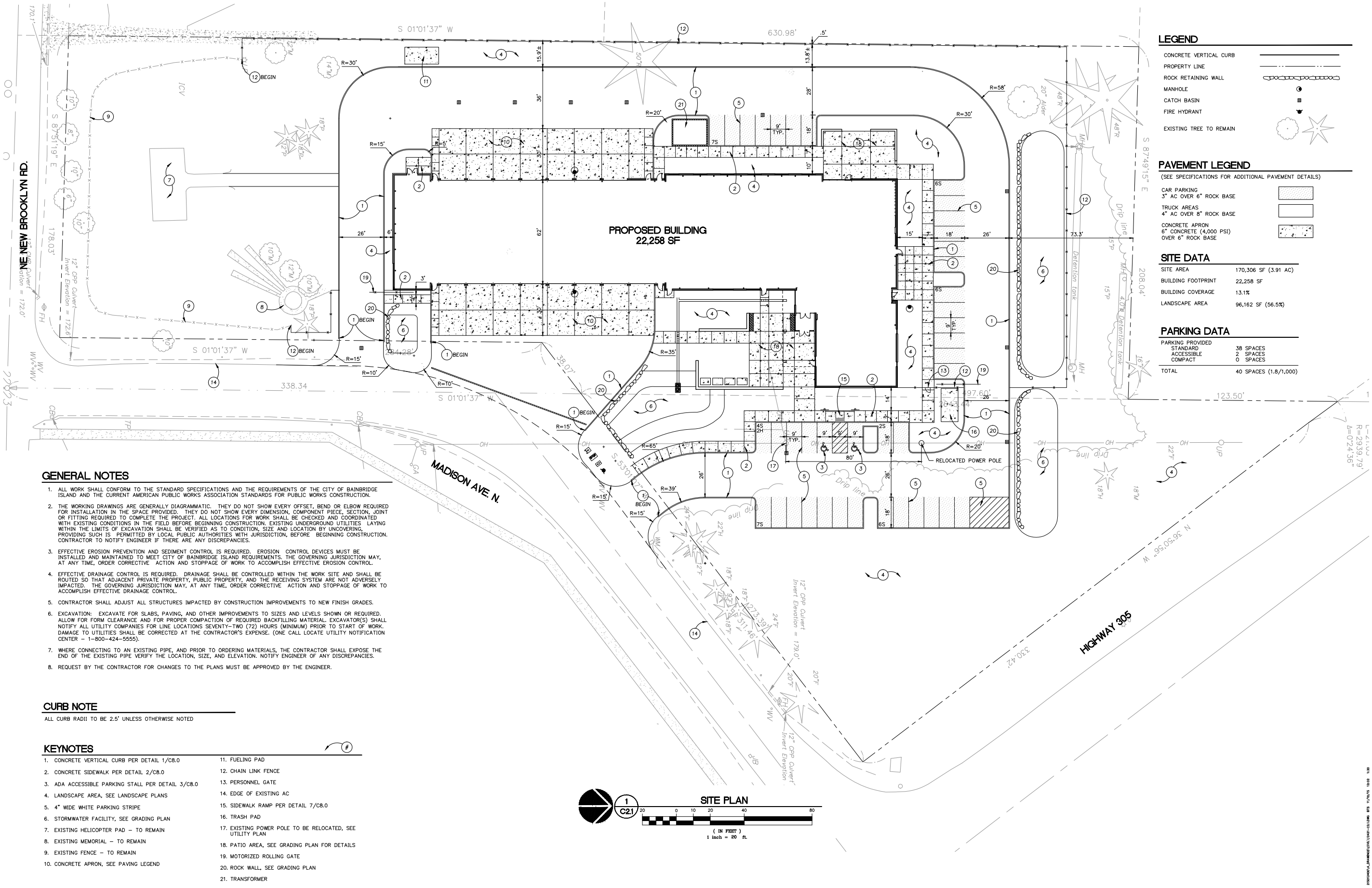
SHEET TITLE:

DEMOLITION PLAN

SHEET

C2.0

JOB NO. 2150124.00



GENERAL NOTES

- ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED TO MEET CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY-TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. (ONE CALL LOCATE UTILITY NOTIFICATION CENTER - 1-800-424-5555).
- WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE END OF THE EXISTING PIPE VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.

CURB NOTE

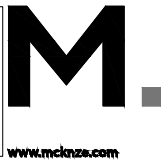
ALL CURB RADII TO BE 2.5' UNLESS OTHERWISE NOTED

KEYNOTES

- CONCRETE VERTICAL CURB PER DETAIL 1/C8.0
- CONCRETE SIDEWALK PER DETAIL 2/C8.0
- ADA ACCESSIBLE PARKING STALL PER DETAIL 3/C8.0
- LANDSCAPE AREA, SEE LANDSCAPE PLANS
- 4" WIDE WHITE PARKING STRIPE
- STORMWATER FACILITY, SEE GRADING PLAN
- EXISTING HELICOPTER PAD - TO REMAIN
- EXISTING MEMORIAL - TO REMAIN
- EXISTING FENCE - TO REMAIN
- CONCRETE APRON, SEE PAVING LEGEND
- FUELING PAD
- CHAIN LINK FENCE
- PERSONNEL GATE
- EDGE OF EXISTING AC
- SIDEWALK RAMP PER DETAIL 7/C8.0
- TRASH PAD
- EXISTING POWER POLE TO BE RELOCATED, SEE UTILITY PLAN
- PATIO AREA, SEE GRADING PLAN FOR DETAILS
- MOTORIZED ROLLING GATE
- ROCK WALL, SEE GRADING PLAN
- TRANSFORMER

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SHEET TITLE:
SITE PLAN
SHEET
C2.1
JOB NO.
2150124.00

Client

BAINBRIDGE ISLAND FIRE
DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
8895 MADISON AVE. NE

REVISIONS:

REVISION	REVISIONS THIS SHEET	REVISION DELTA CLOSING DATE
1	1	1
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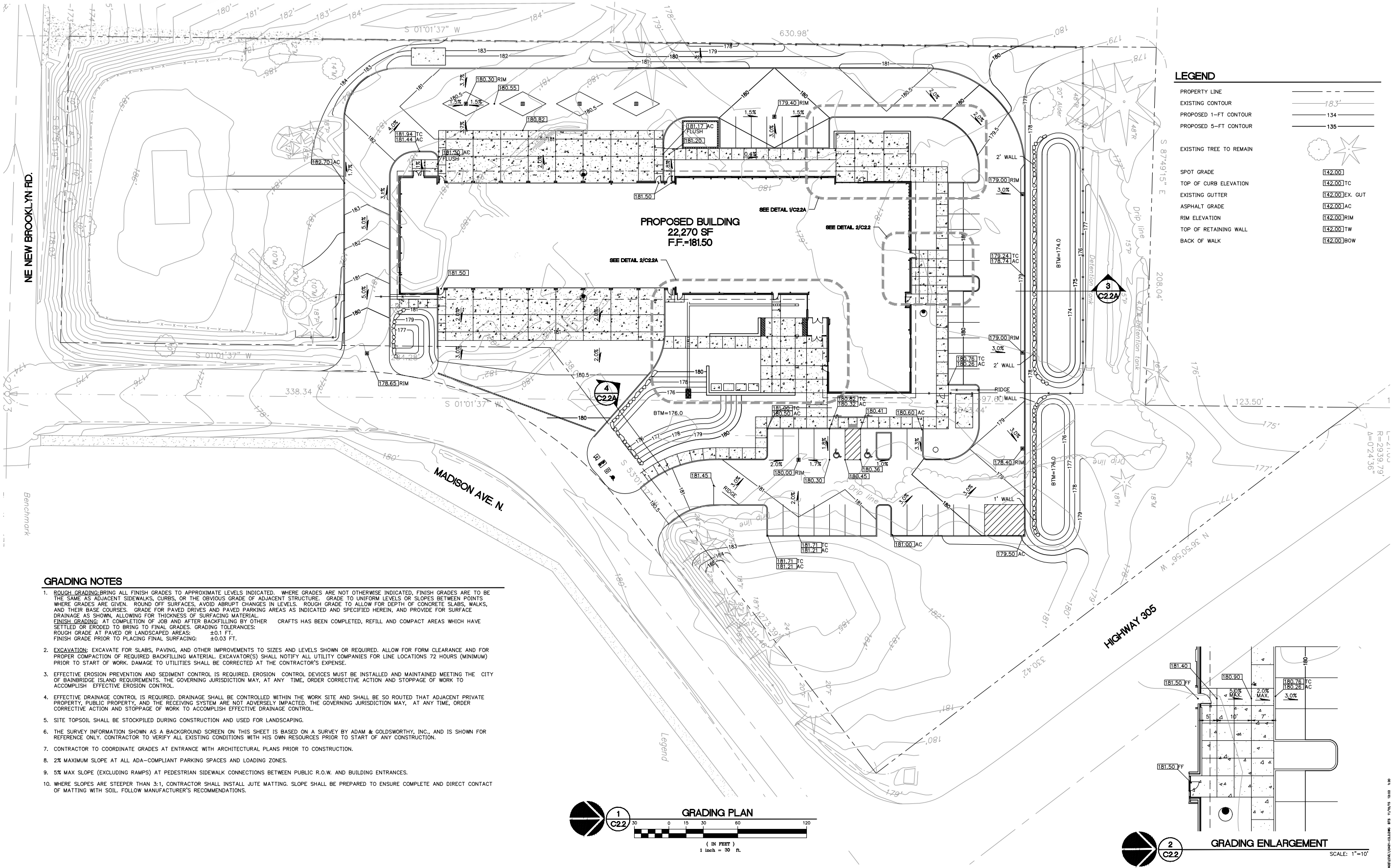
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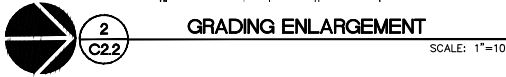
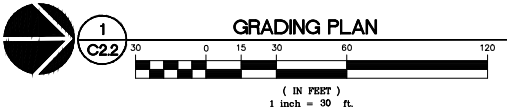
C2.1

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GRADING NOTES

- ROUGH GRADING: BRING ALL FINISH GRADES TO APPROXIMATE LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. ROUGH GRADE TO ALLOW FOR DEPTH OF CONCRETE SLABS, WALKS, AND THEIR BASE COURSES. GRADE FOR PAVED DRIVES AND PAVED PARKING AREAS AS INDICATED AND SPECIFIED HEREIN, AND PROVIDE FOR SURFACE DRAINAGE AS SHOWN, ALLOWING FOR THICKNESS OF SURFACING MATERIAL.
FINISH GRADING: AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER CRAFTS HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES. GRADING TOLERANCES:
ROUGH GRADE AT PAVED OR LANDSCAPED AREAS: ± 0.1 FT.
FINISH GRADE PRIOR TO PLACING FINAL SURFACING: ± 0.03 FT.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS 72 HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE SO ROUTED THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- SITE TOPSOIL SHALL BE STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING.
- THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY BY ADAM & GOLDSWORTHY, INC., AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS WITH HIS OWN RESOURCES PRIOR TO START OF ANY CONSTRUCTION.
- CONTRACTOR TO COORDINATE GRADES AT ENTRANCE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
- 2% MAXIMUM SLOPE AT ALL ADA-COMPLIANT PARKING SPACES AND LOADING ZONES.
- 5% MAX SLOPE (EXCLUDING RAMPS) AT PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES.
- WHERE SLOPES ARE STEEPER THAN 3:1, CONTRACTOR SHALL INSTALL JUTE MATTING. SLOPE SHALL BE PREPARED TO ENSURE COMPLETE AND DIRECT CONTACT OF MATTING WITH SOIL. FOLLOW MANUFACTURER'S RECOMMENDATIONS.



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1	11/13/13	BTS	1	11/13/13	BTS
2	11/13/13	BTS	2	11/13/13	BTS
3	11/13/13	BTS	3	11/13/13	BTS
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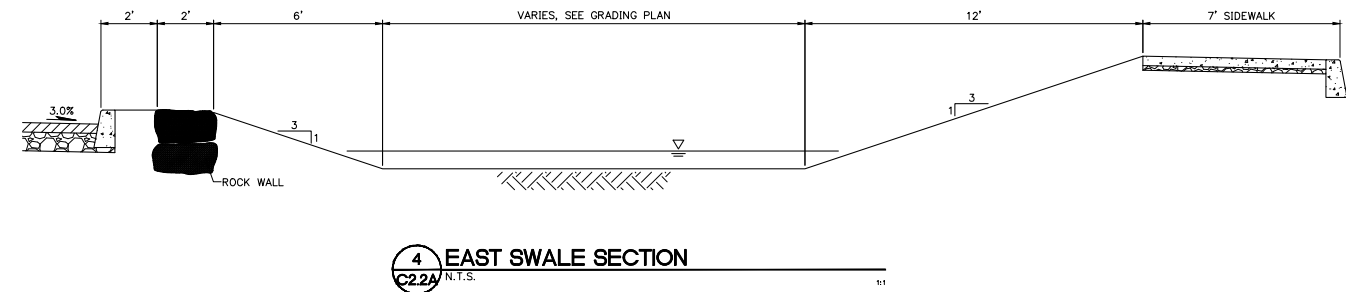
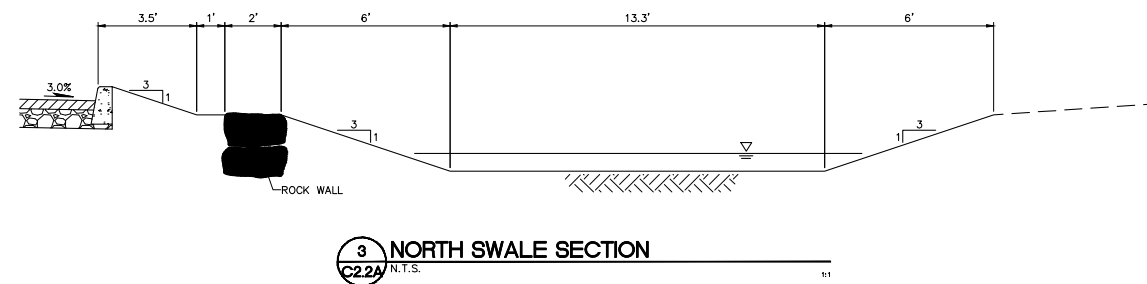
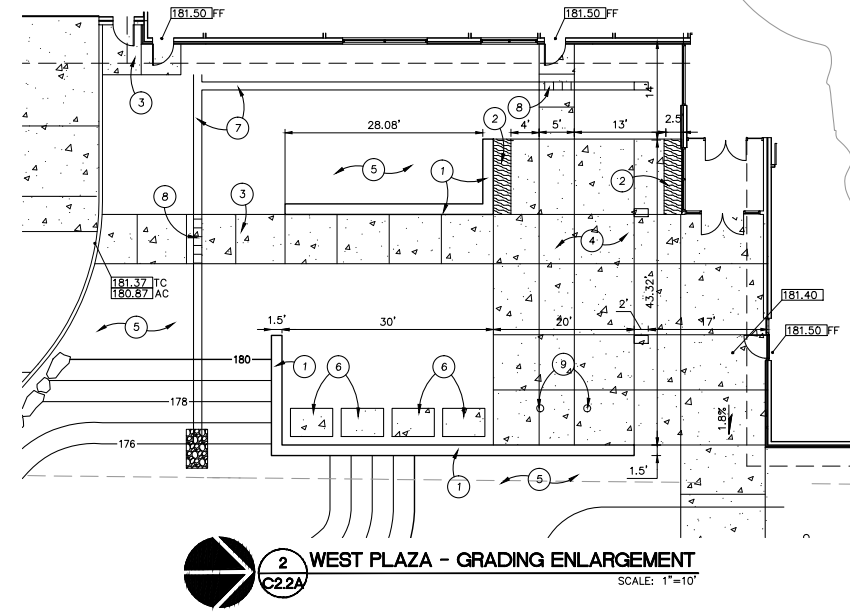
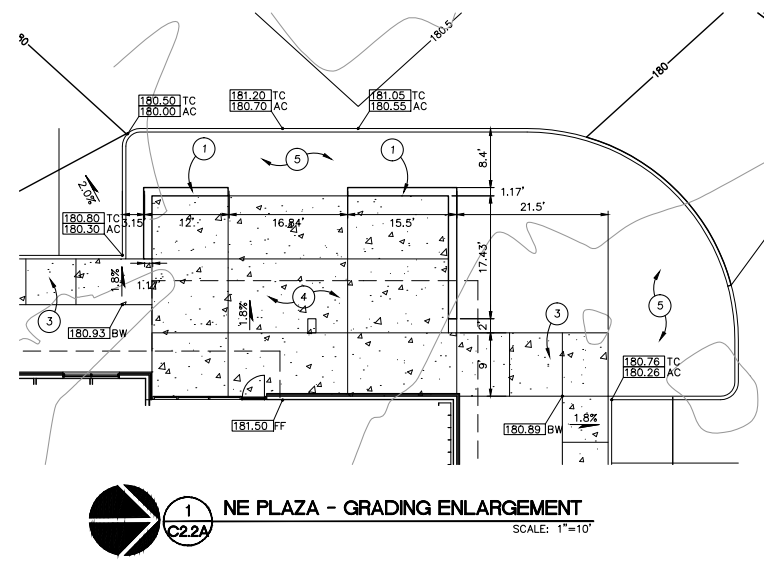
SHEET TITLE:

GRADING PLAN

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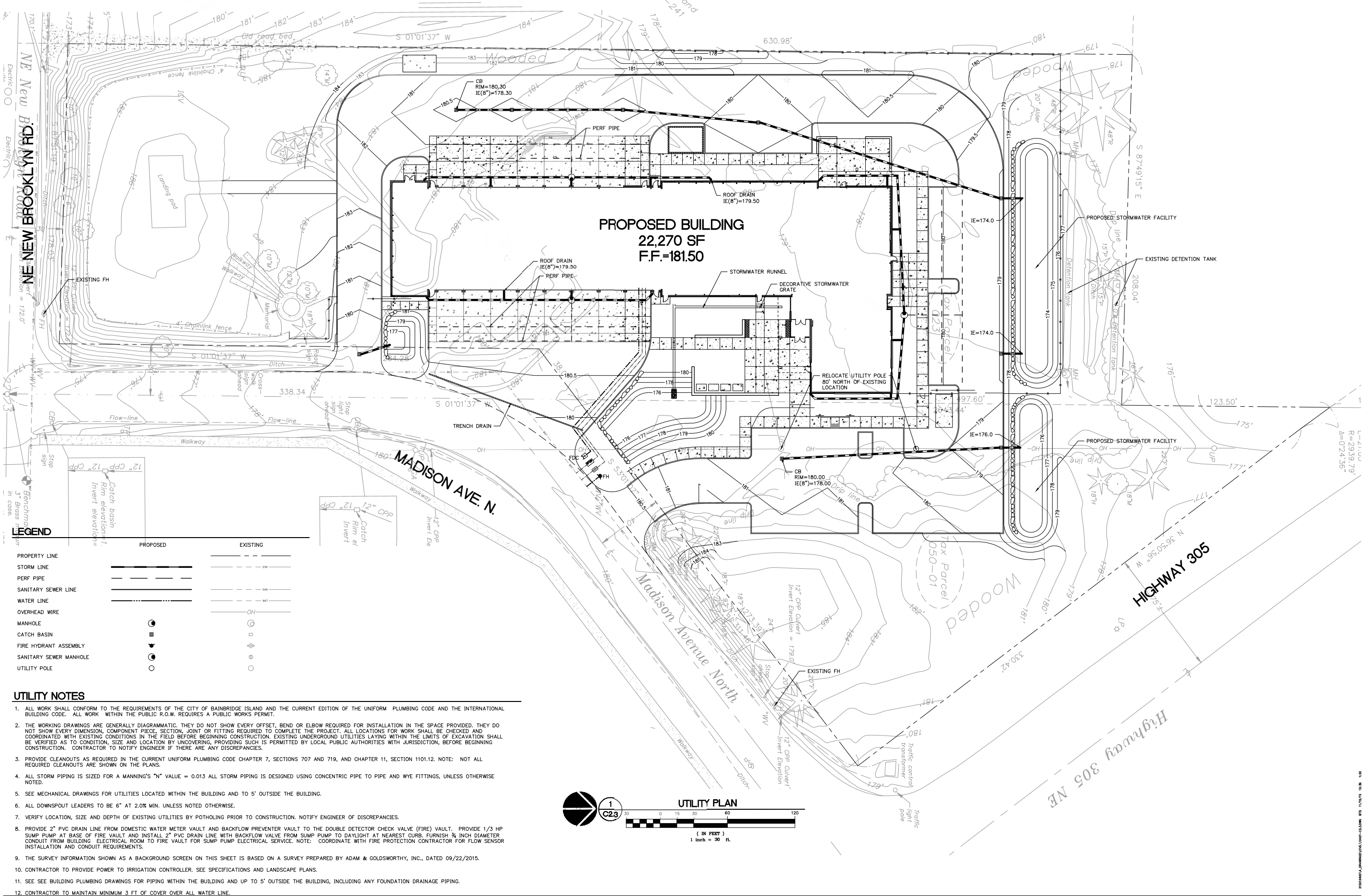
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KEYNOTES

1. CONCRETE SEAT WALL
2. WOOD BENCH ATTACHED TO WALL
3. CONCRETE SIDEWALK
4. CONCRETE PLAZA AREA
5. LANDSCAPE AREA
6. 4' X 6' CONCRETE PANELS IN LAWN
7. STORMWATER RUNNEL
8. DECORATIVE GRATE
9. FLAG POLE

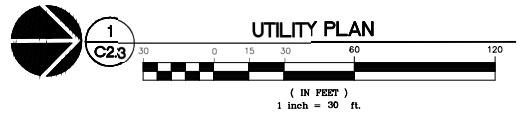


LEGEND

PROPOSED	EXISTING
PROPERTY LINE	---
STORM LINE	---
PERF PIPE	---
SANITARY SEWER LINE	---
WATER LINE	---
OVERHEAD WIRE	---
MANHOLE	○
CATCH BASIN	■
FIRE HYDRANT ASSEMBLY	⊕
SANITARY SEWER MANHOLE	⊙
UTILITY POLE	○

UTILITY NOTES

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT EDITION OF THE UNIFORM PLUMBING CODE AND THE INTERNATIONAL BUILDING CODE. ALL WORK WITHIN THE PUBLIC R.O.W. REQUIRES A PUBLIC WORKS PERMIT.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- PROVIDE CLEANOUTS AS REQUIRED IN THE CURRENT UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1101.12. NOTE: NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS.
- ALL STORM PIPING IS SIZED FOR A MANNING'S "N" VALUE = 0.013 ALL STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE NOTED.
- SEE MECHANICAL DRAWINGS FOR UTILITIES LOCATED WITHIN THE BUILDING AND TO 5' OUTSIDE THE BUILDING.
- ALL DOWNSPOUT LEADERS TO BE 6" AT 2.0% MIN. UNLESS NOTED OTHERWISE.
- VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES BY POTHOLES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
- PROVIDE 2" PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH 3/4 INCH DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS.
- THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY PREPARED BY ADAM & GOLDSWORTHY, INC., DATED 09/22/2015.
- CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE SPECIFICATIONS AND LANDSCAPE PLANS.
- SEE SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP TO 5' OUTSIDE THE BUILDING, INCLUDING ANY FOUNDATION DRAINAGE PIPING.
- CONTRACTOR TO MAINTAIN MINIMUM 3 FT OF COVER OVER ALL WATER LINE.



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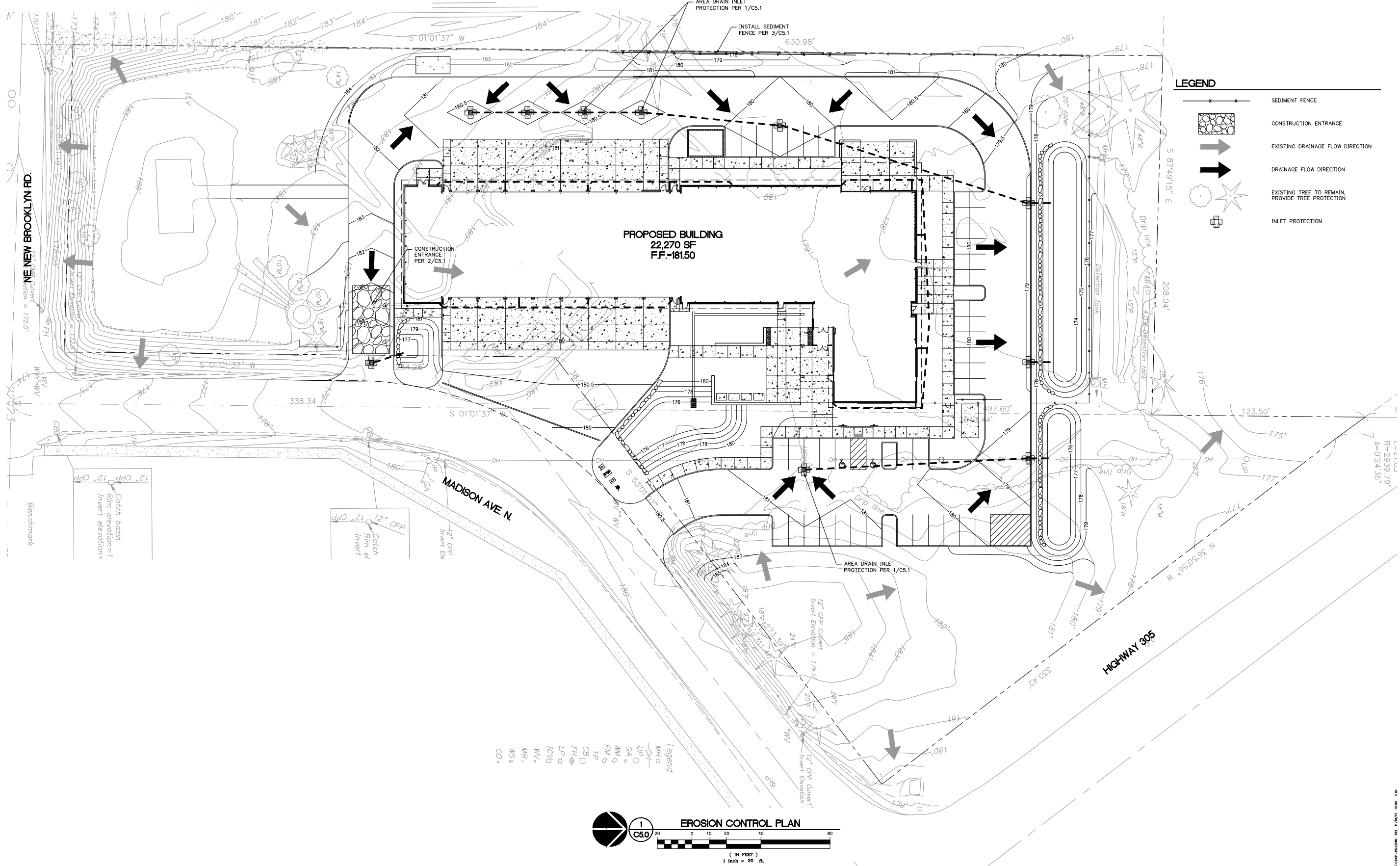
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UTILITY PLAN

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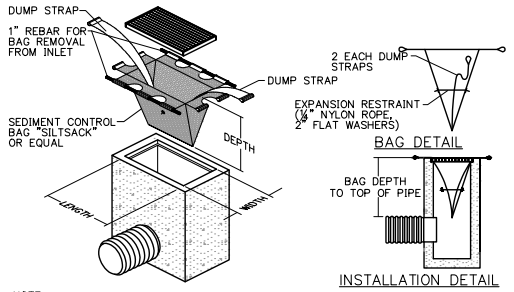
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EROSION CONTROL PLAN

SHEET

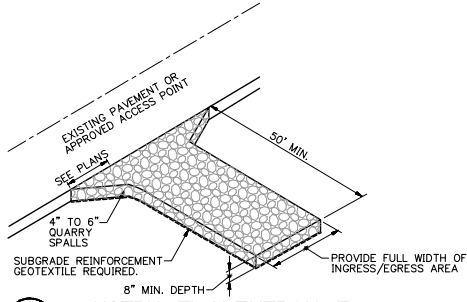
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JOB NO. 2150124.00

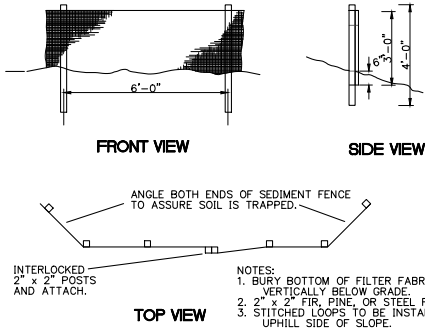


- NOTE:
1. THE DIMENSION CHART ABOVE IS FOR STANDARD CATCH BASINS AND INLETS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET.
 2. THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
 3. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF NORMAL FLOW DESIGN, 40 GAL/MIN/SF WITH NO OVERFLOWS.
 4. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
 5. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.

1 AREA DRAIN SEDIMENT FILTER BAG
C5.1 N.T.S.



2 CONSTRUCTION ENTRANCE
C5.1 N.T.S.



- NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" MIN. VERTICALLY BELOW GRADE.
 2. 2" x 2" FIR, PINE, OR STEEL FENCE POSTS.
 3. STITCHED LOOPS TO BE INSTALLED UPHILL SIDE OF SLOPE.
 4. COMPACT NATIVE FILL IN ALL AREAS OF FILTER FABRIC TRENCH.
 5. ACCUMULATED SEDIMENT CAN BE ALLOWED TO REACH NO MORE THAN ONE-THIRD THE HEIGHT OF THE SEDIMENT FENCE.

3 FILTER FABRIC SEDIMENT FENCE
C5.1 N.T.S.

TREE PROTECTION MEASURES
UNLESS OTHERWISE INDICATED FOR REMOVAL ALL TREES SHALL RECEIVE PROTECTIVE MEASURES FOR THE DURATION OF THE PROJECT IN ACCORDANCE WITH THE CITY OF GRESHAM REQUIREMENTS.

6" HIGH MINIMUM ORANGE PLASTIC CONSTRUCTION FENCING, SHALL BE ERECTED AND MAINTAINED. FENCING SHALL COMPLETELY SURROUND AT MINIMUM THE TREE DRIP LINE FOR EACH TREE OR GROUP OF EXISTING TREES.

IN AREAS WHERE ROOT ZONE ENCROACHMENT IS UNAVOIDABLE A CERTIFIED ARBORIST SHALL DESIGNATE THE FENCING LOCATION PRIOR TO START OF WORK.

NO ACTIVITY MAY BE CONDUCTED WITHIN ANY DESIGNATED TREE PROTECTION AREA INCLUDING BUT NOT LIMITED TO PARKING EQUIPMENT, PLACING SOLVENTS, STORING MATERIALS AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT, OR OTHER DEBRIS, OR ANY EXCAVATION OR COMPACTION WORK.

DURING CONSTRUCTION NO OBJECTS SHALL BE ATTACHED TO ANY TREE DESIGNATED TO BE RETAINED AND PROTECTED.

MULCH COVER TO MINIMUM DEPTH OF 6", PLYWOOD, OR OTHER SIMILAR MATERIAL REQUIRED AT AREAS ADJOINING DESIGNATED TREE PROTECTION AREAS TO PROTECT ROOTS FROM DAMAGE CAUSED BY HEAVY EQUIPMENT. COORDINATE PLACEMENTS AND LOCATION WITH LANDSCAPE ARCHITECT.

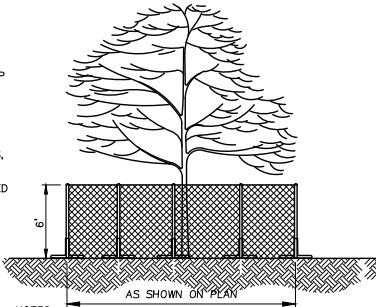
PROTECTION FENCE SHALL BE MAINTAINED IN PLACE UNTIL REMOVAL IS AUTHORIZED BY CITY OR UNTIL A FINAL CERTIFICATE OF OCCUPANCY IS ISSUED.

EXCAVATION / TRENCHING AROUND TREES
PROPOSED TRENCHING AND EXCAVATION AROUND TREES SHALL BE COORDINATED WITH CONSULTING ARBORIST.

WHERE TRENCHING IS REQUIRED WITHIN CRITICAL ROOT ZONE, TUNNEL UNDER OR AROUND ROOTS BY HAND DIGGING OR BORING. DO NOT CUT MAIN LATERAL ROOTS OR TAP ROOTS. CLEANLY CUT/SEVER SMALLER ROOTS.

RELOCATE ROOTS IN BACKFILL AREAS WHEREVER POSSIBLE. DO NOT ALLOW EXPOSED ROOTS TO DRY OUT BEFORE PERMANENT BACKFILL IS PLACED. PROVIDE TEMPORARY EARTH COVER, OR PACK WITH PEAT MOSS AND WRAP WITH BURLAP. WATER AND MAINTAIN IN MOIST CONDITION UNTIL RELOCATED AND COVERED WITH BACKFILL.

4 TREE PROTECTION
C5.1 N.T.S.



- NOTES:
1. TEMPORARY FENCE SHALL BE 6' IN HEIGHT AND SET AS SHOWN.

CITY SHALL APPROVE INSTALLED TREE PROTECTION FENCING PRIOR TO ON-SITE GRADING ACTIVITIES.

FENCE MATERIALS SHALL CONSIST OF ORANGE PLASTIC CONSTRUCTION FENCING SECURED TO A BRACKET ANCHORING SYSTEM OR METAL T-POSTS.

FENCE SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES. MOVEMENT OR REMOVAL OF FENCE REQUIRES APPROVAL BY CITY'S AUTHORIZED REPRESENTATIVE.

5 EROSION CONTROL DETAILS
C5.1 N.T.S.

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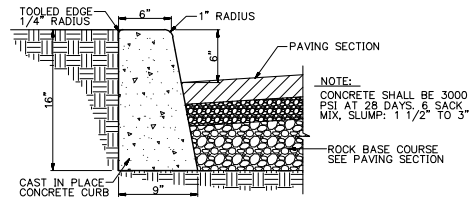
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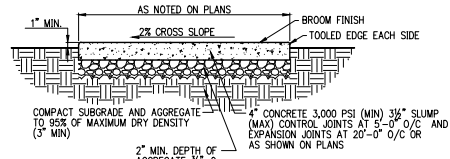
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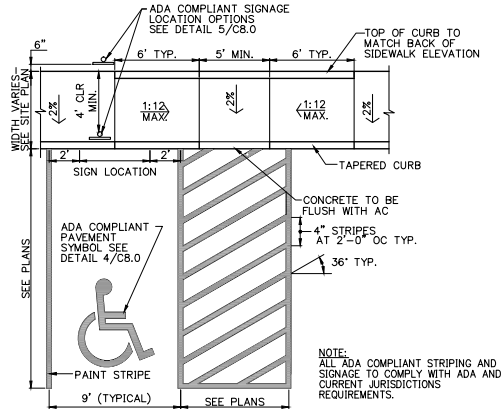
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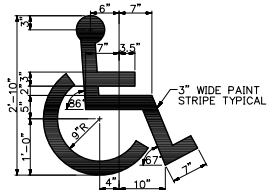
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C8.0 N.T.S. VCURB



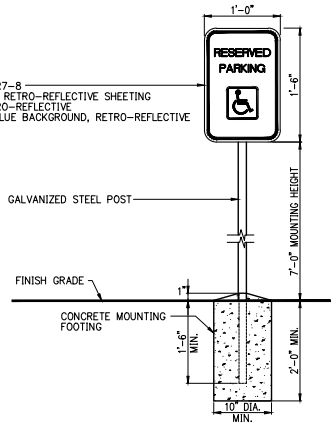
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C8.0 N.T.S. SIDEWALK



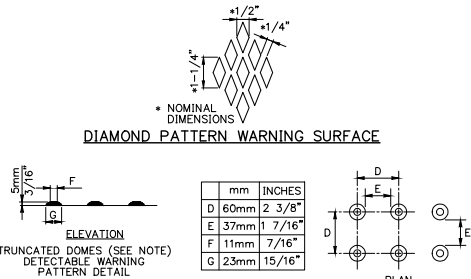
3 ADA COMPLIANT PARKING STALL
C8.0 N.T.S. WITH SQUARE WING RAMP INSTALL



4 ADA COMPLIANT PARKING SYMBOL
C8.0 N.T.S. HSYM

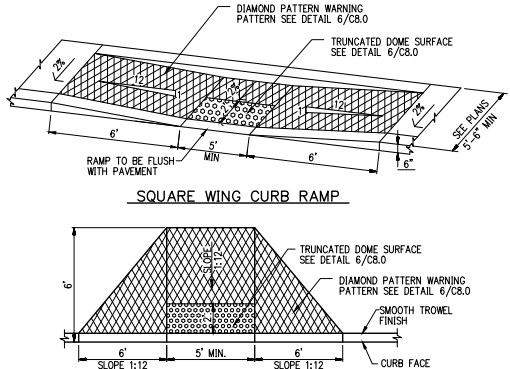


5 ADA COMPLIANT PARKING SIGN
C8.0 N.T.S. HSYM



NOTE:
1. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 600MM (2') OF THROAT OF RAMP ONLY. ARRANGE DOMES USING IN-LINE PATTERN ONLY AS SHOWN IN DETAIL ABOVE. COLOR OF TEXTURE TO BE SAFETY YELLOW.
2. DIAMOND RAMP TEXTURING IS TO BE DONE WITH AN EXPANDED METAL GRATE. PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE PERPENDICULAR TO THE CURB. GROOVES SHALL BE 1/8\"/>

6 ADA COMPLIANT WARNING SURFACE
C8.0 N.T.S. TACTILE-SURFACE



7 ADA COMPLIANT CURB RAMP
C8.0 N.T.S. CURB-RAMP-WING

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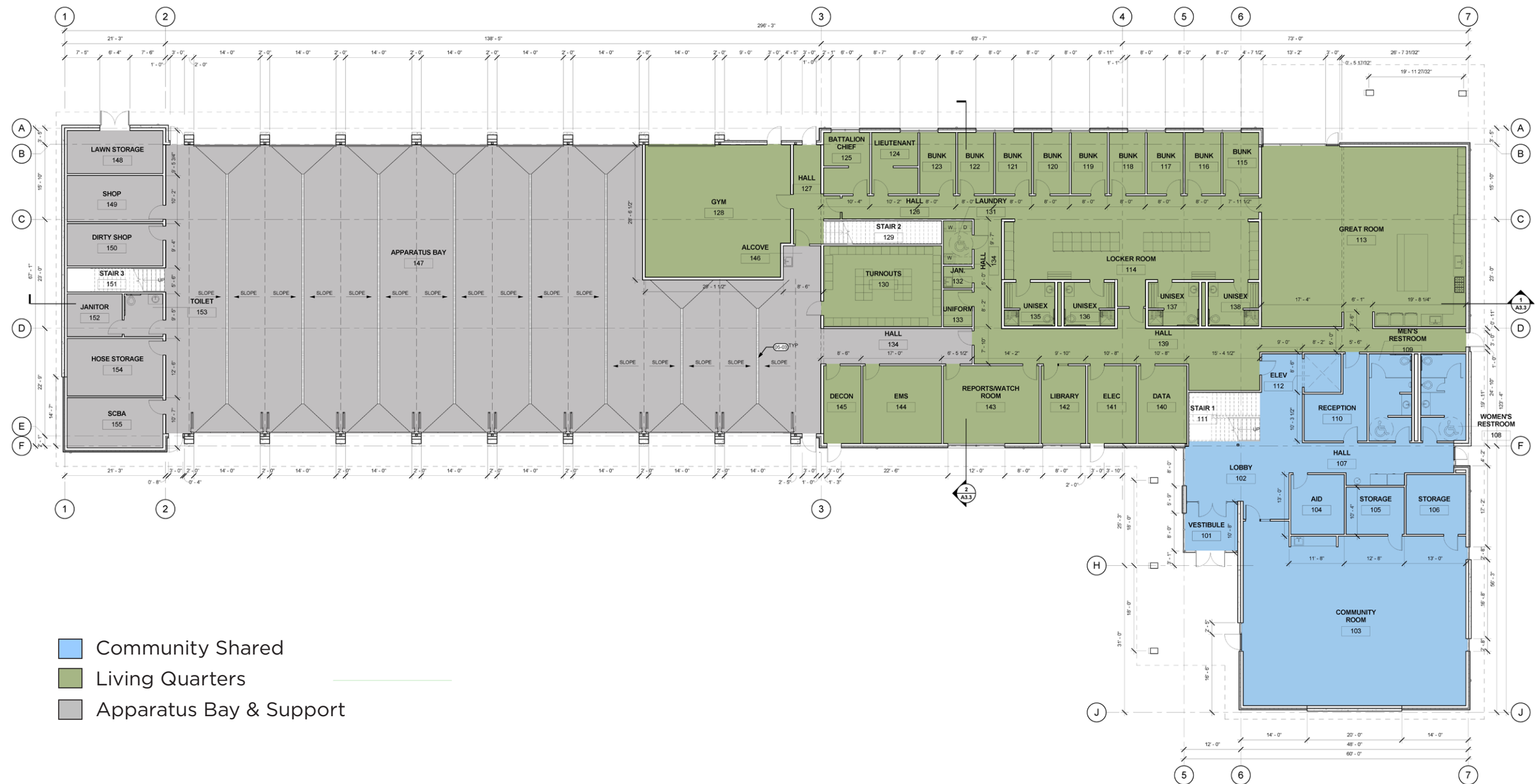
 N
 SCALE 1" = 50'-0"

January 13 2016

SITE PLAN

BIFD Station 21
 2150124.00

M.



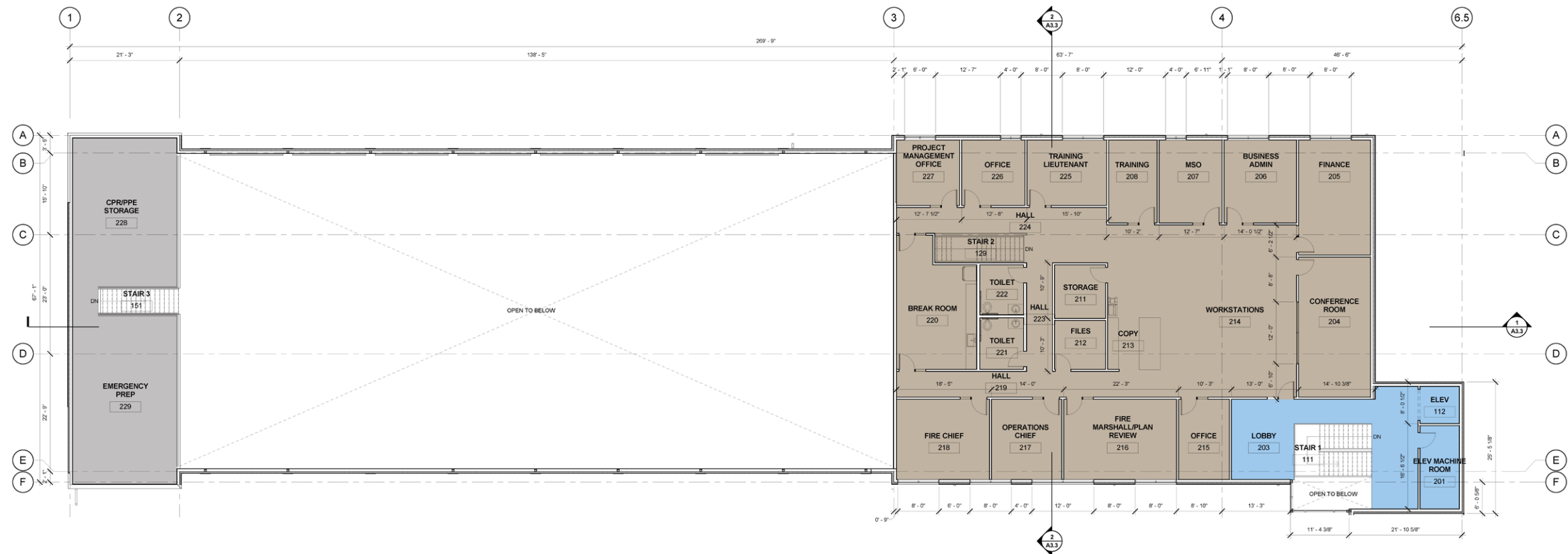
 N
SCALE 1" = 25'-0"

January 13 2016

FIRST FLOOR PLAN

BIFD Station 21
2150124.00





- Community Shared
- Administration
- Apparatus Bay & Support

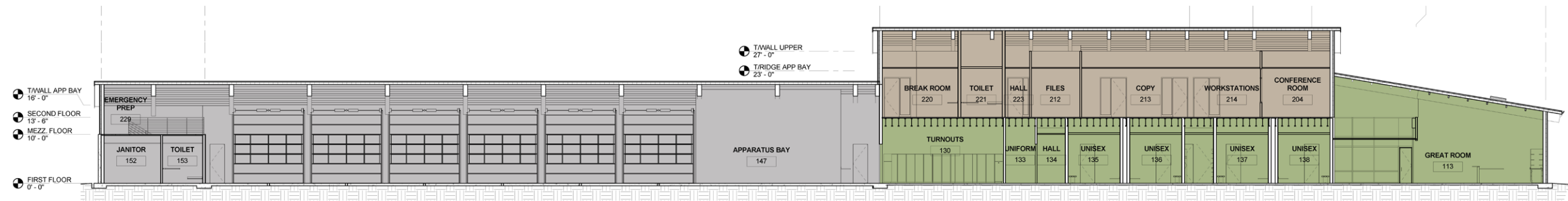
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SCALE 1" = 25'-0"

January 13 2016

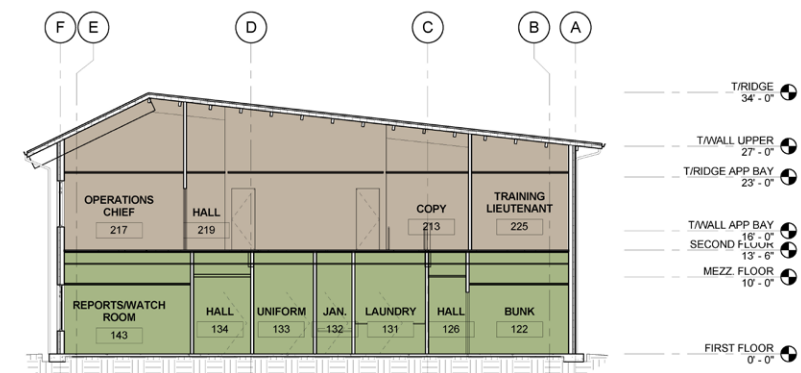
SECOND FLOOR PLAN

BIFD Station 21
2150124.00





- Community Shared
- Living Quarters
- Apparatus Bay & Support
- Administration



SCALE 1" = 25'-0"

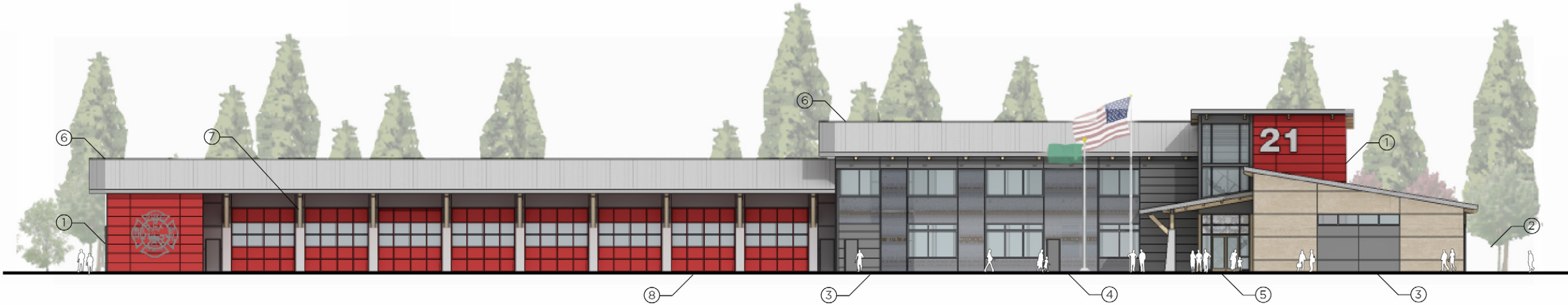
January 13 2016

SECTIONS



NORTH ELEVATION

SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION

① RED FIBER CEMENT PANEL ② WOOD FIBER CEMENT PANEL ③ RED FIBER CEMENT PANEL ④ CORRUGATED METAL SYSTEM ⑤ GLASS STOREFRONT SYSTEM ⑥ STANDING SEAM METAL ROOF ⑦ WOOD GLUELAM BEAM
SCALE 1" = 25'-0"

① RED FIBER CEMENT PANEL



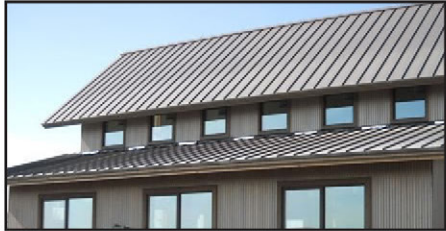
⑤ GLASS STOREFRONT SYSTEM



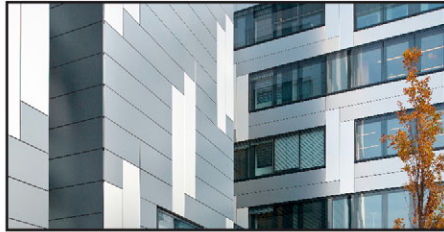
② WOOD FIBER CEMENT PANEL



⑥ STANDING SEAM METAL ROOF



③ METAL PANEL



⑦ WOOD GLUELAM BEAM

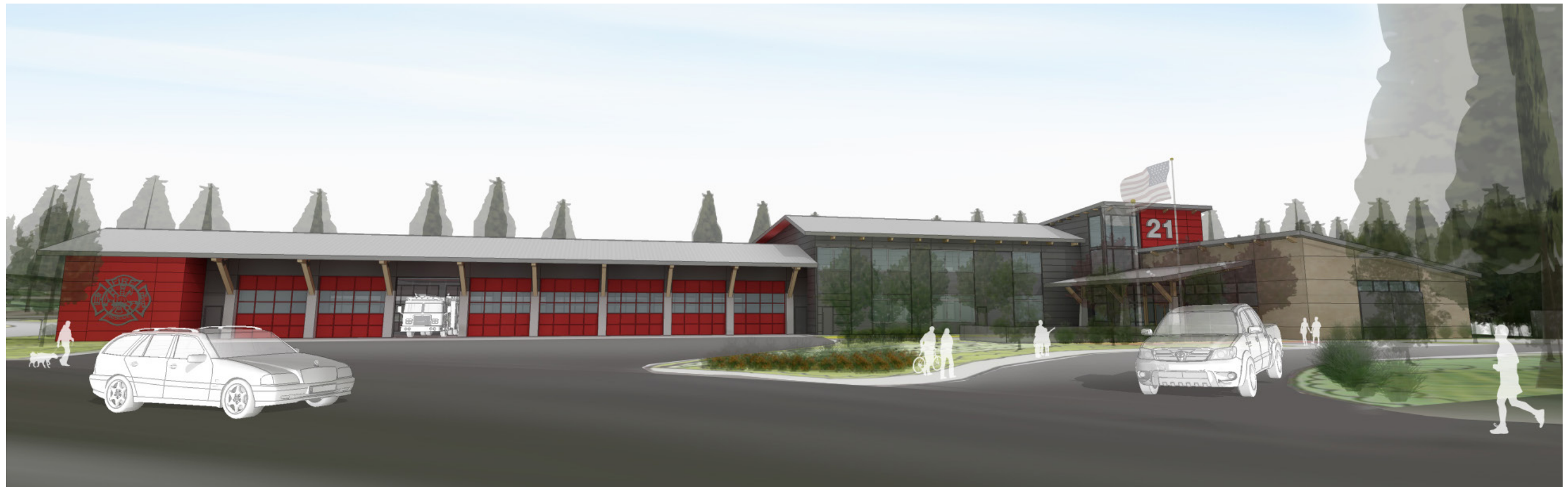


④ CORRUGATED METAL SYSTEM



⑧ OVERHEAD ROLL UP DOORS





Bainbridge Island Fire Department- Stations 21 & 22 Landscape Buffers

January 8, 2016

The following memo is a summary of the landscape buffers (perimeter and roadside frontage) as required by BIMC 18.15.010 and how they are applied to each of the stations using buffer averaging, when necessary. The following table identifies our understanding of the buffer requirements for each property line of each project site. This memo also addresses comments (dated December 30, 2015) provided by Josh Machen of the City's Planning Department per their review of the Pre-App submittal. Landscape plans (sheets L2.0 series for each station) in the Pre-App submittal did not adequately demonstrate how the buffer requirements below were being met through site design and planting. These dimensions have been added to a new drawings sheet (L3.0 for each station) entitled Landscape Buffer Diagram which are being submitted for Site Plan Review. The information below is also included on these drawing sheets.

STATION 21 (ZONED R-2) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	319.2	50'	15,960 SF	16,021 SF
SOUTHEAST	595.8	25'	14,895 SF	8,730 SF

Summary:

The north, east and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 13'-6" (10' min. is allowable). The southeast buffer along Madison Avenue is impacted by significant site access, and helipad clear areas requirements.



STATION 22 (ZONED R-1) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	R-1 (Am Legion)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	R-0.4 (school)	NA b/c Bucklin Rd	25' AVG/ 15' MIN (PS) Bucklin
EAST	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.6	25'	5,205 SF	5,205 SF
WEST	638.5	20'	12,770 SF	12,779 SF
SOUTH	208.6	25'	5,205 SF	4,417 SF + Road Access
EAST	638.5	25'	15,963 SF	15,983 SF

Summary:

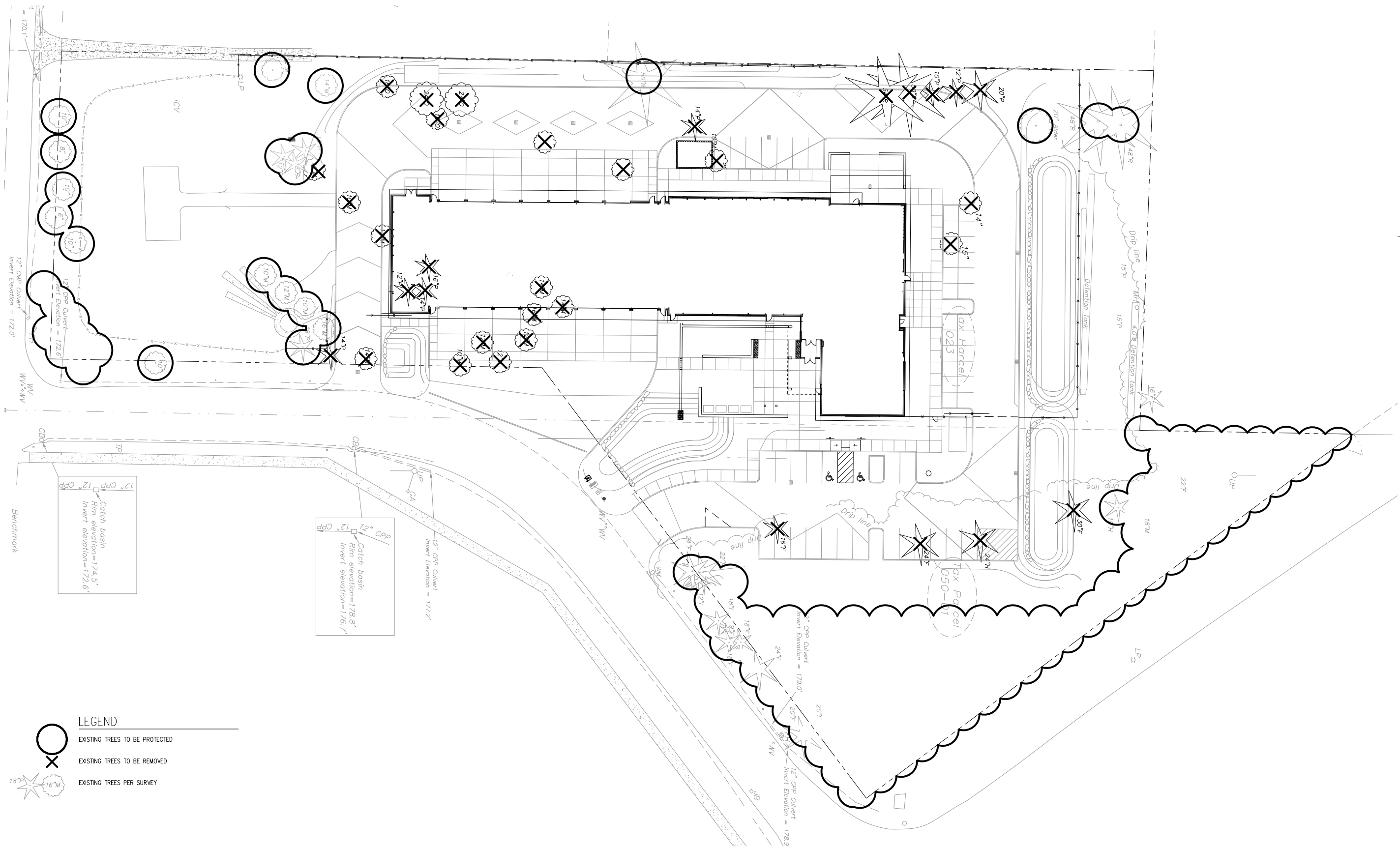
The north and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 10' (10' min. is allowable). The east buffer will require averaging with a minimum width of 15' (15' min. is allowable).

Bainbridge Island Fire Department- Stations 21 & 22 Tree Retention Analysis Status

January 8, 2016

The following is a summary of the status of the tree retention analysis for the Site Plan Review (SPR) submittal. At this time, the analysis has not been completed but will be provided as a supplemental submittal as part of the SPR process.

Tree retention plans (sheets L1.0 for both stations) were submitted as part of the Pre-App package showing trees that were going to be removed and those that are planned to be retained. However, a specific analysis of tree units per BIMC 18.15.010 cannot be completed until Fischer Bouma Partnership (FBP) receives all necessary data. All tree locations were not originally surveyed and shown on the base survey for each station. While we currently indicate “areas” that tree stands will be retained on the tree retention plans, we cannot calculate the tree units within those stands until all trees are surveyed. BIFD staff provided an inventory of trees in those areas; however, the recently adopted changes to the tree retention code no longer allows trees retained within the perimeter or roadside buffer landscapes to count towards the required project tree units. As such, BIFD is in the process of having a surveyor identify the specific location of all trees on site. Once that data is provided, we will update the tree retention plans (L1.0) and provide an analysis of tree units retained/replanted.



LEGEND

- EXISTING TREES TO BE PROTECTED
- EXISTING TREES TO BE REMOVED
- EXISTING TREES PER SURVEY

TREE RETENTION PLAN

1"=20'-0"

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH, SUITE A
BAINBRIDGE ISLAND, WA
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BAINBRIDGE ISLAND FIRE DEPARTMENT

8895 MADISON AVE. NE
BAINBRIDGE ISLAND, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT STATION 21

8895 MADISON AVE. NE

REVISIONS:

REVISION	REVISION DATE	CLOSING DATE

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SHEET TITLE:

TREE RETENTION PLAN

SHEET

L1.0

JOB NO. 2150124.00

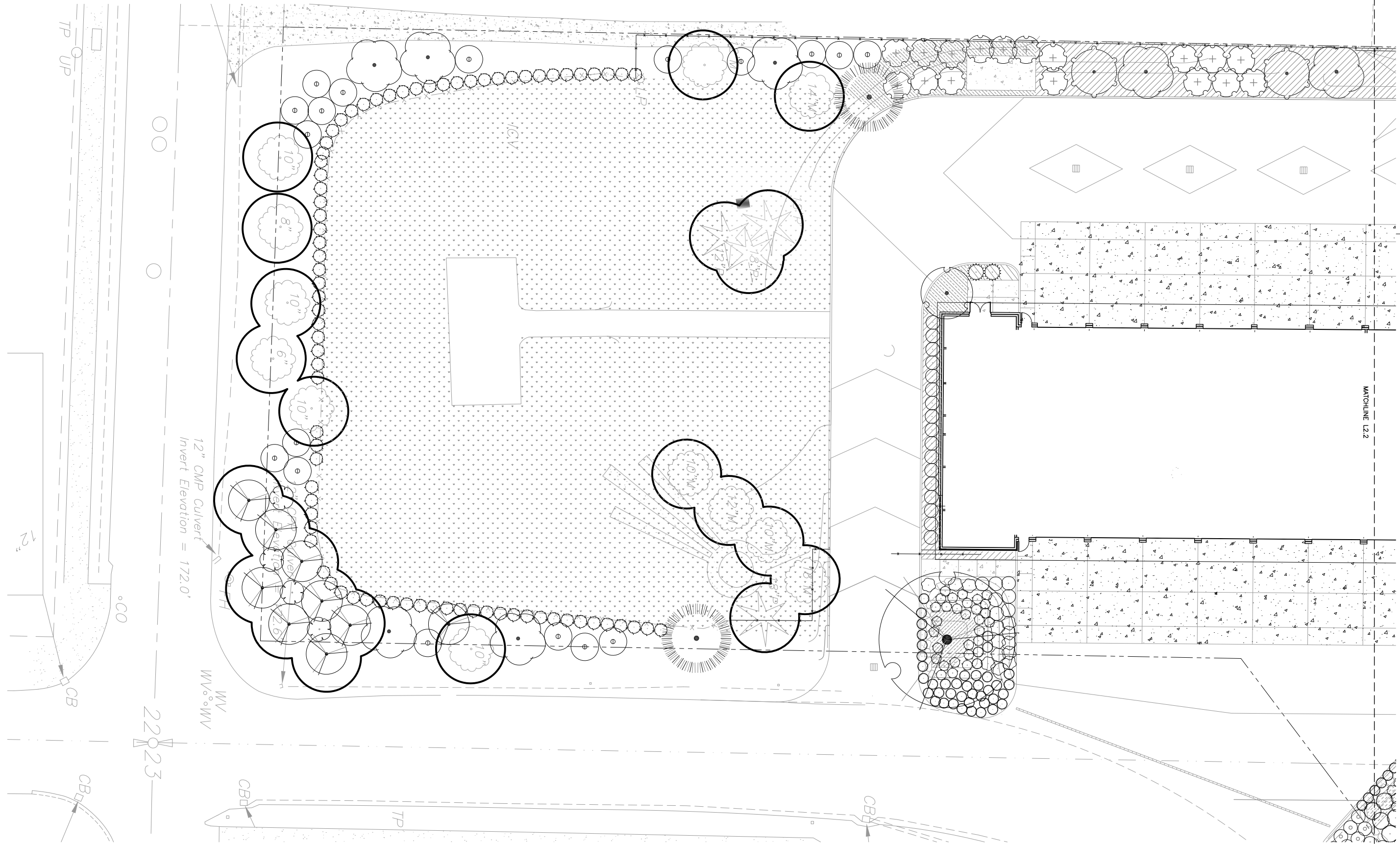
TREES										SHRUBS									
CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE				CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE			
ABI GRA	5	ABIES GRANDIS	GRAND FIR	NA		6' HT.				ARB COM	24	ARBUTUS UNEDO 'COMPACTA'	DWARF STRAWBERRY TREE	5 GAL					
ACE CIR	13	ACER CIRCINATUM	VINE MAPLE	B & B	2"	CAL				AUC GOL	3	AUCUBA JAPONICA 'MR. GOLDSTRIKE'	MR. GOLDSTRIKE AUCUBA	3 GAL					
ACE FRE	1	ACER FREEMANII 'JEFFERSRED' TM	AUTUMN BLAZE MAPLE	B & B	3"	CAL				BER MON	17	BERBERIS THUNBERGII 'MONOMB'	CHERRY BOMB JAPANESE BARBERRY	2 GAL					
ACE RUB	1	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	B & B	2"	CAL				CLE SIX	34	CLETHRA ALNIFOLIA 'SIXTEEN CANDLES'	SUMMERSWEET CLETHRA	5 GAL					
ACE SAC	3	ACER SACCHARUM 'GREEN MOUNTAIN' TM	GREEN MOUNTAIN SUGAR MAPLE	B & B	2"	CAL				COR FAR	291	CORNUS STOLONIFERA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	2 GAL					
AME AUT	5	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	'AUTUMN BRILLIANCE' SERVICEBERRY	B & B	2"	CAL				DIE COP	48	DIERVILLA LONICERA 'COPPER'	COPPER LOW BUSH HONEYSUCKLE	2 GAL					
ARB UNE	18	ARBUTUS UNEDO	STRAWBERRY TREE	5 GAL	NA	4' HT.				ESC COM	27	ESCALLONIA X 'COMPACTA'	COMPACT ESCALLONIA	5 GAL					
BET UT	15	BETULA NIGRA 'LITTLE KING' TM	FOX VALLEY BIRCH	B & B	2"	CAL				EUO COM	28	EUONYMUS ALATUS 'COMPACTUS'	COMPACT BURNING BUSH	5 GAL					
BET UTI	3	BETULA UTILIS JACQUEMONTII	WHITEBARKED HIMALAYAN BIRCH	B & B	2"	CAL				GAR JAM	36	GARRYA ELLIPTICA 'JAMES ROOF'	COAST SILK TASSEL	5 GAL					
CHI VIR	3	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	B & B	2.5"	CAL				GAU SHA	67	GAULTHERIA SHALLON	SALAL	2 GAL					
COR KN3	9	CORNUS X 'KN 3B-8'	VENUS DOGWOOD	NA	2"	CAL				LON RED	12	LONICERA NITIDA 'RED TIPS'	RED TIPS BOX HONEYSUCKLE	2 GAL					
EXI TRE	9	EXISTING TREE	EXISTING TREE	NA						LON PIL	5	LONICERA PILEATA	PRIVET HONEYSUCKLE	3 GAL					
FRA JUN	1	FRAXINUS AMERICANA 'JUNGINGER' TM	AUTUMN PURPLE WHITE ASH	B & B	2"	CAL				MAH AQU	114	MAHONIA AQUIFOLIUM	OREGON GRAPE	2 GAL					
MAL GOL	7	MALUS X 'GOLDEN RAINDROPS'	CRAB APPLE	B & B	2"	CAL				MAH COM	188	MAHONIA AQUIFOLIUM 'COMPACTA'	COMPACT OREGON GRAPE	2 GAL					
OXY ARB	3	OXYDENDRUM ARBOREUM	SOURWOOD TREE	B & B	2"	CAL				MYR CAL	12	MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	5 GAL					
PIN UMB	2	PINUS DENSIFLORA 'UMBRACULIFERA'	TANYOSHO PINE	NA		6' HT.				PIC NID	8	PICEA ABIES 'NIDIFORMIS'	NEST SPRUCE	5 GAL					
PSE DOU	12	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	NA	NA	6' HT.				PIE FOR	8	PIERIS JAPONICA 'FOREST FLAME'	FOREST FLAME LILY OF THE VALLEY BUSH	5 GAL					
STE PSE	4	STEWARTIA PSEUDOCAMELLIA	JAPANESE STEWARTIA	B & B	2"	CAL				POD RED	18	PODOCARPUS LAWRENCEI 'RED TIP'	MOUNTAIN PLUM PINE	5 GAL					
THU GRE	11	THUJA OCCIDENTALIS 'GREEN GIANT'	GREEN GIANT ARBORVITAE	NA		6' HT.				POL MUN	13	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	1 GAL					
THU PLI	16	THUJA PLICATA	WESTERN RED CEDAR	NA	NA	6' HT.													
CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT						CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT					
ARB COM	24	ARBUTUS UNEDO 'COMPACTA'	DWARF STRAWBERRY TREE	5 GAL						ARC UVA	2,821	ARCTOSTAPHYLOS UVA-URSI 'MASSACHUSETTS'	MASSACHUSETTS KINNICKINICK	4"POT			12"		
AUC GOL	3	AUCUBA JAPONICA 'MR. GOLDSTRIKE'	MR. GOLDSTRIKE AUCUBA	3 GAL						ASA CAU	159,893	ASARUM CAUDATUM	BRITISH COLUMBIA WILD GINGER	4"POT			1"		
BER MON	17	BERBERIS THUNBERGII 'MONOMB'	CHERRY BOMB JAPANESE BARBERRY	2 GAL						CAL FI2	198	CALLUNA VULGARIS 'FIREFLY'	HEATHER	1 GAL			24"		
CLE SIX	34	CLETHRA ALNIFOLIA 'SIXTEEN CANDLES'	SUMMERSWEET CLETHRA	5 GAL						CAR OBN	924	CAREX OBNUPTA	SLOUGH SEDGE	PLUG			18"		
COR FAR	291	CORNUS STOLONIFERA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	2 GAL						CAR TES	299	CAREX TESTACEA 'PRAIRIE FIRE'	PRAIRIE FIRE SEDGE	1 GAL					

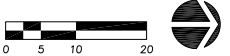
1.	SEE PLANT SCHEDULES FOR SPECIES, QUANTITIES, AND MINIMUM SPACING. SEE PLANTING DETAILS FOR INSTALLATION AND LAYOUT.	15.	SAVE OR REMOVE ON DEMO OR OTHER PLANTS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.
2.	DO NOT USE EXISTING TPO/SL- STRIP & REMOVE.	16.	THE ENTIRE WIDTH OF THE PLANTING ISLANDS SHALL CONTAIN ONLY SOIL, AND BY WAY OF ILLUSTRATION ONLY AND NOT LIMITATION, BE FREE OF GRAVEL, CONCRETE, CONSTRUCTION DEBRIS, OR OTHER FOREIGN MATERIALS.
3.	CONTRACTOR SHALL ALLOW FOR THE ADDITION OF SOIL AMENDMENTS AND CONDITIONERS IN SOIL PREPARATION AND FINISH GRADING.	17.	ALL PLANTING AREAS TO BE IRRIGATED. IRRIGATION PLANS ARE NOT INCLUDED. IRRIGATION WILL BE DESIGN/BUILD BY CONTRACTOR BASED ON PERFORMANCE SPECIFICATIONS.
4.	ALL CONSTRUCTION MATERIAL SHALL BE EXCLUDED FROM TPO/SL.	18.	DO NOT DIG BEFORE LOCATING UTILITIES.
5.	LAYOUT FOR ALL PLANTING AREAS TO BE VERIFIED ON SITE BY LANDSCAPE ARCHITECT DUE TO VARYING FIELD CONDITIONS AND DENSITIES OF EXISTING VEGETATION.	19.	ALL LANDSCAPE AREAS DESIGNED FOR INSTALLATION OF TREES SHALL HAVE A MINIMUM SOIL DEPTH OF 18" PLUS 8" SCARIFIED SUBGRADE. MINIMUM SOIL DEPTH SHALL INCLUDE SOILS THAT MEET SOIL SPECIFICATIONS.
6.	ALL PLANT MATERIAL SHALL CONFORM TO ANSI STANDARDS FOR NURSERY STOCK, LATEST EDITION.	20.	FOR ALL TPO/SL, THE CONTRACTOR SHALL OBTAIN A LANDSCAPE SOIL ANALYSIS CERTIFYING THAT THE SOIL MEETS THE SOIL SPECIFICATIONS. THE CERTIFICATION SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT AND APPROVED PRIOR TO SOIL DELIVERY.
7.	LANDSCAPE ARCHITECT WILL SUPERVISE THE PLANTING PROCESS. MODIFICATIONS TO THE PLANTING PLAN MAY OCCUR BASED ON FIELD CONDITIONS AND THE AVAILABILITY OF PLANT MATERIAL.	21.	APPLY 3" DEPTH OF ORGANIC BARK MULCH IN ALL PLANTING AREAS. MULCH TO BE FREE OF WEED SEED, SAWDUST, RESIN OR TANNIN, AND SHALL NOT CONTAIN ANY COMPOUNDS DETRIMENTAL TO PLANT GROWTH. PULL MULCH 3" AWAY FROM BASE OF PLANT.
8.	PLANTINGS WILL BE B&B AND CONTAMINATED NATIVE PLANT MATERIAL, AS APPROPRIATE AND SPECIFIED, FROM REGIONAL GENETIC STOCK. PLASTIC NURSERY IDENTIFICATION TAGS WILL BE ATTACHED TO THE STEM OF EACH PLANTING.	22.	ALL PLANT MATERIAL SHOULD BE DISEASE FREE AND ARRIVE IN A VIGOROUS GROWING CONDITION.
9.	LOCAL NURSERY STOCK WILL BE USED TO ENSURE THAT THE MATERIAL HAS ACCUMULATED TO LOCAL CONDITIONS (REDUCING PLANTING STRESS) AND IS GENETICALLY COMPARABLE WITH PLANTS IN THE LOCAL AREA.	23.	LANDSCAPE CONTRACTOR SHALL MAINTAIN THE SITE UNTIL FINAL INSPECTION AND ACCEPTANCE BY THE OWNER.
10.	FINAL PLANT LISTS WILL BE CONTINGENT UPON PLANT AVAILABILITY. IF SELECTED SPECIES ARE UNAVAILABLE FROM LOCAL NURSERIES THE UPON PRIOR APPROVAL OTHER GENUS OR SPECIES WITH SIMILAR HYDROLOGICAL REQUIREMENTS MAY BE SUBSTITUTED.	24.	ALL LANDSCAPE INSTALLATION WILL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.
11.	TREES WILL BE STAKED ONLY IF A PLANT CANNOT STAND ALONE IN A MODERATE WIND PER PLANTING DETAILS.	25.	A PRE-CONSTRUCTION CONFERENCE PRIOR TO THE START OF ANY LANDSCAPE CONSTRUCTION IS REQUIRED.
12.	ALL PLANTINGS WILL BE MULCHED WITH A MINIMUM OF 3 INCHES OF ORGANIC MULCH AS SPECIFIED TO DISCOURAGE WEED GROWTH, MINIMIZE SOIL EROSION, AND RETAIN MOISTURE. THE MULCH IS NOT TO MAKE CONTACT WITH THE PLANT STEM.	26.	PLANTS SHALL BE INSPECTED PRIOR TO PLANTING TO VERIFY CONFORMANCE WITH PLANTING SIZE AND OTHER REQUIREMENTS.
13.	DO NOT DISTURB TREES AND VEGETATION OUTSIDE LIMIT OF WORK.	27.	ALL LANDSCAPING SHALL BE WARRANTED FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE BY THE OWNER.
14.	IF TREES HAVE NOT BEEN DESIGNATED AS SAVE OR REMOVE ON DEMO OR OTHER PLANTS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.	28.	PRIOR TO THE END OF THE WARRANTY PERIOD, THE LANDSCAPE WILL BE INSPECTED AND DEAD OR UNHEALTHY PLANTS WILL BE REQUIRED TO BE REPLACED WITH SAME SPECIES AND SIZES.

1. REFER TO ARCHITECTURAL & CIVIL DRAWINGS FOR LIMITS OF WORK AND DEMOLITION OF EXISTING SITE ITEMS.
2. REFER TO CIVIL DRAWINGS FOR LANDSCAPE GRADING AND DRAINAGE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR SITE HARDSCAPE DETAILS.

 EXISTING TREES TO BE PROTECTED – REFER TO PLANTING PLAN AND TREE RETENTION PLAN.

SITE PLAN REVIEW: 1/13/16




$$1^n = 10^0 - 0^n$$

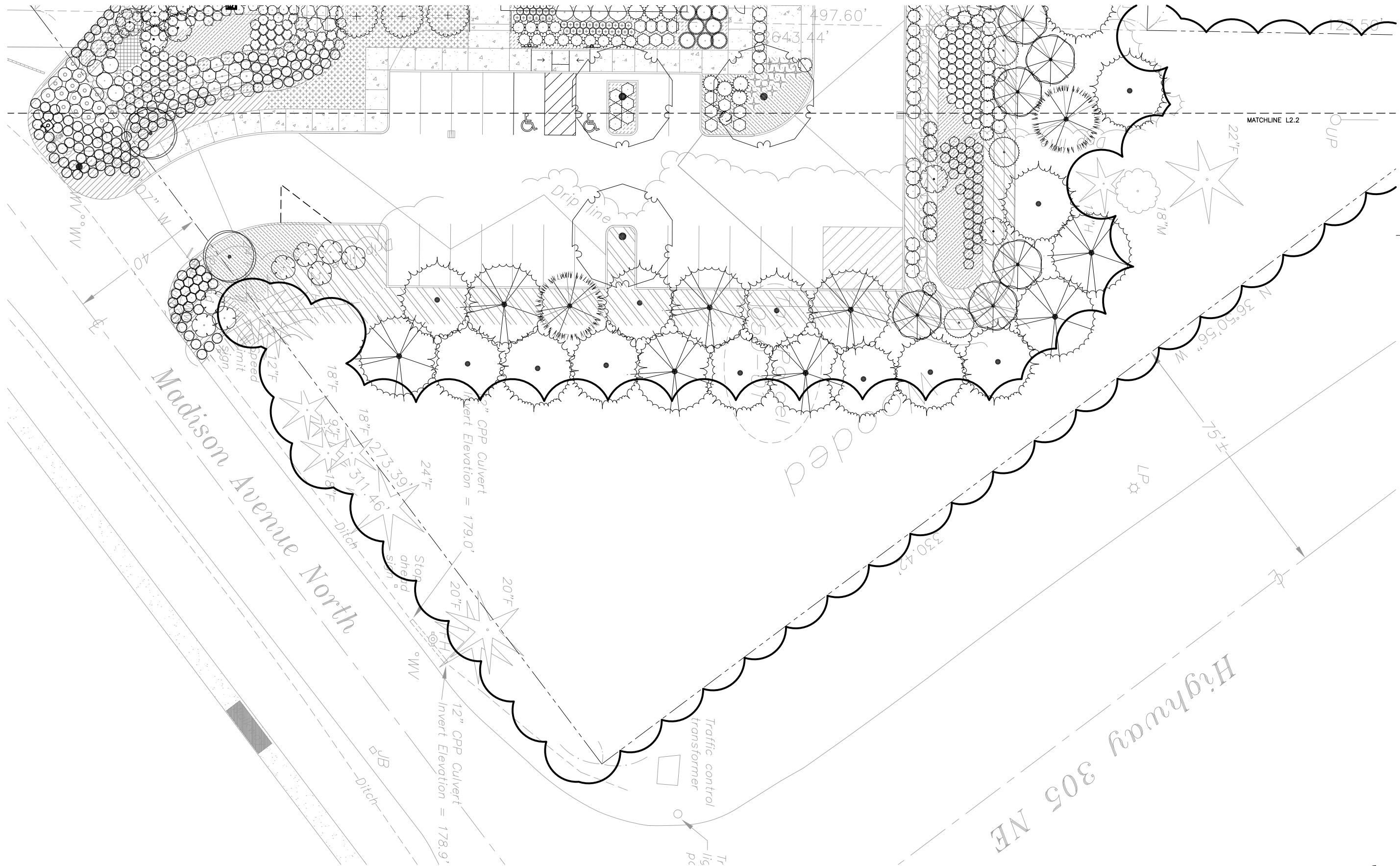

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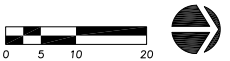
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SITE PLAN REVIEW: 1/13/16



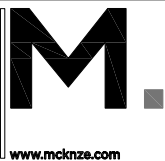
PLANTING PLAN - EAST

1"=10'-0"



MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
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BAINBRIDGE ISLAND, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
8895 MADISON AVE. NE



REVISIONS:

NO.	DATE	REVISION
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2		
3		
4		
5		

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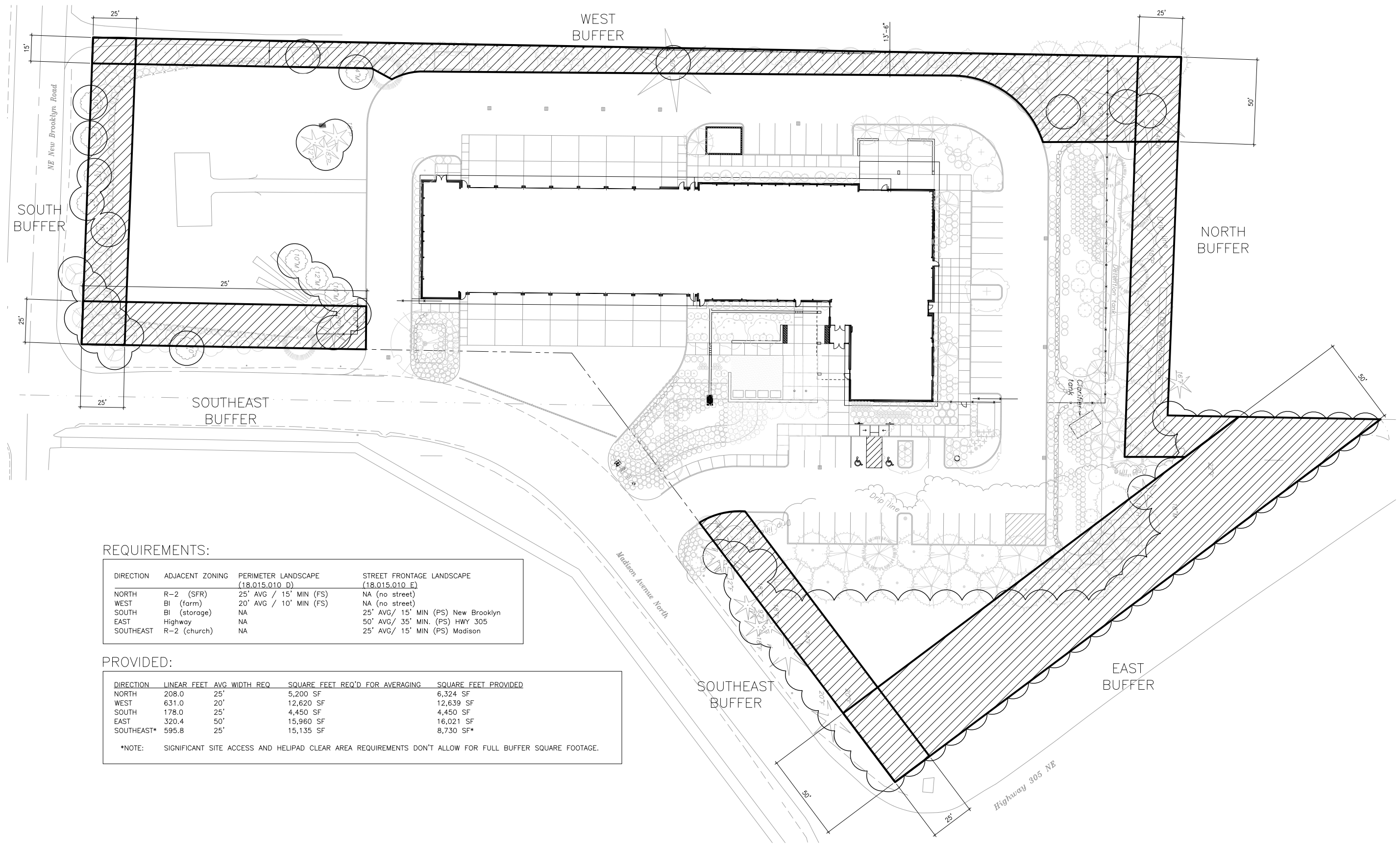
SHEET TITLE:

PLANTING PLAN - EAST

SHEET

L2.3

JOB NO. 2150124.00



REQUIREMENTS:

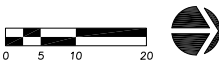
DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

PROVIDED:

DIRECTION	LINEAR FEET	AVG WIDTH REQ	SQUARE FEET REQ'D FOR AVERAGING	SQUARE FEET PROVIDED
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	320.4	50'	15,960 SF	16,021 SF
SOUTHEAST*	595.8	25'	15,135 SF	8,730 SF*

*NOTE: SIGNIFICANT SITE ACCESS AND HELIPAD CLEAR AREA REQUIREMENTS DON'T ALLOW FOR FULL BUFFER SQUARE FOOTAGE.

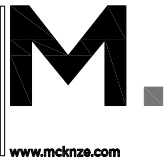
LANDSCAPE BUFFER DIAGRAM
1"=20'-0"



MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH, SUITE A
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REVISIONS:
REVISION DELTA CLOSING DATE

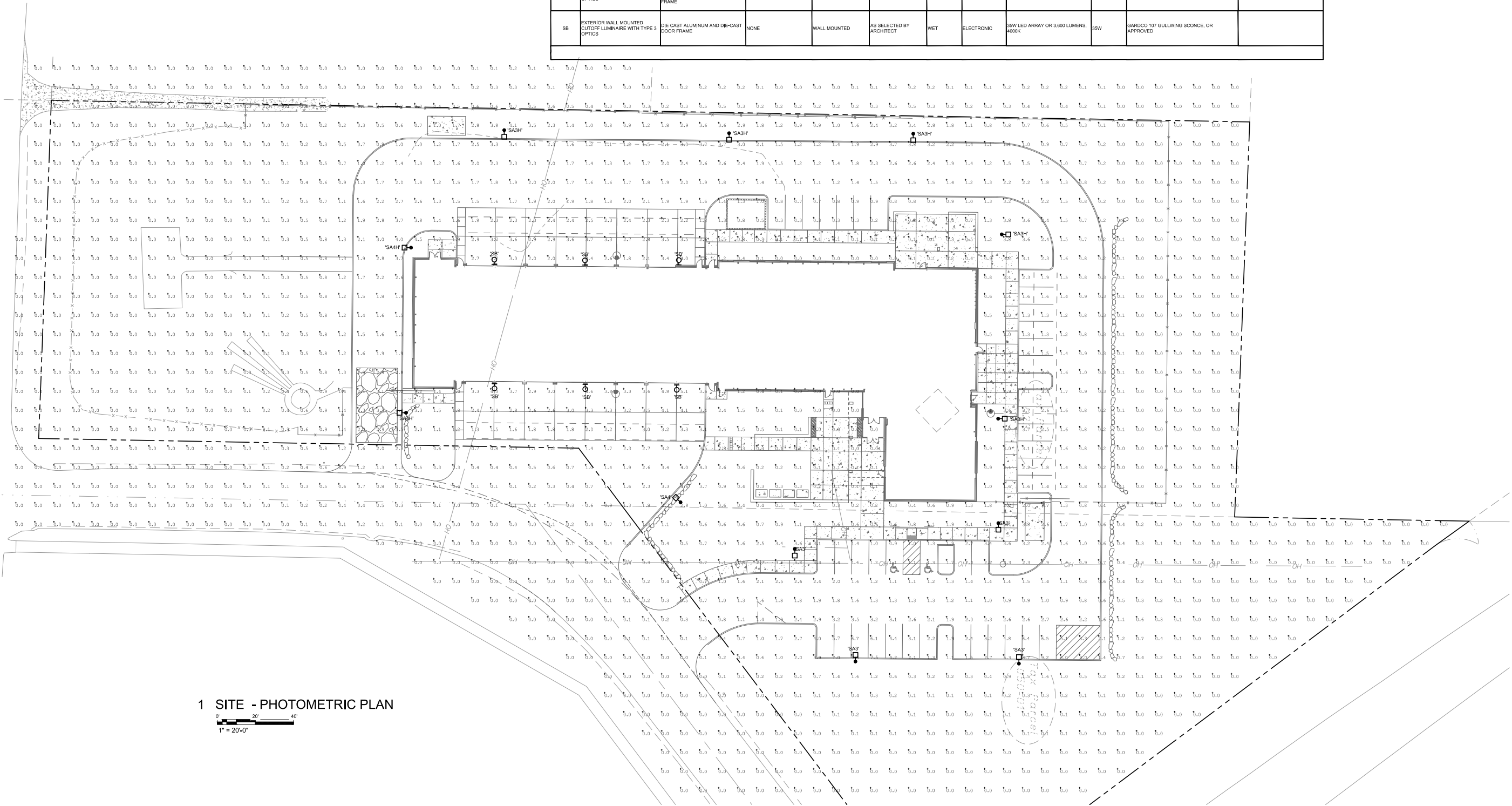
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DRAWN BY:
CHECKED BY:

SHEET TITLE:
**LANDSCAPE BUFFER
DIAGRAM**

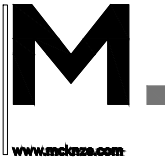
SHEET
L3.0
JOB NO. 2150124.00

LUMINAIRE SCHEDULE											
TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/P RATING	BALLAST	LAMP(S)	INPUT WATTS	MFG/CATALOG #	NOTES
SA3	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SA3H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SA4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SA4H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLIVING GL18 SERIES, OR APPROVED	
SB	EXTERIOR WALL MOUNTED CUTOFF LUMINAIRE WITH TYPE 3 OPTICS	DIE CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	WALL MOUNTED	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	35W LED ARRAY OR 3,600 LUMENS, 4000K	35W	GARDCO 107 GULLIVING SCONCE, OR APPROVED	



MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH, SUITE A
BAINBRIDGE ISLAND, WA
98110



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Client

BAINBRIDGE ISLAND FIRE DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
8895 MADISON AVE. NE

REVISIONS:

NO.	REVISION	DATE
1	REVISION DELTA CLOSING DATE	
2		
3		
4		
5		

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JOB NO. 2150124.00

GEOTECHNICAL ENGINEERING REPORT FIRE STATION 21

8895 Madison Avenue North
Bainbridge Island, Washington

Prepared for: Bainbridge Island Fire Department

Project No. 150136-01 • December 30, 2015 FINAL





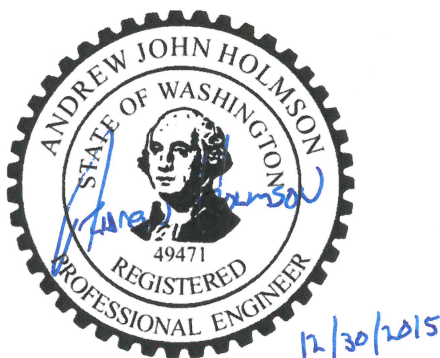
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Aspect Consulting, LLC



A handwritten signature in blue ink that reads "Erik O. Andersen".

Andrew J. Holmson, PE
Senior Project Geotechnical Engineer
aholmson@aspectconsulting.com

Erik O. Andersen, PE
Senior Associate Geotechnical Engineer
eandersen@aspectconsulting.com

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1 Introduction

This report presents the results of a geotechnical engineering study performed by Aspect Consulting, LLC (Aspect) for the Fire Station 21 Replacement Project (Project) located at 8895 Madison Avenue North, Bainbridge Island, Washington (Site).

The Project location is shown on Figure 1, *Site Location Map*. The purpose of the Project is to replace the existing fire station with a new, modern facility.

This report summarizes the results of the completed field explorations and presents Aspect's geotechnical engineering conclusions and recommendations.

1.1 Scope of Services and Authorization

Our scope of work included gathering and reviewing existing subsurface information near the Site; drilling and sampling exploratory borings; excavating and performing pilot infiltration testing; performing laboratory testing; completing engineering analyses to develop geotechnical conclusions and recommendations for design and construction of the Project; and preparing this report. Our work was completed in general accordance with our agreed-upon scope of work, authorized by Assistant Chief Luke Carpenter on June 19, 2015.

1.2 Project Description

The project is currently in the concept-level planning stage. Our Project understanding was developed through our review of concept drawings, discussions with Fire Department personnel, and discussions with the Project architect, Mackenzie Architects.

We understand the new fire station will include a west-to-east aligned multibay vehicle and equipment staging area, a two-story office and living space, and a single-story lobby with community hall. The new fire station will be located across the northwest portion of the existing fire station footprint and extending westward. No changes are planned near the existing helipad and western edge of the Site. New public parking is planned in the southeast corner of the Site with staff and secured parking planned in the northeast corner of the Site. We understand that the existing stormwater, sewer, and water utilities at the Site will be utilized by the new fire station. On-Site stormwater infiltration will be completed to the extent possible at the Site as a supplement to the existing stormwater facilities. Significant cuts or fills are not anticipated for the Project.

We assume the new fire station will be designed using the standards and criteria set forth in the current version of the International Building Code (IBC; IBC 2012). The Project vertical datum is the City of Bainbridge Island Vertical Control Network and is the basis for all references to elevations contained herein.

2 Site Conditions

The Site is located on the interior of Bainbridge Island west and southwest of the intersection between State Route 305 and Madison Avenue North. The Site is bordered by a large-acreage residential/farm property to the west, by the Northtown Woods residential development to the northwest, by SR 305 to the north/northeast, by Madison Avenue North to the southeast, and by New Brooklyn Road to the south.

The Site currently contains the existing Fire Station 21 building, parking areas, living quarters, small outbuilding, a fueling station, and a helicopter landing pad. A review of historical drawings indicates the Site has been reworked and configured multiple times during the last several decades. The northern and northeastern portions of the Site contained various wetlands and constructed ponds in the past.

The Site is relatively flat with a high elevation of 186 near the existing helicopter landing pad and also in the northeast corner of the Site and a low elevation of 173 near the southern Site boundary. The average elevation across the majority of the Site is approximately 179. The layout and location of the existing Site features, topography, and the completed subsurface explorations are shown on Figure 2, *Site Exploration Plan*.

2.1 Subsurface Conditions

Subsurface conditions at the Site were inferred from the completed field explorations, review of applicable geologic literature, and our local geologic experience. More detailed descriptions of the field exploration, methodologies, and conditions encountered are presented in Appendix A.

2.1.1 Geology

The Project area is located in the Puget Lowland. The Puget Lowland is a complex area of tectonic subsidence flanked by two mountain ranges—the Cascades to the east, and the Olympics to the west. The sediments within the Puget Lowland result from repeated cycles of glacial and nonglacial deposition and erosion. During nonglacial cycles, the area was dominated by lowland forests and broad river valleys. During glacial cycles, ice sheets up to 3,000 feet thick occupied the Puget Lowland and surrounding areas, and carved out the deep marine waterways and river valleys, and sculpted the uplands. Deposits from these glacial and nonglacial cycles are present in the subsurface of the Project area.

The available geologic mapping (Haugerud, 2005) indicates that subsurface conditions at the Site generally consist of recent (Holocene) deposits, overlying glacial soils from the Fraser glaciation age.

2.1.2 Stratigraphy

The subsurface soils, based on the completed subsurface explorations, can be grouped into five units consisting of the following: fill, wetland deposits, glacial ice-contact

deposits, glacial till deposits, and advance outwash deposits. Details of the composition and distribution of these units are presented in more detail below.

Fill

At the ground surface, we encountered fill in each of the completed borings. The fill varied in thickness from 3.5 to 9 feet. It generally consisted of loose to medium, dry to moist, brown to gray, silty SAND (SM)¹ with trace gravel and scattered organics. The fill in boring B-2 mostly consisted of loose, dry, brown, sandy, subangular to angular GRAVEL (GP). The fill likely includes reworked native soils and imported soils associated with previous Site development activities.

The SPT² blow counts from the explorations in the fill ranged from 6 to 29 blows per foot, indicating the fill was typically loose to medium dense and variable in its relative density and composition. The presence of fine-grained soil (soil particles passing the U.S. No. 200 sieve) makes the fill typically susceptible to disturbance during construction (it is moisture sensitive). Scattered fine organics were present throughout the fill. The majority of the fill can generally be expected to have low to moderate shear strength, moderate compressibility, and moderate to high permeability.

Wetland Deposits

In our boring B-2 we encountered Holocene (recent) wetland deposits underlying the fill extending from 3.5 to 7 feet below ground surface (bgs). The wetland deposits consisted of medium stiff to stiff, moist, dark brown to gray, sandy SILT (ML) and organic SILT (OL) with numerous organics and wood fragments.

The SPT blow counts from the explorations in the wetland deposits were 7 and 13 blows per foot, indicating the wetland deposits were typically medium stiff to stiff. The wetland deposits can be expected to have low to moderate shear strength, moderate to high compressibility, low to moderate permeability, and high moisture sensitivity.

Glacial Ice-Contact Deposits

We encountered glacial ice-contact deposits underlying the fill or wetland deposits in each of the completed borings. The ice-contact deposits ranged from 4.75 to 31.25 feet bgs and typically consisted of medium dense to dense, moist, brown to gray, slightly sandy SILT (ML) with variable gravel content and zones of dense, moist, brown, slightly silty SAND (SP-SM) with gravel.

The SPT blow count from the explorations in the ice-contact deposits ranged from 11 to 54 blows per foot with an average value of 25 blows per foot, indicating the ice-contact deposits were typically medium dense to dense. The glacial ice-contact deposits can be expected to have moderate to high shear strength, low to moderate compressibility, low permeability, and moderate to high moisture sensitivity.

¹ Soil Classification per the Unified Soil Classification System (USCS). Refer to ASTM D-2488.

² SPT blow count refers to standard penetration test (SPT) N-values, in accordance with ASTM D-1586.

Glacial Till

We encountered glacial till underlying the glacial ice-contact deposits in each of the completed borings and underlying the wetland deposits in PIT-1 and PIT-2. Borings B-2 through B-4 were terminated in the glacial till unit at depths ranging from 40.5 to 41.5 feet bgs. The glacial till in PIT-1 and PIT-2 was encountered closer to the ground surface between 3.5 and 8 feet bgs, indicating a highly variable contact surface and highlighting the Holocene-era infilling (wetland) of the Site and more recent historic filling and grading at the Site. The glacial till typically consisted of very dense, moist to very moist, gray, gravelly, silty SAND (SM) with a diamict texture.

The SPT blow counts from the explorations in the glacial till ranged from 38 to greater than 100 blows per foot, indicating the glacial till was typically very dense. The glacial till can be expected to have high shear strength, low compressibility, low permeability, and moderate moisture sensitivity.

Glacial Outwash

We encountered glacial outwash underlying the glacial till in boring B-1. Boring B-1 was terminated in the glacial outwash at a depth of 41.5 feet bgs. The glacial outwash consisted of medium dense, wet, gray SAND (SW) with trace silt and gravel.

The SPT blow count from the exploration in the glacial outwash was 28 blows per foot, indicating the glacial outwash was medium dense. The glacial outwash can be expected to have moderate to high shear strength, low compressibility, moderate to high permeability, and low moisture sensitivity.

2.1.3 Groundwater

Groundwater was not encountered in any of the completed explorations. Although not encountered during drilling in August, it is possible that shallow “perched” groundwater could develop within the upper fill and wetland soils overlying the relatively fine-grained and less permeable ice-contact deposits. Slight seepage and wet soil conditions were noted in the upper 5 feet of PIT-1 and PIT-2 during the pilot infiltration testing program, which was completed in December. The presence of perched groundwater would fluctuate seasonally with precipitation as well as with changes in Site and near-Site usage.

3 Seismic Design Considerations

The Site is located in a seismically active area and is approximately 2 miles north of the Seattle Fault zone, a shallow crustal tectonic structure that is considered active (meaning it has the potential to cause earthquakes in the future). The recurrence interval of earthquakes on this fault zone is believed to be on the order of a thousand years or more.

The Site also lies within the zone of strong shaking from subduction zone earthquakes. The recurrence interval of these earthquakes is thought to be on the order of about 500 years. The most recent subduction zone earthquake occurred in 1700.

Deep intraslab earthquakes also occur in the region every decade or two, including the 2001 Nisqually earthquake. These earthquakes are generally less severe than the shallow crustal and subduction zone earthquakes, but have the potential to cause damage to older structures built before modern seismic codes were enacted, and those in liquefaction-sensitive areas.

In our opinion, design of the new structures in accordance with the current version of the IBC will mitigate seismic hazards to acceptable risk levels.

3.1 Surficial Ground Rupture

The nearest known active fault trace is a structure associated with the Seattle Fault zone and locally known as the “Welfare Strand,” approximately 2 miles south of the Site. Recent studies made by the United States Geological Survey (USGS) (e.g., Johnson et al., 1994, and Johnson et al., 1999) suggest that a northern trace of an east-west trending thrust fault zone (Seattle fault) may project in the vicinity of Eagle Harbor on Bainbridge Island. Due to the suspected long recurrence interval, and the offset of the Site from the known preferred rupture surface, the potential for surficial ground rupture at the Site is considered low during the expected life of the improvements.

3.2 Landslides and Liquefaction

3.2.1 *Seismically Induced Landslides*

Due to the relatively flat and gently sloping topography of the Site and presence of moderate to high shear-strength glacial soils near the ground surface, the Site slopes present a low risk of seismically induced landslides.

3.2.2 *Liquefaction*

Due to the grain-size distribution and inherent density of the glacial soils underlying the Site and the general absence of shallow, continuous groundwater, the liquefaction potential for the soils at the Site is considered low.

3.3 Ground Response

IBC code-based seismic design is based on the “Maximum Considered Earthquake (MCE)” with a two-percent probability of exceedance (PE) in 50 years (2,475-year return period). The USGS (USGS, 2008) has completed probabilistic ground motion studies and maps for Washington.

Current IBC design methodologies express the effects of site-specific subsurface conditions on the ground motion response in terms of the “Site Class.” The Site Class can be correlated to the average density in the upper 100 feet of the soil profile. Based on the results of our subsurface exploration program, our regional experience with the geologic materials underlying the Site, and using the 2012 IBC criteria, the Site would be characterized as Seismic Site Class D. The proposed fire station requires designation as a risk category IV (essential) structure.

The mapped, maximum considered earthquake spectral response accelerations for short period (S_s) = 1.391g; and for 1-second period (S_1) = 0.547g. Site coefficients for this Site are $F_a = 1.0$, $F_v = 1.5$. The maximum considered earthquake spectral response accelerations adjusted for Site class effects are $S_{ds} = 0.927g$, $S_{d1} = 0.547g$.

4 Conclusions and Recommendations

4.1 General

The following sections present the results of our engineering analyses and recommendations for earthwork, foundation support, and other pertinent geotechnical design issues.

4.2 Earthwork

Site excavation and grading can be completed with standard construction equipment. The fill that mantles the Site should be anticipated to be variable and, although not encountered in our explorations, the fill may contain oversized cobbles, small boulders, wood debris, or other remnant debris. Excavation activities will be significantly easier and more cost-effective during the drier summer months. Appropriate erosion control measures should be implemented prior to beginning earthwork activities in accordance with the local regulations.

4.2.1 *Wet Weather Earthwork*

Earthwork is typically most economical when performed under dry weather conditions; however, earthwork may proceed during wet weather conditions provided the appropriate provisions are in place. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations apply:

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean structural fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance.
- The ground surface within the construction area should be graded to promote runoff of surface water and to prevent the ponding of water.
- Material used as structural fill should consist of clean, granular soil containing less than 7 percent fines. Gravel Borrow in accordance with Section 9-03.14(1) of the Washington State Department of Transportation (WSDOT) Standard Specifications (WSDOT, 2014) is a suitable wet weather structural fill.
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils that become too wet for compaction should be removed and replaced with clean granular materials.

- Excavation and placement of fill should be observed by the Geotechnical Engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved.
- Appropriate erosion and sedimentation best management practices (BMPs) should be strategically implemented in accordance with the local regulations.

4.2.2 Temporary Excavation Stability and Permanent Slopes

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor. All temporary cuts in excess of 4 feet in height that are not protected by trench boxes or otherwise shored, should be sloped in accordance with Part N of Washington Administrative Code (WAC) 296-155 (WAC, 2009).

In general, soils across the Site classify as OSHA Soil Classification Type B and C. Temporary excavation cut slopes are anticipated to stand as steep as 1.5H:1V (Horizontal:Vertical) within the fill and wetland deposits, and as steep as 1H:1V within the glacial ice-contact deposits. The cut slope inclinations estimated above are applicable to excavations without groundwater seepage, or runoff, and assume dewatered conditions.

With time and the presence of seepage and/or precipitation, the stability of temporary unsupported cut slopes can be significantly reduced. Therefore, all temporary slopes should be protected from erosion by installing a surface water diversion ditch or berm at the top of the slope. In addition, the Contractor should monitor the stability of the temporary cut slopes, and adjust the construction schedule and slope inclination accordingly. Vibrations created by traffic and construction equipment may cause caving and raveling of the temporary slopes. In such an event, lateral support for the temporary slopes should be provided by the Contractor to prevent loss of ground support.

Permanent slopes for the Project should be no steeper than 2H:1V.

4.2.3 Structural Fill

Portions of the existing fill material that will be excavated for the Project may be suitable for reuse as structural fill. Excavated material should be visually inspected by the Geotechnical Engineer to determine its potential use as structural fill.

In general, suitable structural fill material for the Project is fill placed within 3 percent of its optimum moisture content per the American Society for Testing and Materials (ASTM) ASTM D-1557 (modified Proctor test) and does not contain deleterious materials, greater than 5 percent organics, or particles larger than 3 inches in diameter. Structural fill should be placed and compacted to at least 95 percent of the maximum dry density (MDD) as determined by test method ASTM D-1557.

Imported material should be granular material with less than 10 percent fines such as Select Borrow as specified in Section 9-03.14(3) of the WSDOT Standard Specifications. In wet weather conditions or situations requiring free-draining backfill, we recommend using import material meeting the criteria for Gravel Borrow as specified in Section 9-03.14(1) of the WSDOT Standard Specifications.

Class A Gravel Backfill for Foundations as specified in Section 9-03.12(1)A of the WSDOT Standard Specifications should be used for base rock underneath structures. Crushed Surfacing Base Course (CSBC) as specified in Section 9-03.9(3) of the WSDOT Standard Specifications should be used as base rock for new pavement. If desired, lean concrete or controlled density fill (CDF) can also be used as structural fill.

Within a lateral distance of 3 feet of any wall, smaller, possibly hand-operated equipment should be used in conjunction with thinner soil lifts to achieve the required compaction so as not to damage the structure.

The procedure to achieve the specified minimum relative compaction depends on the size and type of compacting equipment, the number of passes, thickness of the layer being compacted, and certain soil properties. When size of the excavation restricts the use of heavy equipment, smaller equipment can be used, but the soil must be placed in thin enough lifts to achieve the required compaction. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved. The frequency of the in-place density testing can be determined at the time of final design when more details of the Project grading and backfilling plans are available.

4.3 Foundations

Although the current project plans are conceptual, the following general foundation criteria are provided. Spread footings and/or structural slabs may be used for building support. Bearing surfaces for the footings should be prepared as described below.

4.3.1 *Site Preparation*

Site preparation within the proposed foundation areas should include removal of all topsoil, debris, fill and wetland soils, and any other deleterious materials. Based on our completed explorations, the removal of the existing fill and wetland soils will require excavations on the order of 3.5 to 9 feet bgs in order to reach the suitable bearing stratum of glacial ice-contact deposits or glacial till. For planning purposes, the average excavation depth to reach the suitable bearing stratum will be on the order of 5 feet bgs or to about Elevation 174.

The on-Site soils contain a moderate amount of fine-grained particles, which makes them moisture sensitive and subject to disturbance when wet. The Contractor must use care during Site preparation and excavation operations, so that any bearing surfaces are not disturbed. If this occurs, the disturbed material should be removed to expose undisturbed material.

All bearing surfaces should be trimmed neat, and carefully prepared. All loose or softened soil should be removed from the bearing surface prior to placing concrete, structural fill, or capillary break materials. We recommend that all bearing surfaces be observed by the Geotechnical Engineer to verify that the recommendations of this report have been followed.

If bearing surfaces are open during the winter season or periods of wet weather, it may be helpful to provide a layer of crushed rock or gravel to help preserve the subgrade. If

gravel is used to protect the bearing surfaces, it should meet the gradation requirements for Class A Gravel Backfill for Foundations, as described in Section 9-03.12(1)A of the WSDOT Standard Specifications.

4.3.2 Foundation Design Criteria

Based on our observations of the Site soil conditions, the bearing stratum is approximately 3.5 to 9 feet bgs. The overlying fill and wetland deposits should be removed from the footprint of the new fire station structure. The variability and low relative density of the fill and presence of organics/wood debris in the wetland deposits create a hazard for total and differential settlement of the new structures.

To achieve foundation bearing at the depths described above, we recommend overexcavation of the unsuitable fill and wetland deposits and replacement with structural fill. Guidance of overexcavation and replacement is shown on Figure 3, *Typical Overexcavation Details*.

As an alternative to overexcavation and replacement, footings may also be deepened to the bearing layer, and foundation stem walls would be made taller to extend up above finished ground surface.

For spread footings, we recommend an allowable foundation bearing pressure of 2,500 pounds per square foot (psf) be utilized for design purposes, including both dead and live loads for the proposed structures. An increase in the above-mentioned bearing pressure of one-third may be used for short-term wind or seismic loading. Perimeter footings should be buried at least 18 inches into the surrounding soil for frost protection; interior footings require only 12 inches burial below adjacent finished grade. No footing should be founded in or above yielding/loose or organic soils.

We estimate the total settlement of the foundation designed in accordance with our recommendations will be less than $\frac{1}{2}$ -inch. Differential settlements can be expected to be less than half the total settlement. The majority of these settlements will occur during construction as the loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, an ultimate coefficient of friction of 0.50 may be assumed along the interface between the base of the footing and subgrade soils. An ultimate passive earth pressure of 450 pounds per cubic foot (pcf) may be assumed for undisturbed soils adjacent to below-grade elements. The upper 1 foot of passive resistance should be neglected in design, unless the ground is protected/surfaced by pavement. The recommended coefficient of friction and passive pressure values are ultimate values that do not include a safety factor. We recommend applying a factor of safety of at least 1.5 in design for determining allowable values for coefficient of friction and passive pressure.

4.3.3 Slabs-on-Grade

Concrete slabs-on-grade should be designed in accordance with the American Concrete Institute (ACI) Technical Committee 360R-10 *Guide to Design of Slabs-on-Ground*. We

recommend overexcavation of the unsuitable fill and wetland deposits and replacement with structural fill beneath all structural slabs. To provide uniform support for the floor slab and to provide a capillary break, we recommend the floor slab be underlain by a capillary break. The capillary break material should consist of a minimum of 6 inches of free-draining, crushed rock or well-graded sand and gravel compacted to at least 95 percent MDD. The capillary break material should have a maximum particle size of $\frac{3}{4}$ inch, with no more than 80 percent passing the No. 4 sieve and less than 5 percent fines (material passing the U.S. Standard No. 200 sieve). In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structures, a 10-mil polyethylene vapor barrier should be placed directly over the capillary break. The vapor barrier should be installed in accordance with the manufacturer's recommendations.

For slabs that are designed as beam on elastic foundation, a modulus of vertical subgrade reaction of 200 pounds per cubic inch (pci) may be utilized.

4.4 Wall Considerations

Yielding walls, such as cantilever retaining walls, should be designed using a lateral earth pressure based on an equivalent fluid having a unit weight of 35 pcf. Nonyielding or restrained walls should be designed for an equivalent fluid weight of 55 pcf. For these values to be used, a subsurface drain combined with a free-draining wall backfill material that meets the gradation requirements described in Section 9-03.12(2) of the WSDOT Standard Specifications for Gravel Backfill for Walls should be utilized. Refer to Section 4.5, *Drainage Considerations* for subsurface drain recommendations.

Earthquake shaking will subject retaining walls to a temporary additional earth pressure. We estimated the lateral seismic soil pressure increment using the Mononobe-Okabe method, with consideration of the possible backfill soil properties, design earthquake, and assuming a relatively level backslope. We recommend an average seismic soil pressure increment of $8H$ (where H is the height of the wall) represented by a uniform rectangular pressure along the height of the wall.

Overcompaction of the backfill behind walls should be avoided. In this regard, we recommend compacting the backfill to about 90 percent of the MMD (ASTM D-1557). Heavy compactors and large pieces of construction equipment should not operate within 5 feet of any embedded wall to avoid the buildup of excessive lateral pressures. Compaction close to the walls should be accomplished using hand-operated vibratory plate compactors.

Lateral forces that may be induced on the wall due to other surcharge loads should be considered by the Structural Engineer.

4.5 Drainage Considerations

We understand the existing stormwater systems and facilities at the Site will be utilized for the Project. The existing stormwater facilities should be evaluated for capacity and function and all new Site stormwater generated by the Project should be directed appropriately.

The outside edge of all perimeter footings and embedded walls should be provided with a drainage system consisting of a 4-inch-diameter, perforated, rigid pipe embedded in free-draining gravel meeting the requirements of Section 9-03.12(4) of the WSDOT Standard Specifications for Gravel Backfill for Drains. The footing and wall drains should be a minimum of 1 foot thick, and a layer of low permeability soils should be used over the upper foot of the drain section to reduce potential for surface water to enter the drain curtain. Prefabricated drain mats combined with relatively free-draining backfill may be used as an alternative to washed-rock footings and wall drains.

Final grades around the proposed structures should be sloped such that surface water drains away from the structures. Downspouts and roof drains should not be connected to the foundation drains in order to reduce the potential for flooding foundation drains and clogging. The footing drains should include clean-outs to allow periodic maintenance and inspection.

4.5.1 Stormwater Infiltration

As part of our study, we investigated the feasibility of stormwater infiltration at the Site through the completion of two small-scale pilot infiltration tests (PITs). Our field testing and analyses indicate that the Site conditions do not readily accept infiltrating stormwater and we recorded unfactored infiltration rates of 0 inches per hour. Based on the results of the field infiltration testing, the completed soil borings, and the historic presence of wetlands and ponds on the Site, stormwater infiltration is not recommended. Appendix C presents a more detailed discussion and numeric results of our field infiltration testing.

4.6 Pavement Considerations

The near-surface fill will provide suitable support for new pavement sections. All pavement subgrades should be carefully prepared. Prior to placing base course and pavement, all standard pavement subgrades should be proof-rolled with a fully loaded dump truck or equivalent. Any soft areas detected by the proof-rolling or other methods should be subexcavated to relatively firm and unyielding subgrade and backfilled with compacted structural fill to the design subgrade elevation. To provide for quality construction practices and materials, we recommend all pavement work and mix-design considerations conform to City of Bainbridge Island Public Works and/or WSDOT standards.

In nonroadway parking areas, a pavement section consisting of 3 inches of hot mix asphalt (HMA) over 6 inches of base course would be appropriate. However, along access drives and in areas where the fire trucks travel frequently and/or turn a tight radius, we recommend a minimum section of 4 inches of HMA over 8 inches of base course. We recommend CSBC for the pavement base course and Crushed Surfacing Top Course (CSTC) may be used over the CSBC for the upper 2 to 3 inches of the base course section. CSBC and CSTC should be as specified in Section 9-03.9(3) of the Standard Specifications should be used as base course for pavements.

For rigid (concrete) pavement sections, we recommend a minimum of 6 inches of concrete over 6 inches of base course. The concrete should have a minimum 28-day compressive strength of 4,000 pounds per square inch (psi).

The recommended pavement section is not intended to support extensive construction traffic, such as dump trucks and concrete Redit-mix trucks. Pavements subject to heavy construction traffic may be damaged and require repair.

Drainage is an essential aspect of pavement performance. We recommend providing all paved areas with positive drainage to remove surface water and water within the base course. This will be particularly important in cut sections or at low points within the paved areas, such as at catch basins.

5 Additional Project Design and Construction Monitoring

At the time of this report, site plans, site grading, structural plans, and construction methods have not been finalized and the recommendations presented herein are based on preliminary Project information. If Project developments result in changes to the assumptions made herein, we should be contacted to determine if our recommendations should be revised.

This letter report is issued with the understanding that the information and recommendations contained herein will be brought to the attention of the appropriate design team personnel and incorporated into the project plans and specifications, and the necessary steps will be taken to verify that the Contractor and subcontractors carry out such recommendations in the field. We do not direct the Contractor's operations, and we cannot be responsible for the safety of personnel other than our own on the Site; the safety of others is the responsibility of the Contractor. The Contractor should notify the property owner if he considers any of the recommended actions presented herein unsafe.

We are available to provide geotechnical engineering and monitoring services during construction. The integrity of the foundation depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent.

6 References

- American Society for Testing and Materials (ASTM), 2012, American Society of Testing Materials Annual Book of Standards, Vol. 4.08, West Conshohocken, Pennsylvania.
- Haugerud, R., 2005, Preliminary Geologic Map of Bainbridge Island, Washington, USGS Open File Report 2005-1387.
- International Building Code (IBC), 2012, International Building Code. Prepared by International Code Council, January 2012.
- Johnson et al., 1994, Origin and Evolution of the Seattle Fault and Seattle Basin, Washington, *Geology*, v. 22, p. 71-74.
- Johnson et al., 1999, Active Tectonics of the Seattle Fault and Central Puget Sound Washington-Implications for Earthquake Hazards, *Geological Society of America Bulletin*, July 1999, v. 111, n. 7, p. 1042-1053.
- United States Geological Survey (USGS), 2008, United States National Seismic Hazard Maps: <http://gldims.cr.usgs.gov/nshmp2008/viewer.htm>.
- Washington Department of Ecology (Ecology), 2014. Stormwater Management Manual for Western Washington. Publication Number 14-10-055. December 2014.
- Washington State Department of Transportation (WSDOT), 2014, Standard Specifications for Road, Bridge and Municipal Construction, Document M 41-10.
- Washington State Legislature, 2009, Washington Administrative Code (WAC), April 1, 2009.

7 Limitations

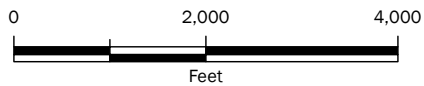
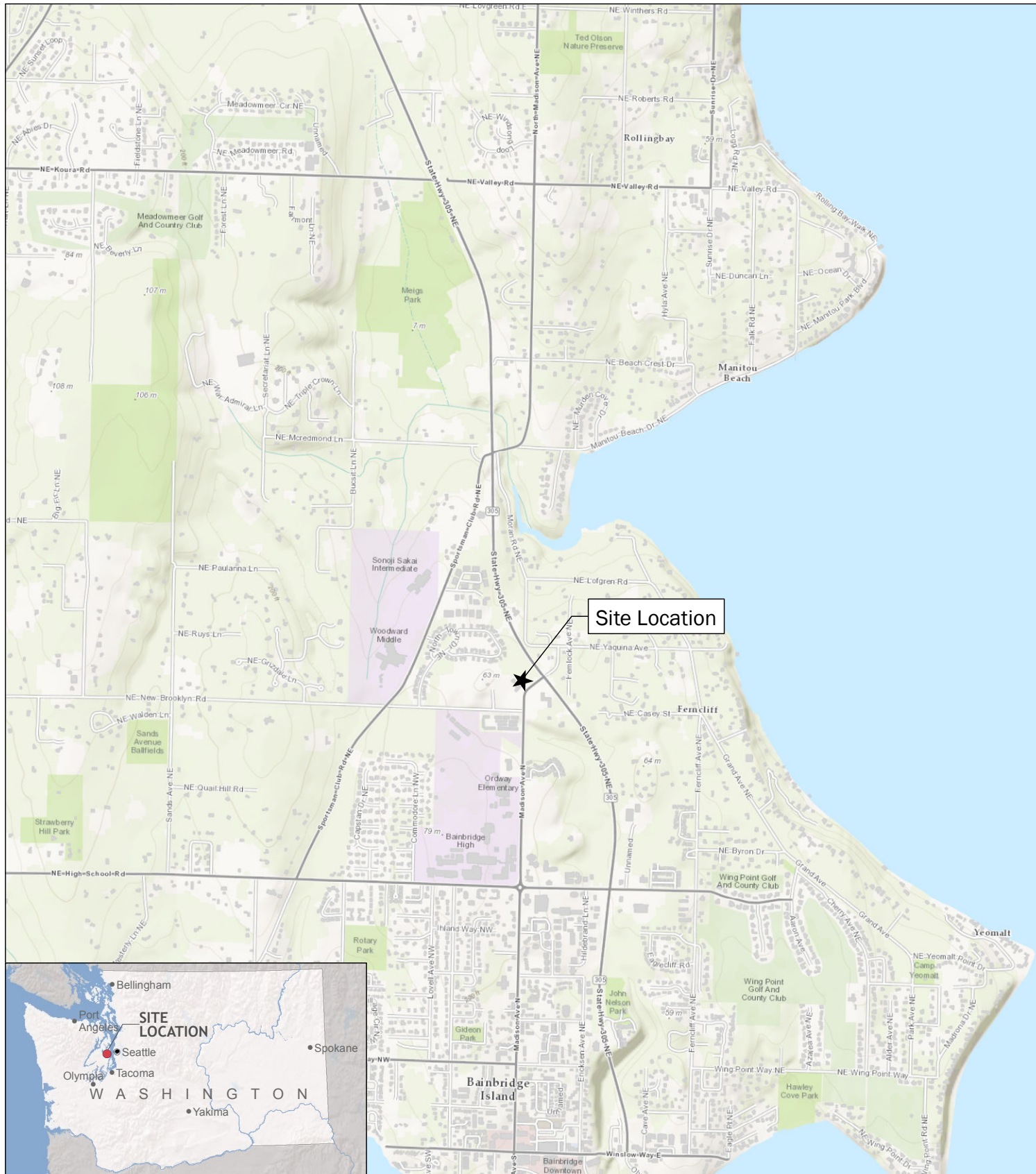
Work for this project was performed for the Bainbridge Island Fire Department (Client), and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

This report and our conclusions and interpretations should not be construed as a warranty of the subsurface conditions. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations and may not be detected by a geotechnical study. Further geotechnical evaluations, analyses, and recommendations may be necessary for the final design of this project.

If there is a substantial lapse of time between the submission of this report and the start of construction, or if conditions have changed due to construction operations at or near the Site, it is recommended that this report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

FIGURES



Site Location Map

Bainbridge Island Fire Department, Station 21
8895 Madison Avenue North
Bainbridge Island, Washington



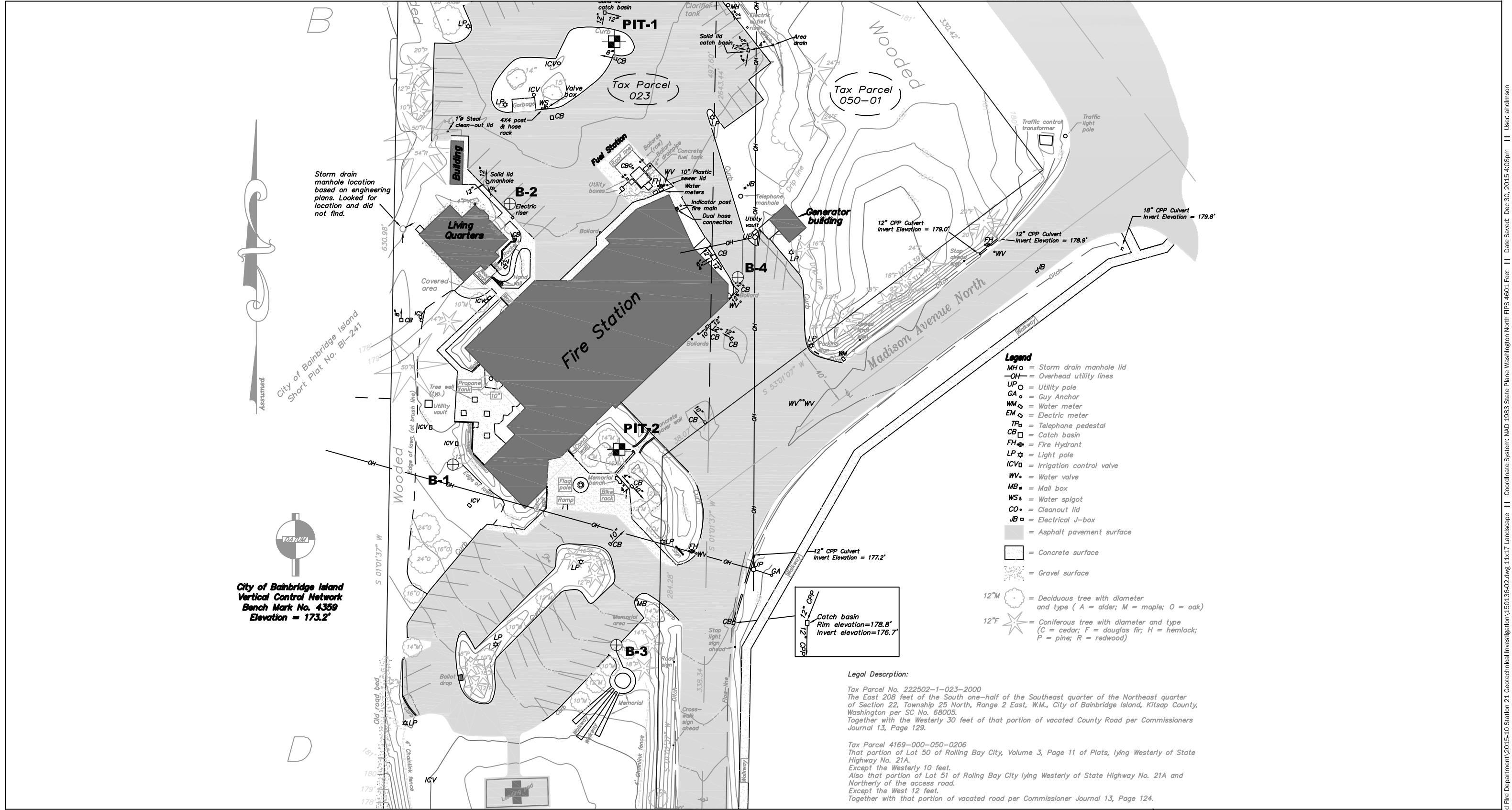
OCT-2015

PROJECT NO.
150136

BY:
AJH/SCC
REV BY:
SCC

FIGURE NO.

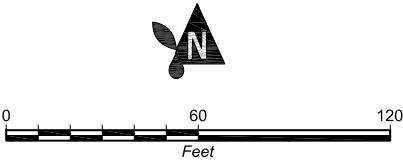
1



Base map provided by Adam & Goldsworthy, Inc., Land Surveying, Poulsbo, Washington.

Legend

- ⊕ Soil Boring Location (August, 2015)
- ⊠ Pilot Infiltration Test (PIT) Location (December, 2015)



Site Exploration Plan
Bainbridge Island Fire Department, Station 21
8895 Madison Ave North
Bainbridge Island, Washington

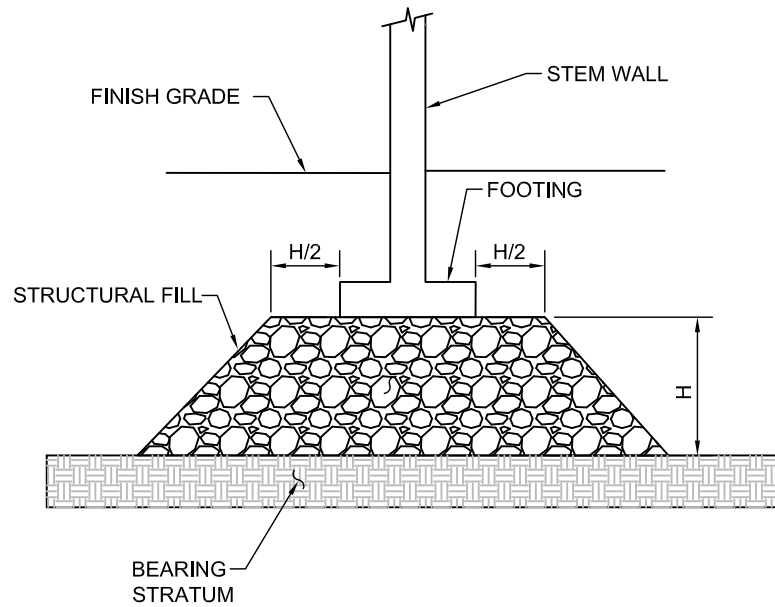


DEC-2015
PROJECT NO.
150136

BY:
AJH/SCC
REVISED BY:
-

FIGURE NO.
2

OVEREXCAVATION AND REPLACEMENT FOR SPREAD FOOTING

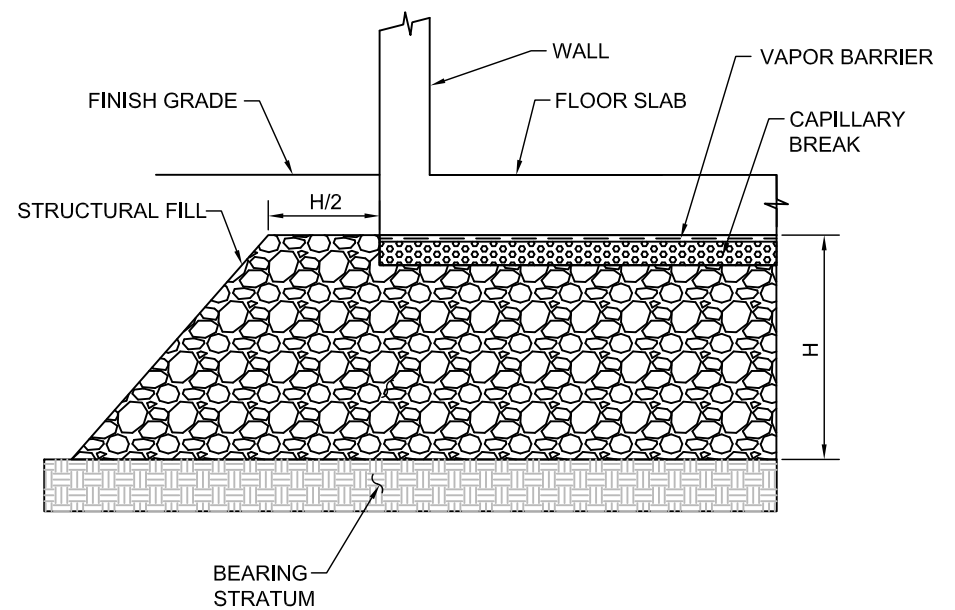


NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

OVEREXCAVATION AND REPLACEMENT FOR STRUCTURAL SLAB



NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

Typical Overexcavation Details

Bainbridge Island Fire Department, Station 21
8895 Madison Avenue North
Bainbridge Island, Washington



OCT-2015

PROJECT NO.
150136-01

BY:
AJH
REV BY:
-

FIGURE NO.

3

APPENDIX A

Subsurface Explorations

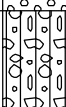
A.1 Field Exploration Program

A.1.1 Geotechnical Borings

Geotechnical borings B-1 through B-4 were drilled using hollow-stem auger drilling techniques. The drilling was subcontracted to Geologic Drill, an experienced and licensed local driller. Drilling was completed with a trailer-mounted drill rig and 8-inch-diameter (3¹/₄-inch-inside-diameter) hollow-stem auger equipment. The locations of the four borings are shown on Figure 2. The borings were all advanced to depths ranging between 40.5 and 41.5 feet bgs.

Sampling was completed at selected depth intervals using the Standard Penetration Test (SPT) in general accordance with ASTM Method D-1586. This involves driving a 2-inch-outside-diameter split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling from a distance of 30 inches. The number of blows for each 6-inch interval is recorded and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance (“N”) or blow count. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils.

An Aspect geologist was present throughout the field exploration program to observe the drilling procedure, assist in sampling, and to prepare descriptive logs of the exploration. Soils were classified in general accordance with ASTM D-2488, *Standard Practice for Description and Identification of Soils* (Visual-Manual Procedure). The summary exploration log represents our interpretation of the contents of the field logs. The stratigraphic contacts shown on the individual summary logs represent the approximate boundaries between soil types; actual transitions may be more gradual. The subsurface conditions depicted are only for the specific date and locations reported, and therefore, are not necessarily representative of other locations and times.

Coarse-Grained Soils - More than 50% ⁽¹⁾ Retained on No. 200 Sieve				Terms Describing Relative Density and Consistency												
Gravels - More than 50% ⁽¹⁾ of Coarse Fraction Retained on No. 4 Sieve			GW	Well-graded gravel and gravel with sand, little to no fines			Coarse-Grained Soils	Density			SPT ⁽²⁾ blows/foot			Test Symbols		
				Poorly-graded gravel and gravel with sand, little to no fines				Loose			0 to 4			FC = Fines Content		
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve			GP	Silty gravel and silty gravel with sand			Fine-Grained Soils	Medium Dense			10 to 30			G = Grain Size		
				Clayey gravel and clayey gravel with sand				Dense			30 to 50			M = Moisture Content		
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve			GM	Well-graded sand and sand with gravel, little to no fines			Fine-Grained Soils	Very Dense			>50			A = Atterberg Limits		
				Poorly-graded sand and sand with gravel, little to no fines				Consistency			SPT ⁽²⁾ blows/foot			C = Consolidation		
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve			GC	Clayey sand and clayey sand with gravel			Fine-Grained Soils	Very Soft			0 to 2			DD = Dry Density		
				Silty sand and silty sand with gravel				Soft			2 to 4			K = Permeability		
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve			SP	Clayey sand and clayey sand with gravel			Fine-Grained Soils	Medium Stiff			4 to 8			Str = Shear Strength		
				Silty sand and silty sand with gravel				Stiff			8 to 15			Env = Environmental		
Sands - 50% ⁽¹⁾ or More of Coarse Fraction Passes No. 4 Sieve			SM	Clayey sand and clayey sand with gravel			Fine-Grained Soils	Very Stiff			15 to 30			PiD = Photoionization Detector		
				Clayey sand and clayey sand with gravel				Hard			>30					
				Component Definitions												
				Descriptive Term												
				Size Range and Sieve Number												
				Boulders												
				Cobbles												
				Gravel												
				Coarse Gravel												
				Fine Gravel												
				Sand												
				Coarse Sand												
				Medium Sand												
				Fine Sand												
				Silt and Clay												
				Estimated Percentage												
				Percentage by Weight												
				Modifier												
				Moisture Content												
				Dry - Absence of moisture, dusty, dry to the touch												
				Slightly Moist - Perceptible moisture												
				Moist - Damp but no visible water												
				Very Moist - Water visible but not free draining												
				Wet - Visible free water, usually from below water table												
				Symbols												
				Sampler Type												
				Blows/6" or portion of 6"												
				2.0" OD Split-Spoon Sampler (SPT)												
				Continuous Push												
				Non-Standard Sampler												
				Bulk sample												
				Grab Sample												
				3.0" OD Thin-Wall Tube Sampler (including Shelby tube)												
				Portion not recovered												
				Cement grout surface seal												
				Bentonite chips												
				Grout seal												
				Filter pack with blank casing section												
				Screened casing or Hydrotip with filter pack												
				Grouted Transducer												
				End cap												
				(1) Percentage by dry weight												
				(2) (SPT) Standard Penetration Test (ASTM D-1586)												
				(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)												
				(4) Depth of groundwater												
				ATD = At time of drilling												
				Static water level (date)												
				(5) Combined USCS symbols used for fines between 5% and 15% as estimated in General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)												
				BGS = below ground surface												

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.



Exploration Log Key

DATE:	PROJECT NO.
DESIGNED BY:	
DRAWN BY:	FIGURE NO.
REVISED BY:	A-1

**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 28 FT SW of STA 21

47.64387, -122.521701

B-1

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

181'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

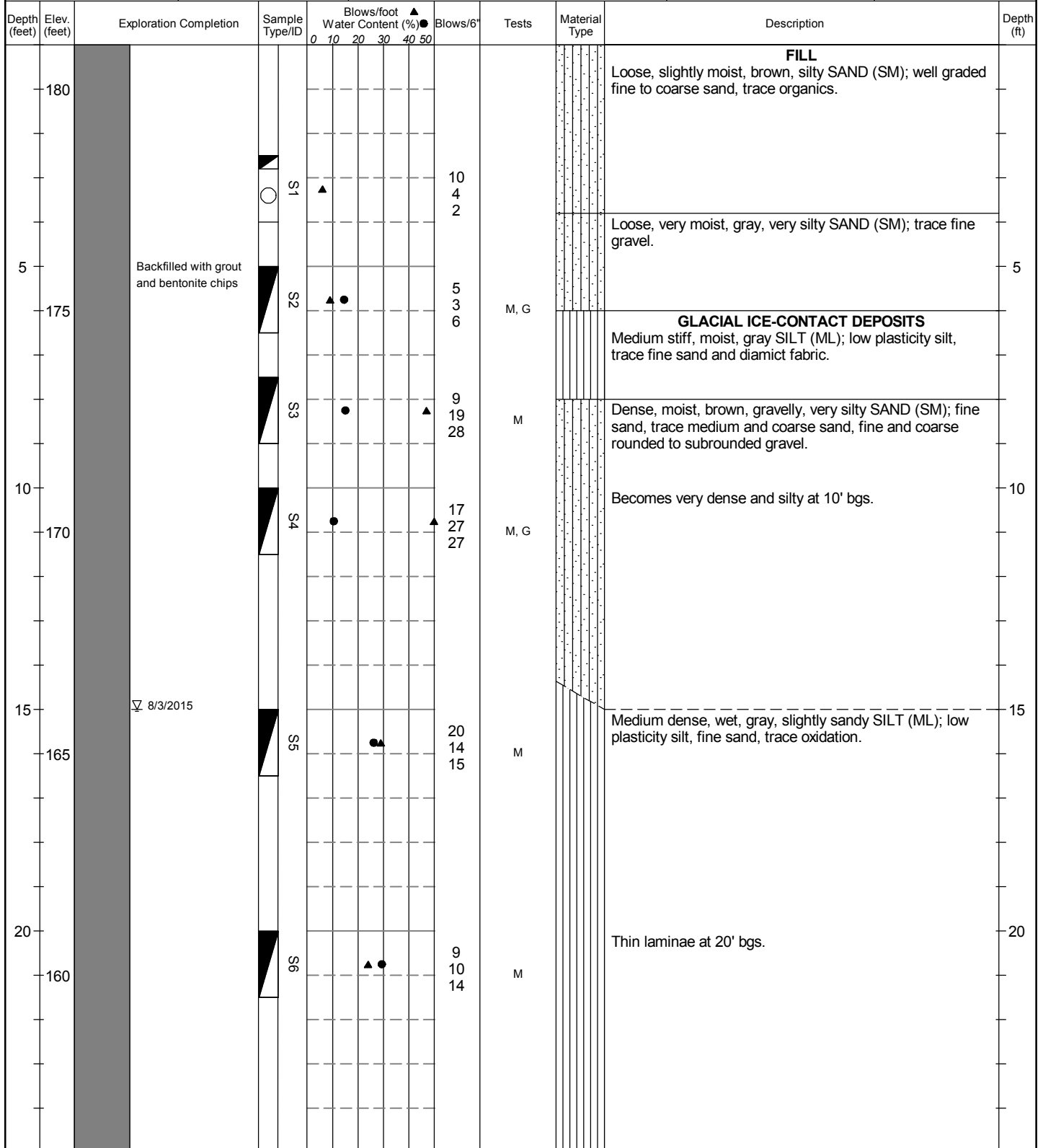
Blaine

Hollow-stem auger

8/3/2015

NA

15' (ATD)

**Legend**

- ☐ No Soil Sample Recovery
☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

Water Level (ATD)

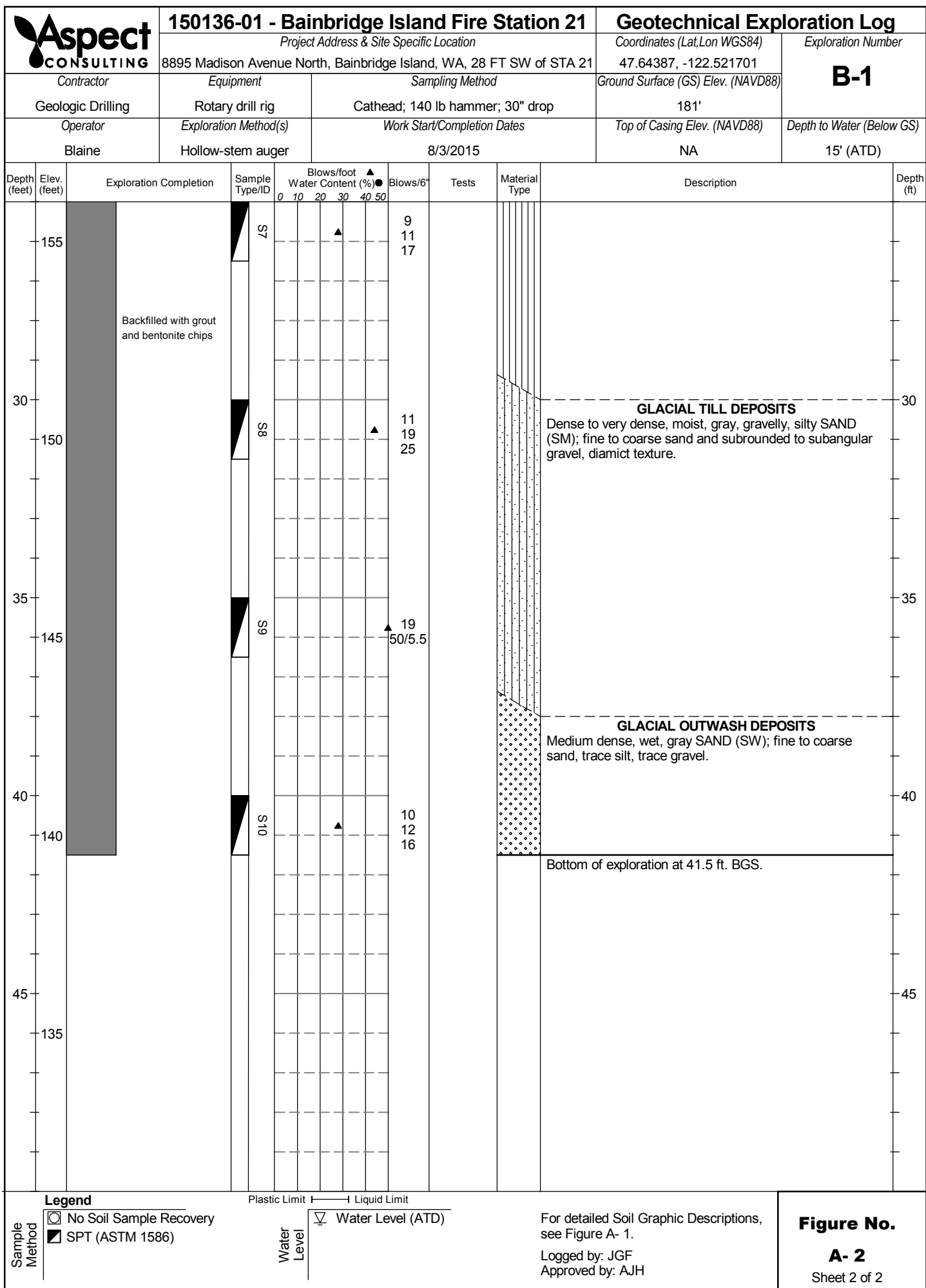
Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

Figure No.**A- 2**

Sheet 1 of 2



**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 65 FT NW of STA 21

47.64434, -122.52153

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

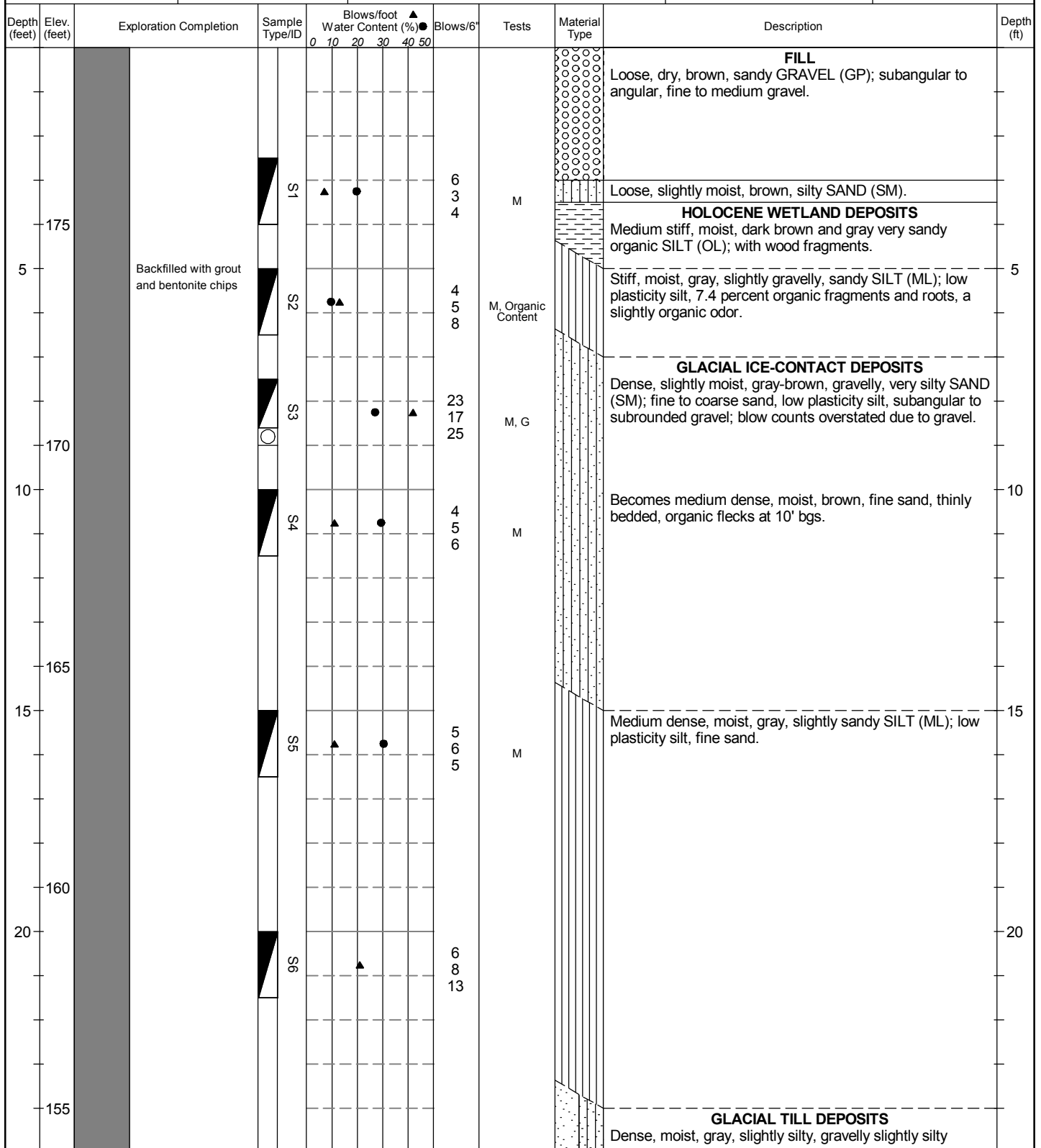
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**Figure No.****A- 3**

Sheet 1 of 2

**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 65 FT NW of STA 21

47.64434, -122.52153

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

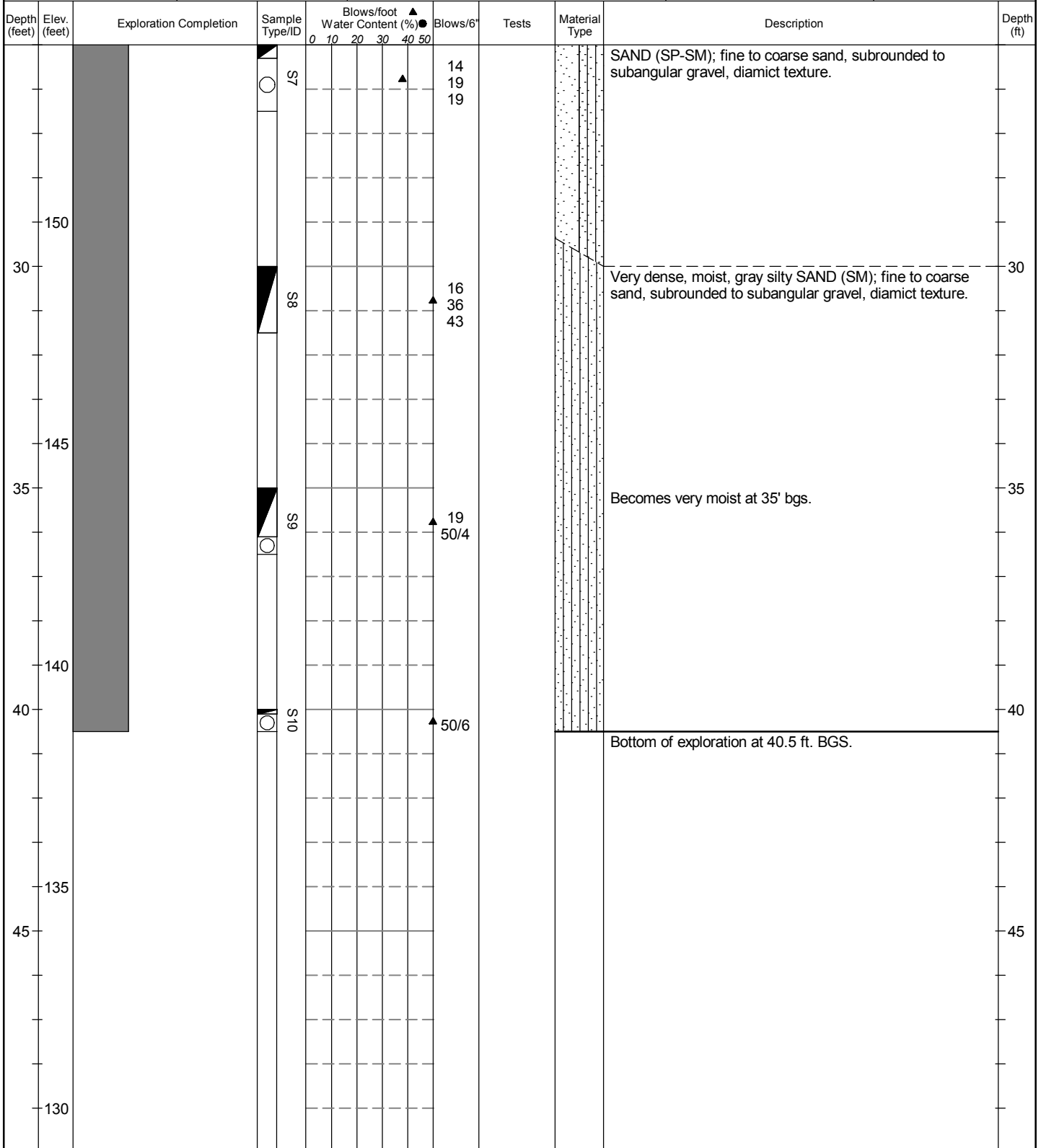
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**Figure No.****A- 3**

Sheet 2 of 2

**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 95 FT S of STA 21

47.64355, -122.52123

B-3

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

182'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

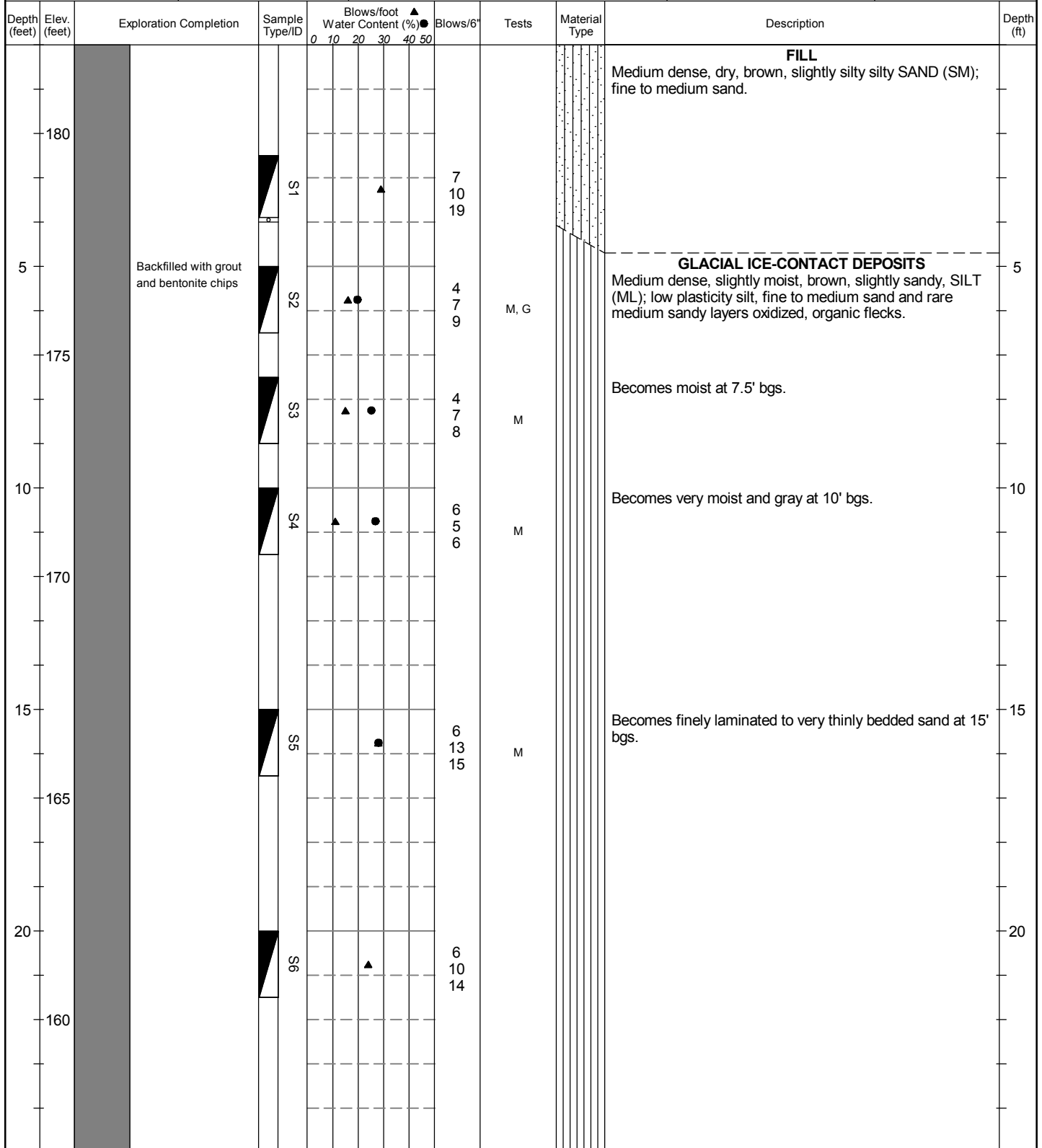
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

 Logged by: JGF
 Approved by: AJH
Figure No.**A- 4**

Sheet 1 of 2

Aspect CONSULTING		150136-01 - Bainbridge Island Fire Station 21				Geotechnical Exploration Log				
		Project Address & Site Specific Location				Coordinates (Lat, Lon WGS84)		Exploration Number		
		8895 Madison Avenue North, Bainbridge Island, WA, 95 FT S of STA 21				47.64355, -122.52123		B-3		
Contractor		Equipment		Sampling Method		Ground Surface (GS) Elev. (NAVD88)				
Geologic Drilling		Rotary drill rig		Cathead; 140 lb hammer; 30" drop		182'				
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)		
Blaine		Hollow-stem auger		8/3/2015		NA		No Water Encountered		
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)
155			S7			7 11 16				
30			S8			9 15 20			Becomes dense, trace subrounded to rounded gravel at 31' bgs.	30
150									GLACIAL TILL DEPOSITS Very dense, very moist, gray slightly silty slightly silty SAND (SP-SM); fine to medium poorly graded sand, trace subrounded to subangular coarse sand and gravel.	
35			S9			50			Very dense, very moist, gray, gravelly, silty SAND (SM); fine to coarse sand in layers, subrounded to subangular gravel.	35
145										
40			S10			9 20 38			Trace wood at 41' bgs.	40
140									Bottom of exploration at 41.5 ft. BGS.	
45										45
135										

Legend

☐ No Soil Sample Recovery

☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

Figure No.

A- 4

Sheet 2 of 2

**150136-01 - Bainbridge Island Fire Station 21****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 10 FT E of STA 21

47.64421, -122.52093

B-4

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

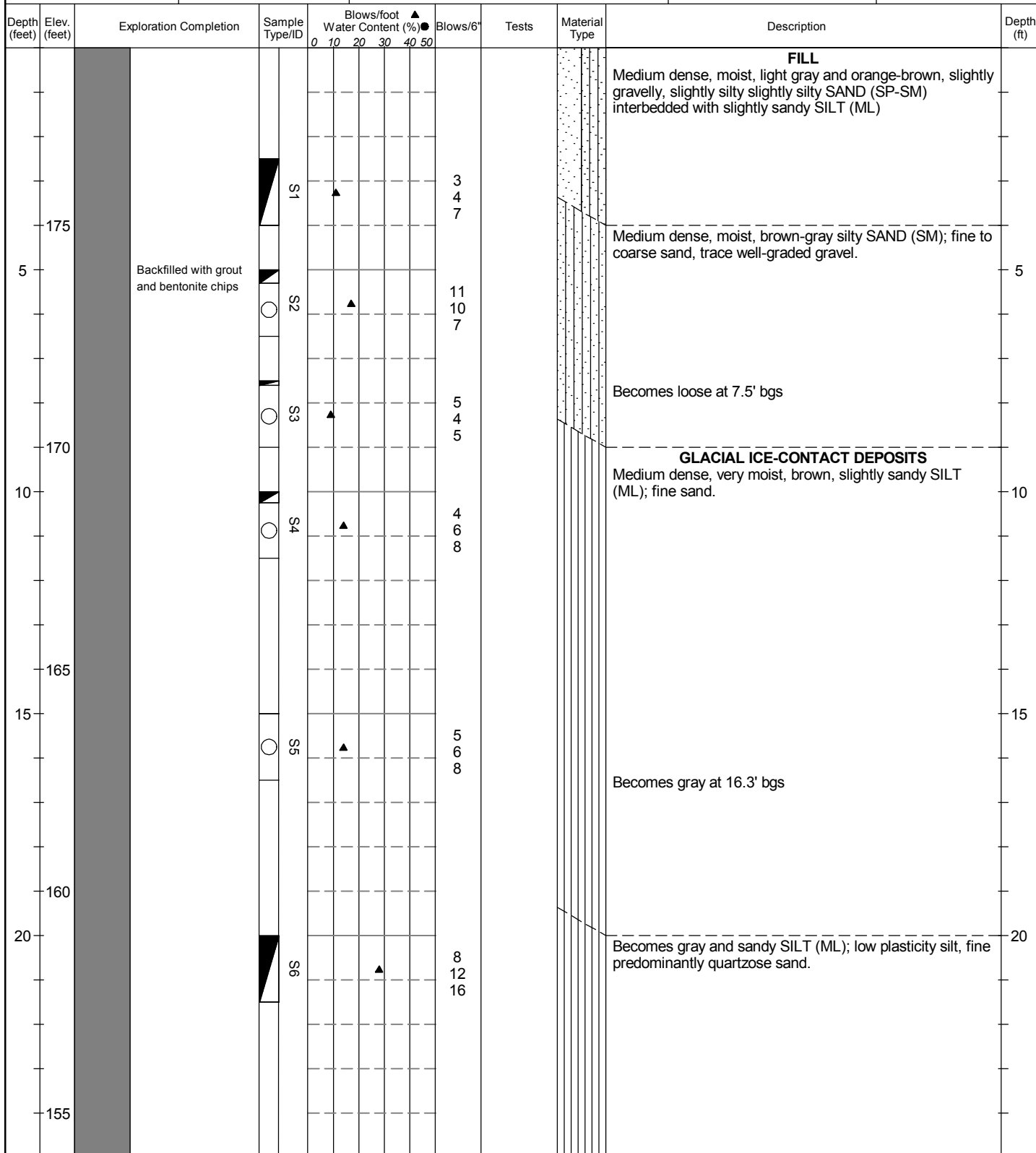
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**Figure No.****A- 5**

Sheet 1 of 2



150136-01 - Bainbridge Island Fire Station 21

Geotechnical Exploration Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8895 Madison Avenue North, Bainbridge Island, WA, 10 FT E of STA 21

47.64421, -122.52093

B-4

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

179'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

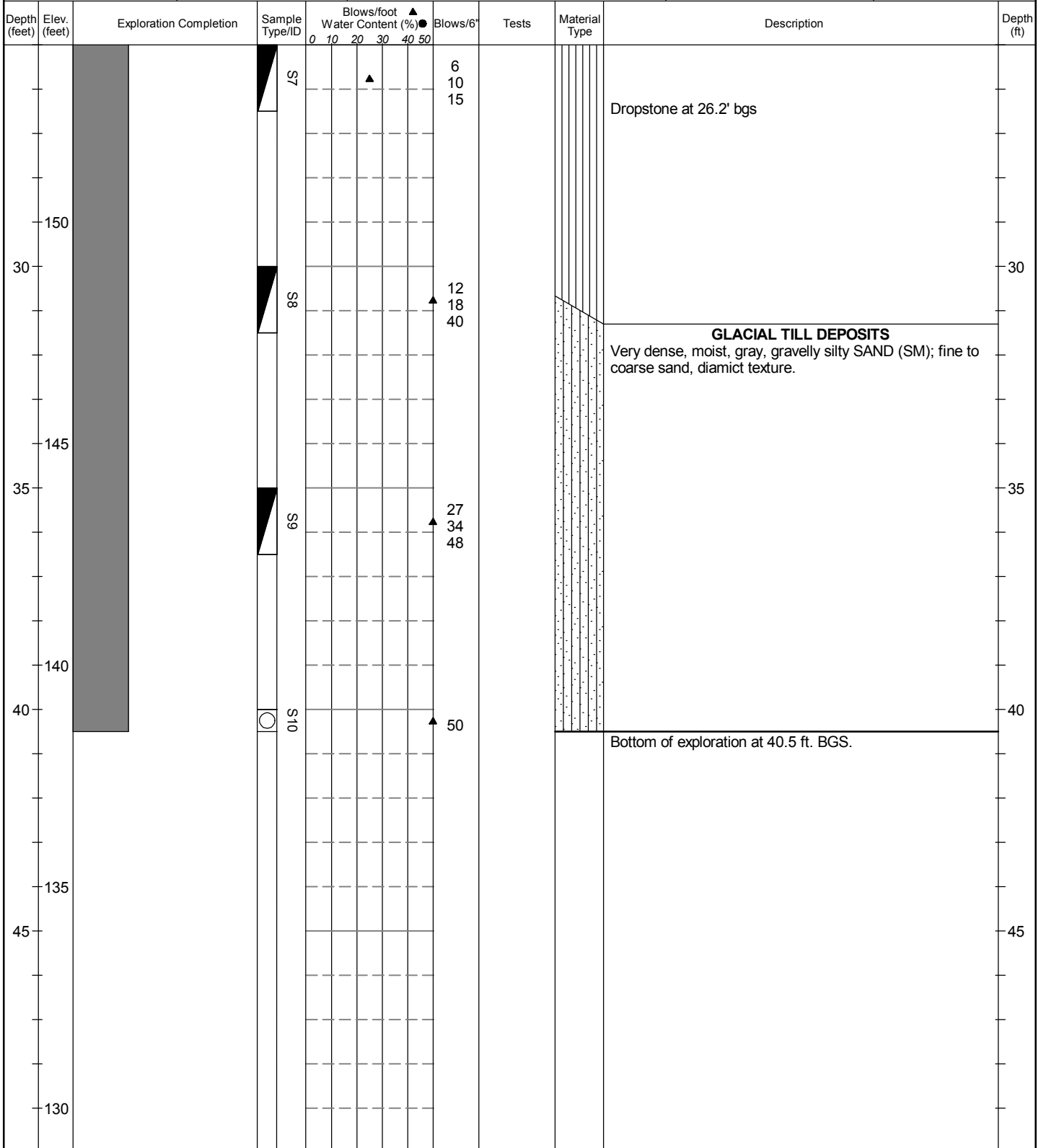
Blaine

Hollow-stem auger

8/3/2015

NA

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

Figure No.

A- 5

Sheet 2 of 2

Aspect CONSULTING		150136-01 - Bainbridge Island Fire Station 21				Geotechnical Exploration Log							
Contractor		Equipment				Sampling Method				Coordinates		Exploration Number	
BIFD		Case 580 Super M				Grab				NA		PIT-1	
Operator		Exploration Method(s)				Work Start/Completion Dates				Ground Surface (GS) Elev. (NAVD88)			
Lee Rosenbaum		Test Pit				12/16/2015				Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
NA										177'		No Water Encountered	
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)			
1	176	Test pit backfilled with native soil.	1-S	0	10	20	30	40	50	HOLOCENE FILL	1		
2	175			Medium dense, moist, gray-brown, slightly sandy, gravelly SILT (ML).	2								
3	174			HOLOCENE WETLAND DEPOSITS	3								
4	173			Soft to medium stiff, very moist, brown and dark brown, clayey SILT (ML); low to medium plasticity silt.	4								
5	172			GLACIAL TILL	5								
6	171			Very dense, slightly moist to moist, gray, gravelly, very silty SAND (SM); 5 to 7 percent cobbles, trace boulders.	6								
7	170			GLACIAL OUTWASH DEPOSITS	7								
8	169			Dense, slightly moist, brown, sandy SILT (ML); non-plastic silt, east dipping contact with overlying Vashon till, 1.5 vertical feet over 7 horizontal feet.	8								
9	168			Bottom of exploration at 9 ft. BGS.	9								
10	167									10			
11	166									11			
12	165									12			
13	164									13			
14	163									14			

Legend

Grab Sample

Plastic Limit Liquid Limit

No Water Encountered

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

Figure No.

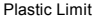
A- 6

Sheet 1 of 1

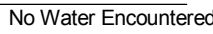
Aspect CONSULTING		150136-01 - Bainbridge Island Fire Station 21						Geotechnical Exploration Log					
Contractor		Equipment						Sampling Method		Coordinates		Exploration Number	
BIFD		Case 580 Super M		Grab				Ground Surface (GS) Elev. (NAVD88)		NA		PIT-2	
Operator		Exploration Method(s)		Work Start/Completion Dates				Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)			
Lee Rosenbaum		Test Pit		12/16/2015				NA		No Water Encountered			
Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot	Water Content (%)	Blows/6'	Tests	Material Type	Description	Depth (ft)			
1	179	Test pit backfilled with native soil.	1-S-1	0	10	20	30	40	50	Small Scale Pit, GS	HOLOCENE FILL Loose, moist, brown, gravelly SAND (SW); trace silt.	1	
2	178			HOLOCENE WETLAND DEPOSITS Medium stiff, very moist, wet, clayey SILT (ML); low plasticity silt, trace peat lenses.	2								
3	177			GLACIAL TILL Medium dense to dense, moist, gray, slightly gravelly, silty SAND (SM); diamict texture, 5 percent cobbles, trace boulders.	3								
4	176			GLACIAL OUTWASH DEPOSITS Dense, very moist, brown, slightly sandy SILT (ML); non-plastic silt.	4								
5	175			Very dense.	5								
6	174				6								
7	173				7								
8	172				8								
9	171				9								
10	170								Bottom of exploration at 9 ft. BGS.	10			
11	169									11			
12	168									12			
13	167									13			
14	166									14			

Legend

 Grab Sample

 Plastic Limit

 Liquid Limit

 No Water Encountered

 Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

Figure No.

A- 7

Sheet 1 of 1

APPENDIX B

Laboratory Testing Results

B.1 Geotechnical Laboratory Testing

Laboratory tests were conducted on selected soil samples to characterize certain engineering (physical) properties of the Site soils. Laboratory testing included determination of grain-size distribution, moisture content, and organic content. The laboratory tests were conducted in general accordance with appropriate ASTM test methods. Test procedures are discussed below.

The grain-size distribution of selected samples was analyzed in general accordance with ASTM D-422, *Standard Test Method for Particle-Size Analysis of Soils* without hydrometer determination of fines content. The moisture content of selected samples was analyzed in general accordance with ASTM D-2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*. The organic content of selected samples was analyzed in general accordance with ASTM C 40, *Standard Test Method for Organic Impurities in Fine Aggregates*.

The results of the grain-size distribution tests are presented as curves in Appendix B, plotting percent finer by weight versus grain size. The results of the moisture content tests are presented in tabular form in Appendix B and graphically on the boring logs in Appendix A. The results of the organic content tests are presented in Appendix B.

Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Bainbridge Island Fire Station 21 Madison P#150136/08-175

HMA Sample #	Aspect Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7802-1	S-2	B-1/5'-6.5'	8/11/2015	8/12/2015	2AA	214.3	1170.0	1049.1	14.5
7802-2	S-3a	B-1/7'-5'-8'	8/11/2015	8/12/2015	JZ	114.4	260.9	241.8	15.0
7802-3	S-4	B-1/10'-11.5'	8/11/2015	8/12/2015	S8	110.2	818.9	751.9	10.4
7802-4	S-5	B-1/15'-16.5'	8/11/2015	8/12/2015	5A	113.4	1025.5	836.1	26.2
7802-5	S-6	B-1/20'-21.5'	8/11/2015	5/12/2015	S1	116.1	1064.3	848.9	29.4
7802-6	S-2	B-2/5'-6.5'	8/11/2015	8/12/2015	S5	116.0	877.3	752.0	19.7
7802-7	S-3	B-2/7'-5'-9'	8/11/2015	8/12/2015	M5	121.2	637.9	592.8	9.6
7802-8	S-4	B-2/10'-11.5'	8/11/2015	8/12/2015	6A	113.40	1020.60	827.80	27.0
7802-9	S-5	B-2/15'-16.5'	8/11/2015	8/12/2014	S6	117.30	944.70	756.6	29.4
7802-10	S-6	B-2/20'-21.5	8/11/2015	8/12/2015	S3	118.4	933.00	743.30	30.4
7802-11	S-2	B-3/5'-6.5'	8/11/2015	8/12/2015	M6	116.8	1053.8	899.6	19.7
7802-12	S-3	B-3/7'-5'-9'	8/11/2015	8/12/2015	S4	117.5	1058.3	868.70	25.2
7802-13	S-4	B-3/10'-11.5'	8/11/2015	8/12/2015	S7	111.5	1118.4	905.8	26.8
7802-14	S-5	B-3/15'-16.5'	8/11/2015	8/12/2015	S9	109.6	1040.0	836.2	28.0



Moisture, Ash, and Organic Matter (ASTM D 2974-00)

Project Name:	Bainbridge Island Fire Station 21 Medi	HMA Project No:	08-175
Client:	Aspect Consultants	HMA Lab No:	7802-6
Sample ID:	B-2 S-2 5'-6.5'	Date Tested:	8/14/2015
Tested by:	B.H	Equipment ID #:	N/A
Checked by:	JAM	Data Entry by:	B.H
		Project No:	150136

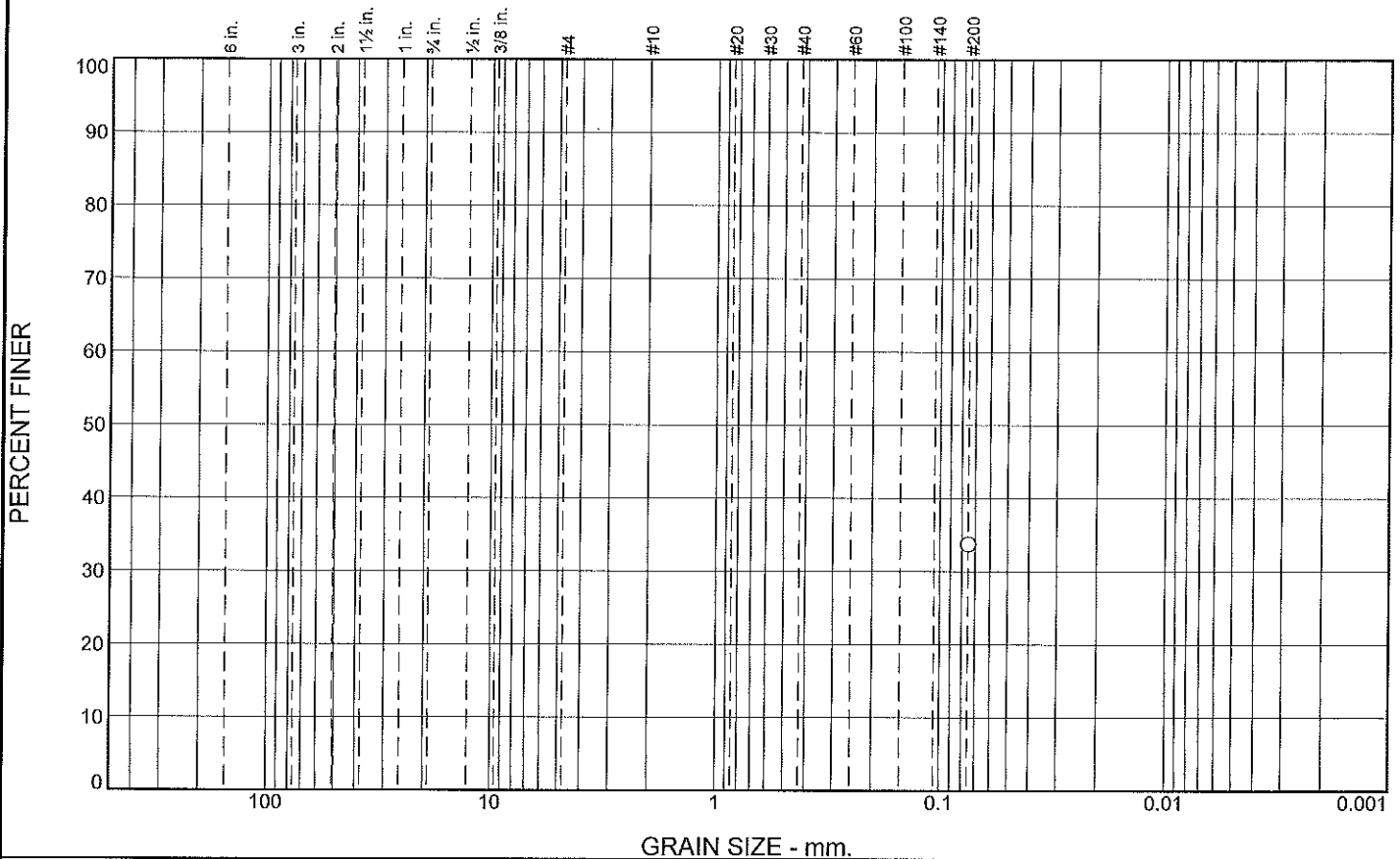
Total Wet Wt + Tare	208.4	grams
Total Oven Dried Wt + Tare	188.5	grams
Wt of Tare	87.3	grams
Moisture Loss	19.9	grams
Moisture Content	19.7	%
Initial Oven Dried Wt	101.2	grams

Burn attempt	Sample wt + tare (g)	Sample weight (g)	Ash (g)
1	188.5	101.2	0.0
2	182.2	94.9	6.3
3	182.0	94.7	6.5
4	181.6	94.3	6.9
5	181.0	93.7	7.5
6	180.5	93.2	8.0
7	180.1	92.8	8.4
8	180.0	92.7	8.5
9			
10			
11			
12			

Ash = initial sample wt - sample wt after final burn attempt

Ash Content, % = $(\text{Ash} \times 100)/B = 7.4\%$

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						33.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	33.8		

* (no specification provided)

Soil Description
B-1 S-2 5-6.5'

Atterberg Limits
PL= LL= PI=

Coefficients
D₉₀= D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification
USCS= AASHTO=

Remarks
Station 21 Madison

Location: B-1 S-2
Sample Number: 7802-1

Depth: 5-6.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
Project: Bainbridge Island Fire Station 21 and 22
Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-1 S-2

Depth: 5-6.5'

Sample Number: 7802-1

Material Description: B-1 S-2 5-6.5'

Date: 08/12/2015

Testing Remarks: Station 21 Madison

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 767.30
Tare Wt. = 214.30
Minus #200 from wash = 33.8%

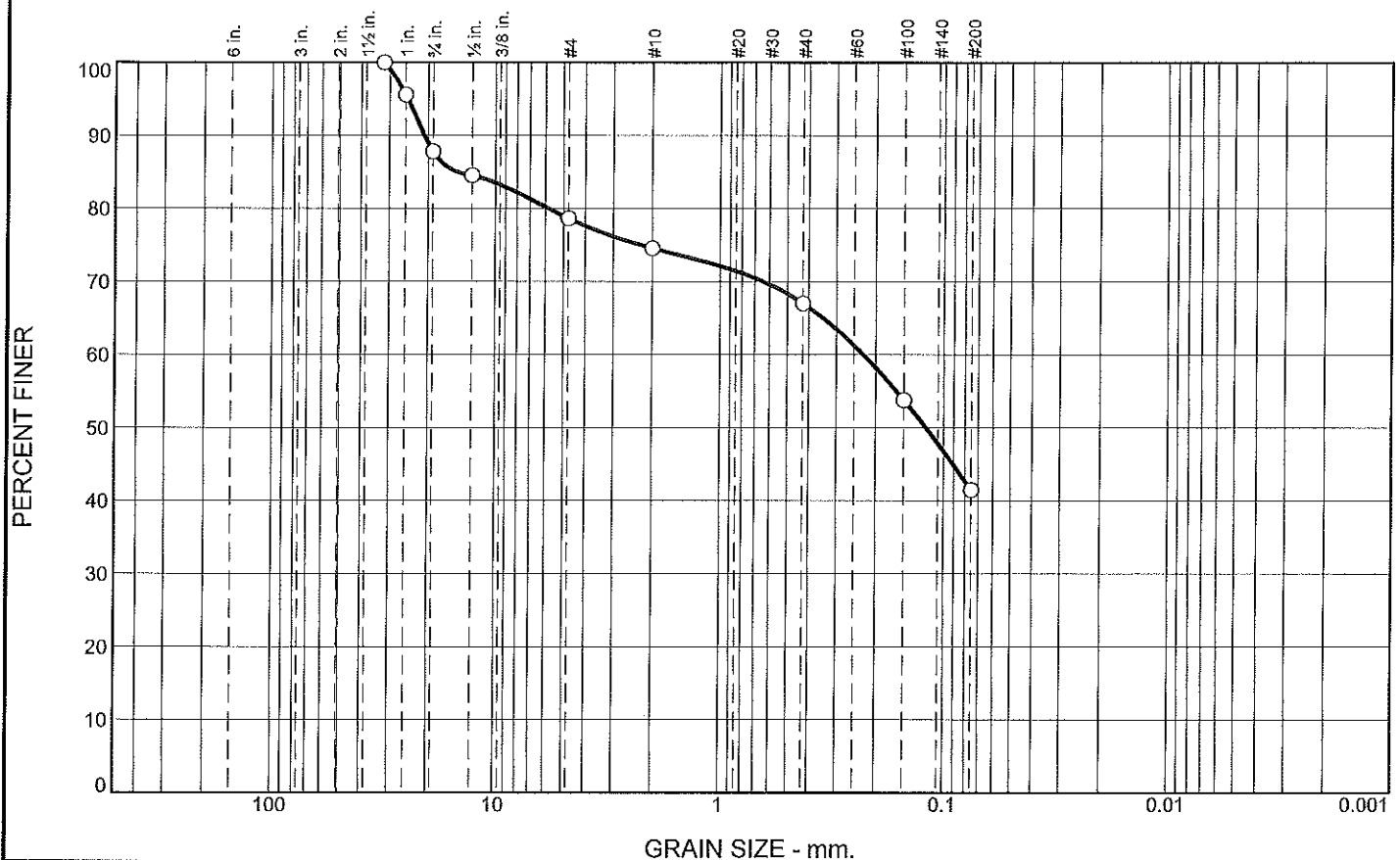
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
1049.10	214.30	#200			33.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										33.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.2	9.2	4.0	7.6	25.5	41.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/4"	100.0		
1"	95.6		
3/4"	87.8		
1/2"	84.5		
#4	78.6		
#10	74.6		
#40	67.0		
#100	53.8		
#200	41.5		

* (no specification provided)

<u>Soil Description</u>		
Silty Sand with Gravel		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D ₉₀ = 20.8491	D ₈₅ = 14.8736	D ₆₀ = 0.2275
D ₅₀ = 0.1201	D ₃₀ =	D ₁₅ =
D ₁₀ =	C _u =	C _c =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
Station 21 Madison B-1 S-4 10-11.5'		

Location: B-1 S-4
Sample Number: 7802-3

Depth: 10-11.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-1 S-4

Depth: 10-11.5'

Sample Number: 7802-3

Material Description: Silty Sand with Gravel

Date: 08/12/2015

USCS Classification: SM

Testing Remarks: Station 21 Madison

B-1 S-4 10-11.5'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 507.50

Tare Wt. = 110.20

Minus #200 from wash = 38.1%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
751.90	110.20	1-1/4"	0.00	0.00	100.0
		1"	28.40	0.00	95.6
		3/4"	50.00	0.00	87.8
		1/2"	21.00	0.00	84.5
		#4	37.80	0.00	78.6
		#10	26.10	0.00	74.6
		#40	48.40	0.00	67.0
		#100	85.00	0.00	53.8
		#200	79.00	0.00	41.5

Fractional Components

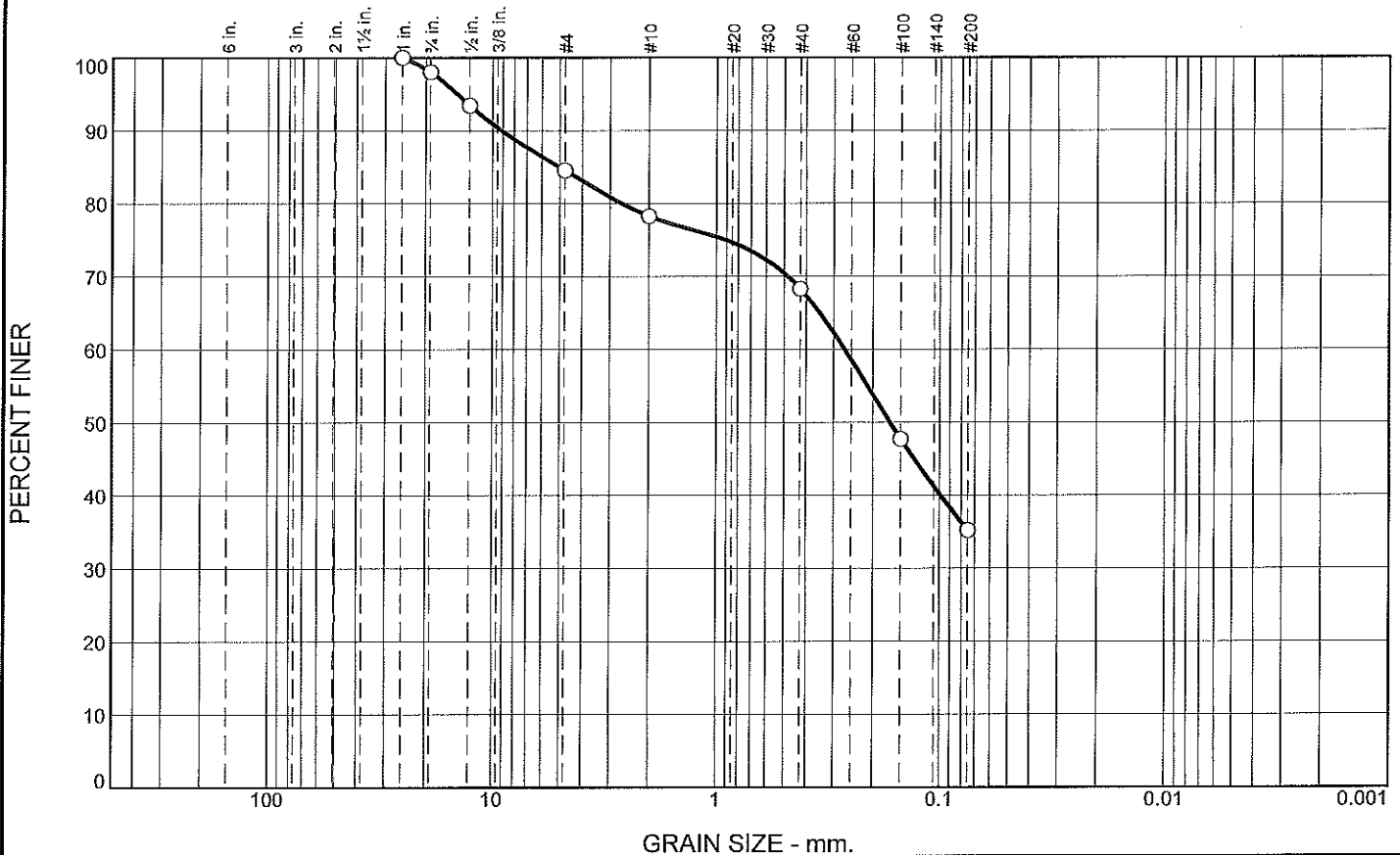
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	12.2	9.2	21.4	4.0	7.6	25.5	37.1			41.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1201	0.2275	5.8333	14.8736	20.8491	24.8418

Fineness Modulus

2.16

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.0	13.5	6.3	9.9	33.1	35.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	98.0		
1/2"	93.4		
#4	84.5		
#10	78.2		
#40	68.3		
#100	47.7		
#200	35.2		

* (no specification provided)

Soil Description
Silty Sand with Gravel

Atterberg Limits
PL= LL= PI=

Coefficients
D₉₀= 9.1397 D₈₅= 5.0430 D₆₀= 0.2684
D₅₀= 0.1677 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification
USCS= SM AASHTO=

Remarks
Station 21 Madison
B-2 S-3 7.5'-9'

Location: B-2 S-3
Sample Number: 7802-7

Depth: 7.5-9'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-2 S-3

Depth: 7.5-9'

Sample Number: 7802-7

Material Description: Silty Sand with Gravel

Date: 08/12/2015

USCS Classification: SM

Testing Remarks: Station 21 Madison

B-2 S-3 7.5'-9'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 444.90

Tare Wt. = 121.20

Minus #200 from wash = 31.4%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
592.80	121.20	1"	0.00	0.00	100.0
		3/4"	9.40	0.00	98.0
		1/2"	21.60	0.00	93.4
		#4	42.00	0.00	84.5
		#10	29.60	0.00	78.2
		#40	46.90	0.00	68.3
		#100	97.10	0.00	47.7
		#200	59.00	0.00	35.2

Fractional Components

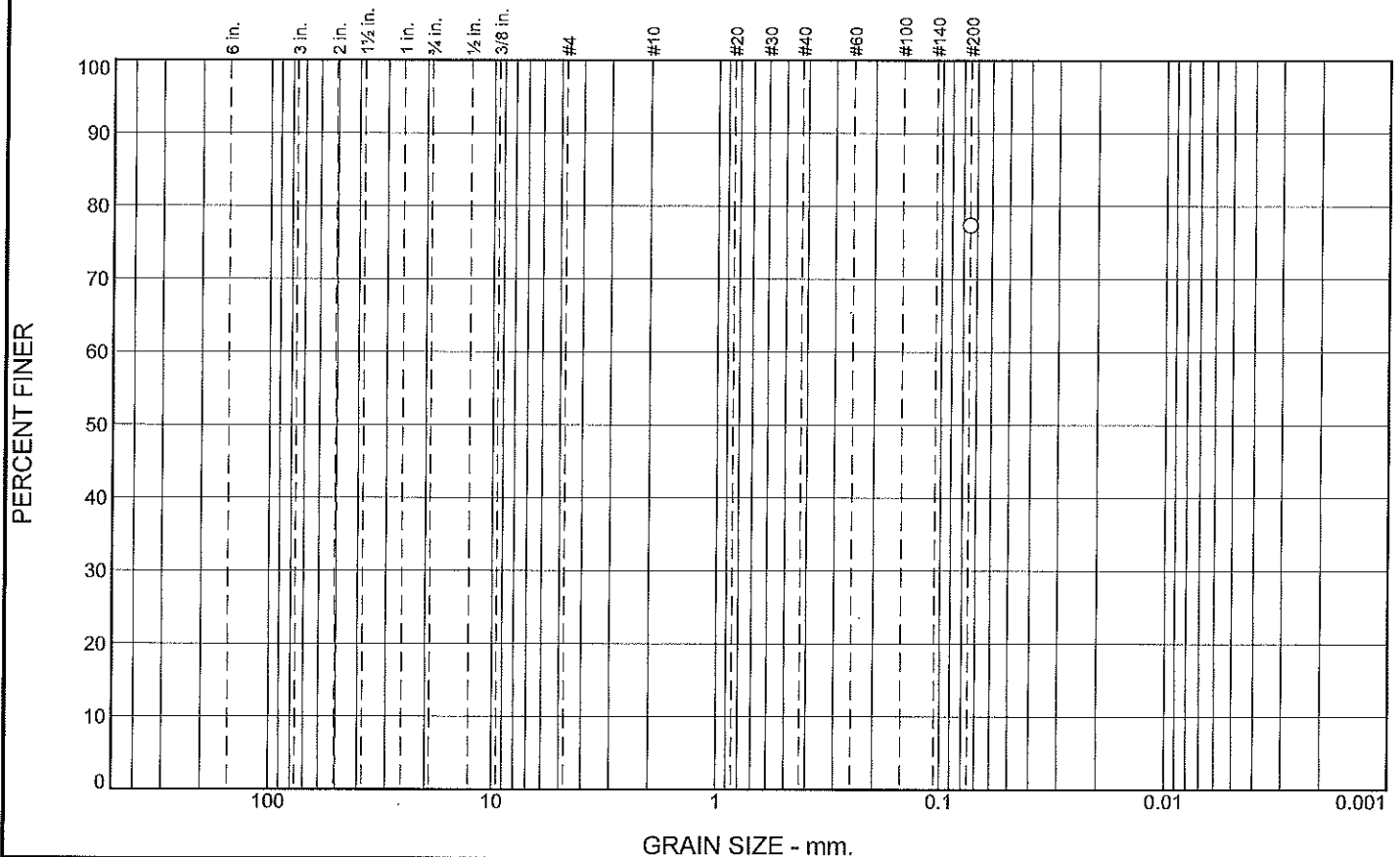
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.0	13.5	15.5	6.3	9.9	33.1	49.3			35.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1677	0.2684	2.6570	5.0430	9.1397	14.4872

Fineness Modulus

1.90

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						77.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	77.4		

* (no specification provided)

Soil Description
B-3 S-2 5-6.5'

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= D₈₅= D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= AASHTO=

Remarks
 Station 21 Madison
 B-3 S-2 5-6.5'

Location: B-3 S-2
 Sample Number: 7802-11 Depth: 5-6.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC
 Redmond, WA

Client: Aspect Consulting LLC
 Project: Bainbridge Island Fire Station 21 and 22
 Project No: 150136/08-175

Figure

Tested By: B.H Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-3 S-2

Depth: 5-6.5'

Sample Number: 7802-11

Material Description: B-3 S-2 5-6.5'

Date: 08/12/2015

Testing Remarks: Station 21 Madison

B-3 S-2 5-6.5'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 293.80
Tare Wt. = 116.80
Minus #200 from wash = 77.4%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
899.60	116.80	#200			77.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										77.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

APPENDIX C

Infiltration Testing Results

C.1 Pilot Infiltration Tests (PITs)

Two small-scale PITs were completed at the Site in the locations shown on Figure 2. The PITs were completed in general accordance with the small-scale pilot infiltration test (PIT) methods described in the *2014 Stormwater Management Manual for Western Washington* with minor modifications to facilitate more expedited testing and to provide more reliable estimates of infiltration rate.

The PITs were excavated to the approximate proposed receptor depth for the infiltration facilities being considered, filled with water from the on-Site facilities, soaked/saturated for several hours, and then falling-head tests were performed.

Excavation for the small-scale PITs was completed with a Case 580 backhoe and water for the testing was supplied by the Fire Department on-Site facilities. The excavations were completed in PIT-1 and PIT-2 at depths ranging from 4.5 to 6 feet bgs and samples were obtained at the receptor depths. The receptor soils in the bottom of PIT-1 consisted of moist, slightly gravelly, silty SAND (SM). The receptor soils in the bottom of PIT-2 consisted of moist, sandy SILT (ML). The excavations were typically 5 feet square in dimension. The excavations were filled with at least one foot of water and soaked for several hours and then inflow was stopped to allow for falling-head testing. The water level (stage) within the pits was monitored and recorded with a manual staff gauge as well as a submergible pressure transducer (diver) setup to take readings every minute during the testing. Upon completion of the falling-head testing, the pits were excavated an additional 3 to 4 feet in depth to further characterize the soil conditions below the receptor depth.

Logs of the test pits are shown in Appendix A. Plots of the infiltration test data are shown in Appendix C.

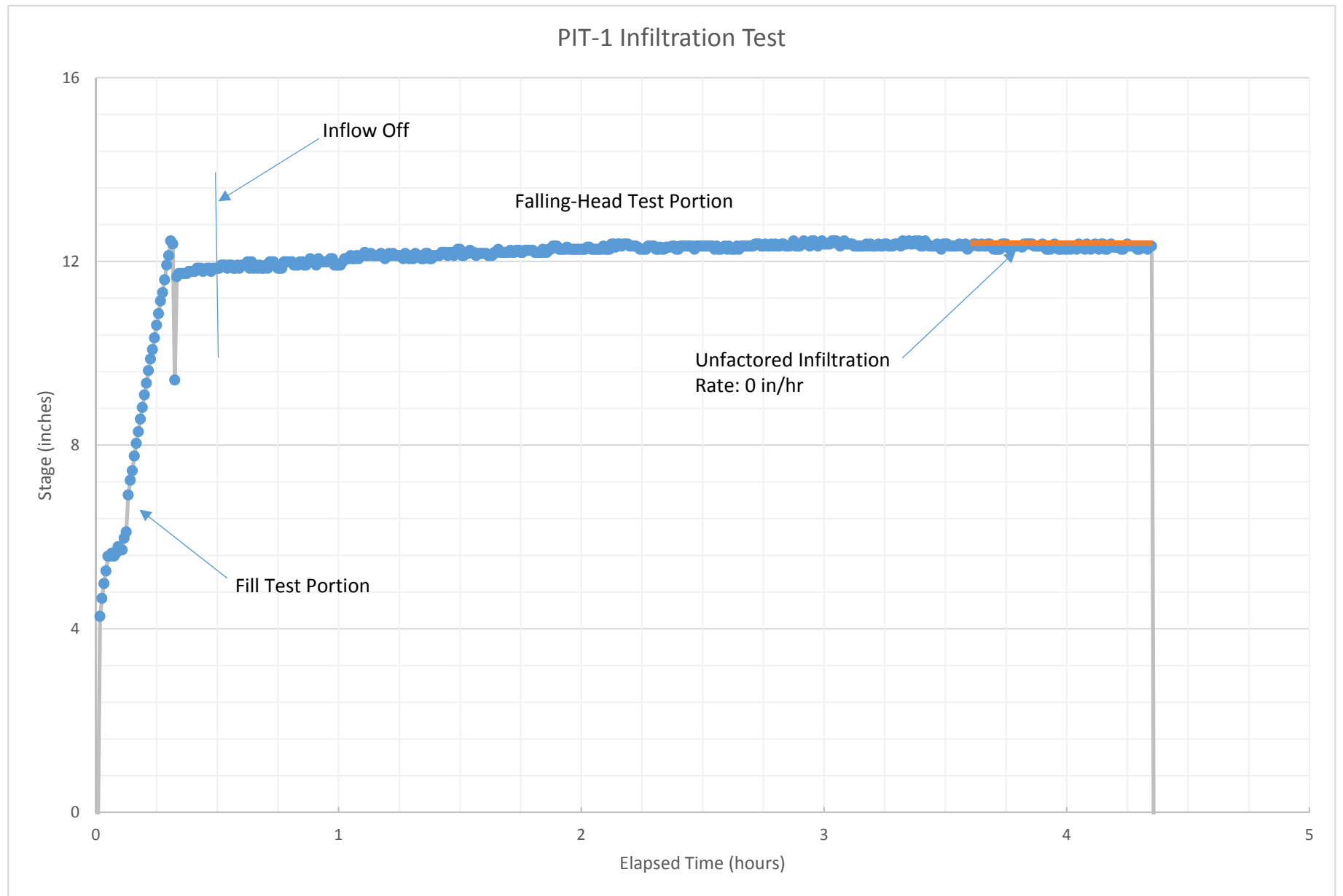


Figure C-1
PIT-1 Infiltration Test Data
BIFD Station 21
150136-01

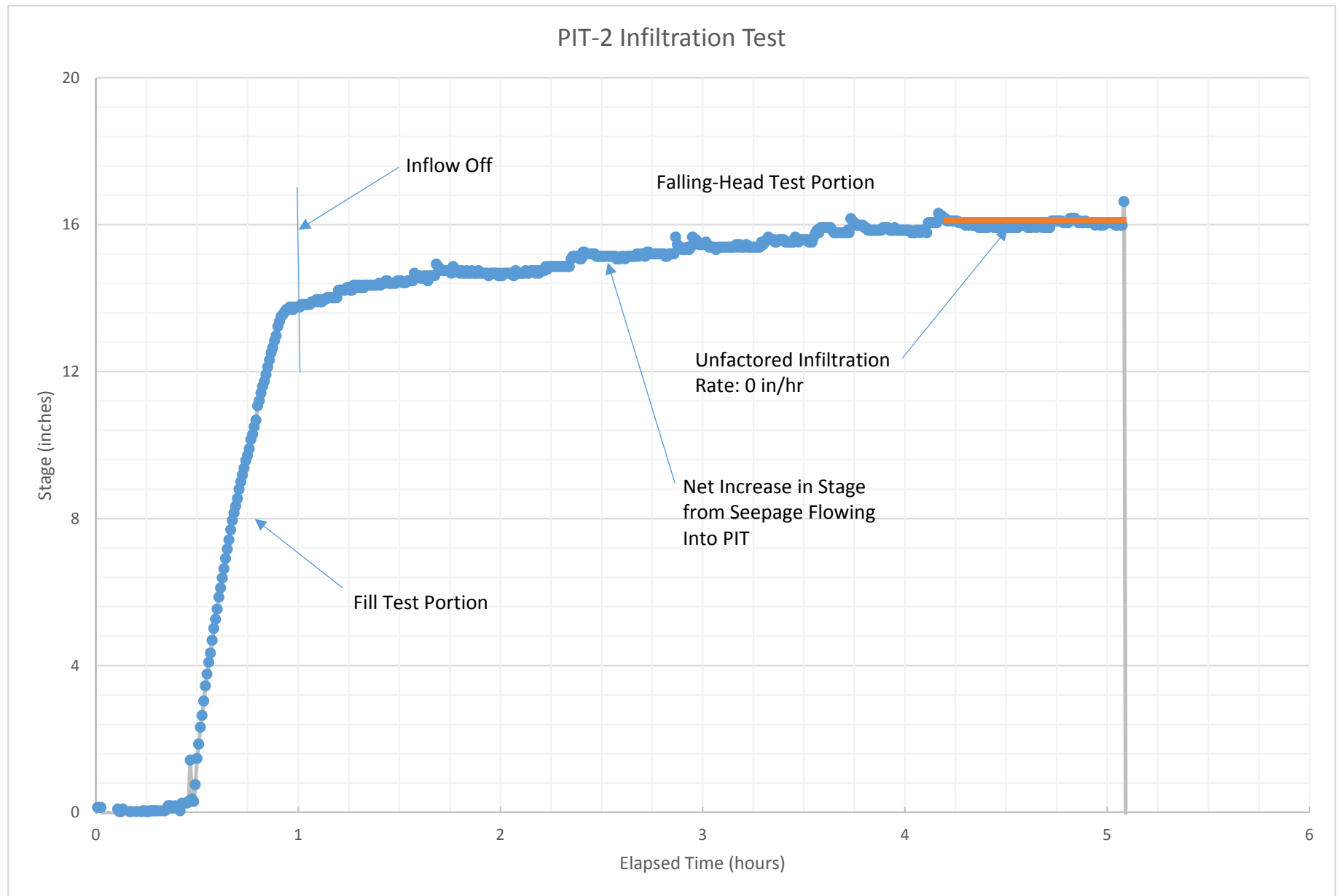


Figure C-2
PIT-2 Infiltration Test Data
BIFD Station 21
150136-01

MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED

SITE PLAN AND DESIGN REVIEW NARRATIVE

To

City of Bainbridge Island,
Washington

For

Bainbridge Island Fire
Department Station 22

Date

January 13, 2016

Project Number

2150124.00



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	Existing Site & Surrounding Land Use	2
	Description of Proposed Development	2
	Aerial Image – Project Site	3
III.	NARRATIVE & COMPLIANCE	4
IV.	CONCLUSION	5

EXHIBITS

- A. SEPA Checklist
- B. Geotechnical Report
- C. Design Guidelines Checklist
- D. Civil Engineering Plans
- E. Architectural Plans
- F. Landscape Plans
- G. Photometric Plan
- H. Materials Board

I. PROJECT SUMMARY

Applicant:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Owner:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Site Address:	7934 Bucklin Hill Road NE Bainbridge Island, WA 98110
Assessor Site Acreage:	3.05 acres
Zoning:	1 Unit per Acre Zone (40,000 square feet; R-1) Critical Overlay District
Comprehensive Plan:	1 Unit per Acre Zone (40,000 square feet; OSR-1)
Adjacent Zoning:	R-1 to the north, east, and west, and 1 Unit per Acre Zone (100,000 square feet; R-0.4) to the south
Existing Structures:	Fire station, shop addition, shipping container, concrete and gravel pads, and other site improvements
Request:	Site Plan and Design Review Approval
Project Contact:	Mackenzie, Applicant's Representative Michael Chen, Senior Planner Logan Building 500 Union Street, Suite 545 Seattle, WA 98101 (206) 749-9993, Extension 513 MChen@mcknze.com

II. INTRODUCTION

Description of Request

The applicant, Bainbridge Island Fire Department (BIFD), seeks approval of site plan and design review for the proposed redevelopment of the existing fire station, Station 22, at 7934 Bucklin Hill Road NE in Bainbridge Island, Washington.

As articulated in the City of Bainbridge Island Comprehensive Plan, one of the City's primary goals is to "[p]rovide adequate public facilities [...] which maximize public safety and minimize adverse environmental impacts." In a Strategic Plan Update, the BIFD identified critical needs at Station 22 and recommended a formal needs assessment, which the applicant's representative, Mackenzie, was involved in producing. The proposed redevelopment of Station 22 will ensure not only that the buildings meet the BIFD's operational needs, but also that the redeveloped fire station will serve the needs of the Bainbridge Island community for decades to come.

Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 22.

Existing Site & Surrounding Land Use

The subject site is located north of Bucklin Hill Road NE, northwest of the intersection with Blakely Avenue NE in Bainbridge Island. The site comprises one tax lot, 4178-000-012-0004.

There are approximately three existing buildings on the site, including a fire station, a shop addition, and a shipping container; there are a couple of concrete and gravel parking and pad areas on the site, as well as landscaping and vehicle circulation areas.

The site and the tax lots to the north, east, and west are zoned 1 Unit per Acre Zone (40,000 square feet; R-1), and the tax lots to the south are zoned 1 Unit per Acre Zone (100,000 square feet; R-0.4). The site comprises approximately 3.05 acres. The site is currently in use by BIFD as the existing Station 22.

According to information provided by the City of Bainbridge Island, there is an existing Conditional Use Permit on the site that would have been recorded with Kitsap County.

Description of Proposed Development

The land is proposed for redevelopment under the same use as a fire station. Pending the required approvals, construction is expected to start in the fall of 2016 and to be complete in 2018. The subject property is and will continue to be owned by the BIFD. No permanent dwelling units or commercial buildings will be provided within the development either during or after construction.

Aerial Image – Project Site



III. NARRATIVE & COMPLIANCE

The land is proposed for redevelopment under the same use as a fire station. The site is currently served by Bucklin Hill Road NE to the south. The existing size of Bucklin Hill Road NE meets the required right-of-way width of 60 feet. No public street improvements or road construction are proposed for this development. The existing driveway will be relocated slightly to the west as an approximately 24-foot-wide driveway for both passenger vehicles and emergency access, and a seven-foot sidewalk will be constructed to connect the driveway to the parking area to the north and to the main building entrance to the north of the parking area.

The site is currently served by public water utility infrastructure provided by the City of Bainbridge Island that is available and adequate to meet the needs of the proposed development; therefore, no new water system extensions are proposed. The site is also currently served by a private on-site septic system which is proposed to be redesigned in order to accommodate the larger redeveloped fire station.

Internal sidewalks ranging in width from five to seven feet are proposed with the development. These sidewalks will be constructed with the redevelopment of the existing fire station and with the associated site improvements. No off-site improvements are proposed. Pending the required approvals, construction is expected to start in the fall of 2016 and to be complete in 2018.

IV. CONCLUSION

The applicant submits this narrative and the attached Exhibits in seeking approval of site plan and design review for the proposed redevelopment of the existing fire station located at 7934 Bucklin Hill Road NE. This application demonstrates that the proposal is in compliance with the relevant standards provided by the City of Bainbridge Island.

CITY OF BAINBRIDGE ISLAND

ENVIRONMENTAL (SEPA) CHECKLIST - *UPDATED 2014*
FORM MUST BE COMPLETED IN INK, PREFERABLY BLUE
PENCIL WILL NOT BE ACCEPTED

**PLEASE READ THE FOLLOWING CAREFULLY BEFORE FILLING OUT THE CHECKLIST****Purpose of checklist:**

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

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A. Background

1. Name of proposed project, if applicable:

Bainbridge Island Fire Department Station 22

2. Name of applicant:

Bainbridge Island Fire Department

3. Address and phone number of applicant and contact person:

Applicant:

*Bainbridge Island Fire
Department*

8895 Madison Avenue N

Bainbridge Island, WA

98110

(206) 842-7686

Contact Person:

*Mackenzie, Applicant's
Representative*

Michael Chen, Senior

Planner

Logan Building

500 Union Street

Suite 545

Seattle, WA 98101

(206) 749-9993,

Extension 513

MChen@mcknze.com

4. Date checklist prepared:

January 13, 2016

5. Agency requesting checklist:

City of Bainbridge Island Planning & Community Development

6. Proposed timing or schedule (including phasing, if applicable):

*Pending the required approvals, construction on the proposal is expected to start
in the fall of 2016 and to be complete in 2018.*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

*No plans for future additions, expansion, or further activity are associated with
this proposal.*

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8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

A draft geotechnical report dated January 6, 2015 has been prepared for this proposal, and an NPDES permit will be obtained prior to commencing construction on the proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No known applications for governmental approvals of other proposals directly affecting the property covered by this proposal are known at the time of this application.

10. List any government approvals or permits that will be needed for your proposal, if known.

The applicant seeks approval of the following approvals and permits:

- *Conditional Use Permit*
- *Site Plan and Design Review Board Approval*
- *NPDES Permit*
- *Building Permit*

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposal includes redevelopment of an existing fire station as a single-story (with mezzanine), approximately 16,808-square foot building with living quarters, meeting spaces, offices, storage areas, and an apparatus bay, with associated site improvements. The existing flagpoles on the site will be relocated.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

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The proposal is located at 7934 Bucklin Hill Road NE in Bainbridge Island. The site comprises one tax lot, 4178-000-012-0004. The site is located in Section 28, Township 25N, and Range 2E.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site
(circle one): Flat, rolling, hilly, steep slopes, mountainous,

other _____

b. What is the steepest slope on the site (approximate percent slope)?
The steepest slope on the site is approximately 15 percent (located in the northwest corner of the site), with the majority of the site at relatively flat grades. The proposed grading includes slopes of no greater than four percent (with the exception of the slopes surrounding stormwater facilities).

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.
According to the USDA Web Soil Survey, the site is constituted of Ragner fine sandy loam, 0–6% slopes. Additional geotechnical information on the site is available from Aspect Consulting; soil types found on the site include sand and silt.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
There are no known surface indications or history of unstable soils in the immediate vicinity of the site.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.
The purpose of the proposed cut and fill is to provide a site that is as balanced as possible while maintaining the appropriate slopes where relevant. Approximately 92,300 square feet (2.12 acres) of the site will be affected by grading, which will include both cut and fill.

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f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur; however, the possibility of erosion will be minimized by implementing Best Management Practices (BMPs) as described in Section B. 1. h. of this application. The project will comply with City of Bainbridge Island erosion control requirements and requirements of the NPDES Construction Stormwater permit to be obtained.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 43.8% of the site will be covered with impervious surfaces after project construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The project team will develop erosion control plans, which will be reviewed by the City of Bainbridge Island through the site plan review process. Prior to beginning any earth-disturbing activities, the applicant will obtain a NPDES Construction Stormwater permit.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Some air emissions will result from the use of equipment during construction, and some air emissions from the fire station use, passenger and delivery vehicles, and the fire apparatus will result from the completed project.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The proposal is located in the immediate vicinity of residential properties, Hyla Middle School, and an undeveloped site, which could be off-site sources of emissions and/or odor related to the respective land uses as well as to passenger and delivery vehicles.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

An erosion control plan will be prepared for the project and reviewed by the City of Bainbridge Island; in order to comply with the conditions of approval from this review, the project will employ standard techniques to minimize dust generation

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during construction. Emissions from passenger and delivery vehicles related to the warehouse use are regulated under U.S. EPA and Washington Department of Licensing emission standards (Clean Car Law, RCW 46.16A.060).

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is no known surface water body on or in the immediate vicinity of the site (Puget Sound is located approximately 1,500 feet to the east).

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

There is no known surface water body on or in the immediate vicinity of the site; thus, the project will not require any work over, in, or adjacent to any waters.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material will be placed in or removed from surface water or wetlands for this proposal; thus, no source of fill or dredge material is indicated.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals are anticipated to be required for the proposal. Stormwater will be treated on-site and then discharged into existing stormwater lines that connect into the existing stormwater system.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposal is not known to lie within a 100-year floodplain.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not involve any discharges of waste materials to surface waters.

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b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No groundwater will be withdrawn from a well for drinking water or other purposes related to this proposal.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground from septic tanks or other sources for this proposal.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff will primarily be from pavements and roof areas. Pavement areas will sheet flow to catchbasins and will then be conveyed to stormwater facilities. Stormwater from roof areas will be collected in downspouts and may be infiltrated on-site.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials could possibly enter ground or surface waters by being spilled from vehicles on-site, though such spills are unexpected.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposal does not alter or otherwise affect drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

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The project team will prepare a stormwater control plan that will comply with City of Bainbridge Island requirements; this plan will be reviewed by the City of Bainbridge Island.

4. Plants

a. Check the types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ orchards, vineyards or other permanent crops
- ☐ wet soil plants: cattail, buttercup, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Approximately 25 trees will be removed for the proposal.

c. List threatened and endangered species known to be on or near the site.

No threatened or endangered species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Landscaping is proposed to cover 56.2% of the site. Entry gardens are proposed to the west of the main entry on the south side of the building, and a staff patio is proposed on the west side of the building. The existing forest buffer on the northern side of the site will be preserved, and a meadow will be maintained to the south of the forest buffer, north of the internal circulation area on the north side of the proposed building. A full screen buffer will be provided on the eastern side of the site, with partial screen buffers provided on the southern and western sides of the site. Interior parking areas will also be landscaped. The landscaping is designed by a licensed landscape architect to comply with the City of Bainbridge Island requirements, and landscape plans will be reviewed by the City of Bainbridge Island.

e. List all noxious weeds and invasive species known to be on or near the site.

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No noxious weeds or invasive species are known to be on or near the site.

5. Animals

- a. List any birds and other animals which have been observed, or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

- b. List any threatened and endangered species known to be on or near the site.
No threatened or endangered species are known to be on or near the site.

- c. Is the site part of a migration route? If so, explain.
The entire Puget Sound region is located within the Pacific Flyway for migratory birds.

- d. Proposed measures to preserve or enhance wildlife, if any:
The proposed landscaping will include species native to the Pacific Northwest.

- e. List any invasive animal species known to be on or near the site.
No invasive animal species is known to be on or near the site.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric and natural gas energy will be used to meet the completed project's energy needs.

- b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.
The project is not expected to affect the potential use of solar energy by adjacent properties.

- c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any:

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This proposal will comply with the current adopted building and energy codes and standards, and the plans prepared for the proposal will be reviewed by the City of Bainbridge Island.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

No environmental health hazards are expected to occur as a result of this proposal.

- 1) Describe any known or possible contamination at the site from present or past uses.

There is no known contamination at the site from present or past uses, and no contamination is anticipated from this proposal.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are no known existing hazardous chemicals or conditions that might affect development and design of the proposed project.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

For the completed project, there will be a fueling facility, an emergency generator with a fuel tank, and propane; and there will be washing chemicals, lube oil, and other chemicals for vehicle maintenance on the site.

- 4) Describe special emergency services that might be required.

The proposal is not anticipated to require any special emergency services. The proposal is for redevelopment of a fire station, which provides an emergency service to the community.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are anticipated from this proposal.

b. Noise

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- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise exists in the area from the existing fire apparatus use and from the traffic on Bucklin Hill Road NE, but the noise is not anticipated to affect this proposal.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise will be created by or associated with the project construction, and long-term noise will be created by or associated with the fire apparatus use, with traffic to and from the completed project, and with operations on the site. Consistent with City of Bainbridge Island regulations, construction will occur between the hours of 7:00 a.m. and 7:00 p.m. on weekdays that do not constitute legal holidays and between 9:00 a.m. and 6:00 p.m. on Saturdays that do not constitute legal holidays. Operations at the completed project will occur 24 hours per day, seven days per week.

- 3) Proposed measures to reduce or control noise impacts, if any:

Any noise related to the fire station use that can be defined as “[s]ounds created by emergency equipment and work necessary [...] for healthy safety or welfare of the community” are exempt from all provisions of the Washington Administrative Code adopted by the City of Bainbridge Island governing maximum environmental noise levels (See Bainbridge Island Municipal Code Section 16.16.020. and WAC Section 173-60-050 [4] [f].).

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current use of the site is as a fire station, which is the same as the proposed use. There are residential properties to the north, Hyla Middle School to the south, residential properties to the east, and an undeveloped area to the west of the site. The fire station use has been compatible with the current land uses on nearby or adjacent properties, and the compatibility of the fire station use with the nearby or adjacent uses will be preserved through this proposal.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

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To the best of knowledge, the project site has not been used as working farmlands or forest lands in the recent past. No agricultural or forest land of long-term commercial significance will be converted to other uses as a result of this proposal, and no acres in farmland or forest land tax status will be converted to nonfarm or nonforest use as a result of this proposal.

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

There are no known surrounding working farm or forest land normal business operations nearby or adjacent to the project site; therefore, no affects are anticipated with this proposal.

- c. Describe any structures on the site.

There are approximately three existing buildings on the site, including a fire station, a shop addition, and a shipping container; there are a couple of concrete and gravel parking and pad areas on the site, as well as landscaping and vehicle circulation areas.

- d. Will any structures be demolished? If so, what?

All existing buildings and vehicle circulation areas will be demolished, and the buildings and vehicle circulation areas will be redeveloped.

- e. What is the current zoning classification of the site?

The current zoning classification of the site is 1 Unit per Acre Zone (40,000 square feet; R-1).

- f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation of the site is 1 Unit per Acre Zone (40,000 square feet; OSR-1).

- g. If applicable, what is the current shoreline master program designation of the site?

The site is not within shoreline jurisdiction.

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No part of the site has been classified as a critical area by the City of Bainbridge Island or by Kitsap County.

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- i. Approximately how many people would reside or work in the completed project?

Approximately three employees will work in the completed project, and approximately two of these employees will reside in the living quarters to be provided with the project during on-duty shifts.

- j. Approximately how many people would the completed project displace?

The completed project will not displace any people.

- k. Proposed measures to avoid or reduce displacement impacts, if any:

The completed project will not displace any people; therefore, no measures to avoid or reduce displacement impacts are necessary.

- l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposal is for redevelopment of an existing use that has been previously approved by Kitsap County. The proposed use is conditionally allowed in the zone, and the applicant seeks approval of a Conditional Use Permit through compliance with the relevant standards and requirements.

- m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no known agricultural or forest lands of long-term commercial significance near the project site, so no measures to ensure compatibility are necessary.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be provided with this proposal; living quarters to be used periodically by employees are proposed.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated with this proposal.

- c. Proposed measures to reduce or control housing impacts, if any:

No housing will be provided or eliminated with this proposal, so no measures to reduce or control housing impacts are necessary.

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10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the proposed fire station building is approximately 26.5 feet at the maximum roofline. The proposed principal exterior building materials are metal panels, fiber cement boards, and board-formed concrete.

- b. What views in the immediate vicinity would be altered or obstructed?

No views in the immediate vicinity of this proposal are anticipated to be altered or obstructed.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

The proposed building is designed for compatibility with contemporary architecture characteristic of the Pacific Northwest in general and the Bainbridge Island community specifically.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The proposal includes exterior building lights which will be present during hours of darkness for the purposes of public safety and security. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

The exterior building lights for this proposal are intended to enhance the safety and security of the site, and these lights will not interfere with views. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

- c. What existing off-site sources of light or glare may affect your proposal?

No existing off-site sources of light or glare are expected to affect this proposal.

- d. Proposed measures to reduce or control light and glare impacts, if any:

A lighting plan for the project will be reviewed by the City of Bainbridge Island. Lights will be shielded in order to prevent impacts on adjacent properties.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

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The site is within one mile of Eagle Harbor, Gazzam Lake Preserve, Rotary Park, and Strawberry Hill Park.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No recreational uses currently exist on the subject site, so the proposed project would not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No impacts on recreation are anticipated to result from the project, and the applicant is not providing any public recreation opportunities.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

No known buildings, structures, or sites located on or near the site that are over 45 years old are listed in or eligible for listing in national, state, or local preservation registers.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No landmarks, features, or other evidence of Indian or historic use or occupation or material evidence, artifacts, or areas of cultural importance are known to exist on or near the site. If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The site is currently in use as a fire station, and no cultural or historic resources are known to exist on the site; thus, no potential impacts to cultural or historic resources on the site are anticipated, and no methods to assess the potential impacts to cultural or historic resources on the site have been used. If any

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previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site is served by Bucklin Hill Road NE to the south, which is functionally classified as a secondary arterial street according to the draft update of the City's Island Wide Transportation Plan (IWTP). The existing driveway will be relocated slightly to the west as an approximately 24-foot-wide driveway for both passenger vehicles and emergency access.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site is currently served by public transit: there are two existing transit stops within one quarter-mile of the site, one near the frontage of the Hyla Middle School property on Bucklin Hill Road NE and one near the intersection of Bucklin Hill Road NE at Blakely Avenue NE.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The completed project will provide 30 parking spaces, eliminating none.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The proposal will not require any new or improved transportation facilities. Internal circulation will be provided for pedestrians and bicycles, in addition to passenger and emergency vehicles.

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- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will not use or occur in the immediate vicinity of water, rail, or air transportation.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Station 22 – 16,808 ksf x 3.49 daily trips/ksf = 59 daily trips

~10% peak hour = 6 peak hour trips

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no known movements of agricultural or forest products on roads or streets in the area, so the proposal will not interfere with, affect, or be affected by the movement of such products on roads or streets in the area.

- h. Proposed measures to reduce or control transportation impacts, if any:

None proposed at this time.

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The project is a redevelopment of an existing use, so the project will not result in a significantly increased need for public services. As a redeveloped fire station, the project provides a public service to the community.

- b. Proposed measures to reduce or control direct impacts on public services, if any.

The proposed redevelopment of the fire station is a response to an identified need to enhance public services in the community of Bainbridge Island.

16. Utilities

- a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

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- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The site is currently served by utility infrastructure that is adequate to meet the needs of the proposed development; therefore, no new utilities or utility connections are proposed. There is an existing utility pole in the center of the site that is proposed to be retained at the current location. Water service is provided by the City of Bainbridge Island. There is an existing private on-site septic system which is proposed to be redesigned in order to accommodate the larger redeveloped fire station.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

Name of signee Michael Chen

Position and Agency/Organization Senior Planner, Mackenzie

Date Submitted: 1/13/2016

CHECKLIST REVIEWED BY:

Project Manager, Department of Planning and Community Development

GEOTECHNICAL ENGINEERING REPORT FIRE STATION 22

7934 Bucklin Hill Road
Bainbridge Island, Washington

Prepared for: Bainbridge Island Fire Department

Project No. 150136-02 • January 6, 2015 DRAFT

GEOTECHNICAL ENGINEERING REPORT FIRE STATION 22

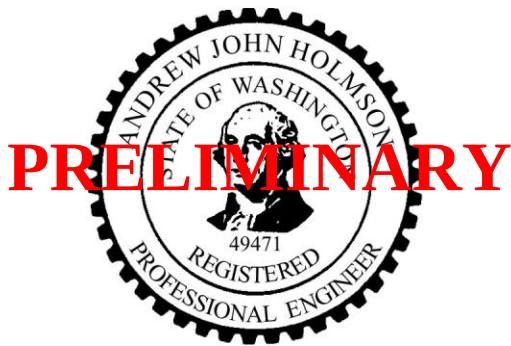
7934 Bucklin Hill Road

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Aspect Consulting, LLC



PRELIMINARY

Andrew J. Holmson, PE
Senior Project Geotechnical Engineer
aholmson@aspectconsulting.com

Erik O. Andersen, PE
Senior Associate Geotechnical Engineer
eandersen@aspectconsulting.com

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1 Introduction

This report presents the results of a geotechnical engineering study performed by Aspect Consulting, LLC (Aspect) for the Fire Station 22 Replacement Project (Project) located at 7934 Bucklin Hill Road, Bainbridge Island, Washington (Site).

The Project location is shown on Figure 1, *Site Location Map*. The purpose of the Project is to replace the existing fire station with a new, modern facility.

This report summarizes the results of the completed field explorations and presents Aspect's geotechnical engineering conclusions and recommendations.

1.1 Scope of Services and Authorization

Our scope of work included gathering and reviewing existing subsurface information near the Site; drilling and sampling exploratory borings; completing pilot infiltration testing; performing laboratory testing; completing engineering analyses to develop geotechnical conclusions and recommendations for design and construction of the Project; and preparing this report. Our work was completed in general accordance with our agreed-upon scope of work, authorized by Assistant Chief Luke Carpenter on June 19, 2015.

1.2 Project Description

The project is currently in the concept-level planning stage. Our Project understanding was developed through our review of concept drawings, discussions with Fire Department personnel, and discussions with the Project architect, Mackenzie Architects.

We understand the new fire station will include a north-to-south aligned multibay vehicle and equipment staging area, a two-story office, lobby, living space, and training area at the south end of the structure. The new fire station will be located centrally at the Site and shifted north of the existing fire station footprint. New public parking is planned in the southern portion of the Site, adjacent to Bucklin Hill Road.

We understand that new utility infrastructure will be required to support the replacement fire station and stormwater infiltration is proposed at the Site. Infiltration is planned through bioretention facilities located in the southeast corner of the Site and at the northern edge of the new fire station. Additionally, buried dispersion trenches are planned for the infiltration of roof stormwater along the east and west sides of the fire station. Significant cuts or fills are not anticipated for the Project.

We assume the new fire station will be designed using the standards and criteria set forth in the current version of the International Building Code (IBC; IBC 2012). The Project vertical datum is the City of Bainbridge Island Vertical Control Network and is the basis for all references to elevations contained herein.

2 Site Conditions

The Site is located on the interior of Bainbridge Island west of the intersection between Bucklin Hill Road and Blakely Avenue NE. The Site is bordered by the American Legion hall and undeveloped land to the west, by residential properties to the north and east, and by Bucklin Hill Road to the south.

The Site is rectangular shaped and oriented in a north-south direction, measuring approximately 210 feet wide (west-east) and 640 feet long (north-south). The Site currently contains the existing Fire Station 22 building, parking areas, and a water tower at the north end of the Site. The undeveloped land to the west of the Site was historically mined for sand and gravel. The parking area north of the existing station contains several circular areas that exhibit signs of settlement and depression. There are approximately one dozen of these areas and they range from 6 to 12 feet in diameter. Anecdotal evidence suggests these areas are buried piles of wood debris and stumps that were subsequently paved over to form the parking area.

The Site is gently sloping in the northern third to relatively flat over the southern two thirds with a high elevation of 168 in the northwest corner of the Site and a low elevation of 141 near the southern Site boundary. The layout and location of the existing Site features, topography, and the completed subsurface explorations are shown on Figure 2, *Site Exploration Plan*.

2.1 Subsurface Conditions

Subsurface conditions at the Site were inferred from the completed field explorations, review of applicable geologic literature, and our local geologic experience. More detailed descriptions of the field exploration, methodologies, and conditions encountered are presented in Appendix A.

2.1.1 Geology

The Project area is located in the Puget Lowland. The Puget Lowland is a complex area of tectonic subsidence flanked by two mountain ranges—the Cascades to the east, and the Olympics to the west. The sediments within the Puget Lowland result from repeated cycles of glacial and nonglacial deposition and erosion. During nonglacial cycles, the area was dominated by lowland forests and broad river valleys. During glacial cycles, ice sheets up to 3,000 feet thick occupied the Puget Lowland and surrounding areas, and carved out the deep marine waterways and river valleys, and sculpted the uplands. Deposits from these glacial and nonglacial cycles are present in the subsurface of the Project area.

The available geologic mapping (Haugerud, 2005) indicates that subsurface conditions at the Site generally consist of recent (Holocene) deposits, overlying glacial soils from the Fraser glaciation age.

2.1.2 Stratigraphy

We explored subsurface conditions with four borings (B-1 through B-4) and two test pits (PIT-1 and PIT-2) at the approximate locations shown on Figure 2. The subsurface soils, based on the completed subsurface explorations, can be grouped into four units consisting of fill, Vashon recessional outwash deposits, Vashon till, and Vashon advance outwash deposits. Details of the composition and distribution of these units are presented in more detail below.

Fill

At the ground surface, we encountered fill in each of the completed explorations. The fill varied in thickness from 1.5 to 13 feet and was present either at the ground surface or underlying a thin layer of topsoil. It generally consisted of loose to dense, slightly moist to very moist, brown to gray, very silty SAND (SM)¹, very sandy SILT (ML), or slightly gravelly to gravelly, well-graded SAND (SW), occasionally with trace silt. Well-graded sand lies below silty sand in borings B-1 and B-2, and at the surface below asphalt in B-3. The fill likely includes reworked native soils and imported soils associated with previous Site development activities.

The SPT² blow counts from the explorations in the fill ranged from 5 to 36 blows per foot, indicating highly variable relative density. The presence of fine-grained soil (soil particles passing the U.S. No. 200 sieve) makes the fill typically susceptible to disturbance during construction (it is moisture sensitive). Scattered fine organics were present in boring B-4 within the fill. Although not encountered directly in our explorations, we anticipate discrete and concentrated areas of the fill contain buried wood debris and stumps, typically within the parking area north of the existing station.

The majority of the fill can generally be expected to have low to moderate shear strength, moderate compressibility, and moderate to high permeability. In general, the fill increases in relative density with depth and becomes medium dense to dense within 5 to 7 feet bgs. The medium dense to dense fill is a recommended bearing stratum for new foundations, but the loose zones of fill should be removed or compacted in-place.

Vashon Recessional Outwash Deposits

Vashon recessional outwash deposits were encountered in PIT-1 underlying the fill at depths between 2.5 and 3.5 feet bgs. The recessional deposits consisted of medium dense, dry, light brown, SAND (SP) and silty SAND (SM). Based on encountering this soil unit in PIT-1, the northernmost exploration, we infer that recessional deposits are present near the ground surface over the northern third of the Site.

The recessional deposits can generally be expected to have moderate shear strength, moderate compressibility, and moderate to high permeability.

Vashon Till

Vashon till was encountered in PIT-1 underlying the recessional deposits between 3.5 and 4.25 feet bgs. The Vashon till consisted of dense to very dense, dry, light brown,

¹ Soil Classification per the Unified Soil Classification System (USCS). Refer to ASTM D-2488.

² SPT blow count refers to standard penetration test (SPT) N-values, in accordance with ASTM D-1586.

gravelly, very sandy SILT (ML). Based on encountering this soil unit in PIT-1, the northernmost exploration, we infer that Vashon till is present underlying a thin layer of recessional deposits near the ground surface over the northern third of the Site

The Vashon till can generally be expected to have high shear strength, low compressibility, and low permeability. The Vashon till is a recommended bearing stratum for new foundations. Infiltration facilities should penetrate through the Vashon till when encountered.

Vashon Advance Outwash

We encountered Vashon advance outwash (Qva), or Esperance Sand, underlying the Vashon till in PIT-1 and underlying the fill in PIT-2 and all four borings. Borings B-1 and B-2 were terminated in the Qva at a depth of 36.5 feet bgs and borings B-3 and B-4 were terminated in the Qva at a depth of 41.5. The Qva in borings B-1, B-2, and B-4 consisted of medium dense to very dense, slightly moist to very moist, brown and gray, SAND (SW), or slightly silty SAND (SW-SM) with trace gravel. The Qva in boring B-3 consisted of medium dense, slightly moist, brown and orange, well-graded SAND (SW) interbedded with silty SAND (SM) or poorly graded SAND (SP) with frequent laminations and trace gravel. A hard, laminated SILT (ML) layer occurs from 25.5 to 26 feet in boring B-3.

The SPT blow counts from the explorations in the glacial outwash ranged from 23 to 84 blows per foot with an average blow count of 50 blows per foot, indicating the glacial outwash was typically dense to very dense. The relative density of the unit increased in density with depth in each of the explorations. The Qva can be expected to have moderate to high shear strength, low compressibility, moderate to high permeability, and low moisture sensitivity. The Qva is a recommended bearing stratum for new foundations and the recommended soil unit for accepting stormwater infiltration.

2.1.3 Groundwater

Groundwater was not encountered in any of the completed explorations. Although not encountered during our explorations in August and November, it is possible that shallow “perched” groundwater could develop within the upper fill and recessional outwash soils where they overly the relatively fine-grained and less permeable Vashon till, typically across the northern third of the Site. The presence of short-term perched groundwater conditions will fluctuate seasonally with precipitation as well as with changes in Site and near-Site usage.

3 Seismic Design Considerations

The Site is located in a seismically active area and is less than a mile north of the Seattle Fault zone, a shallow crustal tectonic structure that is considered active (meaning it has the potential to cause earthquakes in the future). The recurrence interval of earthquakes on this fault zone is believed to be on the order of a thousand years or more.

The Site also lies within the zone of strong shaking from subduction zone earthquakes. The recurrence interval of these earthquakes is thought to be on the order of about 500 years. The most recent subduction zone earthquake occurred in 1700.

Deep intraslab earthquakes also occur in the region every decade or two, including the 2001 Nisqually earthquake. These earthquakes are generally less severe than the shallow crustal and subduction zone earthquakes, but have the potential to cause damage to older structures built before modern seismic codes were enacted, and those in liquefaction-sensitive areas.

In our opinion, design of the new structures in accordance with the current version of the IBC will mitigate seismic hazards to acceptable risk levels.

3.1 Surficial Ground Rupture

The nearest known active fault trace is a structure associated with the Seattle Fault zone and locally known as the “Welfare Strand,” approximately 1/3 of a mile south of the Site. Recent studies made by the United States Geological Survey (USGS) (e.g., Johnson et al., 1994, and Johnson et al., 1999) suggest that this northern trace of the east-west trending Seattle Fault Zone projects in the vicinity of Eagle Harbor on Bainbridge Island. Due to the suspected long recurrence interval of the fault zone, and the offset of the Site from the known preferred rupture surface, the potential for surficial ground rupture at the Site is considered low during the expected life of the improvements.

3.2 Landslides and Liquefaction

3.2.1 *Seismically Induced Landslides*

Due to the relatively flat topography of the Site and presence of moderate to high shear-strength glacial soils near the ground surface, the Site slopes present a low risk of seismically induced landslides.

3.2.2 *Liquefaction*

Due to the inherent density of the glacial soils underlying the Site and the general absence of shallow, continuous groundwater, the liquefaction potential for the soils at the Site is considered low.

3.3 Ground Response

IBC code-based seismic design is based on the “Maximum Considered Earthquake (MCE)” with a two-percent probability of exceedance (PE) in 50 years (2,475-year return period). The USGS (USGS, 2008) has completed probabilistic ground motion studies and maps for Washington.

Current IBC design methodologies express the effects of site-specific subsurface conditions on the ground motion response in terms of the “Site Class.” The Site Class can be correlated to the average density in the upper 100 feet of the soil profile. Based on the results of our subsurface exploration program, our regional experience with the geologic materials underlying the Site, and using the 2012 IBC criteria, the Site would be characterized as Seismic Site Class D. The proposed fire station requires designation as a risk category IV (essential) structure.

The mapped, maximum considered earthquake spectral response accelerations for short period ($S_s = 1.458g$; and for 1-second period ($S_1 = 0.575g$). Site coefficients for this Site are $F_a = 1.0$, $F_v = 1.5$. The maximum considered earthquake spectral response accelerations adjusted for Site class effects are $S_{ds} = 0.972g$, $S_{d1} = 0.575g$.

4 Conclusions and Recommendations

4.1 General

The following sections present the results of our engineering analyses and recommendations for earthwork, foundation support, and other pertinent geotechnical design issues.

4.2 Earthwork

Site excavation and grading can be completed with standard construction equipment. The fill that mantles the Site should be anticipated to be variable and, although not encountered in our explorations, the fill may contain oversized cobbles, small boulders, wood debris, or other remnant debris. Anecdotal evidence suggests that piles of wood debris and stumps were buried beneath areas of the existing parking area north of the existing station. Removal and disposal of these concentrated zones of wood debris will be required to prepare the Site for new foundations and pavements.

Excavation activities will be significantly easier and more cost-effective during the drier summer months. Appropriate erosion control measures should be implemented prior to beginning earthwork activities in accordance with the local regulations.

4.2.1 *Wet Weather Earthwork*

Earthwork is typically most economical when performed under dry weather conditions; however, earthwork may proceed during wet weather conditions provided the appropriate provisions are in place. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations apply:

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean structural fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance.
- The ground surface within the construction area should be graded to promote runoff of surface water and to prevent the ponding of water.
- Material used as structural fill should consist of clean, granular soil containing less than 7 percent fines. Gravel Borrow in accordance with Section 9-03.14(1) of the Washington State Department of Transportation (WSDOT) Standard Specifications (WSDOT, 2014) is a suitable wet weather structural fill.
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left

uncompacted and exposed to moisture. Soils that become too wet for compaction should be removed and replaced with clean granular materials.

- Excavation and placement of fill should be observed by the Geotechnical Engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved.
- Appropriate erosion and sedimentation best management practices (BMPs) should be strategically implemented in accordance with the local regulations.

4.2.2 Temporary Excavation Stability and Permanent Slopes

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor. All temporary cuts in excess of 4 feet in height that are not protected by trench boxes or otherwise shored, should be sloped in accordance with Part N of Washington Administrative Code (WAC) 296-155 (WAC, 2009).

In general, soils across the Site classify as OSHA Soil Classification Type B and C. Temporary excavation cut slopes in existing fill should be sloped no steeper than 1.5H:1V (Horizontal:Vertical) and temporary cuts in advance outwash should be no steeper than 1H:1V. The cut slope inclinations estimated above are applicable to excavations without groundwater seepage, or runoff, and assume dewatered conditions. Flatter slopes will likely be necessary in areas where ground water seepage exists, or where construction equipment surcharges are placed in close proximity to the crest of the excavation.

With time and the presence of seepage and/or precipitation, the stability of temporary unsupported cut slopes can be significantly reduced. Therefore, all temporary slopes should be protected from erosion by installing a surface water diversion ditch or berm at the top of the slope. In addition, the Contractor should monitor the stability of the temporary cut slopes, and adjust the construction schedule and slope inclination accordingly. Vibrations created by traffic and construction equipment may cause caving and raveling of the temporary slopes. In such an event, lateral support for the temporary slopes should be provided by the Contractor to prevent loss of ground support.

Permanent slopes for the Project should be no steeper than 2H:1V.

4.2.3 Structural Fill

Portions of the existing fill material that will be excavated for the Project may be suitable for reuse as structural fill. Excavated material should be visually inspected by the Geotechnical Engineer to determine its potential use as structural fill.

In general, suitable structural fill material for the Project is fill placed within 3 percent of its optimum moisture content per the American Society for Testing and Materials (ASTM) ASTM D-1557 (modified Proctor test) and does not contain deleterious materials, greater than 5 percent organics, or particles larger than 3 inches in diameter. Structural fill should be placed and compacted to at least 95 percent of the maximum dry density (MDD) as determined by test method ASTM D-1557.

During dry weather construction imported structural fill may be granular material with less than 10 percent fines such as Select Borrow as specified in Section 9-03.14(3) of the WSDOT Standard Specifications. In wet weather conditions or situations requiring free-draining backfill, we recommend using import material meeting the criteria for Gravel Borrow as specified in Section 9-03.14(1) of the WSDOT Standard Specifications.

Class A Gravel Backfill for Foundations as specified in Section 9-03.12(1)A of the WSDOT Standard Specifications should be used for base rock underneath structures. Crushed Surfacing Base Course (CSBC) as specified in Section 9-03.9(3) of the WSDOT Standard Specifications should be used as base rock for new pavement. If desired, lean concrete or controlled density fill (CDF) can also be used as structural fill.

Within a lateral distance of 3 feet of any wall, smaller, possibly hand-operated equipment should be used in conjunction with thinner soil lifts to achieve the required compaction so as not to damage the structure.

The procedure to achieve the specified minimum relative compaction depends on the size and type of compacting equipment, the number of passes, thickness of the layer being compacted, and certain soil properties. When size of the excavation restricts the use of heavy equipment, smaller equipment can be used, but the soil must be placed in thin enough lifts to achieve the required compaction. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved. The frequency of the in-place density testing can be determined at the time of final design when more details of the Project grading and backfilling plans are available.

4.3 Foundations

Although the current project plans are conceptual, the following general foundation criteria are provided. Spread footings and/or structural slabs may be used for building support. Bearing surfaces for the footings should be prepared as described below.

4.3.1 Site Preparation

Site preparation within the proposed foundation areas should include removal of all topsoil, debris, loose fill soils, and any other deleterious materials. Based on our completed explorations, the removal of the loose fill soils will require excavations on the order of 3 to 7 feet bgs in order to reach the suitable bearing stratum of medium dense to dense fill and/or native glacial deposits. For planning purposes, the average excavation depth to reach the suitable bearing stratum will be on the order of 5 feet. The inferred presence of buried wood debris piles and stumps across the parking area north of the existing station will require additional excavation depths to remove the deleterious matter from beneath all new structure foundation, slabs, and pavement. An Aspect geotechnical engineer or engineering geologist should be on site to observe and verify fill removals and approve prepared subgrades.

The on-Site soils contain a moderate amount of fine-grained particles, which makes them moisture sensitive and subject to disturbance when wet. The Contractor must use care during Site preparation and excavation operations, so that any bearing surfaces are not

disturbed. If this occurs, the disturbed material should be removed to expose undisturbed material.

All bearing surfaces should be trimmed neat, and carefully prepared. All loose or softened soil should be removed from the bearing surface prior to placing concrete, structural fill, or capillary break materials. We recommend that all bearing surfaces be observed by the Geotechnical Engineer to verify that the recommendations of this report have been followed.

If bearing surfaces are open during the winter season or periods of wet weather, it may be helpful to provide a layer of crushed rock or gravel to help preserve the subgrade. If gravel is used to protect the bearing surfaces, it should meet the gradation requirements for Class A Gravel Backfill for Foundations, as described in Section 9-03.12(1)A of the WSDOT Standard Specifications.

4.3.2 Foundation Design Criteria

Based on our observations of the Site soil conditions, the bearing stratum is approximately 5 feet below the existing ground surface. The overlying loose fill and any other deleterious debris should be removed from the footprint of the new fire station structure. The variability and the loose portion of the fill and presence of organics/wood debris create a hazard for total and differential settlement of the new structures.

To achieve foundation bearing at the depths described above, we recommend overexcavation of the unsuitable fill and replacement with structural fill. Guidance of overexcavation and replacement is shown on Figure 3, *Typical Overexcavation Details*.

As an alternative to overexcavation and replacement, footings may also be deepened to the bearing layer, and foundation stem walls would be made taller to extend up above finished ground surface.

For spread footings, we recommend an allowable foundation bearing pressure of 2,500 pounds per square foot (psf) be utilized for design purposes, including both dead and live loads for the proposed structures. An increase in the above-mentioned bearing pressure of one-third may be used for short-term wind or seismic loading. Perimeter footings should be buried at least 18 inches into the surrounding soil for frost protection; interior footings require only 12 inches burial below adjacent finished grade. No footing should be founded in or above yielding/loose or organic soils.

We estimate the total settlement of the foundation designed in accordance with our recommendations will be less than 1 inch. Differential settlements can be expected to be less than half the total settlement. The majority of these settlements will occur during construction as the loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, an ultimate coefficient of friction of 0.55 may be assumed along the interface between the base of the footing and subgrade soils. An ultimate passive earth pressure of 425 pounds per cubic foot (pcf) may be assumed for undisturbed soils adjacent to below-grade elements. The upper 1 foot of

passive resistance should be neglected in design, unless the ground is protected/surfaced by pavement. The recommended coefficient of friction and passive pressure values are ultimate values that do not include a safety factor. We recommend applying a factor of safety of at least 1.5 in design for determining allowable values for coefficient of friction and passive pressure.

4.3.3 *Slabs-on-Grade*

Concrete slabs-on-grade should be designed in accordance with the American Concrete Institute (ACI) Committee 360 Guide to Design of Slabs-on-Ground. We recommend overexcavation of the loose zones of fill and any deleterious matter and replacement with structural fill beneath all structural slabs. To provide uniform support for the floor slab and to provide a capillary break, we recommend the floor slab be underlain by a capillary break. The capillary break material should consist of a minimum of 6 inches of free-draining, crushed rock or well-graded sand and gravel compacted to at least 95 percent MDD. The capillary break material should have a maximum particle size of $\frac{3}{4}$ inch, with no more than 80 percent passing the No. 4 sieve and less than 5 percent fines (material passing the U.S. Standard No. 200 sieve). In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structures, a 10-mil polyethylene vapor barrier should be placed directly over the capillary break. The vapor barrier should be installed in accordance with the manufacturer's recommendations.

For slabs that are designed as beam on elastic foundation, a modulus of vertical subgrade reaction of 200 pounds per cubic inch (pci) may be utilized.

4.4 Wall Considerations

Based on our project understanding, no basement structures are planned. However, the grade differential across the footprint of the building footprint may necessitate low retaining walls.

Yielding walls, such as cantilever retaining walls, should be designed using a lateral earth pressure based on an equivalent fluid having a unit weight of 35 pcf. Nonyielding or restrained walls should be designed for an equivalent fluid weight of 55 pcf. For these values to be used, a subsurface drain combined with a free-draining wall backfill material that meets the gradation requirements described in Section 9-03.12(2) of the WSDOT Standard Specifications for Gravel Backfill for Walls should be utilized. Refer to Section 4.5, *Drainage Considerations* for subsurface drain recommendations.

Earthquake shaking will subject retaining walls to a temporary additional earth pressure. We estimated the lateral seismic soil pressure increment using the Mononobe-Okabe method, with consideration of the possible backfill soil properties, design earthquake, and assuming a relatively level backslope. We recommend an average seismic soil pressure increment of $8H$ (where H is the height of the wall) represented by a uniform rectangular pressure along the height of the wall.

Over-compaction of the backfill behind walls should be avoided. In this regard, we recommend compacting the backfill to about 90 percent of the MMD (ASTM D-1557). Heavy compactors and large pieces of construction equipment should not operate within 5 feet of any embedded wall to avoid the buildup of excessive lateral pressures.

Compaction close to the walls should be accomplished using hand-operated vibratory plate compactors.

Lateral forces that may be induced on the wall due to other surcharge loads should be considered by the Structural Engineer.

4.5 Drainage Considerations

The outside edge of all perimeter footings and embedded walls should be provided with a drainage system consisting of a 4-inch-diameter, perforated, rigid pipe embedded in free-draining gravel meeting the requirements of Section 9-03.12(4) of the WSDOT Standard Specifications for Gravel Backfill for Drains. The footing and wall drains should be a minimum of 1 foot thick, and a layer of low permeability soils should be used over the upper foot of the drain section to reduce potential for surface water to enter the drain curtain. Prefabricated drain mats combined with relatively free-draining backfill may be used as an alternative to washed-rock footings and wall drains.

Final grades around the proposed structures should be sloped such that surface water drains away from the structures. Downspouts and roof drains should not be connected to the foundation drains in order to reduce the potential for flooding foundation drains and clogging. The footing drains should include clean-outs to allow periodic maintenance and inspection.

4.5.1 Stormwater Infiltration

We understand that stormwater infiltration through bioretention facilities is proposed along the southeastern edge of the Site and immediately north of the new fire station. Additionally, buried dispersion trenches are planned for the infiltration of roof stormwater along the east and west sides of the new fire station. The results of our studies indicate that infiltration of stormwater in the manner proposed is feasible at the Site and will not result in any hydrogeologic changes off-Site or downgradient of the proposed infiltration areas.

Our field testing and analyses support the use of a long-term design infiltration rate of 2.5 inches per hour for the bioretention facility proposed in the southeast corner of the Site and the roof stormwater dispersion trenches. We recommend a long-term design infiltration rate of 10 inches per hour for the bioretention facility proposed north of the new fire station. The base of the bioretention facilities should reach the identified receptor elevations/depths as shown in Table 1.

Table 1 – Stormwater Infiltration Recommendations

Infiltration Area	Receptor Elevation (ft)	Measured ⁽¹⁾ Infiltration Rate (in/hr)	Design Infiltration Rate ⁽²⁾ (in/hr)
Southeast Bioretention Area	139	7.5	2.5
North Bioretention Area	148	35	10
Roof Stormwater Infiltration Trenches ⁽³⁾	143 ⁽⁴⁾	N/A	2.5

Notes:

1. Measured in accordance with small-scale pilot infiltration test (PIT) methods (Ecology, 2014).

2. Factored from the measured infiltration rate (Ecology, 2014).
3. PIT testing was not completed at the infiltration trench locations. These recommendations reflect observed consistency of the subsurface conditions with the infiltration rates measured in PIT-2.
4. The receptor elevation for the roof stormwater infiltration trenches is approximate and will generally be dependent on the location of the infiltration trenches. A minimum depth of 5 feet bgs should be achieved in all cases.

Field infiltration testing was completed in general accordance with the small-scale pilot infiltration test (PIT) methods described in the *2014 Stormwater Management Manual for Western Washington* with minor modifications to facilitate more expedited testing and to provide more reliable estimates of infiltration rate. The PITs were excavated to the approximate identified receptor elevations/depths filled with water from the on-Site facilities, soaked/saturated for several hours, and then falling-head tests were performed. Falling-head tests measure the drop in water level over time and the results of the completed tests are shown in Appendix C. After testing, the pits were overexcavated to directly explore the conditions below the receptor depths. Logs of the pit excavations are presented in Appendix A.

Infiltration tests were conducted in PIT-1 and PIT-2 at depths ranging from 4.5 to 5.5 feet bgs. The receptor soils in the bottom of PIT-1 consisted of dark gray, very gravelly SAND (SP) and sandy GRAVEL (GP). The receptor soils in the bottom of PIT-2 consisted of silty SAND (SM) with trace gravel. The processed infiltration test data is presented in Appendix C.

Based on the measured or *in-situ* infiltration test results, the long-term design infiltration rates indicated on Table 1 should may be utilized for design of the infiltration facilities in the areas indicated. These rates include a combined correction factor (CF_{TOT}) of 28 to 33 percent to account for site variability, scaling the test pit infiltration method up to a Site scale, and for influent control. These correction factors were selected based on the 2014 Stormwater Management Manual for Western Washington.

4.6 Pavement Considerations

The near-surface fill will provide suitable support for new pavement sections provided the zones of concentrated organics and deleterious debris are removed from the pavement subgrade. All pavement subgrades should be carefully prepared. Prior to placing base course and pavement, all pavement subgrades should be proof-rolled with a fully loaded dump truck or equivalent. An Aspect geotechnical engineer or engineering geologist should observe and evaluate the proof rolling operation. Any soft areas identified should be sub-excavated to relatively firm and unyielding subgrade and backfilled with compacted structural fill to the design subgrade elevation. To provide for quality construction practices and materials, we recommend all pavement work and mix-design considerations conform to City of Bainbridge Island Public Works and/or WSDOT standards.

In non-roadway parking areas, a pavement section consisting of 3 inches of hot mix asphalt (HMA) over 6 inches of base course would be appropriate. However, along access drives and in areas where the fire trucks travel frequently and/or turn a tight radius, we recommend a minimum section of 4 inches of HMA over 8 inches of base course. We recommend CSBC for the pavement base course and Crushed Surfacing Top

Course (CSTC) may be used over the CSBC for the upper 2 to 3 inches of the base course section. CSBC and CSTC should be as specified in Section 9-03.9(3) of the Standard Specifications should be used as base course for pavements.

For rigid (concrete) pavement sections, we recommend a minimum of 8 inches of concrete over 8 inches of crushed surfacing. The concrete should have a minimum 28-day compressive strength of 4,000 pounds per square inch (psi).

The recommended pavement section is not intended to support extensive construction traffic, such as dump trucks and concrete Redi-mix trucks. Pavements subject to heavy construction traffic may be damaged and require repair.

Drainage is an essential aspect of pavement performance. We recommend providing all paved areas with positive drainage to remove surface water and water within the base course. This will be particularly important in cut sections or at low points within the paved areas, such as at catch basins.

5 Additional Project Design and Construction Monitoring

At the time of this report, site plans, site grading, structural plans, and construction methods have not been finalized and the recommendations presented herein are based on preliminary Project information. If Project developments result in changes to the assumptions made herein, we should be contacted to determine if our recommendations should be revised.

This letter report is issued with the understanding that the information and recommendations contained herein will be brought to the attention of the appropriate design team personnel and incorporated into the project plans and specifications, and the necessary steps will be taken to verify that the Contractor and subcontractors carry out such recommendations in the field. We do not direct the Contractor's operations, and we cannot be responsible for the safety of personnel other than our own on the Site; the safety of others is the responsibility of the Contractor. The Contractor should notify the property owner if he considers any of the recommended actions presented herein unsafe.

We are available to provide geotechnical engineering and monitoring services during construction. The integrity of the foundation depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent.

6 References

- American Society for Testing and Materials (ASTM), 2012, American Society of Testing Materials Annual Book of Standards, Vol. 4.08, West Conshohocken, Pennsylvania.
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- International Building Code (IBC), 2012, International Building Code. Prepared by International Code Council, January 2012.
- Johnson et al., 1994, Origin and Evolution of the Seattle Fault and Seattle Basin, Washington, *Geology*, v. 22, p. 71-74.
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- United States Geological Survey (USGS), 2008, United States National Seismic Hazard Maps: <http://gldims.cr.usgs.gov/nshmp2008/viewer.htm>.
- Washington Department of Ecology (Ecology), 2014. Stormwater Management Manual for Western Washington. Publication Number 14-10-055. December 2014.
- Washington State Department of Transportation (WSDOT), 2014, Standard Specifications for Road, Bridge and Municipal Construction, Document M 41-10.
- Washington State Legislature, 2009, Washington Administrative Code (WAC), April 1, 2009.

7 Limitations

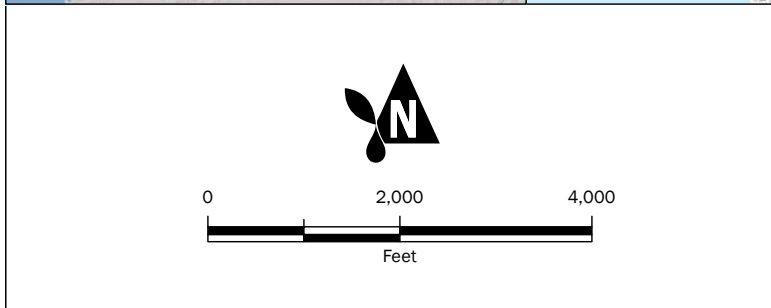
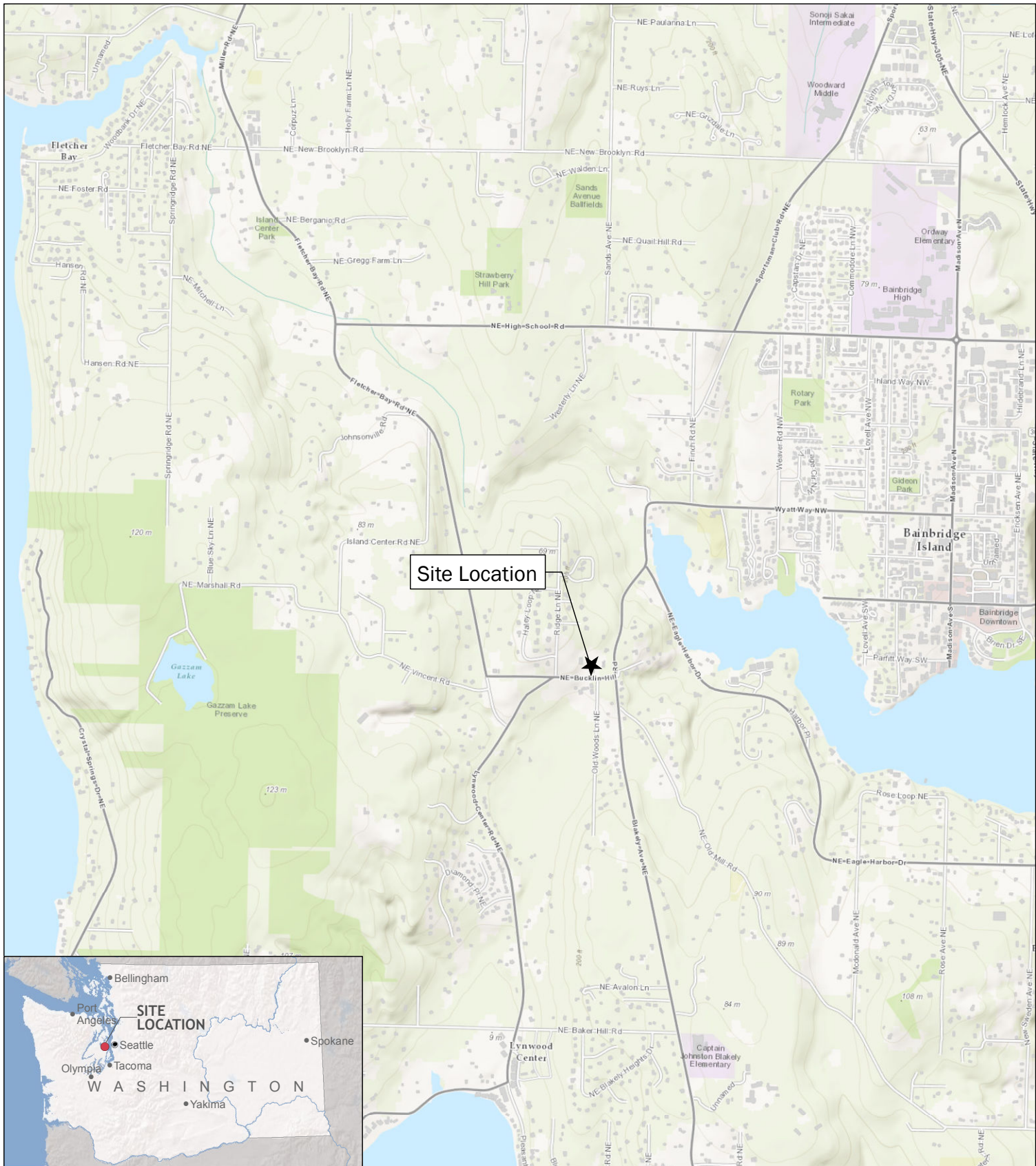
Work for this project was performed for the Bainbridge Island Fire Department (Client), and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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This report and our conclusions and interpretations should not be construed as a warranty of the subsurface conditions. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations and may not be detected by a geotechnical study. Further geotechnical evaluations, analyses, and recommendations may be necessary for the final design of this project.

If there is a substantial lapse of time between the submission of this report and the start of construction, or if conditions have changed due to construction operations at or near the Site, it is recommended that this report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

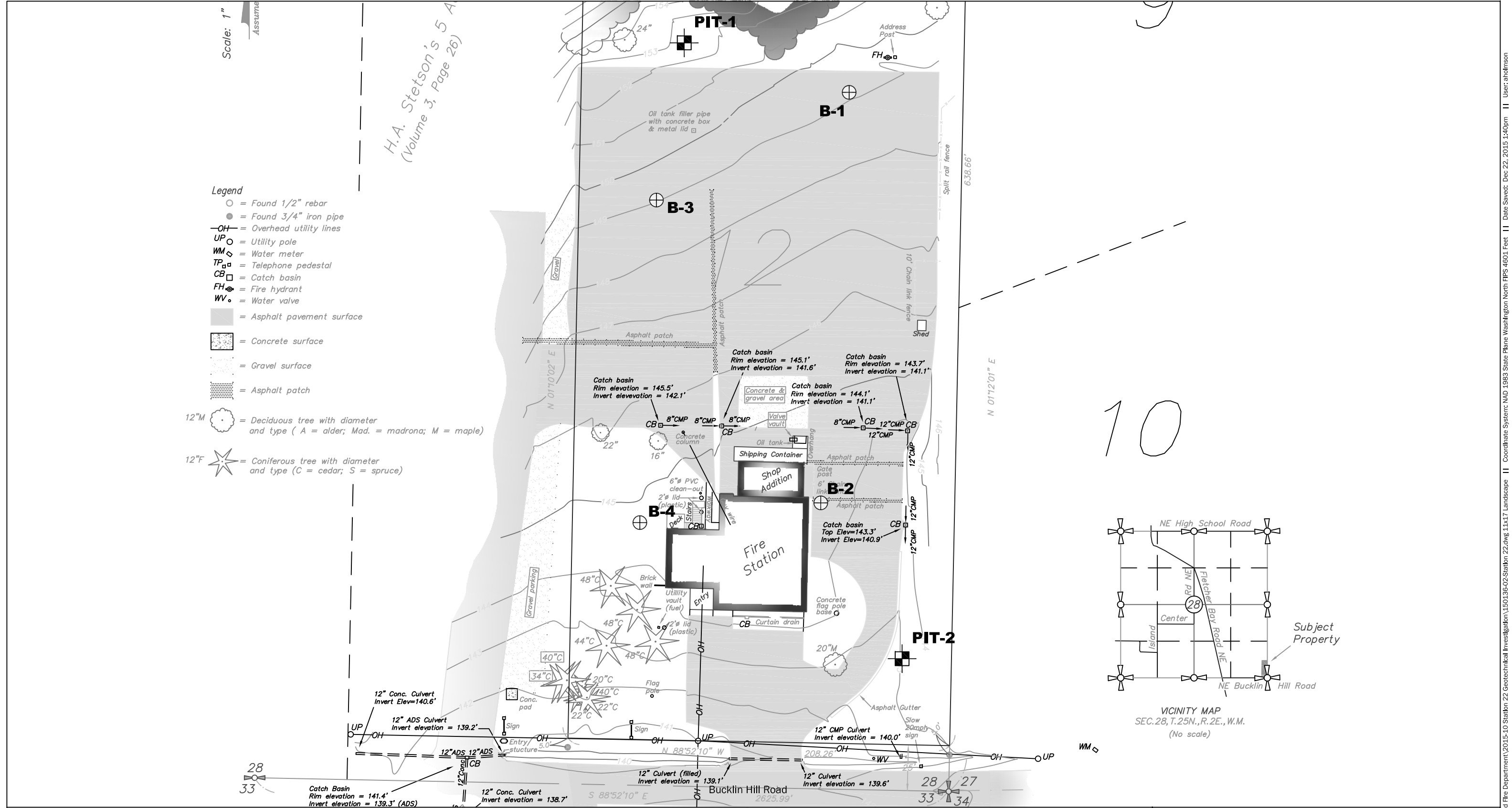
FIGURES



Site Location Map

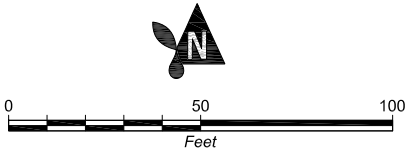
Bainbridge Island Fire Department, Station 22
7934 Bucklin Hill Road
Bainbridge Island, Washington

	OCT-2015	BY: AJH/SCC	FIGURE NO. 1
	PROJECT NO. 150136	REV BY: SCC	



Legend

- ⊕ Soil Boring Location (August, 2015)
- ⊕ Pilot Infiltration Test (PIT) Location (November, 2015)



Site Exploration Plan

Bainbridge Island Fire Department, Station 22
7934 Bucklin Hill Road
Bainbridge Island, Washington

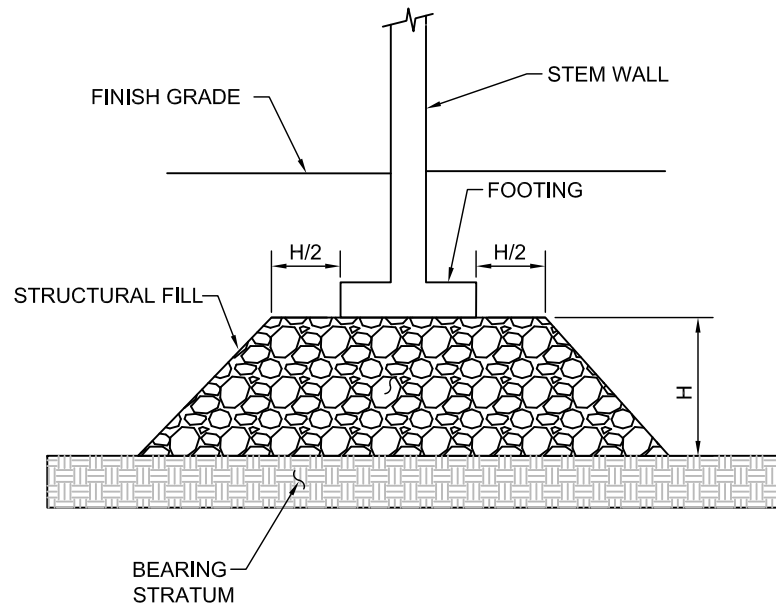


DEC-2015
PROJECT NO.
150136

BY:
AJH/SCC
REVISED BY:
-

FIGURE NO.
2

OVEREXCAVATION AND REPLACEMENT FOR SPREAD FOOTING

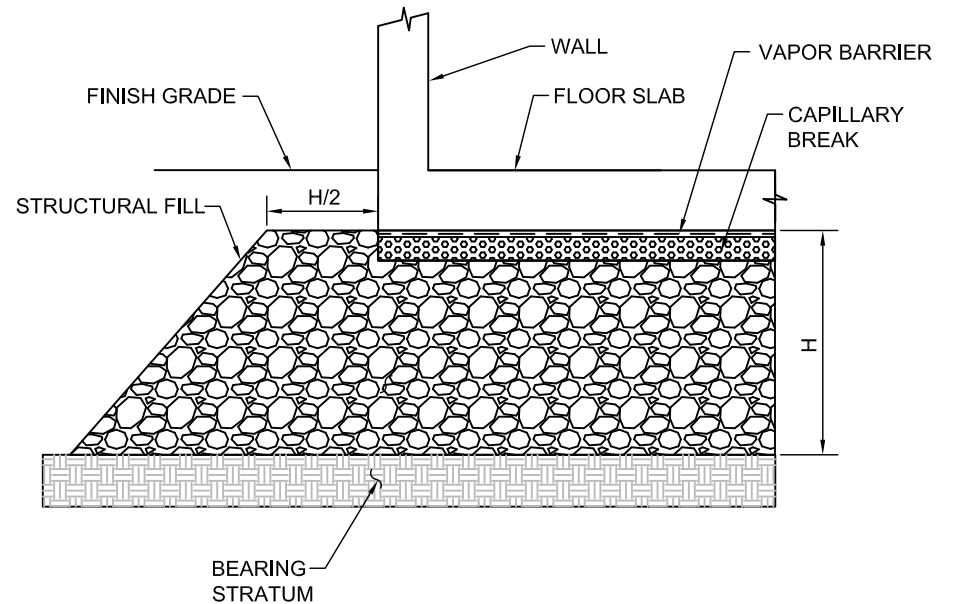


NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

OVEREXCAVATION AND REPLACEMENT FOR STRUCTURAL SLAB



NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

Typical Overexcavation Details

Bainbridge Island Fire Department, Station 22
7934 Bucklin Hill Road
Bainbridge Island, Washington

APPENDIX A

Subsurface Explorations

A.1 Field Exploration Program

A.1.1 Geotechnical Borings

Geotechnical borings B-1 through B-4 were drilled using hollow-stem auger drilling techniques. The drilling was subcontracted to Geologic Drill, an experienced and licensed local driller. Drilling was completed with a trailer-mounted drill rig and 8-inch-diameter (3¹/₄-inch-inside-diameter) hollow-stem auger equipment. The locations of the four borings are shown on Figure 2. The borings were all advanced to depths ranging between 36.5 and 41.5 feet bgs.

Sampling was completed at selected depth intervals using the Standard Penetration Test (SPT) in general accordance with ASTM Method D-1586. This involves driving a 2-inch-outside-diameter split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling from a distance of 30 inches. The number of blows for each 6-inch interval is recorded and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance (“N”) or blow count. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils.

An Aspect geologist was present throughout the field exploration program to observe the drilling procedure, assist in sampling, and to prepare descriptive logs of the exploration. Soils were classified in general accordance with ASTM D-2488, *Standard Practice for Description and Identification of Soils* (Visual-Manual Procedure). The summary exploration log represents our interpretation of the contents of the field logs. The stratigraphic contacts shown on the individual summary logs represent the approximate boundaries between soil types; actual transitions may be more gradual. The subsurface conditions depicted are only for the specific date and locations reported, and therefore, are not necessarily representative of other locations and times.



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 200' N of NE corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6224499, -122.54265

Exploration Number

B-1

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

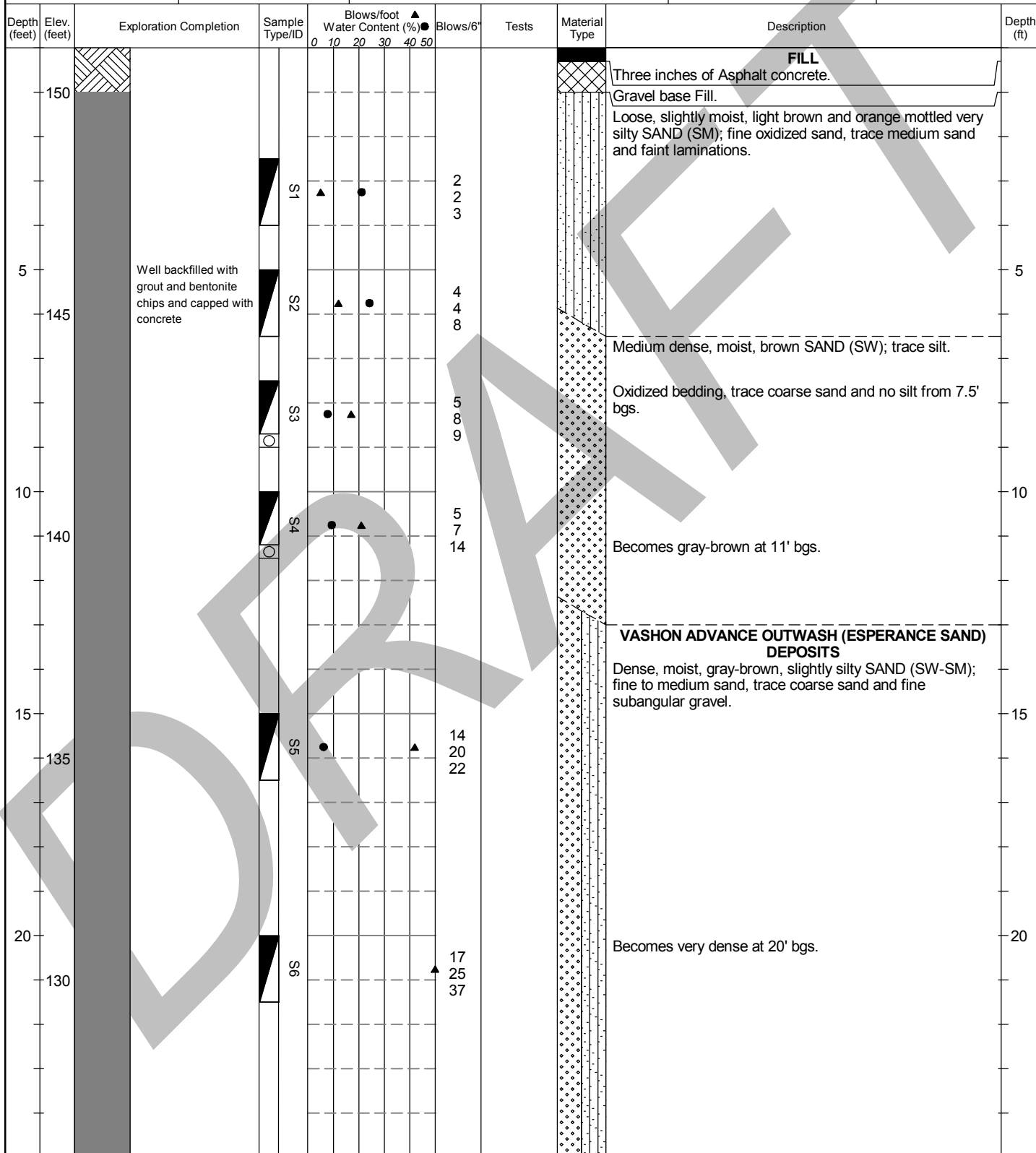
151'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 2

Sheet 1 of 2

150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location

7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 200' N of NE corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6224499, -122.54265

Exploration Number

B-1

Contractor

Geologic Drilling

Equipment

Rotary drill rig

Sampling Method

Cathead; 140 lb hammer; 30" drop

Ground Surface (GS) Elev. (NAVD88)

151'

Operator

Blaine

Exploration Method(s)

Hollow-stem auger

Work Start/Completion Dates

8/4/2015

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot						Blows/6'	Tests	Material Type	Description	Depth (ft)
				0	10	20	30	40	50					
125			5S							15			Very thinly bedded, alternating light gray thin beds and very fine laminations at 25' bgs.	
										25				
										35				
30	120		8S							22			Becomes predominantly fine sand, trace medium sand, alternating light gray-brown laminations and dark gray very fine laminations at 30' bgs.	30
										34				
										50				
35	115		6S							15			Becomes very moist and slightly silty at 35' bgs.	35
										20				
										34				
40	110												Bottom of exploration at 36.5 ft. BGS.	40
45	105													45

Legend

No Soil Sample Recovery

SPT (ASTM 1586)

Plastic Limit

Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

DRAFT Figure No. A- 2

Sheet 2 of 2

ASPECT STANDARD EXPLORATION TEMPLATE P:\GINTWP\PROJECTS\BIFD22-150136.GPJ December 22, 2015

Review Stage:DRAFT Rev2



150136 - Bainbridge Island Fire Station 22

Geotechnical Exploration Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

7934 NE Bucklin Hill Rd, Bainbridge Island, WA, At repair garage entrance.

47.6218861, -122.54268

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

150'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

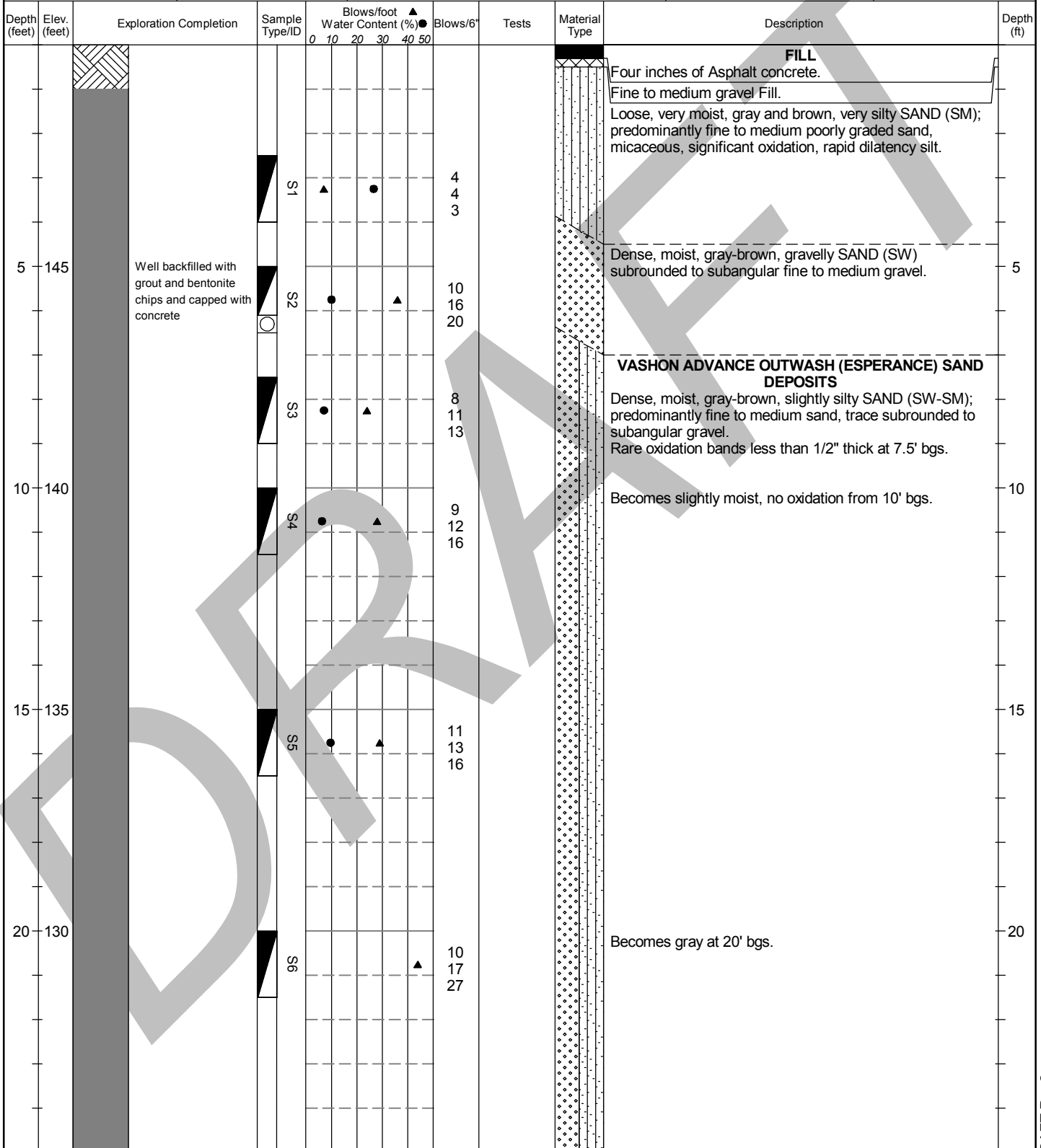
Blaine

Hollow-stem auger

8/4/2015

NA

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit | Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 4

Sheet 1 of 2

**150136 - Bainbridge Island Fire Station 22****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat,Lon WGS84)

Exploration Number

7934 NE Bucklin Hill Rd, Bainbridge Island, WA, At repair garage entrance.

47.6218861, -122.54268

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

150'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

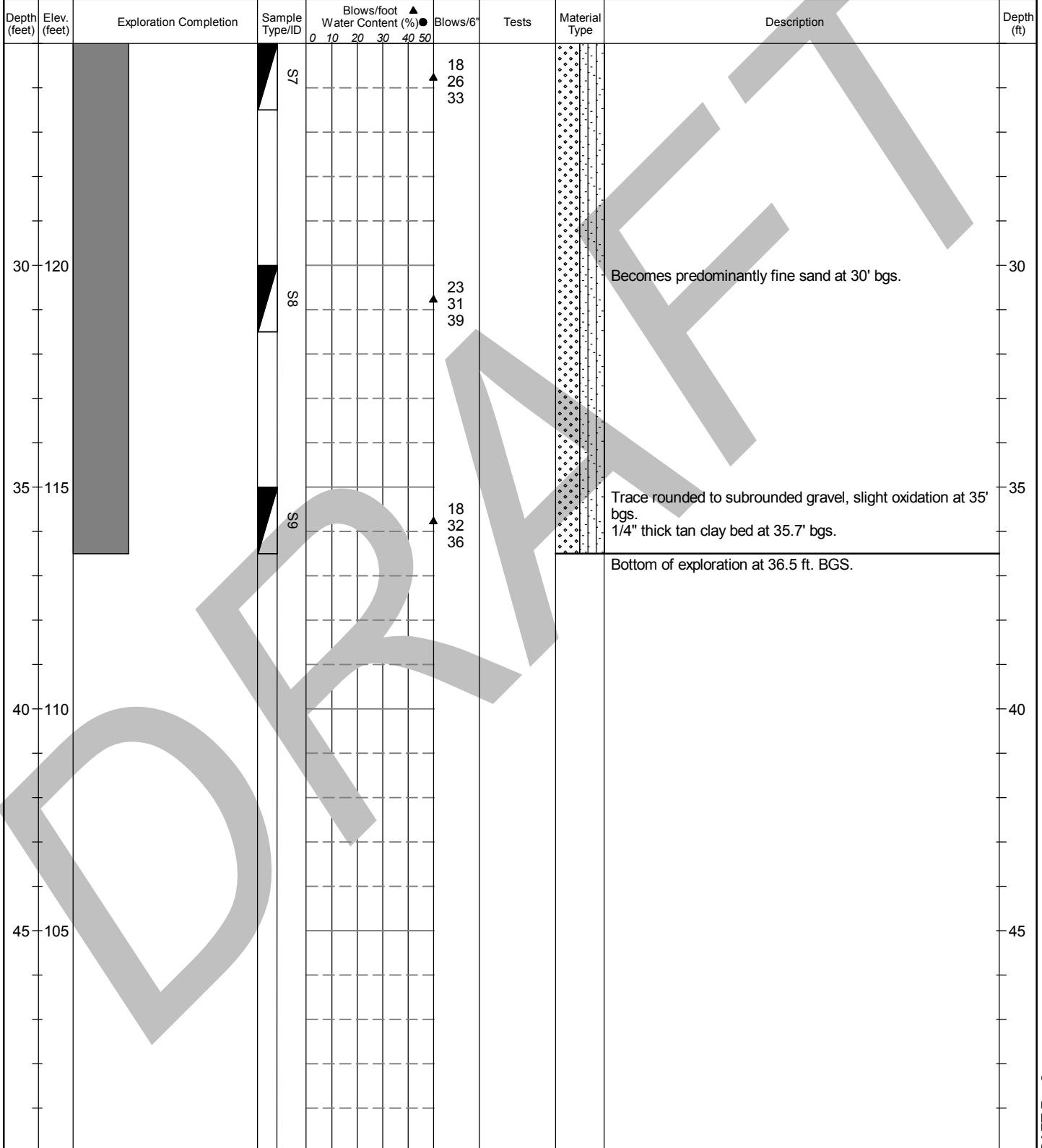
Blaine

Hollow-stem auger

8/4/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**DRAFT**
Figure No. A- 4

Sheet 2 of 2



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 180' N of NW corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6222895, -122.54311

Exploration Number

B-3

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

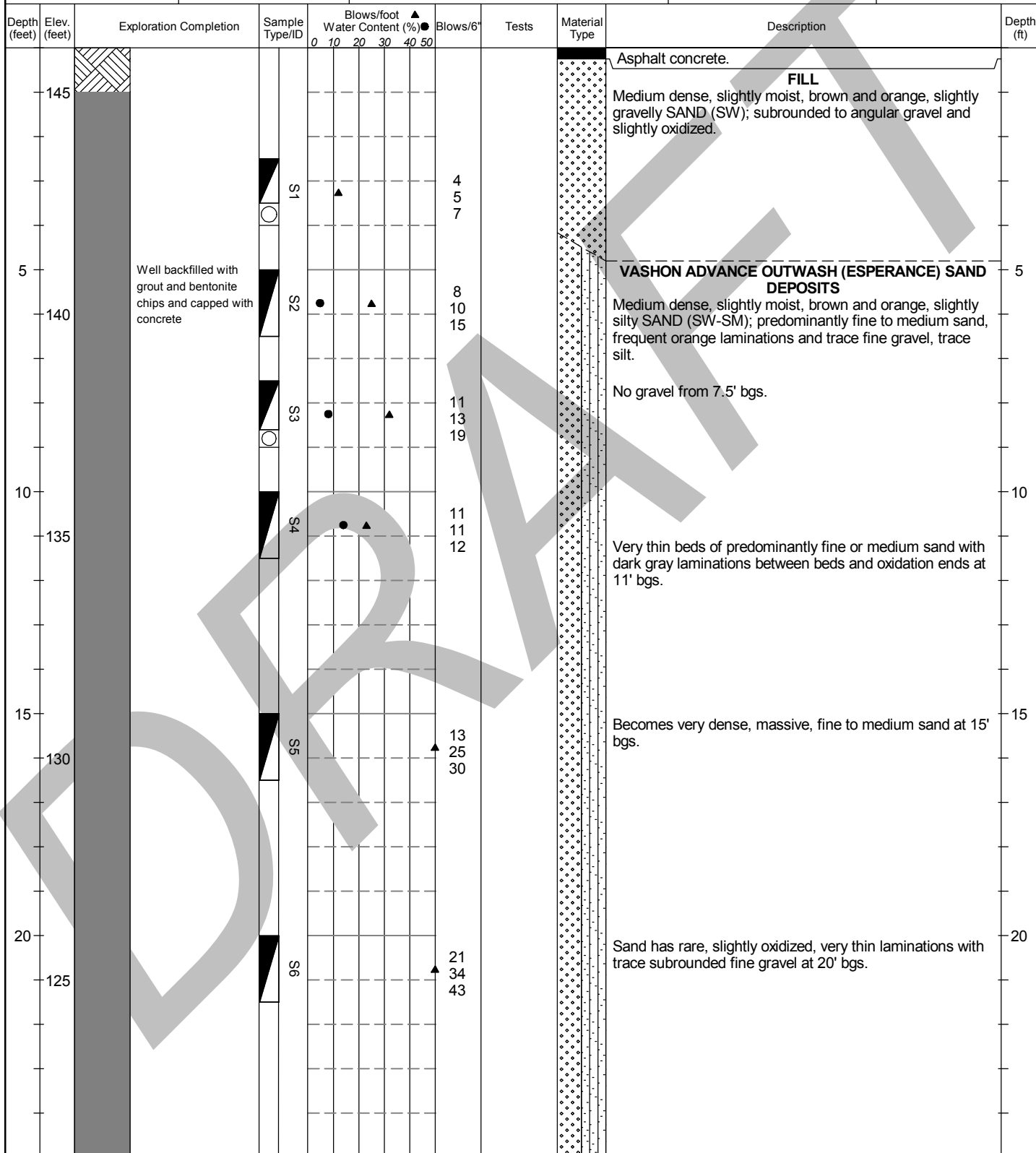
146'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 6

Sheet 1 of 2



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 180° N of NW corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6222895, -122.54311

Exploration Number

B-3

Contractor

Geologic Drilling

Equipment

Rotary drill rig

Sampling Method

Cathead; 140 lb hammer; 30" drop

Ground Surface (GS) Elev. (NAVD88)

146'

Operator

Blaine

Exploration Method(s)

Hollow-stem auger

Work Start/Completion Dates

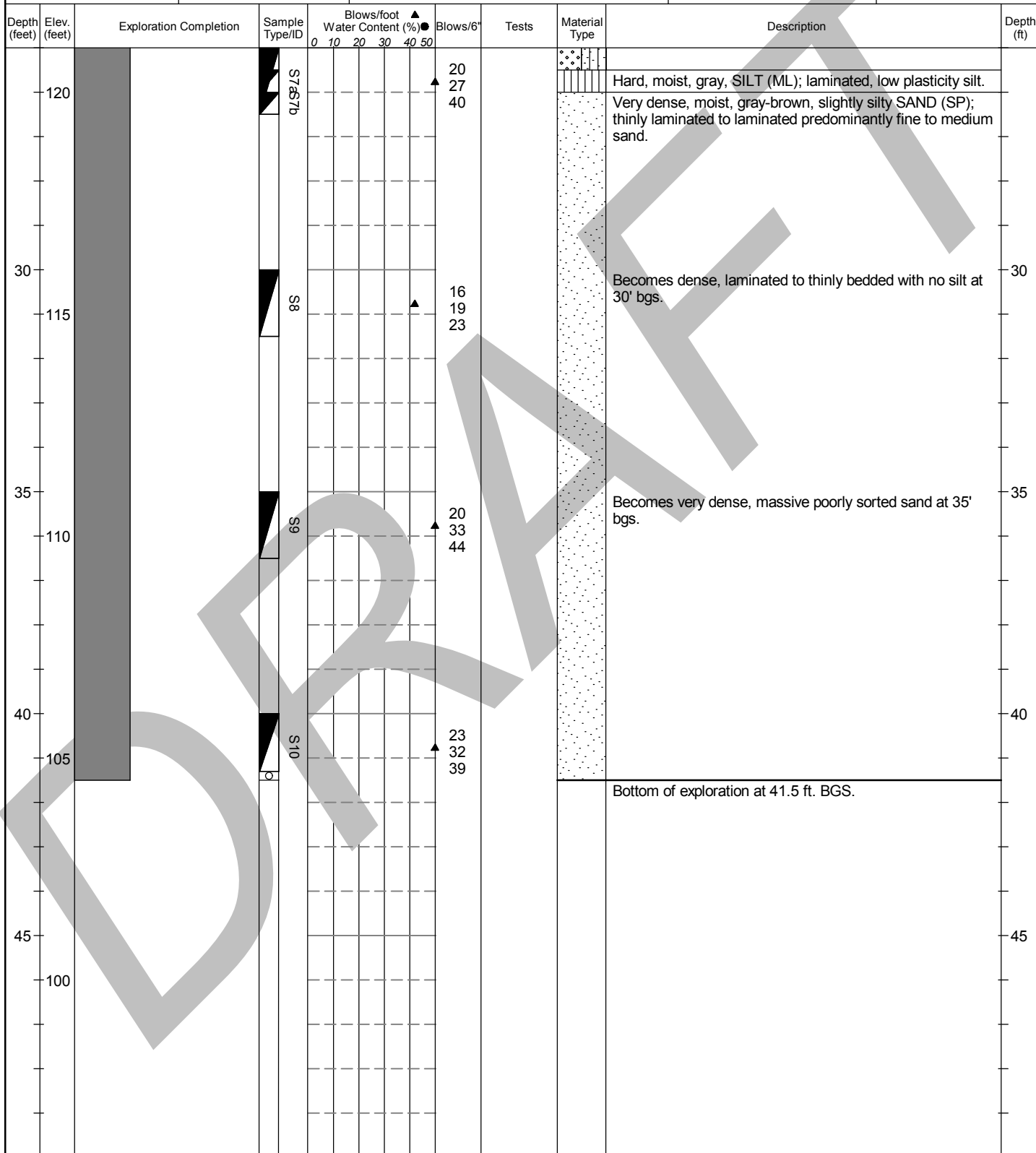
8/4/2015

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 6

Sheet 2 of 2



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 50' NW of NW corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6219322, -122.54312

Exploration Number

B-4

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

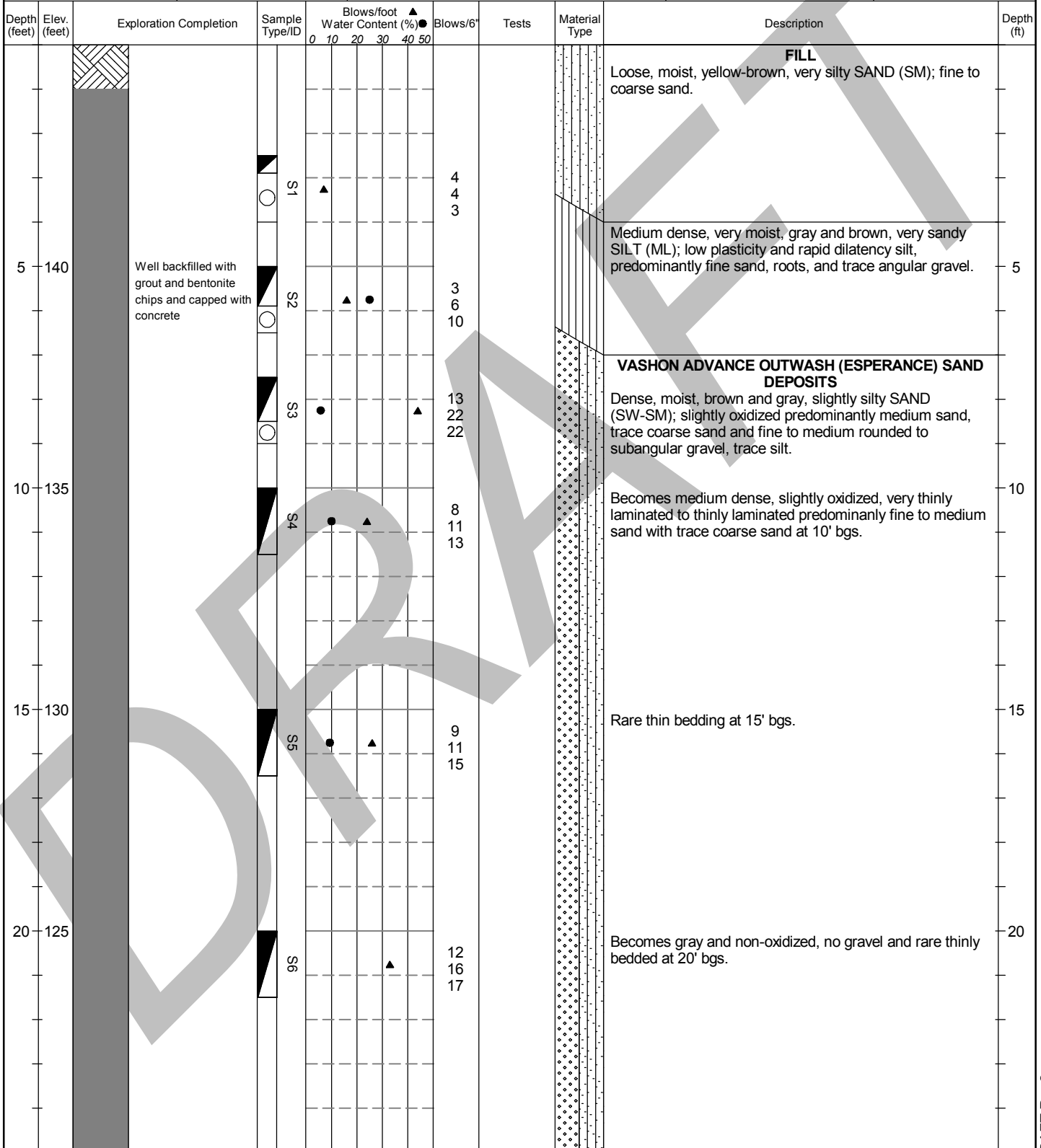
145'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 8

Sheet 1 of 2



150136 - Bainbridge Island Fire Station 22

Geotechnical Exploration Log

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 50' NW of NW corner Sta 22.

Coordinates (Lat, Lon WGS84)

47.6219322, -122.54312

Exploration Number

B-4

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

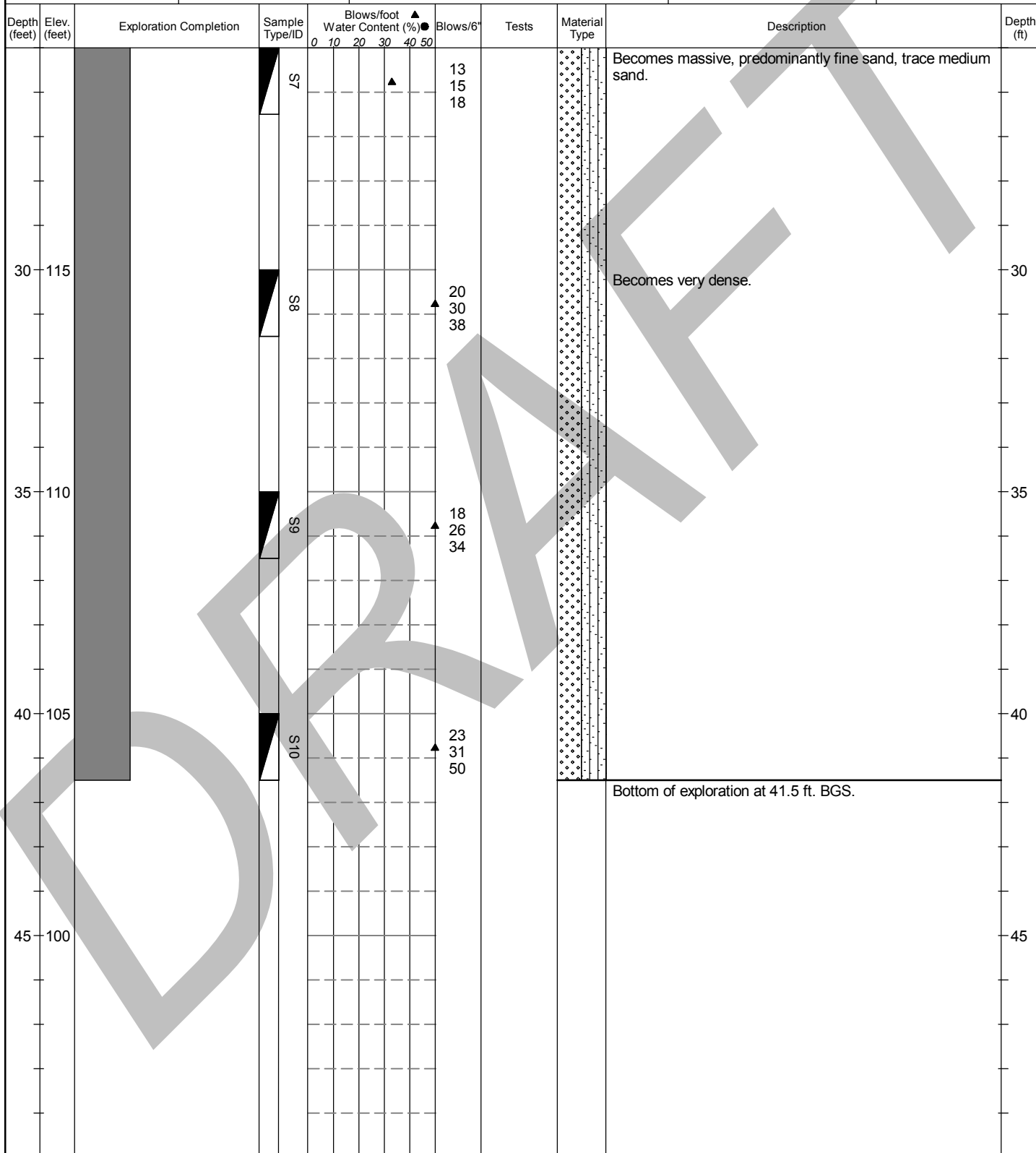
145'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 8

Sheet 2 of 2



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 65' ESE of SE corner of Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.621612, -122.54247

Exploration Number

Pit-2

Contractor

BIFD

Equipment

Case 580 Super M

Sampling Method

Grab

Ground Surface (GS) Elev. (NAVD88)

143'

Operator

Lee Rosenbaum

Exploration Method(s)

Backhoe

Work Start/Completion Dates

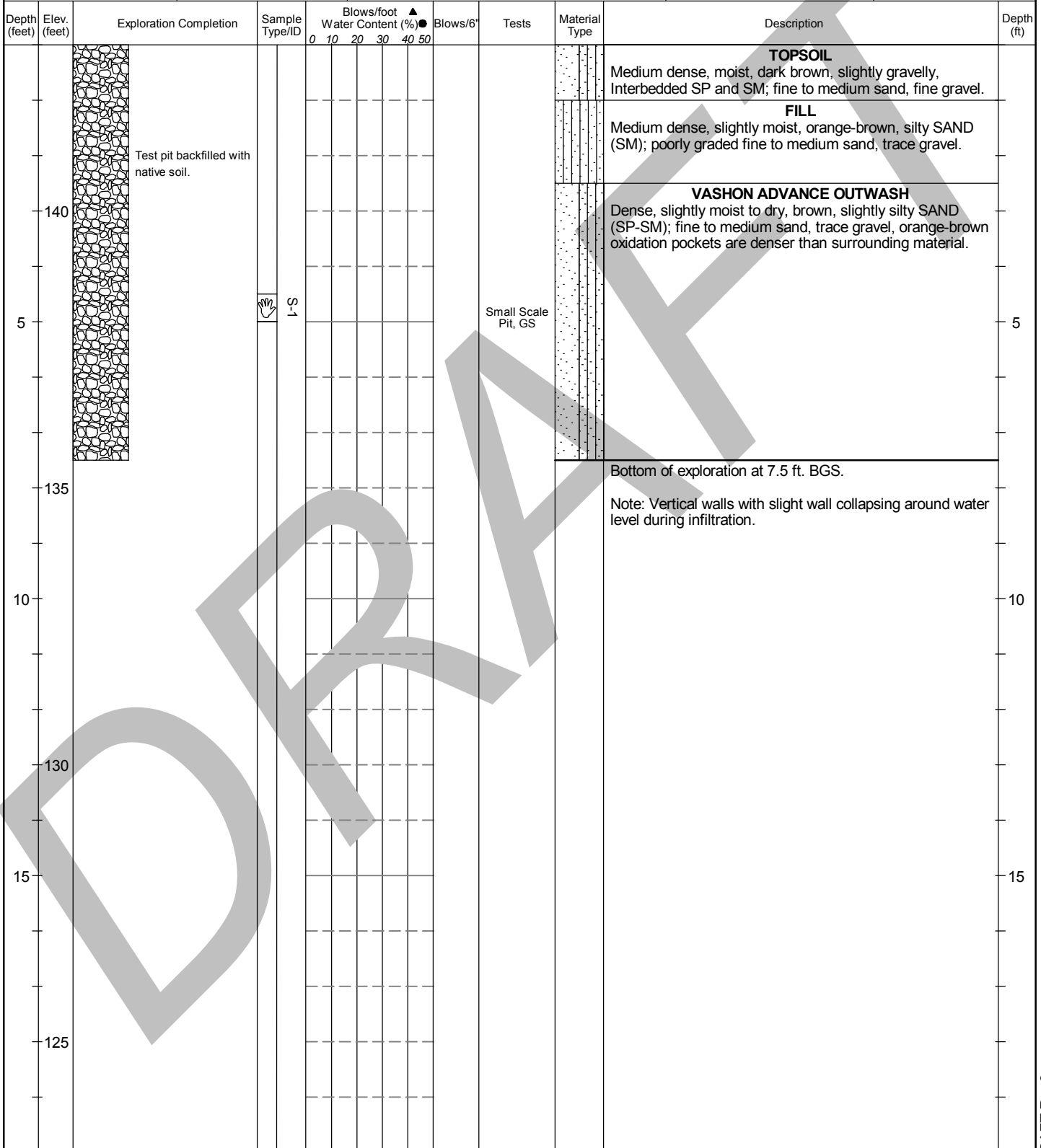
11/3/2015

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

Grab Sample

Plastic Limit Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A-

Sheet 1 of 1

APPENDIX B

Laboratory Testing Results

B.1 Geotechnical Laboratory Testing

Laboratory tests were conducted on selected soil samples to characterize certain engineering (physical) properties of the Site soils. Laboratory testing included determination of grain-size distribution, moisture content, and organic content. The laboratory tests were conducted in general accordance with appropriate ASTM test methods. Test procedures are discussed below.

The grain-size distribution of selected samples was analyzed in general accordance with ASTM D-422, *Standard Test Method for Particle-Size Analysis of Soils* without hydrometer determination of fines content. The moisture content of selected samples was analyzed in general accordance with ASTM D-2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*. The organic content of selected samples was analyzed in general accordance with ASTM C 40, *Standard Test Method for Organic Impurities in Fine Aggregates*.

The results of the grain-size distribution tests are presented as curves in Appendix B, plotting percent finer by weight versus grain size. The results of the moisture content tests are presented in tabular form in Appendix B and graphically on the boring logs in Appendix A. The results of the organic content tests are presented in Appendix B.

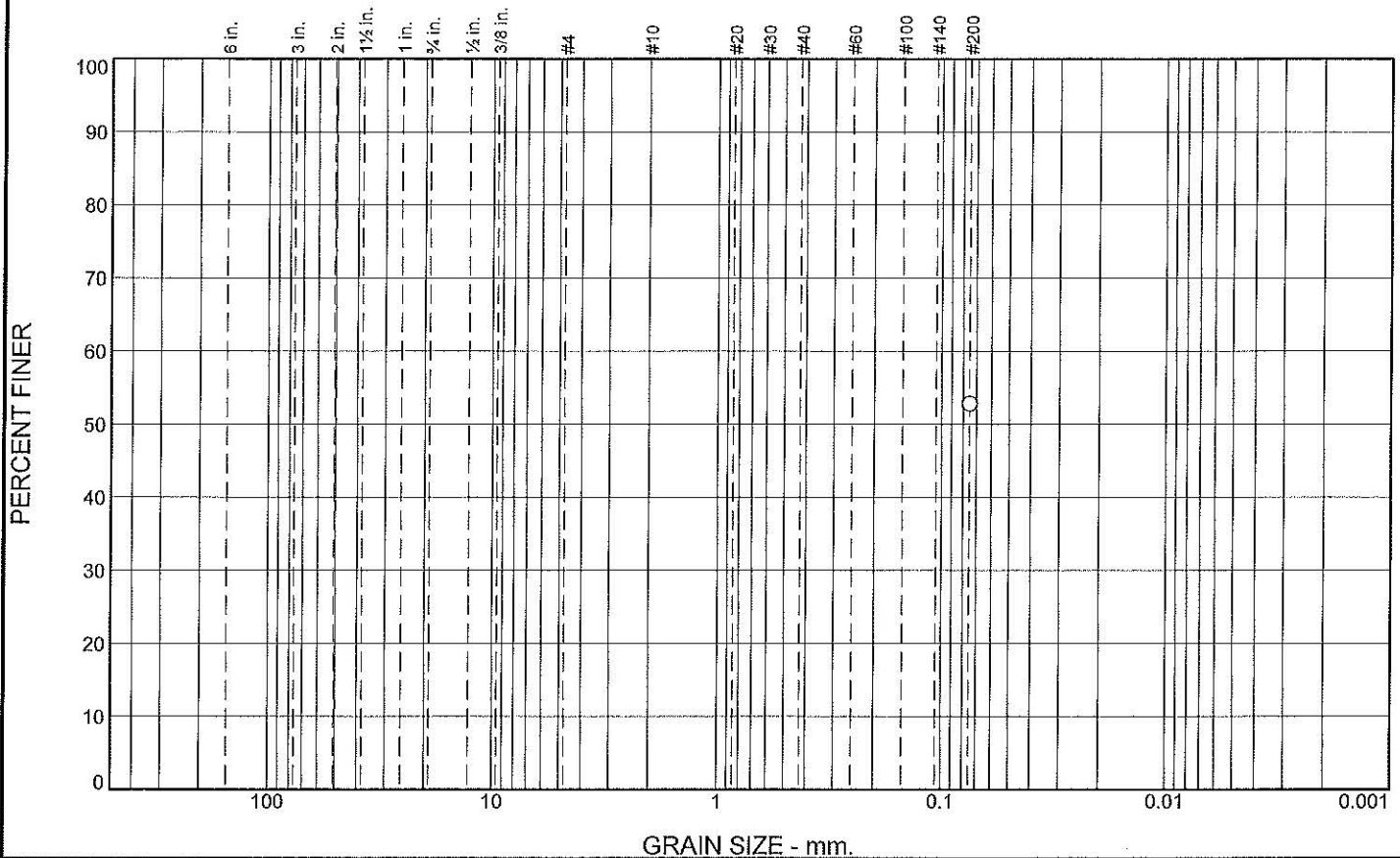
Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Bainbridge Island Fire Station 22 Bucklin Hill P#150136/08-175

HMA Sample #	Aspect Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7803-1	S-1	B-1/2.5'-4'	8/11/2015	8/12/2015	M7	123.0	970.0	822.3	21.1
7803-2	S-2	B-1/5'-6.5'	8/11/2015	8/12/2015	S-10	112.8	915.1	758.7	24.2
7803-3	S-3	B-1/7.5'-9'	8/11/2015	8/12/2015	3A	214.0	859.9	813.9	7.7
7803-4	S-4	B-1/10'-11.5'	8/11/2015	8/12/2015	4A	212.8	888.1	830.6	9.3
7803-5	S-5	B-1/15'-16.5'	8/11/2015	8/12/2015	2A	217.4	1041.6	993.9	6.1
7803-6	S-1	B-2/2.5'-4'	8/11/2015	8/12/2015	1A	213.3	1023.8	853.7	26.6
7803-7	S-2	B-2/5'-6.5'	8/11/2015	8/12/2015	M1	226.2	899.0	837.6	10.0
7803-8	S-3	B-2/7.5'-9'	8/11/2015	8/12/2015	M2	214.10	997.20	945.80	7.0
7803-9	S-4	B-2/10'-11.5	8/11/2015	8/12/2014	AJ	164.90	641.80	613.9	6.2
7803-10	S-5	B-2/15'-16.5'	8/11/2015	8/12/2015	X6	196.1	667.50	626.20	9.6
7803-11	S-2	B-3/5'-6.5'	8/11/2015	8/12/2015	X9	230.8	677.0	656.8	4.7
7803-12	S-3	B-3/7.5'-9'	8/11/2015	8/12/2015	AB	157.4	626.9	592.10	8.0
7803-13	S-4	B-3/10'-11.5'	8/11/2015	8/12/2015	9A	162.0	624.3	567.9	13.9
7803-14	S-2	B-4/5'-6.5'	8/11/2015	8/12/2015	X5	198.3	738.8	630.8	25.0
7803-15	S-3	B-4/7.5'-9'	8/11/2015	8/12/2015	X8	194.5	931.2	891.4	5.7
7803-16	S-4	B-4/10'-11.5'	8/11/2015	8/12/2015	X7	193.0	574.7	540.1	10.0
7803-17	S-5	B-4/15'-16.5'	8/11/2015	8/12/2015	M4	190.2	724.8	679.30	9.3

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						52.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	52.8		

* (no specification provided)

Soil Description
B-1 S-1 2.5'-4'

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= D₈₅= D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= AASHTO=

Remarks
 Station 22 Bucklin Hill

Location: B-1 S-1
Sample Number: 7803-1

Depth: 2.5-4'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-1 S-1

Depth: 2.5-4'

Sample Number: 7803-1

Material Description: B-1 S-1 2.5'-4'

Date: 08/12/2015

Testing Remarks: Station 22 Bucklin Hill

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 453.00
 Tare Wt. = 123.00
 Minus #200 from wash = 52.8%

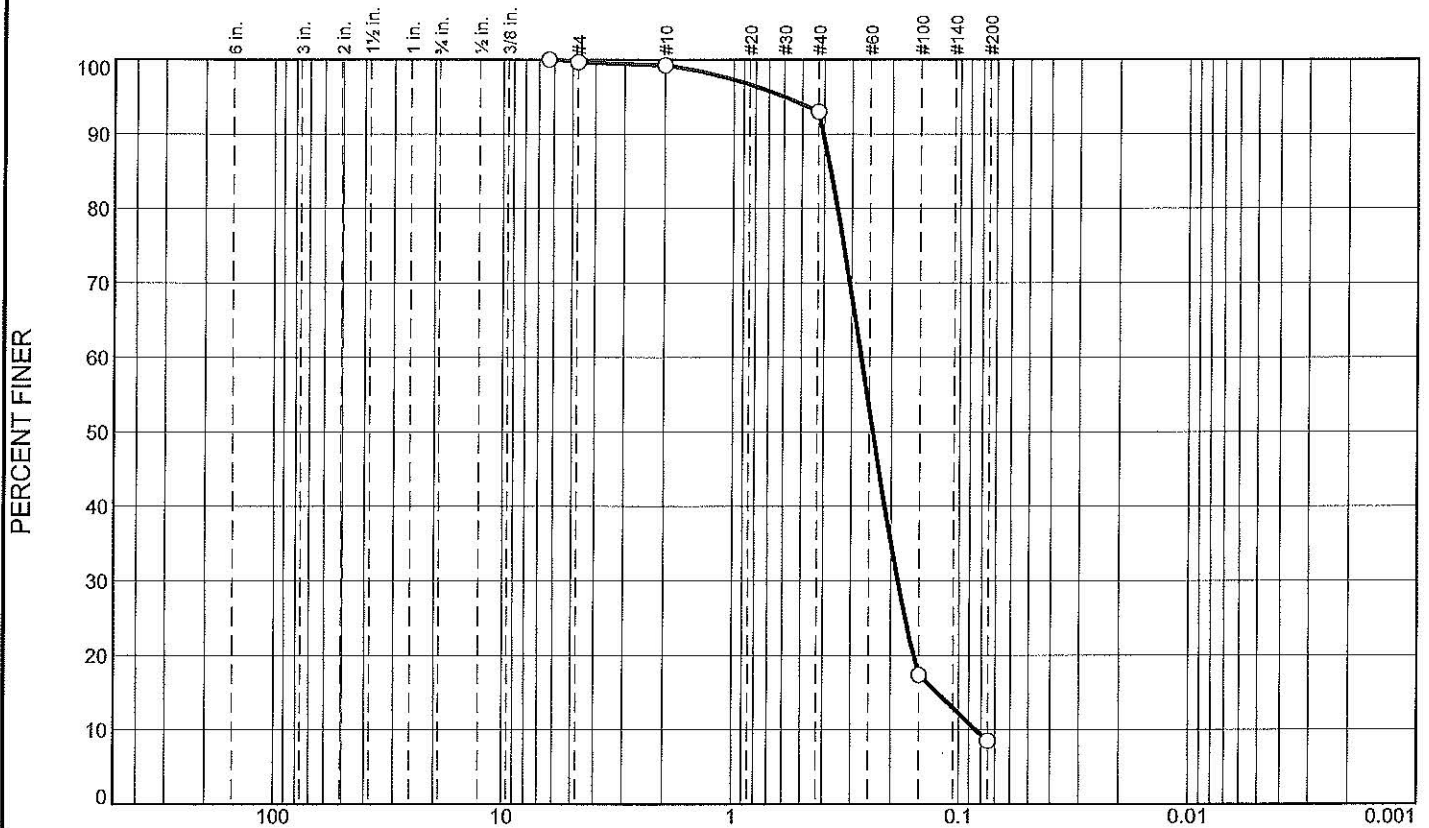
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
822.30	123.00	#200			52.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										52.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	6.2	84.5	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/4"	100.0		
#4	99.6		
#10	99.2		
#40	93.0		
#100	17.4		
#200	8.5		

* (no specification provided)

Soil Description

Sand with Silt

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 0.4040

D₈₅= 0.3742

D₆₀= 0.2720

D₅₀= 0.2414

D₃₀= 0.1865

D₁₅= 0.1246

D₁₀= 0.0842

C_u= 3.23

C_c= 1.52

Classification

USCS= SW-SM

AASHTO=

Remarks

Station 22 Bucklin Hill

B-2 S-3 7.5'-9'

Location: B-2 S-3

Sample Number: 7803-8

Depth: 7.5'-9'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/20/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-2 S-3

Depth: 7.5'-9'

Sample Number: 7803-8

Material Description: Sand with Silt

Date: 08/12/2015

USCS Classification: SW-SM

Testing Remarks: Station 22 Bucklin Hill

B-2 S-3 7.5-9'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 888.70

Tare Wt. = 214.10

Minus #200 from wash = 7.8%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
945.80	214.10	1/4"	0.00	0.00	100.0
		#4	2.60	0.00	99.6
		#10	3.20	0.00	99.2
		#40	45.60	0.00	93.0
		#100	553.20	0.00	17.4
		#200	64.80	0.00	8.5

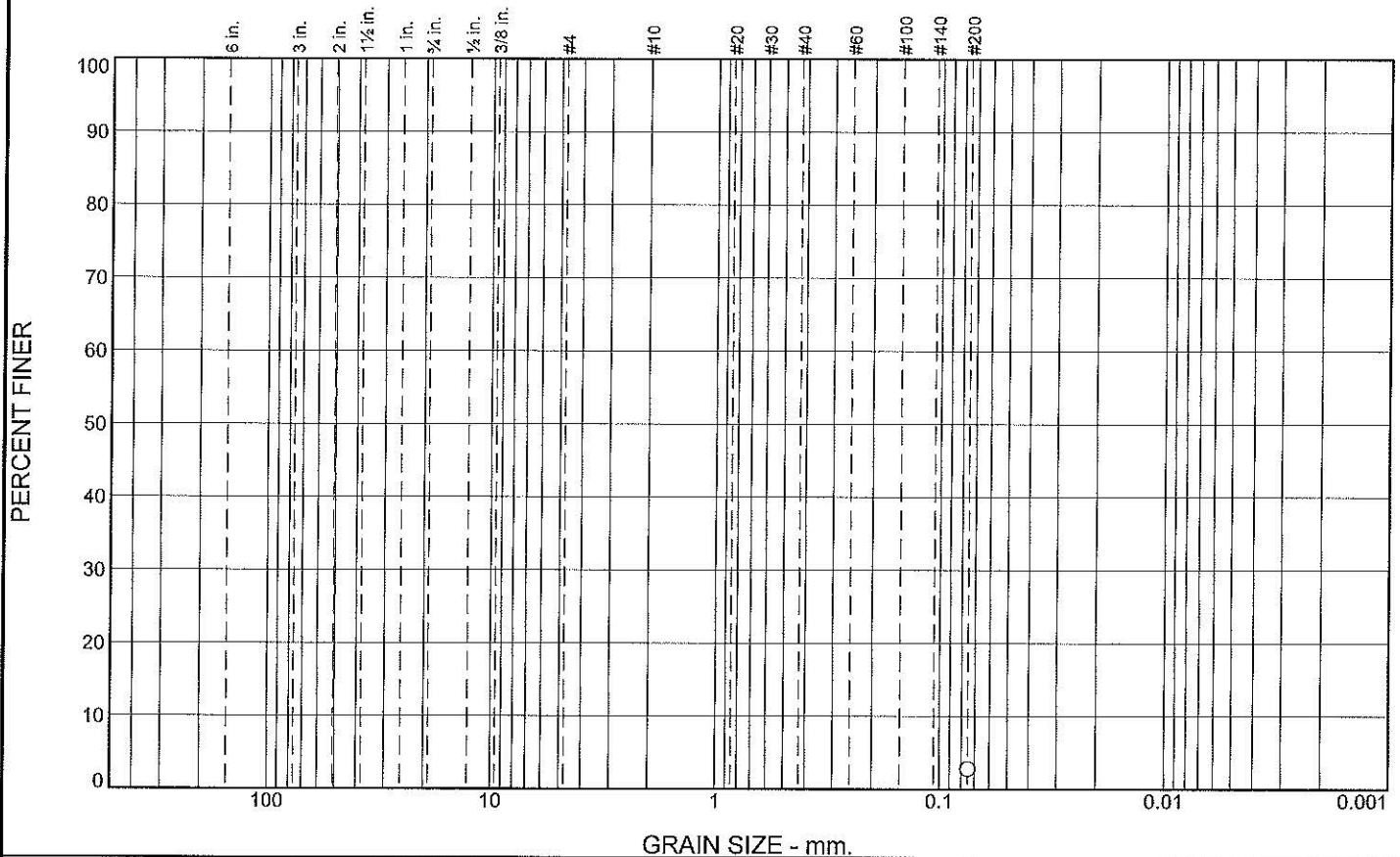
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.4	6.2	84.5	91.1			8.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0842	0.1246	0.1584	0.1865	0.2414	0.2720	0.3489	0.3742	0.4040	0.6037

Fineness Modulus	C _u	C _c
1.23	3.23	1.52

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							2.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	2.8		

* (no specification provided)

Soil Description
B-3 S-2 5-6.5'

Atterberg Limits
PL= LL= PI=

Coefficients
D₉₀= D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification
USCS= AASHTO=

Remarks
Statin 22 Bucklin Hill
B-3 S-2 5-6.5'

Location: B-3 S-2
Sample Number: 7803-11 Depth: 5-6.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
Project: Bainbridge Island Fire Station 21 and 22
Project No: 150136/08-175

Figure

Tested By: B.H. Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-3 S-2

Depth: 5-6.5'

Sample Number: 7803-11

Material Description: B-3 S-2 5-6.5'

Date: 08/12/2015

Testing Remarks: Statin 22 Bucklin Hill

B-3 S-2 5-6.5'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 644.80
Tare Wt. = 230.80
Minus #200 from wash = 2.8%

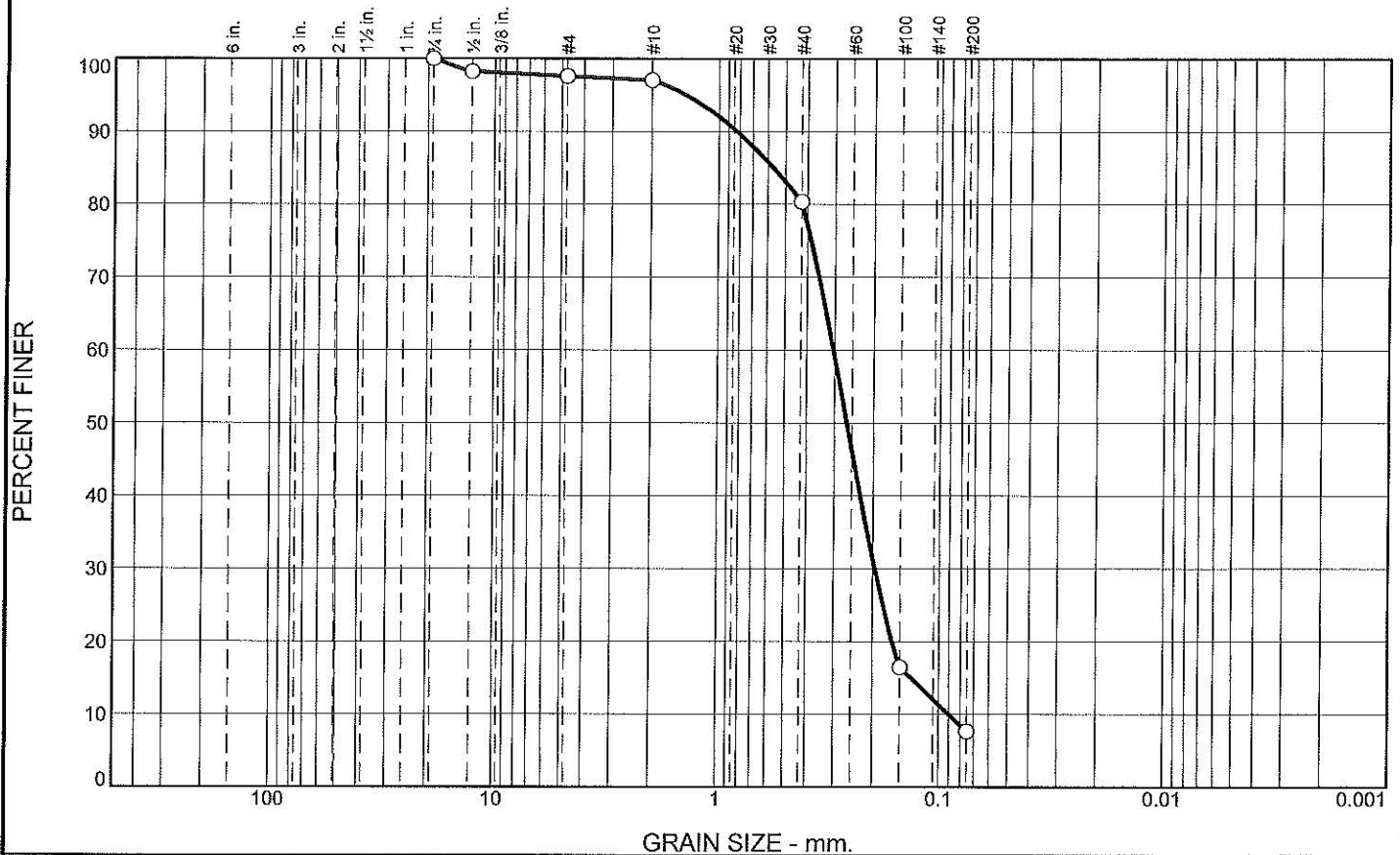
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
656.80	230.80	#200			2.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										2.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	0.6	16.6	72.7	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	98.2		
#4	97.6		
#10	97.0		
#40	80.4		
#100	16.5		
#200	7.7		

* (no specification provided)

Soil Description
Sand with Silt

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.8283 D₈₅= 0.5675 D₆₀= 0.3051
 D₅₀= 0.2644 D₃₀= 0.1961 D₁₅= 0.1337
 D₁₀= 0.0901 C_u= 3.38 C_c= 1.40

Classification
 USCS= SW-SM AASHTO=

Remarks
 Station 22 Bucklin Hill
 B-4 S-5 15-16.5

Location: B-4 S-5
 Sample Number: 7803-17

Depth: 15-16.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
 Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-4 S-5

Depth: 15-16.5'

Sample Number: 7803-17

Material Description: Sand with Silt

Date: 08/12/2015

USCS Classification: SW-SM

Testing Remarks: Station 22 Bucklin Hill
B-4 S-5 15-16.5

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 645.50
Tare Wt. = 190.20
Minus #200 from wash = 6.9%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
679.30	190.20	3/4"	0.00	0.00	100.0
		1/2"	8.60	0.00	98.2
		#4	3.20	0.00	97.6
		#10	2.80	0.00	97.0
		#40	81.40	0.00	80.4
		#100	312.60	0.00	16.5
		#200	43.00	0.00	7.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.4	2.4	0.6	16.6	72.7	89.9			7.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0901	0.1337	0.1631	0.1961	0.2644	0.3051	0.4219	0.5675	0.8283	1.4080

Fineness Modulus	C _u	C _c
1.53	3.38	1.40

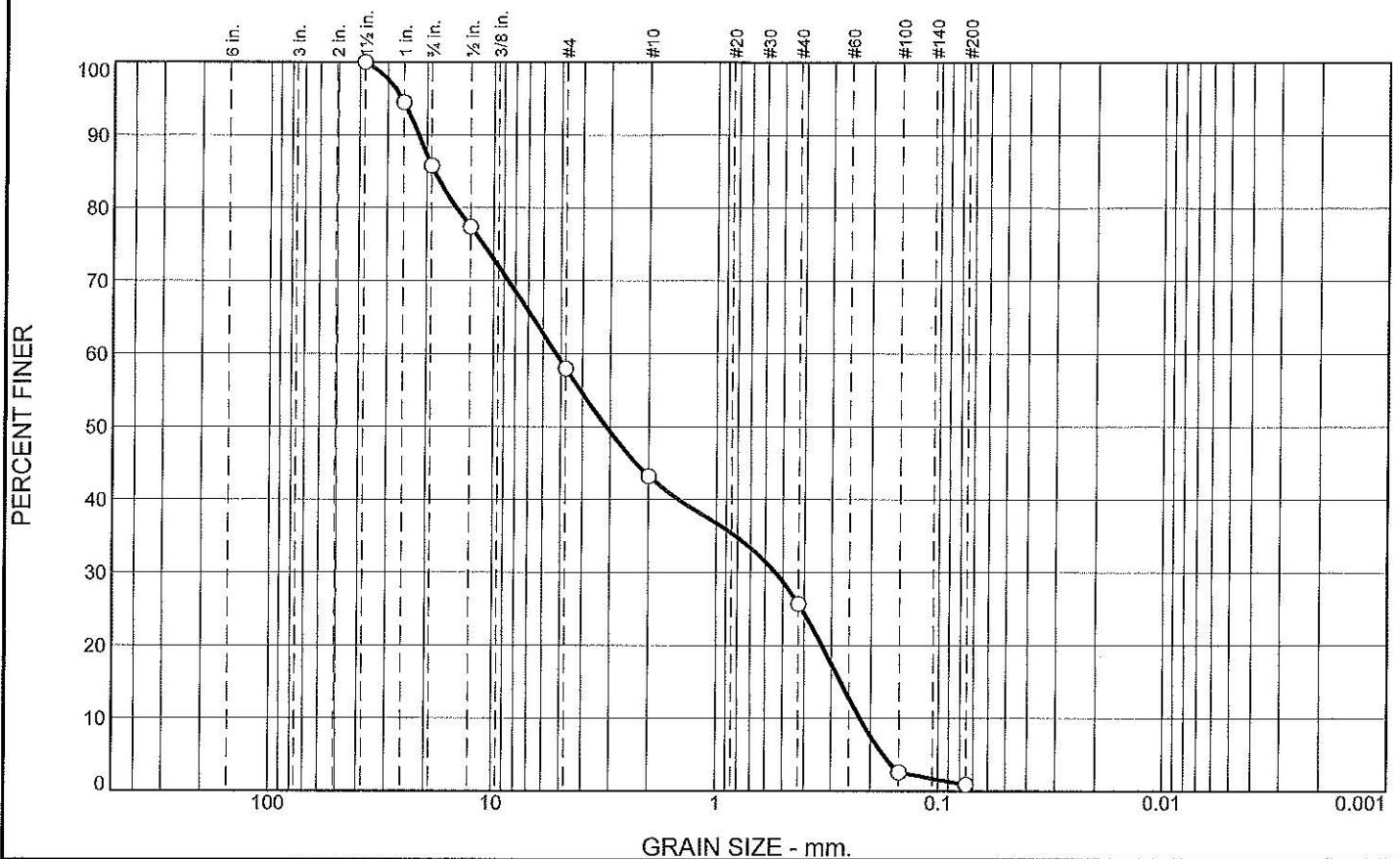
Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Island Fire Station 22 Project# 150136/08175

HMA Sample #	Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7815-1	TP-1 S-1	5.5'	11/6/2015	11/6/2015	B-4	15.7	740.0	721.3	2.7
7815-2	TP-2 S-1	4.5'	11/6/2015	11/6/2015	A-19	15.8	523.2	465.8	12.8

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.2	27.9	14.7	17.5	24.8	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	94.4		
3/4"	85.8		
1/2"	77.4		
#4	57.9		
#10	43.2		
#40	25.7		
#100	2.6		
#200	0.9		

* (no specification provided)

Soil Description		
Sand with Gravel		
Atterberg Limits		
PL=	LL=	PI=
Coefficients		
D ₉₀ = 21.8353	D ₈₅ = 18.5137	D ₆₀ = 5.2651
D ₅₀ = 3.1297	D ₃₀ = 0.5410	D ₁₅ = 0.2731
D ₁₀ = 0.2232	C _u = 23.58	C _c = 0.25
Classification		
USCS= SP	AASHTO=	
Remarks		
TP-1 S-1 5.5'		

Location: TP-1 S-1

Sample Number: 7815-1

Depth: 5.5'

Date: 11/10/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

APPENDIX C

Infiltration Testing Results

C.1 Pilot Infiltration Tests (PITs)

Two small-scale PITs were completed at the Site in the locations shown on Figure 2. The PITs were completed in general accordance with the small-scale pilot infiltration test (PIT) methods described in the *2014 Stormwater Management Manual for Western Washington* with minor modifications to facilitate more expedited testing and to provide more reliable estimates of infiltration rate.

The PITs were excavated to the approximate proposed receptor depth for the infiltration facilities being considered, filled with water from the on-Site facilities, soaked/saturated for several hours, and then falling-head tests were performed.

Excavation for the small-scale PITs was completed with a Case 580 backhoe and water for the testing was supplied by the Fire Department on-Site facilities. The excavations were completed to the approximate proposed receptor depth of 4.5 to 5.5 feet bgs and samples were obtained at the receptor depth. The excavations were typically 5 feet square in dimension. The excavations were filled with at least one foot of water and soaked for several hours and then inflow was stopped to allow for falling-head testing. The water level (stage) within the pits was monitored and recorded with a manual staff gauge as well as a submersible pressure transducer (diver) setup to take readings every minute during the testing. Upon completion of the falling-head testing, the pits were excavated an additional 3 to 4 feet in depth to further characterize the soil conditions below the receptor depth.

Logs of the test pits are shown in Appendix A. Plots of the infiltration test data are shown in Appendix C.

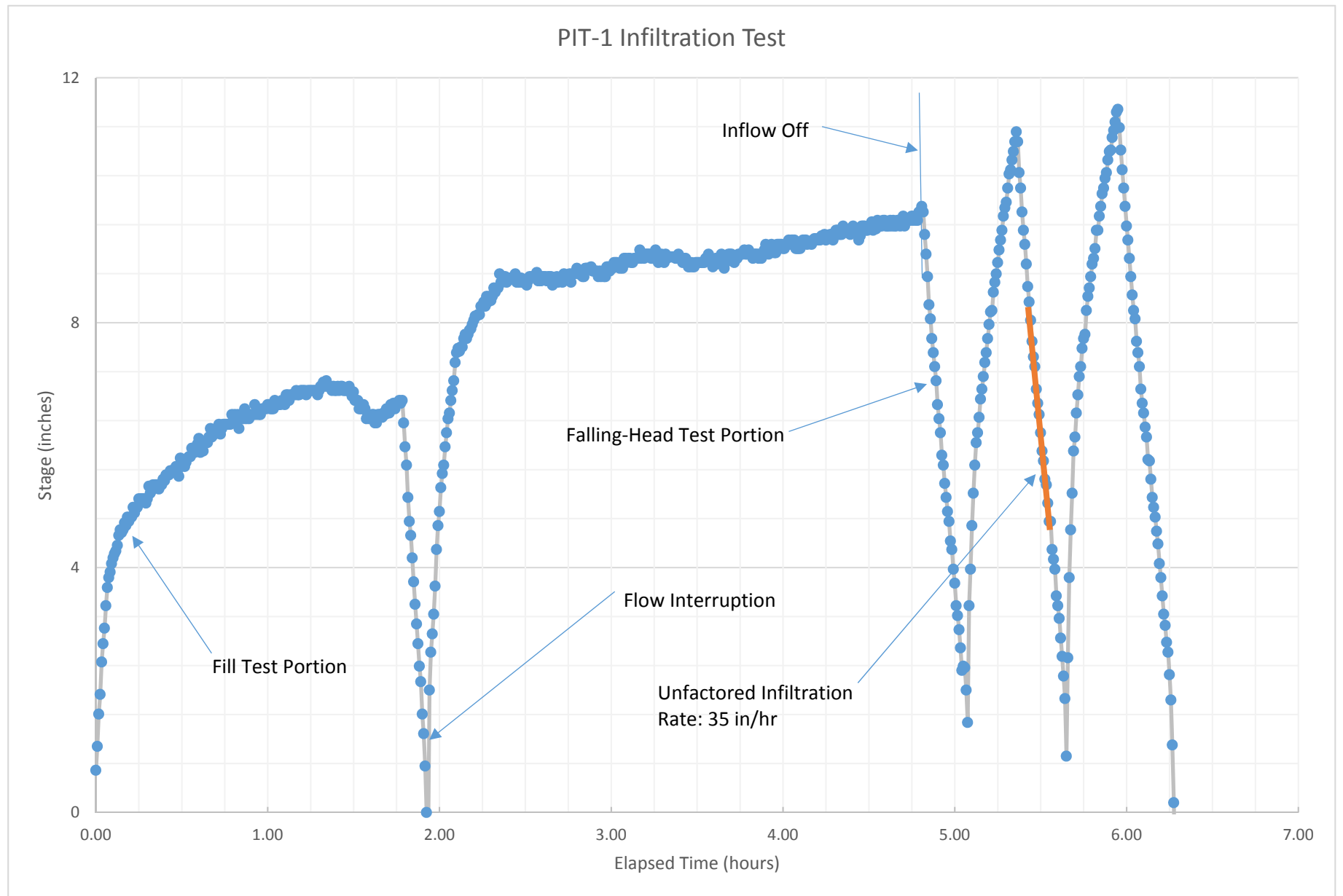


Figure C-1

PIT-1 Infiltration Test Data

BIFD Station 22

150136-02

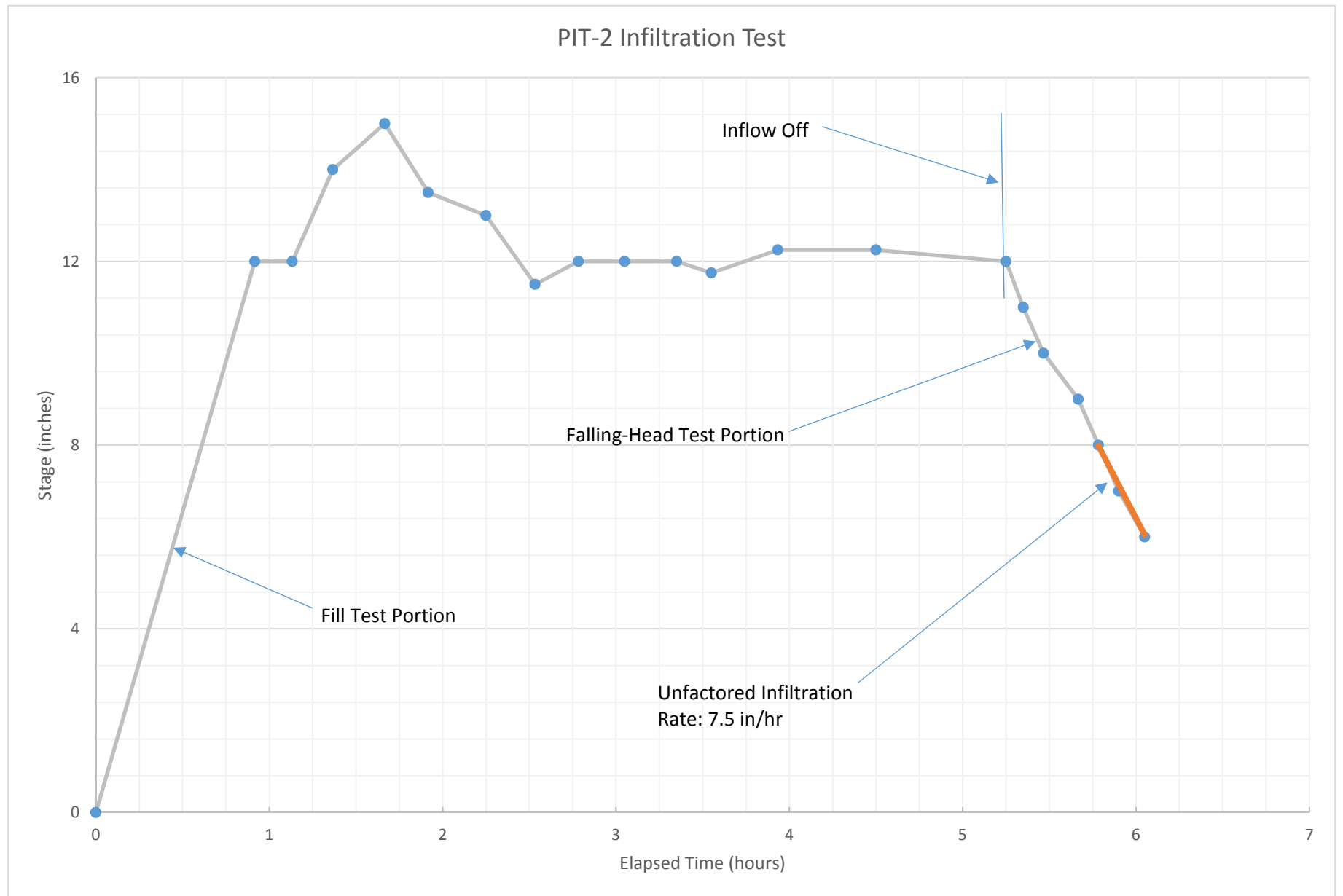


Figure C-2
PIT-2 Infiltration Test Data
BIFD Station 22
150136-02

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

EXHIBIT C

☐ “Pre-App” Meeting Checklist

☒ “Post-App” Meeting Checklist

Project Name/Case #: Bainbridge Island Fire Department – Station 22

Land Use Application
(Pre-app, Site Plan
Review etc.):

Site Plan & DRB Application

Project Description:

This project surrounds the redevelopment of the existing Bainbridge Island Fire Department, Station 22. The redeveloped fire station is a single story structure with a gross floor area of approximately 16,808 square feet. The site area consists of 56.1 percent landscape area and 30 parking spaces. The building will be approximately 26 feet in height at the maximum. The building consists of living quarters, meeting spaces, offices, storage areas, and the apparatus bay.

Applicable Design Guidelines				
Design Guideline	Intent	Description	Applicant Response	DRB Action (Y/N)
1.	To develop variation in façade treatment to provide visual interest.	Vary building materials or patterns to produce variations in texture.	The proposed design utilizes varying materials; wood, concrete, concrete composite paneling and a mix of metal paneling that additionally offers alternating textures and visual interest to the buildings prime façade treatments. Coupled with the materials and textures, the design team has sought to introduce fenestration gestures that additionally add interest through shadows, sheens and general massing.	

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

2.	To modulate the scale of building masses.	Building elevations shall be vertically modulated in no more than 20' increments or horizontally in no more than 30' increments. Modulation is defined as a change in plane or articulation (such as bands, cornices, setbacks or changes in material).	The proposed design integrates massing elements that seek to best align with the intended building modulation, while maintaining the forms necessary of the building use as a emergency response fire facility. Due to the required special functions required of a fire facility, vertical modulation for such facilities directly affect the functionality. To offset these functional demands, material changes, insets and structural elements have been pronounced to provide visual modulation to the building façade.	
Applicable Design Guidelines				
Design Guideline	Intent	Description	Applicant Response	DRB Action (Y/N)
3.	To limit the visual impact of blank walls and facades and better assure aesthetic appeal.	Blank walls shall not be visible to public spaces. Blank facades should otherwise be limited to the back of buildings or where required by the building code. Treatments to alleviate blank walls shall be similar in materials to facades normally in view of the public.	The building orientation, functions and fenestration design eliminate any publicly facing blank walls.	
4.	To establish visually prominent ground floor facades.	The first floor of multi-storied buildings should be taller than upper floors. Minimum ceiling height should be at least 10' to allow transom or larger display windows. Other elements such as transom windows, canopies, cornices, and prominent entries are encouraged. First floor uses shall be pedestrian oriented and include substantial shop windows. Display windows on the first floor of retail and commercial buildings should be the predominant surface of the first floor.	As a emergency response fire facility, much of which is necessitated by commercial or retail design standards do not readily apply. The design team has, however, sought to utilize entry canopies, exaggerated overhangs, and public facing glazing as a strategy to still align the design with this guideline's intent. The street facing apparatus bay, a prominent design disseminator for any fire station, has be emphasized to showcase the function of the facility but also visually illustrated the fire departments presence	

Design Review Board Design Guideline Checklist
Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

			within the community.	
5.	To maintain pedestrian scale along facades facing public ways.	Facades facing public ways shall incorporate setbacks or articulation that establishes a pattern of bays or window openings. Facades shall include features such as display windows, columns or bays, recessed entries or canopies or other recesses. The use of a variety of materials at the sidewalk level is encouraged. Multiple building entrances are encouraged.	The building itself is setback from the public way to provide both a buffer but also allow opportunities for inclusion of a pedestrian friendly entry plaza. Incorporation of landscape features, seating, stormwater features and canopies seek to provide a pedestrian friendly entry sequence to the property and building lobby.	
Applicable Design Guidelines				
Design Guideline	Intent	Description	Applicant Response	DRB Action (Y/N)
6.	To maintain the pedestrian activities by encouraging continuous frontages along sidewalks.	Where parking fronts onto a public street, the maximum separation between buildings shall be 80 feet. Greater separations are permitted if landscape setbacks are increased or other design features such as low walls, trellises and public spaces are created along the street frontage.	The building is a standalone structures on the site. Inclusion of landscape features have been incorporated where feasible and appropriate. The building facades constitute the majority of the frontage facing.	
7.	To reduce overall scale of the building into multiple building masses.	Facades over 128' in length shall be separated by pedestrian passage or open space. Passages should be at least 12' wide and two stories in height if covered. Façade setback should be expressed at the roof line by changes in plane. Passage should connect to public open space.	Due to the building function and operational necessities, the building itself cannot be parceled or split as it would negatively affect the functionality of the fire department and their response times. The design team, however, has sought to introduce jogs in the building foot print and noted façade modulations to visually offset the overall scale of the building mass. In addition, the building height, where allowable by program	

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

			functions, has been stepped in height to add visual impression of multiple building masses.	
8.	To encourage the creation of public outdoor spaces.	Building setbacks may be increased for the creation of public outdoor seating areas. Entry alcoves and small outdoor spaces may be located between the building and the sidewalk.	The design team has introduced a pedestrian oriented plaza space that serves as the entry sequence and breakout space for the abutting community room space. We have additionally provide enlarged planting areas adjacent the building to breakdown the overall scale of the building, showcase native vegetation and illustrate stormwater treatment solutions.	
9.	To soften the impact of the built environment.	Encourage public pedestrian passageways and vegetation between buildings.	The design team has utilized the noted public entry space as a break between the building and adjacent vegetated spaces. Selective vegetation, lighting and pedestrian scaled trees have been incorporated to further break down the building scale.	
10.	To encourage compatibility of development with both community and neighborhood characteristics.	Building designs should respond to nearby buildings that meet the upgraded design standards by using shared elements, materials or massing.	The exterior building materials have been selected to compliment the communities design attributes, while still maintaining a high level of durability and be low maintenance to the fire department. The materials and their accompanying structural system have additionally been selected to complement the island's design aesthetic. Such materials as glu-lam girders, timber bracing, formed concrete and composite wood siding have been paired with metal roofing, composite siding and metal paneling for a balance between warm and cool materials. Exaggerated overhangs, bracing and canopies have further been incorporated to take on many	

Design Review Board Design Guideline Checklist
Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

			of the attributes of community structures.	
Applicable Design Guidelines				
Design Guideline	Design Guideline	Design Guideline	Design Guideline	Design Guideline
11.	To minimize the intrusiveness of commercial signage.	Signage, corporate colors and other icons of the business may not dominate the exterior of the building. including canopies and separate outdoor structures covering activities associated with the business. Color should be used to express changes in detail or material but exterior building or structure colors may not be used as signs, or the extension of signs. When businesses are sold or tenants are changed, any sign modification shall trigger this requirement.	This facility is designed to serve as a single user building for the Bainbridge Island Fire Department. Selection and incorporation of signage on this facility is aimed at providing a consistent signage solution between the stations and clearly illustrating the particular station numbers to ensure easily distinguishable facilities to the community and its visitors. These signage solutions do not serve to advertise but rather to easily identify them for the particular emergency response facilities they are.	
12.	To improve the pedestrian environment around buildings and minimize curb cuts.	Where a drive through facility is allowed, drive throughs must be in conjunction with a parking lot that serves the same business, must be to the side or rear of the building and should not be visible from public streets. Drive throughs should consist of no more than a single vehicle lane.	Not applicable.	
13.	To provide pedestrian access to buildings.	Provide multiple entrances along streets. Pedestrian passageways are encouraged.	The bulk of the fire station is primarily a secure facility and not accessible by the public. Where public elements exist, such as the lobby and community room, pedestrian access and entry sequences have been provided.	

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030

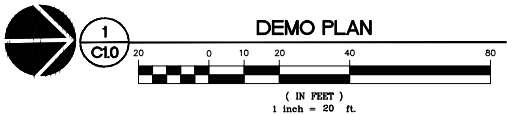
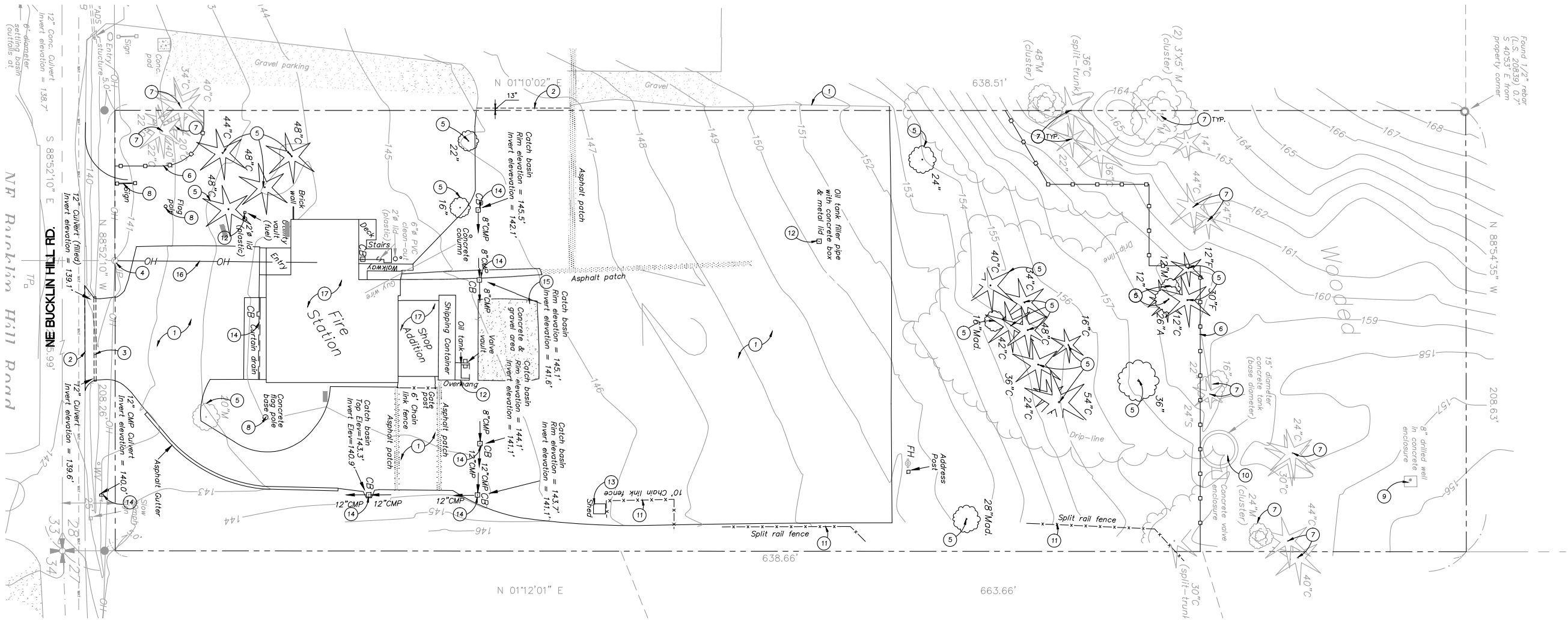
14.	To provide weather protection for pedestrians.	Recessed entries and/or overhead weather protection above the sidewalk entrances shall be used.	Entry canopies have been provided for the public entries to the facility.	
15.	To maintain smaller scale commercial buildings.	Buildings in excess of a 10,000 square foot footprint should be visually split into two or more distinct elements.	As noted in additional guidelines, the building's operational program necessities define the building proper and its general massing. The design team has included steps in building height where functionally or programmatically feasible. These massing changes aid in visually breaking down the overall scale of the structure.	
Applicable Design Guidelines				
Design Guideline	Design Guideline	Design Guideline	Design Guideline	Design Guideline
16.	To reduce the visual impact of parking areas.	Create small parking clusters connected by vegetated landscaping and pedestrian walkways. Internal streets that connect or serve parking areas shall be designed as streets with sidewalks, planters and pedestrian scale lighting.	The design team has located the public parking to the front of the public entry, however, have placed it back from the street to provide a visual buffer and allow incorporation of increased landscape buffering. Additional operation parking for fire staff has been located within the secure lot, which reduces the overall visual impact of the parking areas.	

**Guidelines Requiring
Action per DRB:**

**DRB Summary Motion
on Actions:**

Design Review Board Design Guideline Checklist

Commercial and Mixed-Use Design Guidelines for All Zoning Districts– BIMC 18.18.030



KEYNOTES

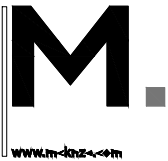
1. REMOVE EXISTING ASPHALT AND BASE ROCK
2. SAW-CUT EXISTING ASPHALT
3. REMOVE EXISTING 12" CULVERT
4. EXISTING POWER POLE TO REMAIN
5. EXISTING TREE TO BE REMOVED
6. PROVIDE TREE PROTECTION PRIOR TO DEMOLITION WORK
7. EXISTING TREE TO REMAIN
8. EXISTING SIGN AND FLAG POLE, SALVAGE AND STORE ON-SITE
9. EXISTING WELL TO REMAIN
10. EXISTING TANK AND VALVE ENCLOSURE TO REMAIN
11. REMOVE EXISTING FENCE
12. REMOVE EXISTING OIL TANK AND ASSOCIATED HARDWARE. REMOVE, DISPOSE, AND DOCUMENT IN ACCORDANCE WITH ALL APPLICABLE STATE REQUIREMENTS.
13. REMOVE EXISTING SHED
14. REMOVE ALL CATCH BASINS AND STORM DRAIN PIPES.
15. REMOVE EXISTING CONCRETE SLAB.
16. REMOVE EXISTING ELECTRICAL SERVICE.
17. REMOVE EXISTING TIRE STATION BUILDING, SHOP ADDITION AND ADJACENT STAIRS, DECK AND WALKWAYS.

DEMOLITION NOTES

1. DEMOLITION GENERALLY INCLUDES PROPER REMOVAL OF ALL EXISTING IMPROVEMENTS FROM THE SITE, INCLUDING ABOVE AND BELOW GROUND VEGETATION, UTILITIES AND STRUCTURES. KEYNOTES ARE PROVIDED WHERE SPECIFIC REQUIREMENTS MAY BE WARRANTED.
2. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL UTILITIES ARE PROPERLY TURNED OFF PRIOR TO ANY SITE OR BUILDING DEMOLITION.
3. ALL HAZARDOUS MATERIALS (IF ANY ARE FOUND TO EXIST) SHALL BE DISPOSED IN ACCORDANCE WITH DEQ REQUIREMENTS.
4. INSTALL APPROPRIATE EROSION CONTROL MEASURES AND SECURITY FENCES PRIOR TO DEMOLITION.
5. COORDINATE DEMOLITION WORK WITH THE PROPOSED SITE DEVELOPMENT PLANS.
6. ALL EXCAVATIONS SHALL BE BACKFILLED WITH MATERIALS, AND COMPACTED, AS SPECIFIED IN THE GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS.
7. DO NOT STOCKPILE DEMOLISHED MATERIALS, OR SOILS, ON-SITE FOR EXTENDED PERIODS OF TIME.

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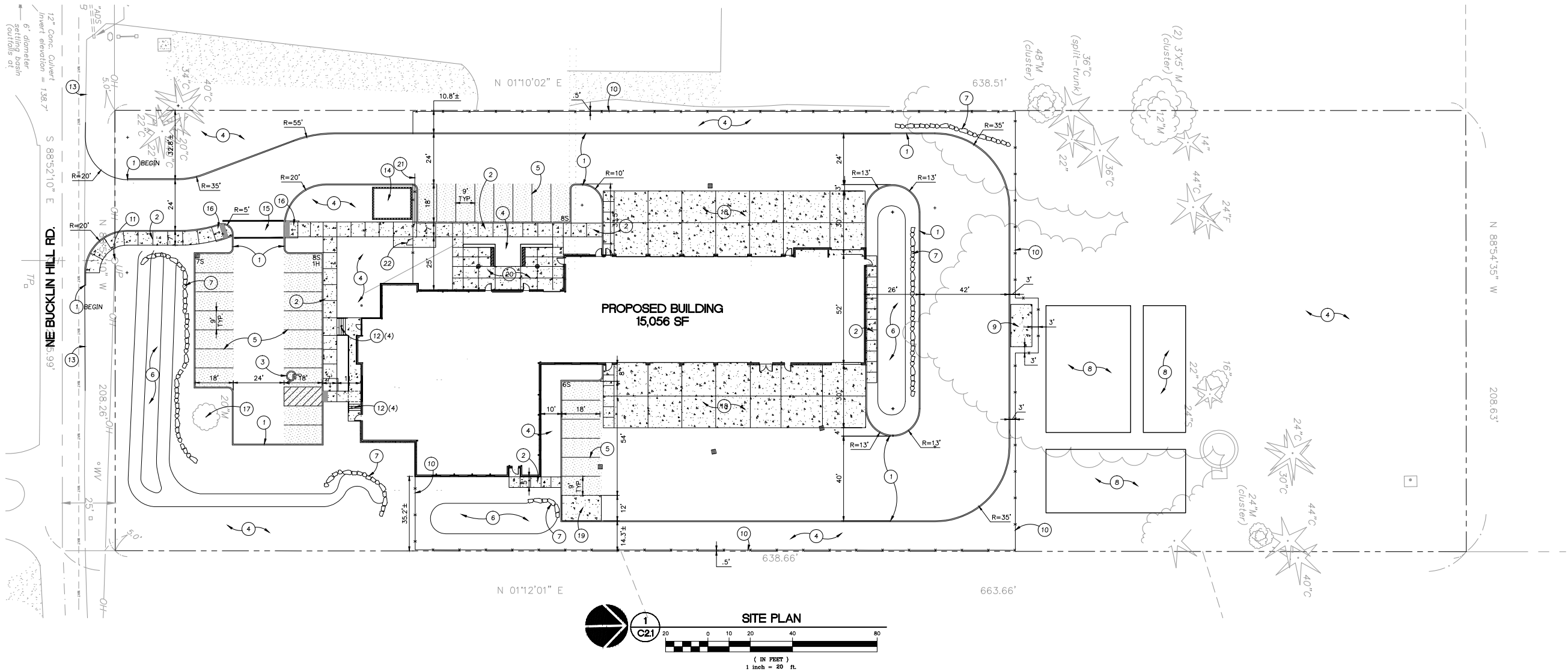
SHEET TITLE:

DEMOLITION PLAN

SHEET

C2.0

JOB NO. 2150124.00



GENERAL NOTES

- ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING. PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED TO MEET CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY-TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. (ONE CALL LOCATE UTILITY NOTIFICATION CENTER - 1-800-332-2344).
- WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE END OF THE EXISTING PIPE VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.

CURB NOTE

ALL CURB RADII TO BE 2.5' UNLESS OTHERWISE NOTED

KEYNOTES

- CONCRETE VERTICAL CURB PER DETAIL 1/C8.0
- CONCRETE SIDEWALK PER DETAIL 2/C8.0
- ADA ACCESSIBLE PARKING STALL PER DETAIL 3/C8.0
- LANDSCAPE AREA, SEE LANDSCAPE PLANS
- 4" WIDE WHITE PARKING STRIPE
- STORMWATER FACILITY, SEE GRADING PLAN
- ROCK WALL, SEE GRADING PLAN
- TEMPORARY FACILITIES
- FUELING PAD
- CHAIN LINK FENCE
- EXISTING POWER POLE TO REMAIN, PROTECT DURING CONSTRUCTION
- CONCRETE RISER, SEE GRADING PLAN
- EDGE OF ASPHALT
- TRANSFORMER
- 12" WHITE CROSSWALK STRIPE
- SIDEWALK RAMP PER DETAIL 8/C8.0 AND 9/C8.0
- EXISTING TREE TO REMAIN, PROTECT DURING CONSTRUCTION
- CONCRETE APRON, SEE PAVING LEGEND
- GENERATOR PAD
- PATIO AREA, SEE GRADING PLAN FOR DETAILS
- MOTORIZED ROLLING GATE
- PERSONNEL GATE

SITE DATA

SITE AREA	133,109 SF (3.06 AC)
BUILDING FOOTPRINT	15,056 SF
BUILDING COVERAGE	11.3%
LANDSCAPE AREA	74,794 SF (56.2%)

PARKING DATA

PARKING PROVIDED	29 SPACES
STANDARD	1 SPACE
ACCESSIBLE	0 SPACES
COMPACT	
TOTAL	30 SPACES (2.0/1,000)

LEGEND

CONCRETE VERTICAL CURB	
PROPERTY LINE	
ROCK RETAINING WALL	
MANHOLE	
CATCH BASIN	
FIRE HYDRANT	
EXISTING TREE TO REMAIN	

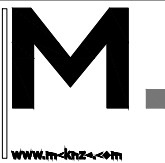
PAVEMENT LEGEND

(SEE SPECIFICATIONS FOR ADDITIONAL PAVEMENT DETAILS)

CAR PARKING	
3" AC OVER 6" ROCK BASE	
TRUCK AREAS	
4" AC OVER 8" ROCK BASE	
CONCRETE APRON	
6" CONCRETE (4,000 PSI)	
OVER 6" ROCK BASE	

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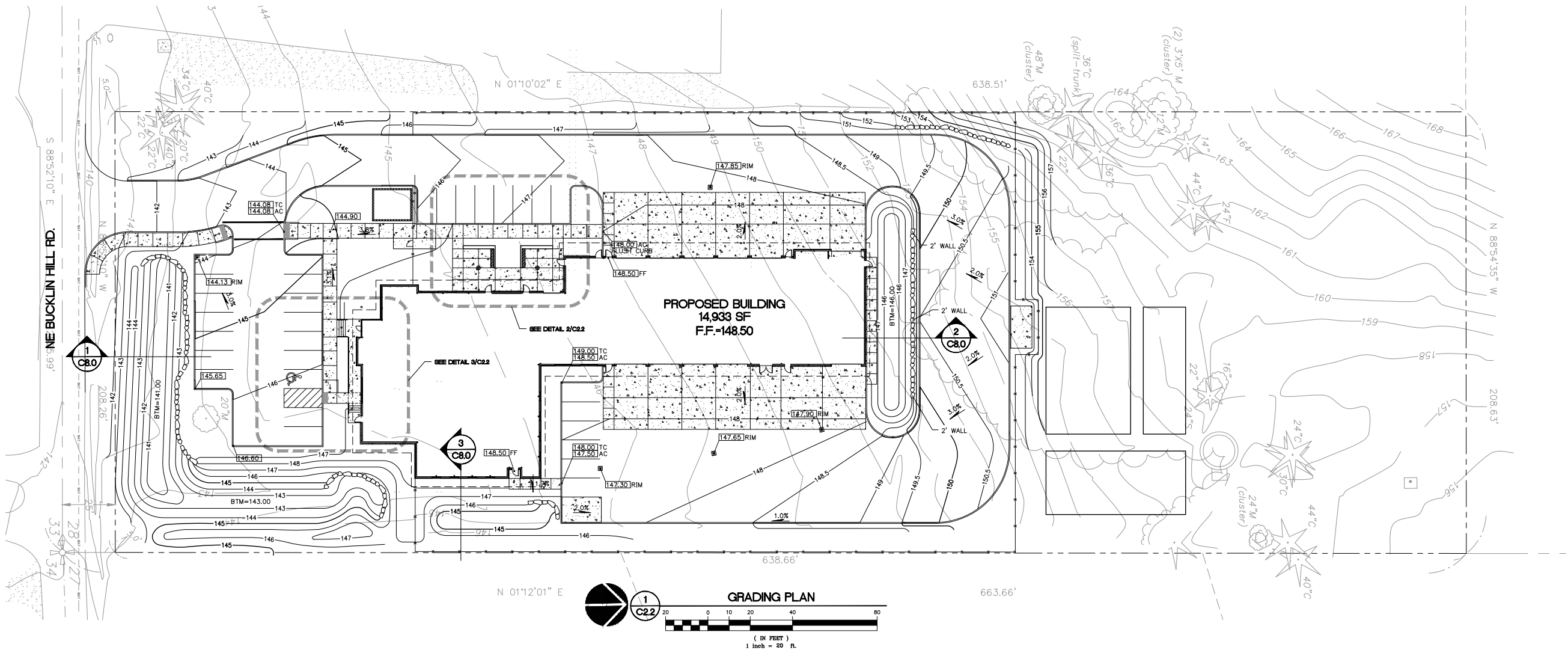
SITE PLAN

SHEET

C2.1

JOB NO. 2150124.00

SITE PLAN REVIEW: 1/13/16



GRADING NOTES

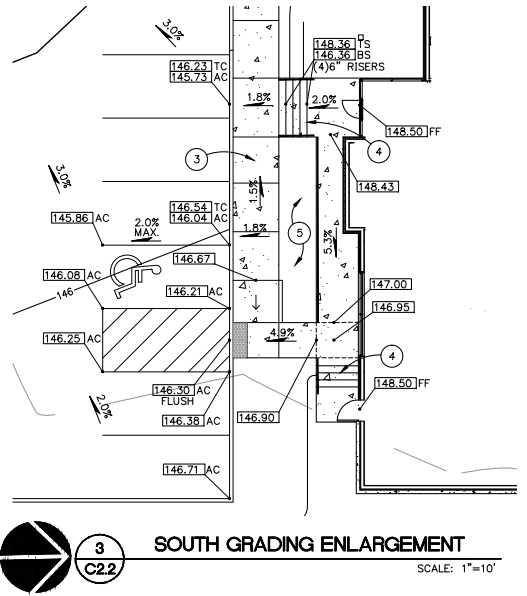
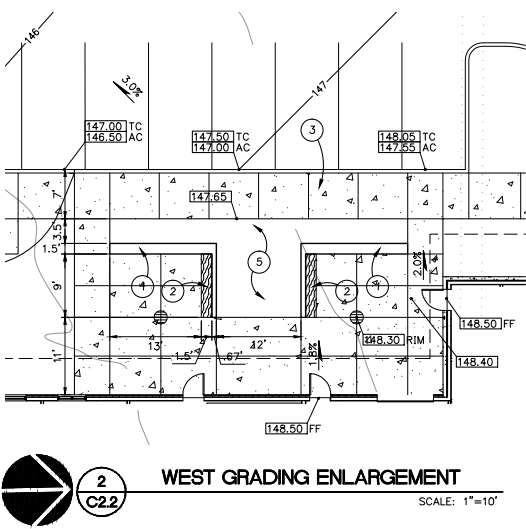
- ROUGH GRADING: BRING ALL FINISH GRADES TO APPROXIMATE LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. ROUGH GRADE TO ALLOW FOR DEPTH OF CONCRETE SLABS, WALKS, AND THEIR BASE COURSES. GRADE FOR PAVED DRIVES AND PAVED PARKING AREAS AS INDICATED AND SPECIFIED HEREIN, AND PROVIDE FOR SURFACE DRAINAGE AS SHOWN, ALLOWING FOR THICKNESS OF SURFACING MATERIAL.
FINISH GRADING: AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER CRAFTS HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES. GRADING TOLERANCES:
ROUGH GRADE AT PAVED OR LANDSCAPED AREAS: ± 0.1 FT.
FINISH GRADE PRIOR TO PLACING FINAL SURFACING: ± 0.03 FT.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS 72 HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE SO ROUTED THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- SITE TOPSOIL SHALL BE STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING.
- THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY BY ADAM & GOLDSWORTHY, INC., AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS WITH HIS OWN RESOURCES PRIOR TO START OF ANY CONSTRUCTION.
- CONTRACTOR TO COORDINATE GRADES AT ENTRANCE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
- 2% MAXIMUM SLOPE AT ALL ADA-COMPLIANT PARKING SPACES AND LOADING ZONES.
- 5% MAX SLOPE (EXCLUDING RAMPS) AT PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES.
- WHERE SLOPES ARE STEEPER THAN 3:1, CONTRACTOR SHALL INSTALL JUTE MATTING. SLOPE SHALL BE PREPARED TO ENSURE COMPLETE AND DIRECT CONTACT OF MATTING WITH SOIL. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

LEGEND

PROPERTY LINE	---
EXISTING CONTOUR	185'
PROPOSED 1-FT CONTOUR	134
PROPOSED 5-FT CONTOUR	135
EXISTING TREE TO REMAIN	○
SPOT GRADE	142.00
TOP OF CURB ELEVATION	142.00 TC
EXISTING GUTTER	142.00 EX. GUT
ASPHALT GRADE	142.00 AC
RIM ELEVATION	142.00 RIM
TOP OF RETAINING WALL	142.00 TW
BACK OF WALK	142.00 BOW

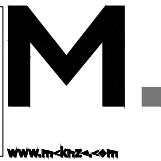
KEYNOTES

- CONCRETE SEAT WALL
- WOOD BENCH ATTACHED TO WALL
- CONCRETE SIDEWALK
- CONCRETE RISER PER DETAIL 10/C8.1
- LANDSCAPE AREA



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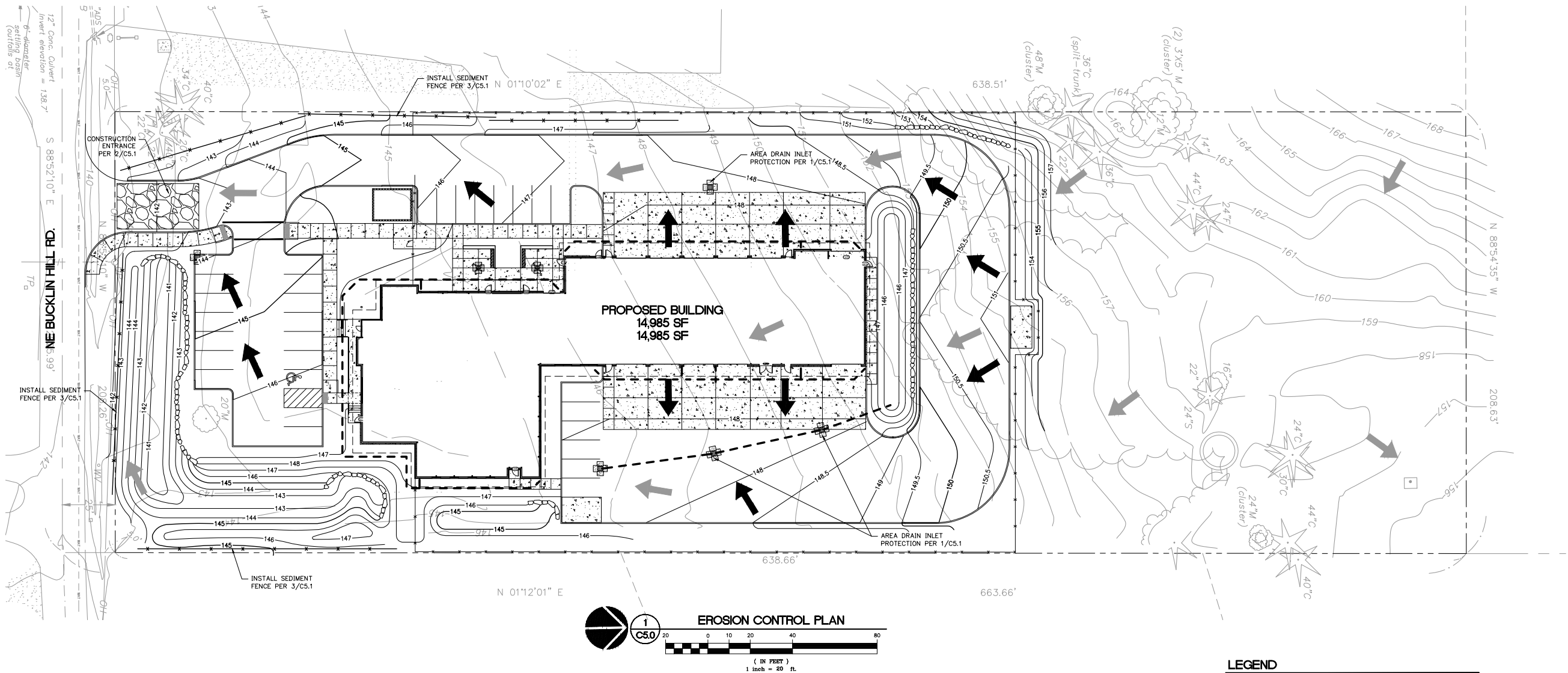
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GRADING PLAN

SHEET

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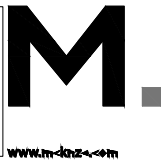
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LEGEND	
	SEDIMENT FENCE
	CONSTRUCTION ENTRANCE
	EXISTING DRAINAGE FLOW DIRECTION
	DRAINAGE FLOW DIRECTION
	EXISTING TREE TO REMAIN, PROVIDE TREE PROTECTION
	INLET PROTECTION

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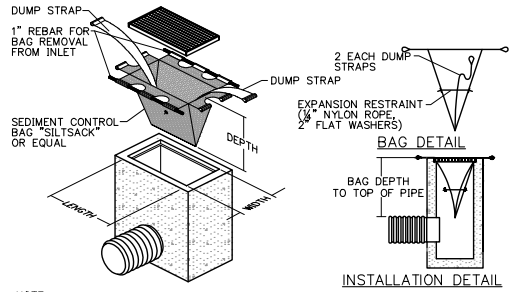
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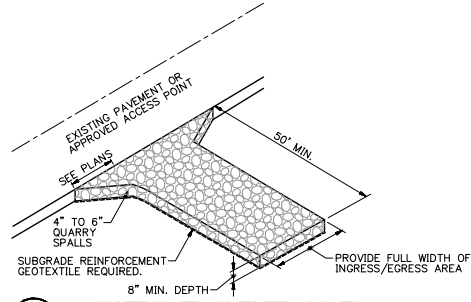
SHEET TITLE:
EROSION CONTROL PLAN

SHEET
C5.0
JOB NO. 2150124.00

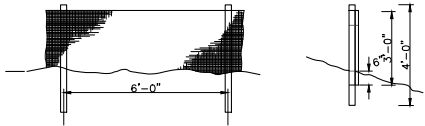


- NOTE:
1. THE DIMENSION CHART ABOVE IS FOR STANDARD CATCH BASINS AND INLETS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET.
 2. THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
 3. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF NORMAL FLOW DESIGN, 40 GAL/MIN/SF WITH NO OVERFLOWS.
 4. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
 5. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.

1 AREA DRAIN SEDIMENT FILTER BAG
C5.1 N.T.S. OBSACKS



2 CONSTRUCTION ENTRANCE
C5.1 N.T.S. E-ENTRY



- TOP VIEW
- ANGLE BOTH ENDS OF SEDIMENT FENCE TO ASSURE SOIL IS TRAPPED.
- NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" MIN. VERTICALLY BELOW GRADE.
 2. 2" x 2" FIR, PINE, OR STEEL FENCE POSTS.
 3. STITCHED LOOPS TO BE INSTALLED UPHILL SIDE OF SLOPE.
 4. COMPACT NATIVE FILL IN ALL AREAS OF FILTER FABRIC TRENCH.
 5. ACCUMULATED SEDIMENT CAN BE ALLOWED TO REACH NO MORE THAN ONE-THIRD THE HEIGHT OF THE SEDIMENT FENCE.

3 FILTER FABRIC SEDIMENT FENCE
C5.1 N.T.S. SED-FENCE

TREE PROTECTION MEASURES
UNLESS OTHERWISE INDICATED FOR REMOVAL ALL TREES SHALL RECEIVE PROTECTIVE MEASURES FOR THE DURATION OF THE PROJECT IN ACCORDANCE WITH THE CITY OF GRESHAM REQUIREMENTS.

6" HIGH MINIMUM ORANGE PLASTIC CONSTRUCTION FENCING, SHALL BE ERECTED AND MAINTAINED. FENCING SHALL COMPLETELY SURROUND AT MINIMUM THE TREE DRIP LINE FOR EACH TREE OR GROUP OF EXISTING TREES.

IN AREAS WHERE ROOT ZONE ENCROACHMENT IS UNAVOIDABLE A CERTIFIED ARBORIST SHALL DESIGNATE THE FENCING LOCATION PRIOR TO START OF WORK.

NO ACTIVITY MAY BE CONDUCTED WITHIN ANY DESIGNATED TREE PROTECTION AREA INCLUDING BUT NOT LIMITED TO PARKING EQUIPMENT, PLACING SOLVENTS, STORING MATERIALS AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT, OR OTHER DEBRIS, OR ANY EXCAVATION OR COMPACTION WORK.

DURING CONSTRUCTION NO OBJECTS SHALL BE ATTACHED TO ANY TREE DESIGNATED TO BE RETAINED AND PROTECTED.

MULCH COVER TO MINIMUM DEPTH OF 6", PLYWOOD, OR OTHER SIMILAR MATERIAL REQUIRED AT AREAS ADJOINING DESIGNATED TREE PROTECTION AREAS TO PROTECT ROOTS FROM DAMAGE CAUSED BY HEAVY EQUIPMENT. COORDINATE PLACEMENTS AND LOCATION WITH LANDSCAPE ARCHITECT.

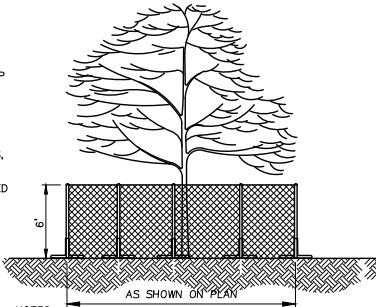
PROTECTION FENCE SHALL BE MAINTAINED IN PLACE UNTIL REMOVAL IS AUTHORIZED BY CITY OR UNTIL A FINAL CERTIFICATE OF OCCUPANCY IS ISSUED.

EXCAVATION / TRENCHING AROUND TREES
PROPOSED TRENCHING AND EXCAVATION AROUND TREES SHALL BE COORDINATED WITH CONSULTING ARBORIST.

WHERE TRENCHING IS REQUIRED WITHIN CRITICAL ROOT ZONE, TUNNEL UNDER OR AROUND ROOTS BY HAND DIGGING OR BORING. DO NOT CUT MAIN LATERAL ROOTS OR TAP ROOTS. CLEANLY CUT/SEVER SMALLER ROOTS.

RELOCATE ROOTS IN BACKFILL AREAS WHEREVER POSSIBLE. DO NOT ALLOW EXPOSED ROOTS TO DRY OUT BEFORE PERMANENT BACKFILL IS PLACED. PROVIDE TEMPORARY EARTH COVER, OR PACK WITH PEAT MOSS AND WRAP WITH BURLAP. WATER AND MAINTAIN IN MOIST CONDITION UNTIL RELOCATED AND COVERED WITH BACKFILL.

4 TREE PROTECTION
C5.1 N.T.S.



NOTES:

TEMPORARY FENCE SHALL BE 6' IN HEIGHT AND SET AS SHOWN.

CITY SHALL APPROVE INSTALLED TREE PROTECTION FENCING PRIOR TO ON-SITE GRADING ACTIVITIES.

FENCE MATERIALS SHALL CONSIST OF ORANGE PLASTIC CONSTRUCTION FENCING SECURED TO A BRACKET ANCHORING SYSTEM OR METAL T-POSTS.

FENCE SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES. MOVEMENT OR REMOVAL OF FENCE REQUIRES APPROVAL BY CITY'S AUTHORIZED REPRESENTATIVE.

4 TREE PROTECTION
C5.1 N.T.S. 1:1

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DEPARTMENT**
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Project

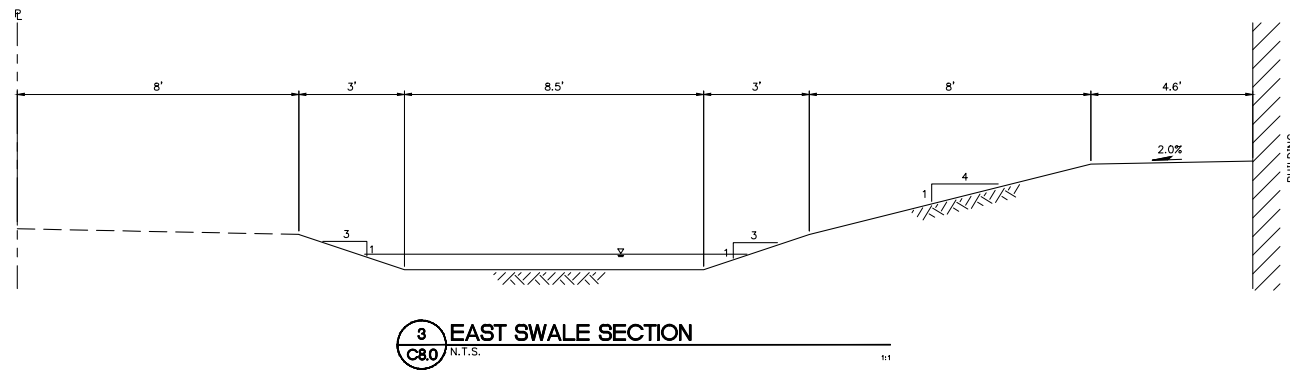
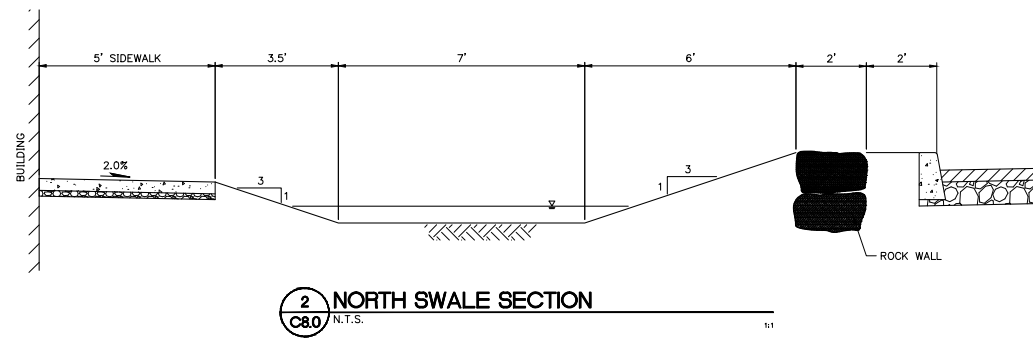
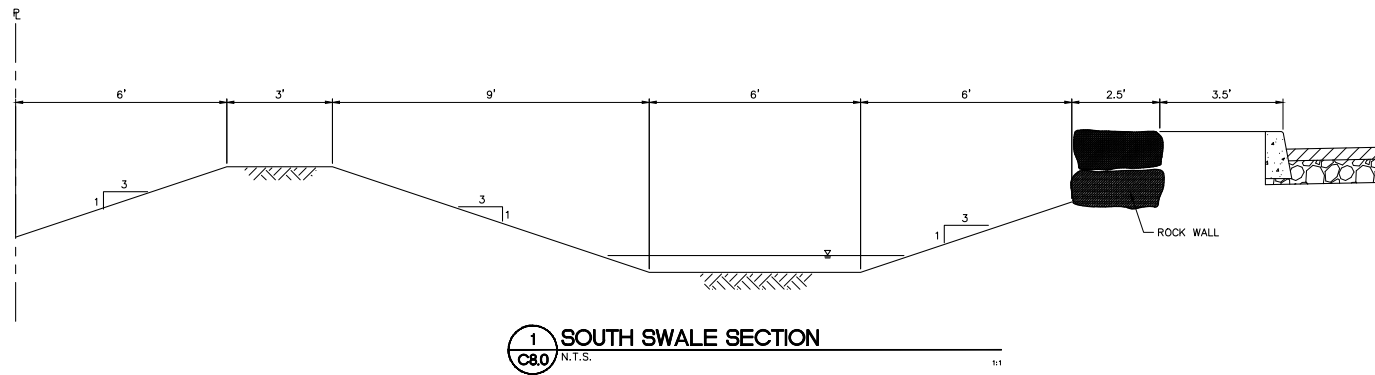
**BAINBRIDGE ISLAND FIRE DEPT
STATION 22**
7934 BUCKLIN HILL RD. NE

REVISIONS:		
NO.	REVISIONS THIS SHEET	REVISION DELTA CLOSING DATE

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SHEET TITLE:
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SHEET
C5.1
JOB NO. 2150124.00



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STATION 22
7934 BUCKLIN HILL RD. NE

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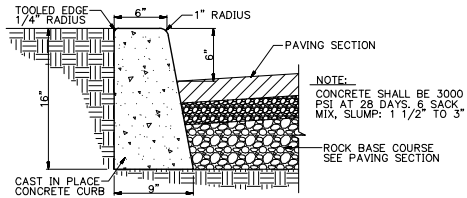
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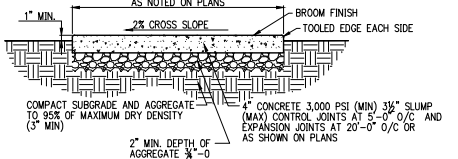
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C8.0

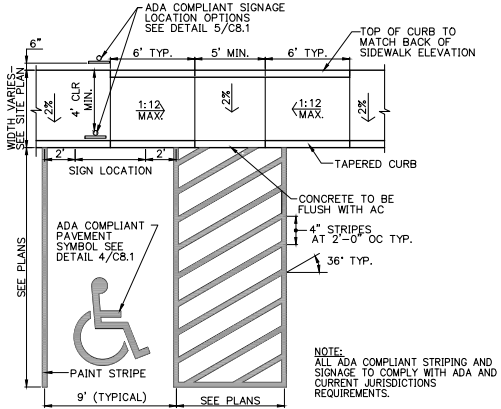
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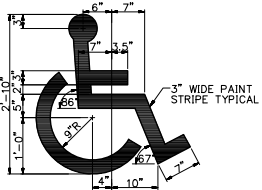
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C8.1 N.T.S.



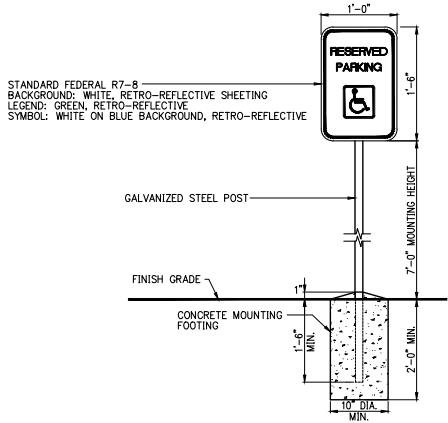
2 CONCRETE SIDEWALK
C8.1 N.T.S.



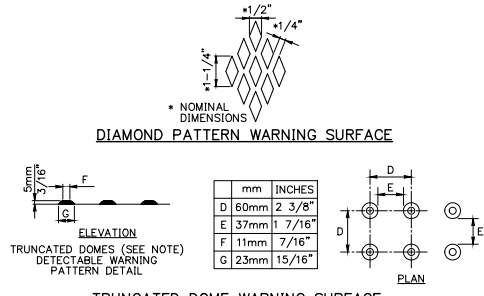
3 ADA COMPLIANT PARKING STALL
C8.1 N.T.S. WITH SQUARE WING RAMP



4 ADA COMPLIANT PARKING SYMBOL
C8.1 N.T.S.

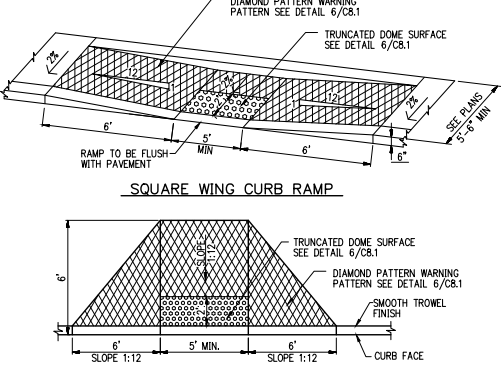


5 ADA COMPLIANT PARKING SIGN
C8.1 N.T.S.

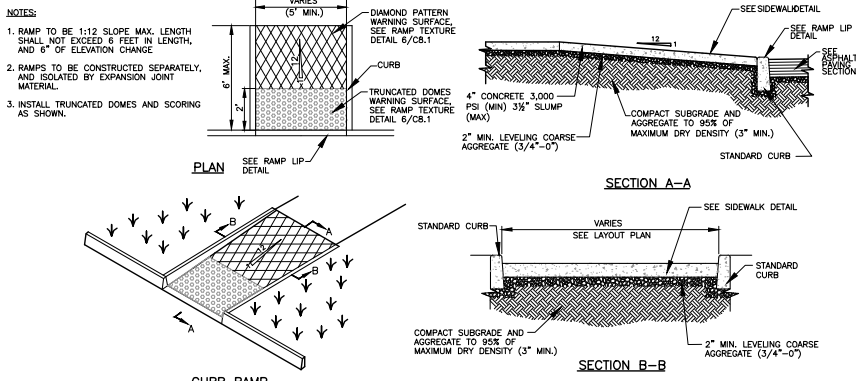


NOTE:
1. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 600MM (2') OF THROAT OF RAMP ONLY. ARRANGE DOMES USING IN-LINE PATTERN ONLY AS SHOWN IN DETAIL ABOVE. COLOR OF TEXTURE TO BE SAFETY YELLOW.
2. DIAMOND RAMP TEXTURING IS TO BE DONE WITH AN EXPANDED METAL GRATE PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE PERPENDICULAR TO THE CURB. GROOVES SHALL BE 1/8" DEEP AND 1/4" WIDE.

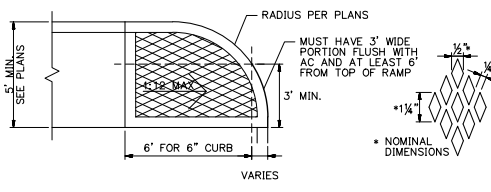
6 ADA COMPLIANT WARNING SURFACE
C8.1 N.T.S.



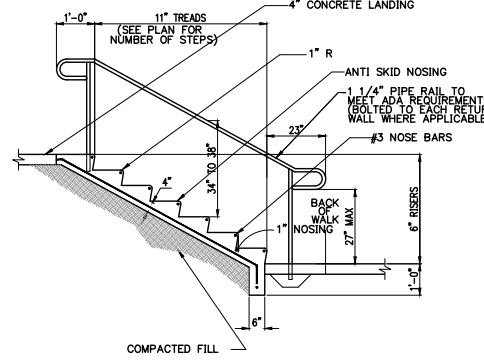
7 ADA COMPLIANT CURB RAMP
C8.1 N.T.S.



8 SQUARE CURB RAMP
C8.1 N.T.S.



9 ADA COMPLIANT CORNER CURB RAMP
C8.1 N.T.S.



10 CONCRETE STAIR
C8.1 N.T.S.

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Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 22
7934 BUCKLIN HILL RD. NE

REVISIONS:		
NO.	REVISIONS	REVISION DATE
1	THIR	CLOSING DATE
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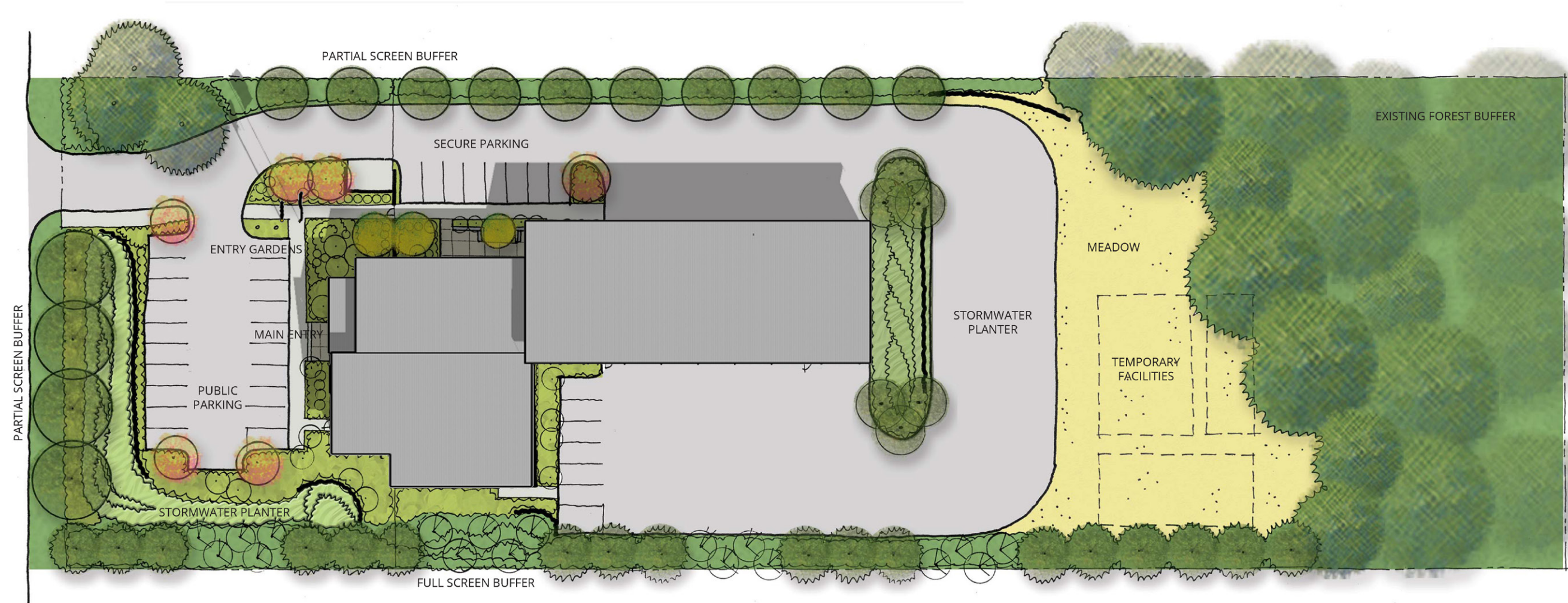
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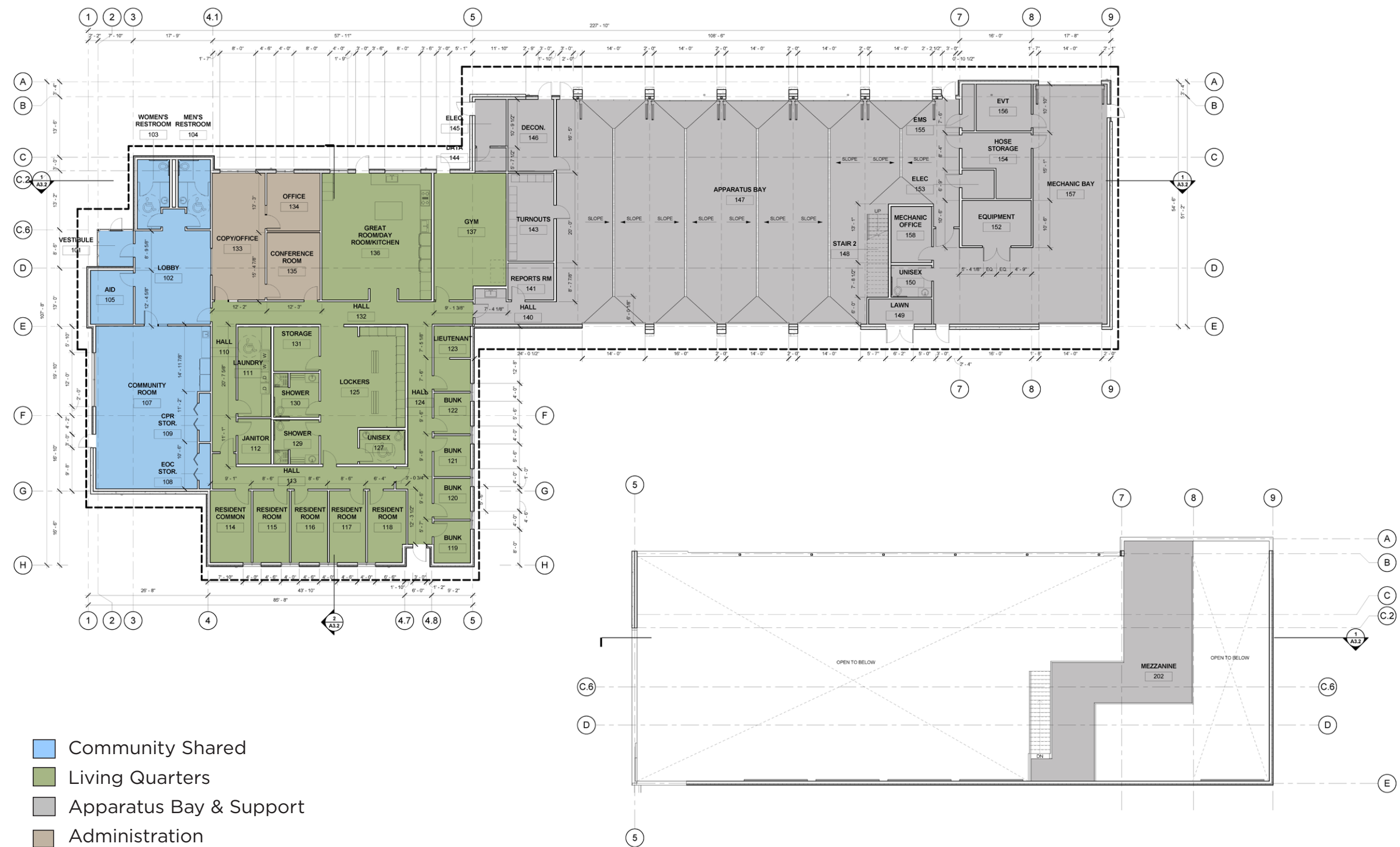
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SCALE 1" = 50'-0"

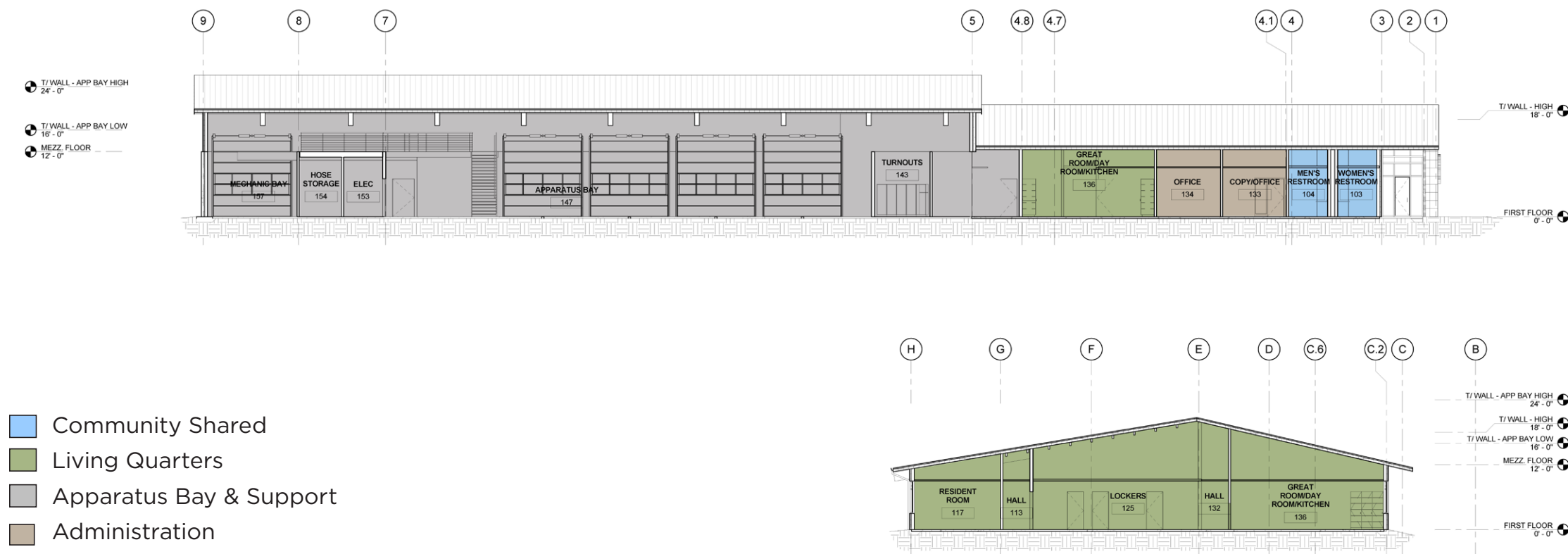
January 13, 2016

SITE PLAN

BIFD Station 22
2150124.00















Bainbridge Island Fire Department- Stations 21 & 22 Landscape Buffers

January 8, 2016

The following memo is a summary of the landscape buffers (perimeter and roadside frontage) as required by BIMC 18.15.010 and how they are applied to each of the stations using buffer averaging, when necessary. The following table identifies our understanding of the buffer requirements for each property line of each project site. This memo also addresses comments (dated December 30, 2015) provided by Josh Machen of the City's Planning Department per their review of the Pre-App submittal. Landscape plans (sheets L2.0 series for each station) in the Pre-App submittal did not adequately demonstrate how the buffer requirements below were being met through site design and planting. These dimensions have been added to a new drawings sheet (L3.0 for each station) entitled Landscape Buffer Diagram which are being submitted for Site Plan Review. The information below is also included on these drawing sheets.

STATION 21 (ZONED R-2) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	319.2	50'	15,960 SF	16,021 SF
SOUTHEAST	595.8	25'	14,895 SF	8,730 SF

Summary:

The north, east and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 13'-6" (10' min. is allowable). The southeast buffer along Madison Avenue is impacted by significant site access, and helipad clear areas requirements.



STATION 22 (ZONED R-1) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	R-1 (Am Legion)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	R-0.4 (school)	NA b/c Bucklin Rd	25' AVG/ 15' MIN (PS) Bucklin
EAST	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.6	25'	5,205 SF	5,205 SF
WEST	638.5	20'	12,770 SF	12,779 SF
SOUTH	208.6	25'	5,205 SF	4,417 SF + Road Access
EAST	638.5	25'	15,963 SF	15,983 SF

Summary:

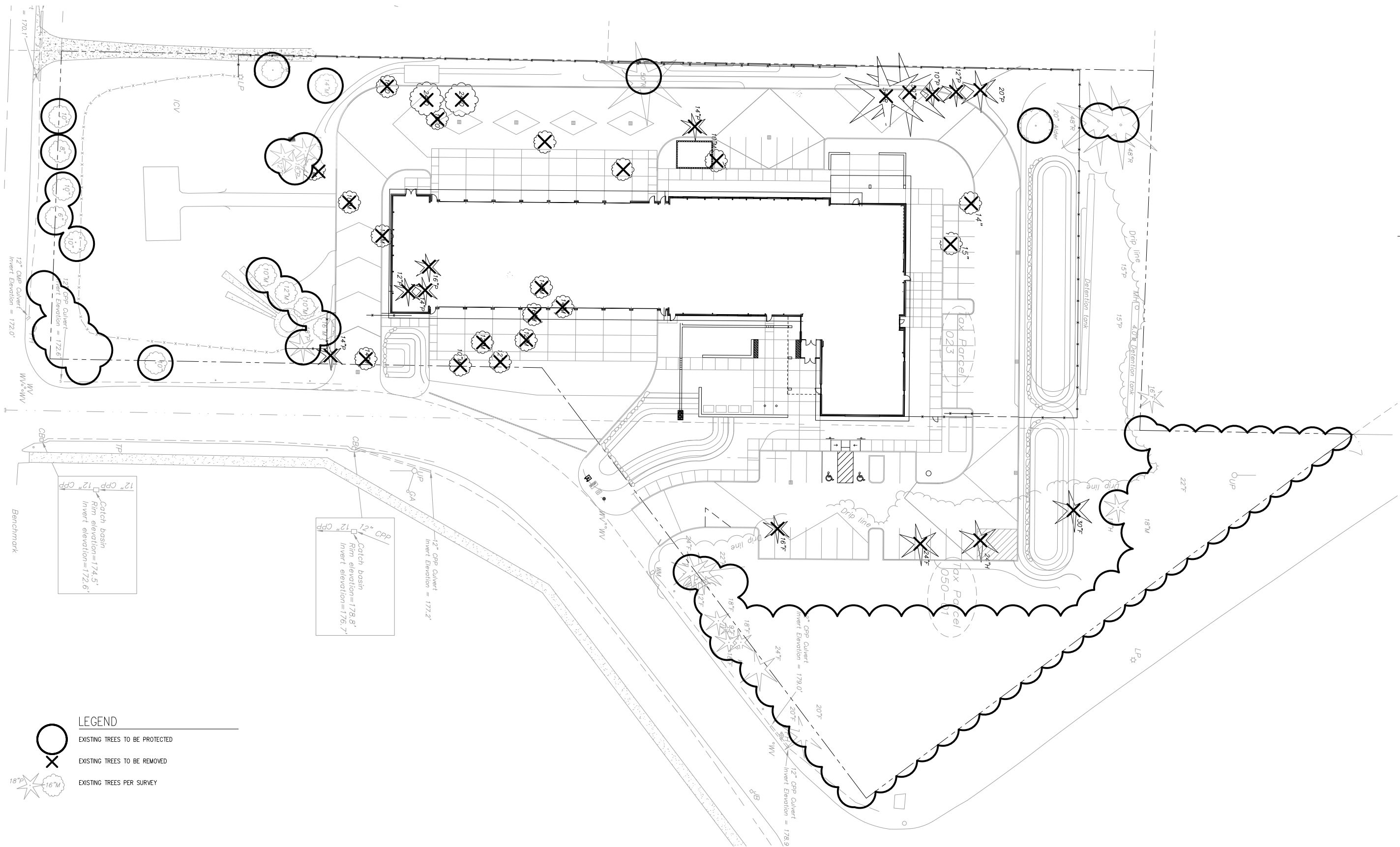
The north and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 10' (10' min. is allowable). The east buffer will require averaging with a minimum width of 15' (15' min. is allowable).

Bainbridge Island Fire Department- Stations 21 & 22 Tree Retention Analysis Status

January 8, 2016

The following is a summary of the status of the tree retention analysis for the Site Plan Review (SPR) submittal. At this time, the analysis has not been completed but will be provided as a supplemental submittal as part of the SPR process.

Tree retention plans (sheets L1.0 for both stations) were submitted as part of the Pre-App package showing trees that were going to be removed and those that are planned to be retained. However, a specific analysis of tree units per BIMC 18.15.010 cannot be completed until Fischer Bouma Partnership (FBP) receives all necessary data. All tree locations were not originally surveyed and shown on the base survey for each station. While we currently indicate “areas” that tree stands will be retained on the tree retention plans, we cannot calculate the tree units within those stands until all trees are surveyed. BIFD staff provided an inventory of trees in those areas; however, the recently adopted changes to the tree retention code no longer allows trees retained within the perimeter or roadside buffer landscapes to count towards the required project tree units. As such, BIFD is in the process of having a surveyor identify the specific location of all trees on site. Once that data is provided, we will update the tree retention plans (L1.0) and provide an analysis of tree units retained/replanted.



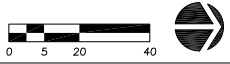
LEGEND

EXISTING TREES TO BE PROTECTED

EXISTING TREES TO BE REMOVED

EXISTING TREES PER SURVEY

TREE RETENTION PLAN
1"=20'-0"



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BAINBRIDGE ISLAND FIRE DEPT STATION 21
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REVISION	REVISION DATE

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TREE RETENTION PLAN

SHEET

L1.0

JOB NO. 2150124.00

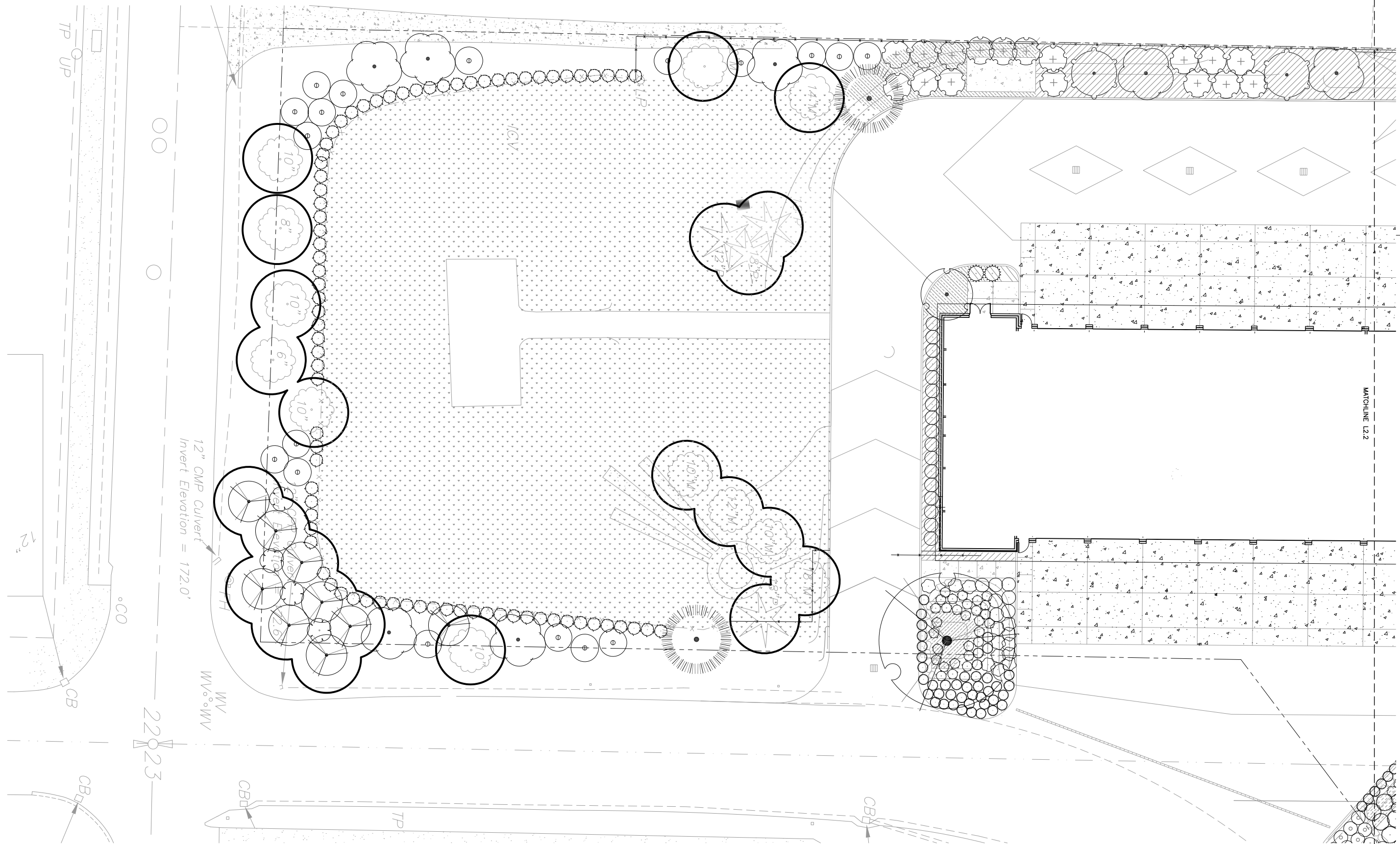
[illegible]

1. SEE PLANT SCHEDULES FOR SPECIES, QUANTITIES, AND MINIMUM SPACING. SEE PLANTING DETAILS FOR INSTALLATION AND LAYOUT.	
2. DO NOT USE EXISTING TOPSOIL-- STRIP & REMOVE.	15. SAVE OR REMOVE ON DEMO OR OTHER PLANS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.
3. CONTRACTOR SHALL ALLOW FOR THE ADDITION OF SOIL AMENDMENTS AND CONDITIONERS IN SOIL PREPARATION AND FINISH GRADING.	16. THE ENTIRE WIDTH OF THE PLANTING ISLANDS SHALL CONTAIN ONLY SOIL, AND BY WAY OF ILLUSTRATION ONLY AND NOT LIMITATION, BE FREE OF GRAVEL, CONCRETE, CONSTRUCTION DEBRIS, OR OTHER FOREIGN MATERIALS.
4. ALL CONSTRUCTION MATERIAL SHALL BE EXCLUDED FROM TOPSOIL.	17. PLANTING AREAS TO BE IRRIGATED-- IRRIGATION PLANS ARE NOT INCLUDED. IRRIGATION WILL BE DESIGN/BUILD BY CONTRACTOR BASED ON PERFORMANCE SPECIFICATIONS.
5. LAYOUT FOR ALL PLANTING AREAS TO BE VERIFIED ON SITE BY LANDSCAPE ARCHITECT DUE TO VARYING FIELD CONDITIONS AND DENSITIES OF EXISTING VEGETATION.	18. DO NOT DIG BEFORE LOCATING UTILITIES.
6. ALL PLANT MATERIAL SHALL CONFORM TO ANSI STANDARDS FOR NURSERY STOCK, LATEST EDITION.	19. ALL LANDSCAPE AREAS DESIGNED FOR INSTALLATION OF TREES SHALL HAVE A MINIMUM SOIL DEPTH OF 18" PLUS 8" SCARIFIED SUBGRADE. MINIMUM SOIL DEPTH SHALL INCLUDE SOILS THAT MEET SOIL SPECIFICATIONS.
7. LANDSCAPE ARCHITECT WILL SUPERVISE THE PLANTING PROCESS, MODIFICATIONS TO THE PLANTING PLAN MAY OCCUR BASED ON FIELD CONDITIONS AND THE AVAILABILITY OF PLANT MATERIAL.	20. FOR ALL TOPSOIL, THE CONTRACTOR SHALL OBTAIN A LANDSCAPE SOIL ANALYSIS CERTIFYING THAT THE SOIL MEETS ALL SOIL SPECIFICATIONS-- THE CERTIFICATION SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT AND APPROVED PRIOR TO SOIL DELIVERY.
8. PLANTING WILL BE BAG AND CONTAINERIZED NATIVE PLANT MATERIAL, AS APPROPRIATE AND SPECIFIED, FROM REGIONAL GENETIC STOCK. PLASTIC NURSERY IDENTIFICATION TAGS WILL BE ATTACHED TO THE STEM OF EACH PLANTING.	21. APPLY 3" DEPTH OF ORGANIC BARK MULCH IN ALL PLANTING AREAS. MULCH TO BE FREE OF WEED SEED, SAWDUST, RESIN OR TANNIN, AND SHALL NOT CONTAIN ANY COMPOUNDS DETRIMENTAL TO PLANT GROWTH. PULL MULCH 3" AWAY FROM BASE OF PLANT.
9. LOCAL NURSERY STOCK WILL BE USED TO ENSURE THAT THE MATERIAL HAS ACCUMULATED TO LOCAL CONDITIONS (REDUCING PLANTING STRESS) AND IS GENETICALLY COMPARABLE WITH PLANTS IN THE LOCAL AREA.	22. ALL PLANT MATERIAL SHOULD BE DISEASE FREE AND ARRIVE IN A VIGOROUS GROWING CONDITION.
10. FINAL PLANT LISTS WILL BE CONTINGENT UPON PLANT AVAILABILITY. IF SELECTED SPECIES ARE UNAVAILABLE PLANTINGS WILL BE BAG AND CONTAINERIZED NURSERY STOCK, PRIOR APPROVAL OTHER GENUS OR SPECIES WITH SIMILAR HYDROLOGICAL REQUIREMENTS MAY BE SUBSTITUTED.	23. LANDSCAPE CONTRACTOR SHALL MAINTAIN THE SITE UNTIL FINAL INSPECTION AND ACCEPTANCE BY THE OWNER.
11. TREES WILL BE STAKED ONLY IF A PLANT CANNOT STAND ALONE IN A MODERATE WIND PER PLANTING DETAILS.	24. ALL LANDSCAPE INSTALLATION TO BE APPROVED BY THE LANDSCAPE ARCHITECT.
12. ALL PLANTINGS WILL BE MULCHED WITH A MINIMUM OF 3 INCHES OF ORGANIC MULCH AS SPECIFIED TO DISCOURAGE WEED GROWTH, MINIMIZE SOIL EROSION, AND RETAIN MOISTURE. THE MULCH IS NOT TO MAKE CONTACT WITH THE PLANT STEM.	25. A PRE-CONSTRUCTION CONFERENCE PRIOR TO THE START OF ANY LANDSCAPE CONSTRUCTION IS REQUIRED. PLANTS SHALL BE INSPECTED PRIOR TO PLANTING TO VERIFY CONFORMANCE WITH PLANTING SIZE AND OTHER REQUIREMENTS.
13. DO NOT DISTURB TREES AND VEGETATION OUTSIDE LIMIT OF WORK.	26. LANDSCAPING SHALL BE WARRANTED FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE BY THE OWNER.
14. IF TREES HAVE NOT BEEN DESIGNATED AS SAVE OR REMOVE ON DEMO OR OTHER PLANS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.	27. PRIOR TO THE END OF THE WARRANTY PERIOD, THE LANDSCAPE WILL BE INSPECTED AND DEAD OR UNHEALTHY PLANTS WILL BE REQUIRED TO BE REPLACED WITH SAME SPECIES AND SIZES.
	28.

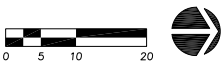
1. REFER TO ARCHITECTURAL & CIVIL DRAWINGS FOR LIMITS OF WORK AND DEMOLITION OF EXISTING SITE ITEMS.
2. REFER TO CIVIL DRAWINGS FOR LANDSCAPE GRADING AND DRAINAGE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR SITE HARDSCAPE DETAILS.

 EXISTING TREES TO BE PROTECTED – REFER TO PLANTING PLAN AND TREE RETENTION PLAN.

SITE PLAN REVIEW: 1/13/16

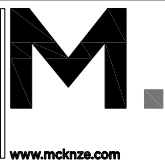


PLANTING PLAN - SOUTH
1"=10'-0"



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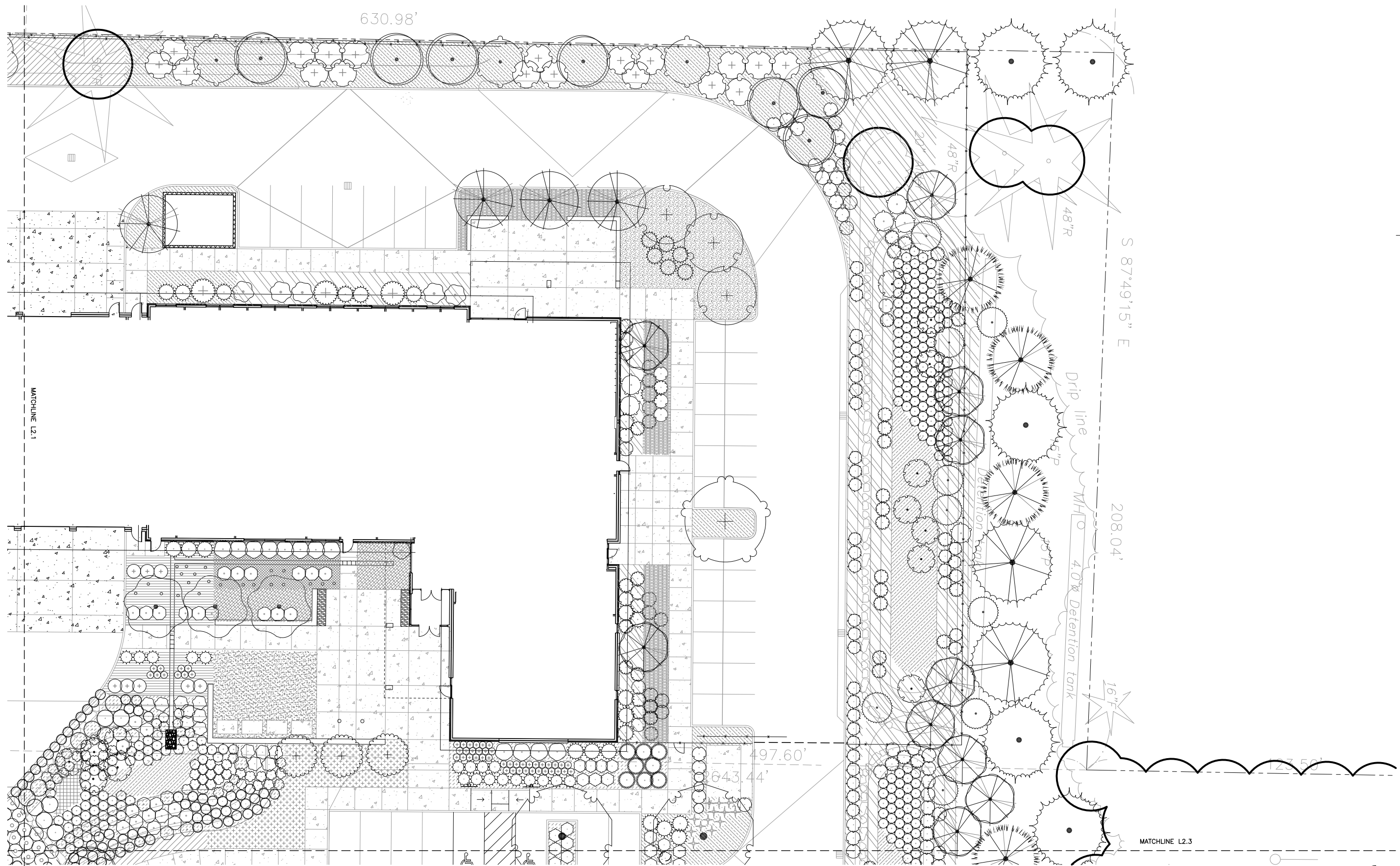
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PLANTING PLAN - SOUTH

SHEET

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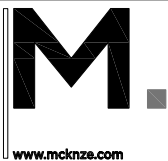


PLANTING PLAN - NORTH

1"=10'-0"

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JEFFREY K. BOUMA
CERTIFICATE NO. 947

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1	REVISION DELTA	CLOSING DATE

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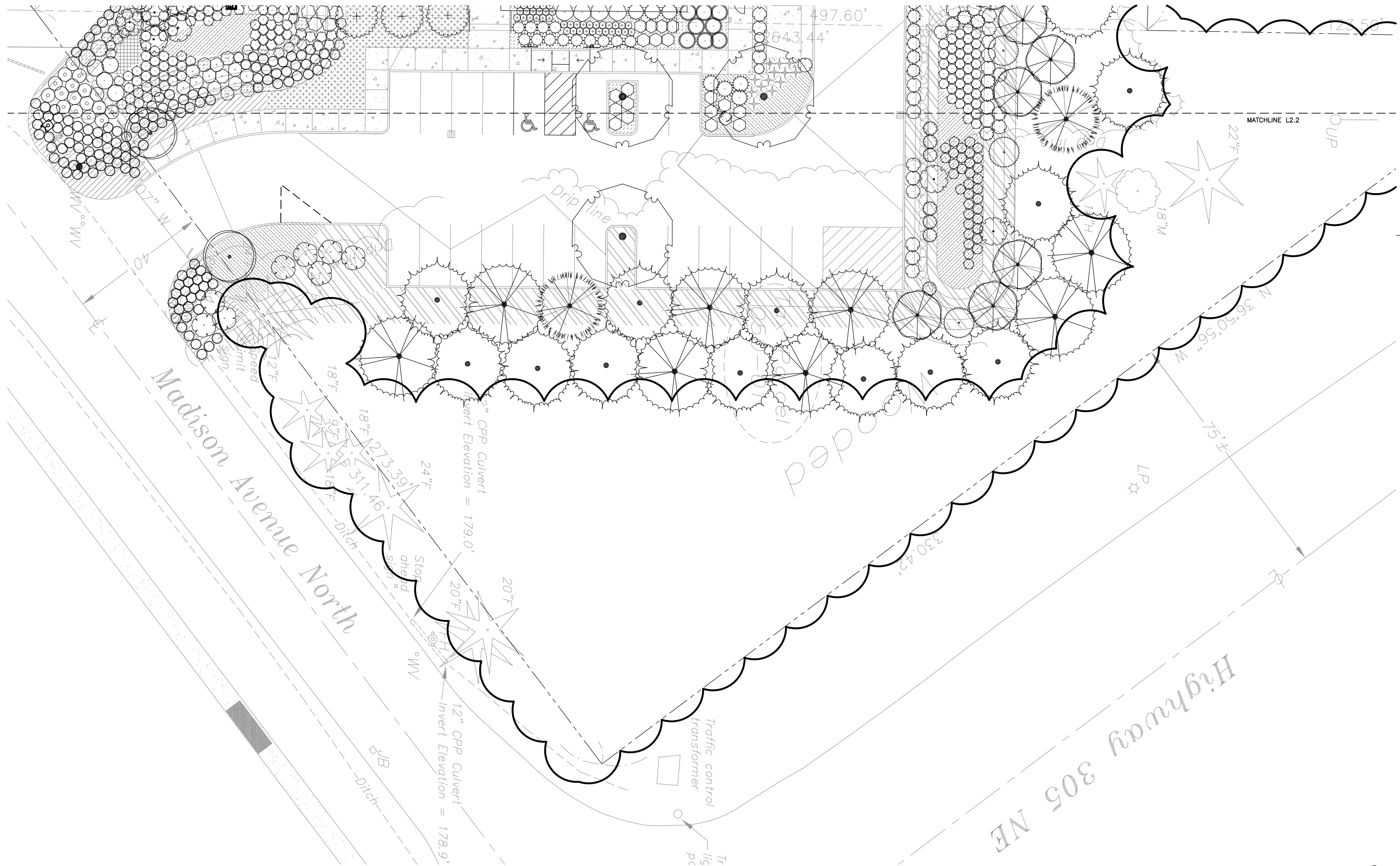
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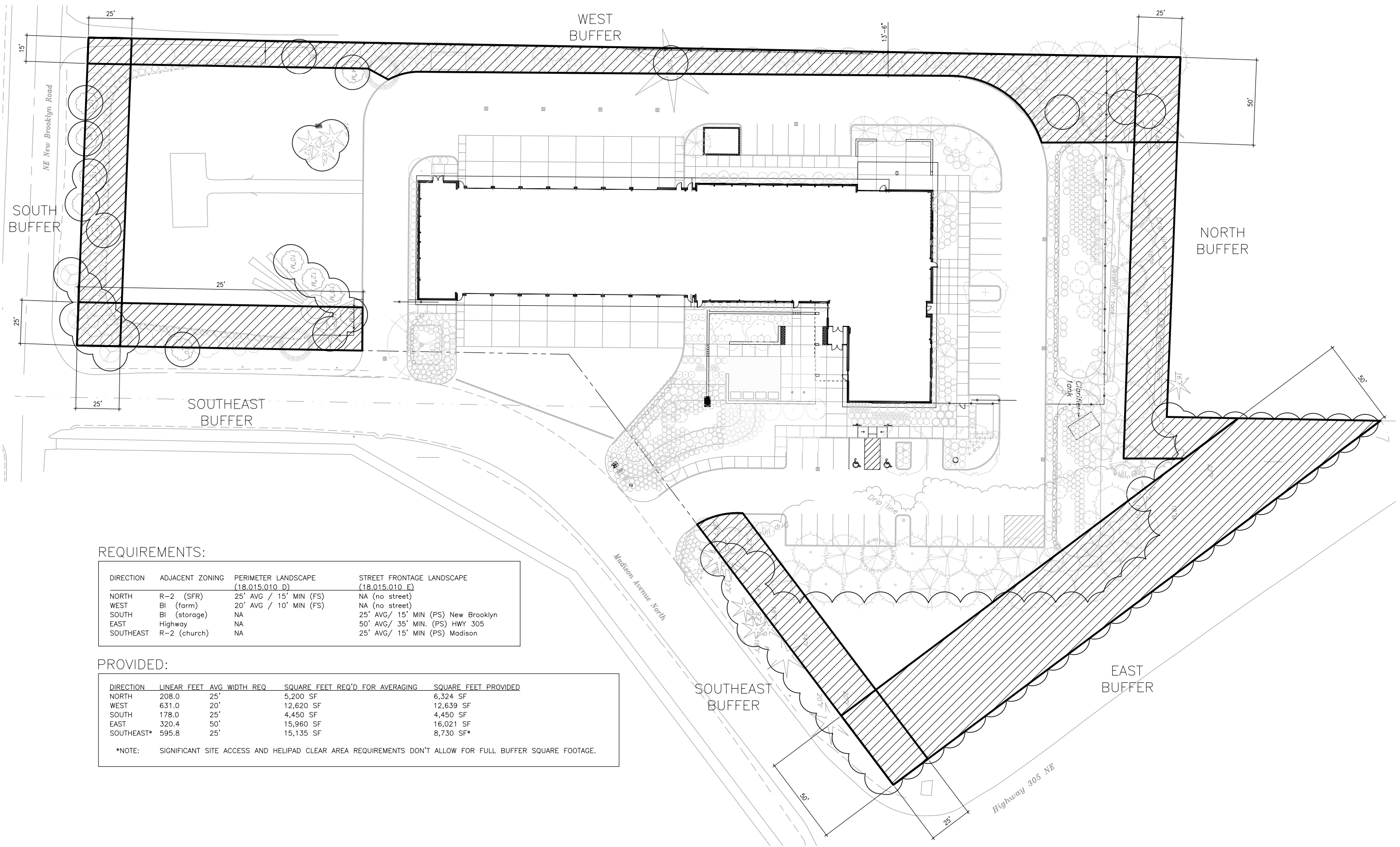
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JOB NO. 2150124.00

SITE PLAN REVIEW: 1/13/16





REQUIREMENTS:

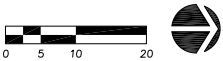
DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

PROVIDED:

DIRECTION	LINEAR FEET	AVG WIDTH REQ	SQUARE FEET REQ'D FOR AVERAGING	SQUARE FEET PROVIDED
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	320.4	50'	15,960 SF	16,021 SF
SOUTHEAST*	595.8	25'	15,135 SF	8,730 SF*

*NOTE: SIGNIFICANT SITE ACCESS AND HELIPAD CLEAR AREA REQUIREMENTS DON'T ALLOW FOR FULL BUFFER SQUARE FOOTAGE.

LANDSCAPE BUFFER DIAGRAM
1"=20'-0"



MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH SUITE A
BAINBRIDGE ISLAND, WA
98110



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DESIGN DRIVEN | CLIENT FOCUSED

Client
BAINBRIDGE ISLAND FIRE DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE ISLAND, WA 98110

Project
BAINBRIDGE ISLAND FIRE DEPT STATION 21
8895 MADISON AVE. NE



REVISIONS:
REVISION DELTA CLOSING DATE

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DRAWN BY:
CHECKED BY:

SHEET TITLE:
**LANDSCAPE BUFFER
DIAGRAM**

SHEET
L3.0
JOB NO. 2150124.00

LUMINAIRE SCHEDULE											
TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/IP RATING	BALLAST	LAMP(S)	INPUT WATTS	MFG/CATALOG #	NOTES
S43H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
S44	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
S45	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 5 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
S44	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SC	EXTERIOR WALL MOUNTED CUTOFF LUMINAIRE WITH TYPE 3 OPTICS	DIE CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	WALL MOUNTED	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	35W LED ARRAY OR 3,600 LUMENS, 4000K	35W	GARDCO 107 GULLWING SCONCE, OR APPROVED	

LUMINAIRE SCHEDULE											
TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/IP RATING	BALLAST	LAMP(S)	INPUT WATTS	MFG/CATALOG #	NOTES
SA3H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	100W LED ARRAY OR 10,400 LUMENS, 4000K	100W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SA4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	100W LED ARRAY OR 10,400 LUMENS, 4000K	100W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SA5	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 5 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SB4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SC	EXTERIOR WALL MOUNTED CUTOFF LUMINAIRE WITH TYPE 3 OPTICS	DIE CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	WALL MOUNTED	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	35W LED ARRAY OR 3,600 LUMENS, 4000K	35W	GARDCO 107 GULLWING SCONE, OR APPROVED	

0' 20' 40'

1" = 20'-0"

EXHIBIT H

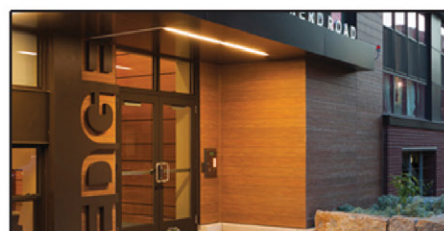
① RED FIBER CEMENT PANEL



⑤ GLASS STOREFRONT SYSTEM



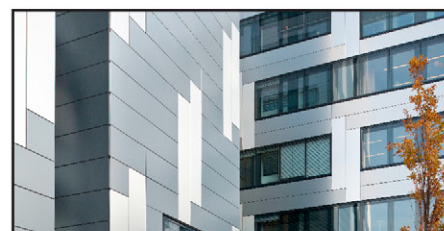
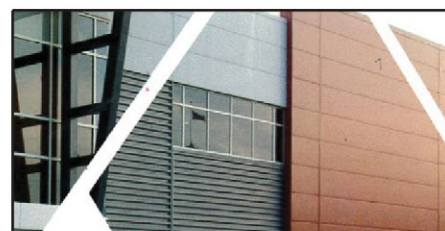
② WOOD FIBER CEMENT PANEL



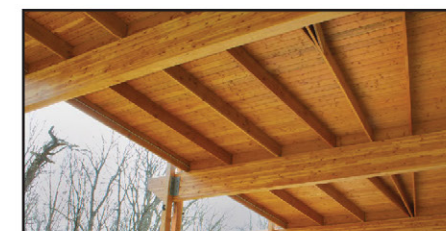
⑥ STANDING SEAM METAL ROOF



③ METAL PANEL



⑦ WOOD GLUELAM BEAM



④ CORRUGATED METAL SYSTEM



⑧ OVERHEAD ROLL UP DOORS



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CONDITIONAL USE PERMIT NARRATIVE

To

City of Bainbridge Island,
Washington

For

Bainbridge Island Fire
Department Station 22

Date

January 13, 2016

Project Number

2150124.00



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EXHIBITS

- A. SEPA Checklist
- B. Civil Engineering Plans
- C. Architectural Plans
- D. Landscape Plans
- E. Photometric Plan
- F. Geotechnical Report

I. PROJECT SUMMARY

Applicant:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Owner:	Bainbridge Island Fire Department 8895 Madison Avenue N Bainbridge Island, WA 98110
Site Address:	7934 Bucklin Hill Road NE Bainbridge Island, WA 98110
Assessor Site Acreage:	3.05 acres
Zoning:	1 Unit per Acre Zone (40,000 square feet; R-1) Critical Overlay District
Comprehensive Plan:	1 Unit per Acre Zone (40,000 square feet; OSR-1)
Adjacent Zoning:	R-1 to the north, east, and west, and 1 Unit per Acre Zone (100,000 square feet; R-0.4) to the south
Existing Structures:	Fire station, shop addition, shipping container, concrete and gravel pads, and other site improvements
Request:	Conditional Use Permit
Project Contact:	Mackenzie, Applicant's Representative Michael Chen, Senior Planner Logan Building 500 Union Street, Suite 545 Seattle, WA 98101 (206) 749-9993, Extension 513 MChen@mcknze.com

II. INTRODUCTION

Description of Request

The applicant, Bainbridge Island Fire Department (BIFD), seeks approval of a Conditional Use Permit for the proposed redevelopment of the existing fire station, Station 22, at 7934 Bucklin Hill Road NE in Bainbridge Island, Washington.

As articulated in the City of Bainbridge Island Comprehensive Plan, one of the City's primary goals is to "[p]rovide adequate public facilities [...] which maximize public safety and minimize adverse environmental impacts." In a Strategic Plan Update, the BIFD identified critical needs at Station 22 and recommended a formal needs assessment, which the applicant's representative, Mackenzie, was involved in producing. The proposed redevelopment of Station 22 will ensure not only that the buildings meet the BIFD's operational needs, but also that the redeveloped fire station will serve the needs of the Bainbridge Island community for decades to come.

Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 22.

Existing Site & Surrounding Land Use

The subject site is located north of Bucklin Hill Road NE, northwest of the intersection with Blakely Avenue NE in Bainbridge Island. The site comprises one tax lot, 4178-000-012-0004.

There are approximately three existing buildings on the site, including a fire station, a shop addition, and a shipping container; there are a couple of concrete and gravel parking and pad areas on the site, as well as landscaping and vehicle circulation areas.

The site and the tax lots to the north, east, and west are zoned 1 Unit per Acre Zone (40,000 square feet; R-1), and the tax lots to the south are zoned 1 Unit per Acre Zone (100,000 square feet; R-0.4). The site comprises approximately 3.05 acres. The site is currently in use by BIFD as the existing Station 22.

According to information provided by the City of Bainbridge Island, there is an existing Conditional Use Permit on the site that would have been recorded with Kitsap County.

Description of Proposed Development

The applicant proposes to redevelop the existing fire station on the site, Station 22. The redeveloped fire station will have a gross floor area of approximately 16,808 square feet, 56.1 percent landscape area, and 30 parking spaces. The fire station use is conditionally allowed in the R-1 zone; therefore, the applicant will seek approval of a Conditional Use Permit in addition to the site plan and design review application.

Aerial Image – Project Site



III. NARRATIVE & COMPLIANCE

1. *In what manner is the requested conditional use harmonious and compatible in design, character and appearance with the existing or intended character and quality of development in the vicinity of the subject property and with the physical characteristics of the subject property?*

Response: The proposed building is designed for compatibility with contemporary architecture characteristic of the Pacific Northwest in general and the Bainbridge Island community specifically. In a precedent study early in the development process, the applicant considered aesthetic features of the Bainbridge Island City Hall building, some elements of which may be incorporated into the final design of the fire station. Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. As part of the community meeting, the applicant will present their ideas for the proposed fire station to both participants and the City of Bainbridge Island Design Review Board, all of whom will have the opportunity to comment on the proposal. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 22.

2. *How has the proposed conditional use made adequate provision for the following facilities: a) roads, b) water availability, c) fire protection, d) sewage disposal facilities, and e) storm drainage facilities?*

Response:

- a) Roads: The site is currently served by Bucklin Hill Road NE to the south, which is functionally classified as a secondary arterial street according to the draft update of the City's Island Wide Transportation Plan (IWTP). The existing size of Bucklin Hill Road NE meets the required right-of-way width of 60 feet. The existing driveway will be relocated slightly to the west as an approximately 24-foot-wide driveway for both passenger vehicles and emergency access, and a seven-foot sidewalk will be constructed to connect the driveway to the parking area to the north and to the main building entrance to the north of the parking area.
 - b) Water availability: The site is currently served by public water utility infrastructure provided by the City of Bainbridge Island that is adequate to meet the needs of the proposed development; therefore, no new water utilities or utility connections are proposed.
 - c) Fire protection: The proposed building is designed for compliance with the Washington State Building Code, which includes fire protection measures. The building will be fully sprinklered, and some walls will be fire-rated.
 - d) Sewage disposal facilities: The site is currently served by a private on-site septic system which is proposed to be redesigned in order to accommodate the larger redeveloped fire station.
 - e) Storm drainage facilities: Stormwater facilities are proposed in the landscape area, including stormwater planters in the landscaping on the northern side and in the southeast corner of the site. As required according to jurisdictional erosion control standards, Best Management Practices (BMPs) and the relevant standard details will be utilized throughout the site and in construction activity.
3. *Describe how the proposed conditional use will not be materially detrimental to uses or property in the vicinity of the subject property.*

Response: The subject property is surrounded by residential properties to the north, Hyla Middle School to the south, residential properties to the east, and undeveloped property to the west. The proposed fire station use will be limited to 11.2 percent building coverage and 43.8 percent impervious area coverage on the site. Any noise related to the fire station use that can be defined as "[s]ounds created by emergency equipment and work necessary [...] for healthy safety or welfare of the community" are

exempt from all provisions of the Washington Administrative Code adopted by the City of Bainbridge Island governing maximum environmental noise levels (see Bainbridge Island Municipal Code Section 16.16.020. and WAC Section 173-60-050 [4] [f]).

4. *Relate how the proposed conditional use will meet all the criteria otherwise applicable to the zone in which it is to be developed.*

Response: The proposed use is designed in compliance with the dimensional standards for the base zone, R-1, as presented in the abridged version of Bainbridge Island Municipal Code (BIMC) Table 18.12.020-2 below.

TABLE 18.12.020-2: STANDARD LOT DIMENSIONAL STANDARDS FOR RESIDENTIAL ZONE DISTRICTS (ABRIDGED)		
Standard	Requirement	Proposal
Maximum Lot Coverage	20%	11.2%
Minimum Setbacks		
Front/Street	25 feet	~114 feet
Side	5–15 feet	~35' (E), ~65' (W)
Rear	15 feet	~284 feet
Maximum Building Height	35 feet	26.5 feet

5. *How is the conditional use in conformance with the Comprehensive Plan?*

Response: As articulated in the Comprehensive Plan, one of the City's primary goals is to "[p]rovide adequate public facilities [...] which maximize public safety and minimize adverse environmental impacts." In the Strategic Plan Update, BIFD identified critical needs at Station 22 and recommended a formal needs assessment, which the applicant's representative, Mackenzie, was involved in producing. The proposed redevelopment of Station 22 will ensure not only that the buildings meet BIFD's operational needs, but also that the redeveloped fire station will serve the needs of the Bainbridge Island community for decades to come.

6. *How does the conditional use comply with all of the other provisions of the city code?*

Response: The proposed use is designed in compliance with the development standards and guidelines as presented in the responses to excerpts from the BIMC below.

- Landscaping, screening, and tree retention, protection, and replacement: Entry gardens are proposed to the west of the main entry on the south side of the building, and a staff patio is proposed on the west side of the building. The existing forest buffer on the northern side of the site will be preserved, and a meadow will be maintained to the south of the forest buffer, north of the internal circulation area on the north side of the proposed building. A full screen buffer will be provided on the eastern side of the site, with partial screen buffers provided on the southern and western sides of the site. Interior parking areas will also be landscaped.
- Parking and loading: 30 parking spaces have been determined necessary and will be provided for the proposed development. No loading will be necessary for the development; therefore, no loading area is proposed.
- Mobility and access: Five- to seven-foot-wide internal sidewalks will be provided for the proposed development, and the development will be accessible via the existing driveway, to be redesigned as described above. One accessible parking space will be provided in the southern parking area. Bicycle parking will be provided in close proximity to the building entrance.

- Outdoor lighting: A photometric lighting plan is included with this application. Lighting design minimizes spillover to neighboring properties.
- Signs: Exterior building signage is proposed.

7. *Describe how the conditional use will not adversely affect the area or alter the area's predominantly residential nature?*

Response: The fire station use is surrounded by residential properties to the north, Hyla Middle School to the south, residential properties to the east, and undeveloped property to the west. The station is strategically located so as to be able to respond to emergencies in both residential and non-residential areas of the City as rapidly as possible. The residential uses on two sides of the property and the school use on one side of the property have existed adjacent to the property in its current use as a fire station without adverse effects to the area or alterations to the area's predominately residential nature. The proposed building will be located in the center of the property, and landscape buffers will be provided on the perimeter of the property in order to reduce any potential impacts on adjacent uses.

8. *How is the subject property suitable for the proposed conditional use and will it be detrimental to surrounding land uses or sensitive areas? Consideration shall include items such as topography, streets and adjacent land uses.*

Response: The subject property is relatively flat, fully developed, with no known geological concerns. There are no known critical areas on the site. The site is served by Bucklin Hill Road NE to the east; the existing size of Bucklin Hill Road NE meets the required right-of-way width of 60 feet. The existing access to the site from Bucklin Hill Road NE will be redeveloped but preserved. The proposed use of the subject property as a fire station will be fully contained on the site and will not conflict with any of the uses in the vicinity.

9. *Describe how all necessary measures have been taken to eliminate the impacts that issuance of the conditional use permit may have on the area in which it is to be located.*

Response: Community members will be involved in the redevelopment of the fire station through participation in the community meeting to be held in the initial stages of the review process. As part of the community meeting, the applicant will present their ideas for the proposed fire station to both participants and the City of Bainbridge Island Design Review Board, all of whom will have the opportunity to comment on the proposal. The applicant supports this initiative to develop a meaningful process for citizen participation and looks forward to engaging the community's vision for Station 22.

IV. CONCLUSION

The applicant submits this narrative and the attached Exhibits in seeking approval of a Conditional Use Permit for the proposed redevelopment of the existing fire station located at 7934 Bucklin Hill Road NE. The preliminary land use application to follow will continue to demonstrate that the proposal is in compliance with the relevant standards provided by the City of Bainbridge Island.

CITY OF BAINBRIDGE ISLAND

ENVIRONMENTAL (SEPA) CHECKLIST - *UPDATED 2014*
FORM MUST BE COMPLETED IN INK, PREFERABLY BLUE
PENCIL WILL NOT BE ACCEPTED

**PLEASE READ THE FOLLOWING CAREFULLY BEFORE FILLING OUT THE CHECKLIST****Purpose of checklist:**

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

FOR STAFF USE ONLY

A. Background

1. Name of proposed project, if applicable:

Bainbridge Island Fire Department Station 22

2. Name of applicant:

Bainbridge Island Fire Department

3. Address and phone number of applicant and contact person:

Applicant:

*Bainbridge Island Fire
Department*

8895 Madison Avenue N

Bainbridge Island, WA

98110

(206) 842-7686

Contact Person:

*Mackenzie, Applicant's
Representative*

Michael Chen, Senior

Planner

Logan Building

500 Union Street

Suite 545

Seattle, WA 98101

(206) 749-9993,

Extension 513

MChen@mcknze.com

4. Date checklist prepared:

January 13, 2016

5. Agency requesting checklist:

City of Bainbridge Island Planning & Community Development

6. Proposed timing or schedule (including phasing, if applicable):

*Pending the required approvals, construction on the proposal is expected to start
in the fall of 2016 and to be complete in 2018.*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

*No plans for future additions, expansion, or further activity are associated with
this proposal.*

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

FOR STAFF USE ONLY

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

A draft geotechnical report dated January 6, 2015 has been prepared for this proposal, and an NPDES permit will be obtained prior to commencing construction on the proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No known applications for governmental approvals of other proposals directly affecting the property covered by this proposal are known at the time of this application.

10. List any government approvals or permits that will be needed for your proposal, if known.

The applicant seeks approval of the following approvals and permits:

- *Conditional Use Permit*
- *Site Plan and Design Review Board Approval*
- *NPDES Permit*
- *Building Permit*

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposal includes redevelopment of an existing fire station as a single-story (with mezzanine), approximately 16,808-square foot building with living quarters, meeting spaces, offices, storage areas, and an apparatus bay, with associated site improvements. The existing flagpoles on the site will be relocated.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

FOR STAFF USE ONLY

The proposal is located at 7934 Bucklin Hill Road NE in Bainbridge Island. The site comprises one tax lot, 4178-000-012-0004. The site is located in Section 28, Township 25N, and Range 2E.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site
(circle one): (Flat), rolling, hilly, steep slopes, mountainous,

other _____

b. What is the steepest slope on the site (approximate percent slope)?
The steepest slope on the site is approximately 15 percent (located in the northwest corner of the site), with the majority of the site at relatively flat grades. The proposed grading includes slopes of no greater than four percent (with the exception of the slopes surrounding stormwater facilities).

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.
According to the USDA Web Soil Survey, the site is constituted of Ragner fine sandy loam, 0–6% slopes. Additional geotechnical information on the site is available from Aspect Consulting; soil types found on the site include sand and silt.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
There are no known surface indications or history of unstable soils in the immediate vicinity of the site.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.
The purpose of the proposed cut and fill is to provide a site that is as balanced as possible while maintaining the appropriate slopes where relevant. Approximately 92,300 square feet (2.12 acres) of the site will be affected by grading, which will include both cut and fill.

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

FOR STAFF USE ONLY

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur; however, the possibility of erosion will be minimized by implementing Best Management Practices (BMPs) as described in Section B. 1. h. of this application. The project will comply with City of Bainbridge Island erosion control requirements and requirements of the NPDES Construction Stormwater permit to be obtained.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 43.8% of the site will be covered with impervious surfaces after project construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The project team will develop erosion control plans, which will be reviewed by the City of Bainbridge Island through the site plan review process. Prior to beginning any earth-disturbing activities, the applicant will obtain a NPDES Construction Stormwater permit.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Some air emissions will result from the use of equipment during construction, and some air emissions from the fire station use, passenger and delivery vehicles, and the fire apparatus will result from the completed project.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The proposal is located in the immediate vicinity of residential properties, Hyla Middle School, and an undeveloped site, which could be off-site sources of emissions and/or odor related to the respective land uses as well as to passenger and delivery vehicles.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

An erosion control plan will be prepared for the project and reviewed by the City of Bainbridge Island; in order to comply with the conditions of approval from this review, the project will employ standard techniques to minimize dust generation

**CITY OF BAINBRIDGE ISLAND
ENVIRONMENTAL (SEPA) CHECKLIST**

LEFT COLUMN TO BE COMPLETED BY APPLICANT.

FOR STAFF USE ONLY

during construction. Emissions from passenger and delivery vehicles related to the warehouse use are regulated under U.S. EPA and Washington Department of Licensing emission standards (Clean Car Law, RCW 46.16A.060).

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is no known surface water body on or in the immediate vicinity of the site (Puget Sound is located approximately 1,500 feet to the east).

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

There is no known surface water body on or in the immediate vicinity of the site; thus, the project will not require any work over, in, or adjacent to any waters.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material will be placed in or removed from surface water or wetlands for this proposal; thus, no source of fill or dredge material is indicated.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals are anticipated to be required for the proposal. Stormwater will be treated on-site and then discharged into existing stormwater lines that connect into the existing stormwater system.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposal is not known to lie within a 100-year floodplain.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not involve any discharges of waste materials to surface waters.

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b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No groundwater will be withdrawn from a well for drinking water or other purposes related to this proposal.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground from septic tanks or other sources for this proposal.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff will primarily be from pavements and roof areas. Pavement areas will sheet flow to catchbasins and will then be conveyed to stormwater facilities. Stormwater from roof areas will be collected in downspouts and may be infiltrated on-site.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials could possibly enter ground or surface waters by being spilled from vehicles on-site, though such spills are unexpected.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposal does not alter or otherwise affect drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

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The project team will prepare a stormwater control plan that will comply with City of Bainbridge Island requirements; this plan will be reviewed by the City of Bainbridge Island.

4. Plants

a. Check the types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ orchards, vineyards or other permanent crops
- ☐ wet soil plants: cattail, buttercup, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Approximately 25 trees will be removed for the proposal.

c. List threatened and endangered species known to be on or near the site.

No threatened or endangered species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Landscaping is proposed to cover 56.2% of the site. Entry gardens are proposed to the west of the main entry on the south side of the building, and a staff patio is proposed on the west side of the building. The existing forest buffer on the northern side of the site will be preserved, and a meadow will be maintained to the south of the forest buffer, north of the internal circulation area on the north side of the proposed building. A full screen buffer will be provided on the eastern side of the site, with partial screen buffers provided on the southern and western sides of the site. Interior parking areas will also be landscaped. The landscaping is designed by a licensed landscape architect to comply with the City of Bainbridge Island requirements, and landscape plans will be reviewed by the City of Bainbridge Island.

e. List all noxious weeds and invasive species known to be on or near the site.

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No noxious weeds or invasive species are known to be on or near the site.

5. Animals

- a. List any birds and other animals which have been observed, or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

- b. List any threatened and endangered species known to be on or near the site.
No threatened or endangered species are known to be on or near the site.

- c. Is the site part of a migration route? If so, explain.
The entire Puget Sound region is located within the Pacific Flyway for migratory birds.

- d. Proposed measures to preserve or enhance wildlife, if any:
The proposed landscaping will include species native to the Pacific Northwest.

- e. List any invasive animal species known to be on or near the site.
No invasive animal species is known to be on or near the site.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric and natural gas energy will be used to meet the completed project's energy needs.

- b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.
The project is not expected to affect the potential use of solar energy by adjacent properties.

- c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any:

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This proposal will comply with the current adopted building and energy codes and standards, and the plans prepared for the proposal will be reviewed by the City of Bainbridge Island.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

No environmental health hazards are expected to occur as a result of this proposal.

- 1) Describe any known or possible contamination at the site from present or past uses.

There is no known contamination at the site from present or past uses, and no contamination is anticipated from this proposal.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are no known existing hazardous chemicals or conditions that might affect development and design of the proposed project.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

For the completed project, there will be a fueling facility, an emergency generator with a fuel tank, and propane; and there will be washing chemicals, lube oil, and other chemicals for vehicle maintenance on the site.

- 4) Describe special emergency services that might be required.

The proposal is not anticipated to require any special emergency services. The proposal is for redevelopment of a fire station, which provides an emergency service to the community.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are anticipated from this proposal.

b. Noise

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- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise exists in the area from the existing fire apparatus use and from the traffic on Bucklin Hill Road NE, but the noise is not anticipated to affect this proposal.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise will be created by or associated with the project construction, and long-term noise will be created by or associated with the fire apparatus use, with traffic to and from the completed project, and with operations on the site. Consistent with City of Bainbridge Island regulations, construction will occur between the hours of 7:00 a.m. and 7:00 p.m. on weekdays that do not constitute legal holidays and between 9:00 a.m. and 6:00 p.m. on Saturdays that do not constitute legal holidays. Operations at the completed project will occur 24 hours per day, seven days per week.

- 3) Proposed measures to reduce or control noise impacts, if any:

Any noise related to the fire station use that can be defined as “[s]ounds created by emergency equipment and work necessary [...] for healthy safety or welfare of the community” are exempt from all provisions of the Washington Administrative Code adopted by the City of Bainbridge Island governing maximum environmental noise levels (See Bainbridge Island Municipal Code Section 16.16.020. and WAC Section 173-60-050 [4] [f].).

8. Land and shoreline use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current use of the site is as a fire station, which is the same as the proposed use. There are residential properties to the north, Hyla Middle School to the south, residential properties to the east, and an undeveloped area to the west of the site. The fire station use has been compatible with the current land uses on nearby or adjacent properties, and the compatibility of the fire station use with the nearby or adjacent uses will be preserved through this proposal.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

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To the best of knowledge, the project site has not been used as working farmlands or forest lands in the recent past. No agricultural or forest land of long-term commercial significance will be converted to other uses as a result of this proposal, and no acres in farmland or forest land tax status will be converted to nonfarm or nonforest use as a result of this proposal.

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

There are no known surrounding working farm or forest land normal business operations nearby or adjacent to the project site; therefore, no affects are anticipated with this proposal.

- c. Describe any structures on the site.

There are approximately three existing buildings on the site, including a fire station, a shop addition, and a shipping container; there are a couple of concrete and gravel parking and pad areas on the site, as well as landscaping and vehicle circulation areas.

- d. Will any structures be demolished? If so, what?

All existing buildings and vehicle circulation areas will be demolished, and the buildings and vehicle circulation areas will be redeveloped.

- e. What is the current zoning classification of the site?

The current zoning classification of the site is 1 Unit per Acre Zone (40,000 square feet; R-1).

- f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation of the site is 1 Unit per Acre Zone (40,000 square feet; OSR-1).

- g. If applicable, what is the current shoreline master program designation of the site?

The site is not within shoreline jurisdiction.

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No part of the site has been classified as a critical area by the City of Bainbridge Island or by Kitsap County.

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i. Approximately how many people would reside or work in the completed project?

Approximately three employees will work in the completed project, and approximately two of these employees will reside in the living quarters to be provided with the project during on-duty shifts.

j. Approximately how many people would the completed project displace?

The completed project will not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

The completed project will not displace any people; therefore, no measures to avoid or reduce displacement impacts are necessary.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposal is for redevelopment of an existing use that has been previously approved by Kitsap County. The proposed use is conditionally allowed in the zone, and the applicant seeks approval of a Conditional Use Permit through compliance with the relevant standards and requirements.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no known agricultural or forest lands of long-term commercial significance near the project site, so no measures to ensure compatibility are necessary.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be provided with this proposal; living quarters to be used periodically by employees are proposed.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated with this proposal.

c. Proposed measures to reduce or control housing impacts, if any:

No housing will be provided or eliminated with this proposal, so no measures to reduce or control housing impacts are necessary.

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10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the proposed fire station building is approximately 26.5 feet at the maximum roofline. The proposed principal exterior building materials are metal panels, fiber cement boards, and board-formed concrete.

- b. What views in the immediate vicinity would be altered or obstructed?

No views in the immediate vicinity of this proposal are anticipated to be altered or obstructed.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

The proposed building is designed for compatibility with contemporary architecture characteristic of the Pacific Northwest in general and the Bainbridge Island community specifically.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The proposal includes exterior building lights which will be present during hours of darkness for the purposes of public safety and security. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

The exterior building lights for this proposal are intended to enhance the safety and security of the site, and these lights will not interfere with views. A lighting plan for the project will be reviewed by the City of Bainbridge Island.

- c. What existing off-site sources of light or glare may affect your proposal?

No existing off-site sources of light or glare are expected to affect this proposal.

- d. Proposed measures to reduce or control light and glare impacts, if any:

A lighting plan for the project will be reviewed by the City of Bainbridge Island. Lights will be shielded in order to prevent impacts on adjacent properties.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

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The site is within one mile of Eagle Harbor, Gazzam Lake Preserve, Rotary Park, and Strawberry Hill Park.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No recreational uses currently exist on the subject site, so the proposed project would not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No impacts on recreation are anticipated to result from the project, and the applicant is not providing any public recreation opportunities.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

No known buildings, structures, or sites located on or near the site that are over 45 years old are listed in or eligible for listing in national, state, or local preservation registers.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No landmarks, features, or other evidence of Indian or historic use or occupation or material evidence, artifacts, or areas of cultural importance are known to exist on or near the site. If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The site is currently in use as a fire station, and no cultural or historic resources are known to exist on the site; thus, no potential impacts to cultural or historic resources on the site are anticipated, and no methods to assess the potential impacts to cultural or historic resources on the site have been used. If any

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previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

If any previously unknown resources are discovered during construction of this project, then construction on the project will be discontinued until a qualified archaeologist can investigate the discovery.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site is served by Bucklin Hill Road NE to the south, which is functionally classified as a secondary arterial street according to the draft update of the City's Island Wide Transportation Plan (IWTP). The existing driveway will be relocated slightly to the west as an approximately 24-foot-wide driveway for both passenger vehicles and emergency access.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site is currently served by public transit: there are two existing transit stops within one quarter-mile of the site, one near the frontage of the Hyla Middle School property on Bucklin Hill Road NE and one near the intersection of Bucklin Hill Road NE at Blakely Avenue NE.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The completed project will provide 30 parking spaces, eliminating none.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The proposal will not require any new or improved transportation facilities. Internal circulation will be provided for pedestrians and bicycles, in addition to passenger and emergency vehicles.

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- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will not use or occur in the immediate vicinity of water, rail, or air transportation.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Station 22 – 16,808 ksf x 3.49 daily trips/ksf = 59 daily trips

~10% peak hour = 6 peak hour trips

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no known movements of agricultural or forest products on roads or streets in the area, so the proposal will not interfere with, affect, or be affected by the movement of such products on roads or streets in the area.

- h. Proposed measures to reduce or control transportation impacts, if any:

None proposed at this time.

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The project is a redevelopment of an existing use, so the project will not result in a significantly increased need for public services. As a redeveloped fire station, the project provides a public service to the community.

- b. Proposed measures to reduce or control direct impacts on public services, if any.

The proposed redevelopment of the fire station is a response to an identified need to enhance public services in the community of Bainbridge Island.

16. Utilities

- a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

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- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The site is currently served by utility infrastructure that is adequate to meet the needs of the proposed development; therefore, no new utilities or utility connections are proposed. There is an existing utility pole in the center of the site that is proposed to be retained at the current location. Water service is provided by the City of Bainbridge Island. There is an existing private on-site septic system which is proposed to be redesigned in order to accommodate the larger redeveloped fire station.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

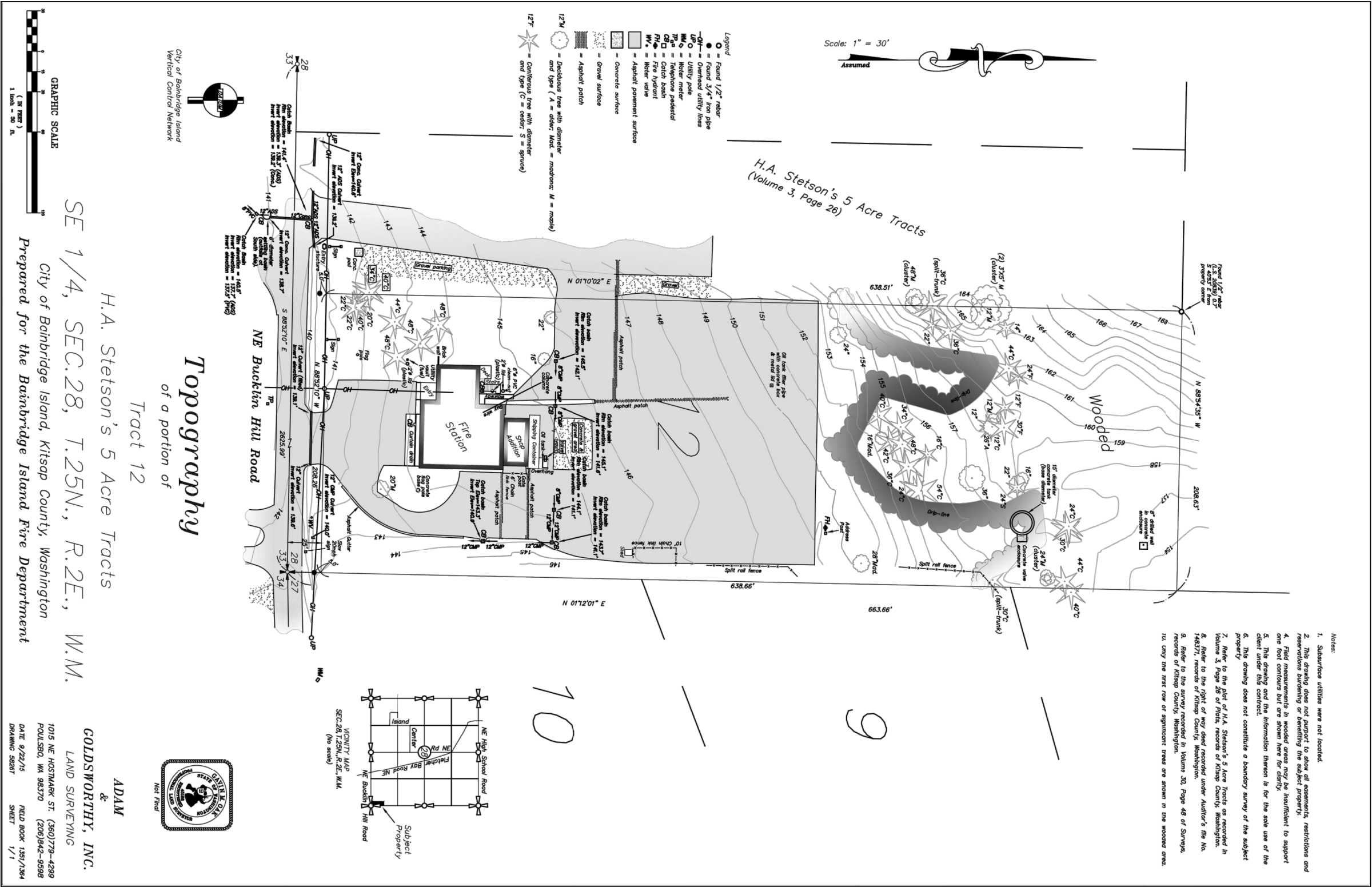
Name of signee Michael Chen

Position and Agency/Organization Senior Planner, Mackenzie

Date Submitted: 1/13/2016

CHECKLIST REVIEWED BY:

Project Manager, Department of Planning and Community Development



9/22/15 1301/1384 55831/1

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JOB NO. 2150124.00

EXISTING CONDITIONS

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BAINBRIDGE ISLAND FIRE DEPT
STATION 22
7934 BUCKLIN HILL RD. NE

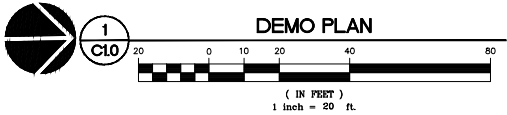
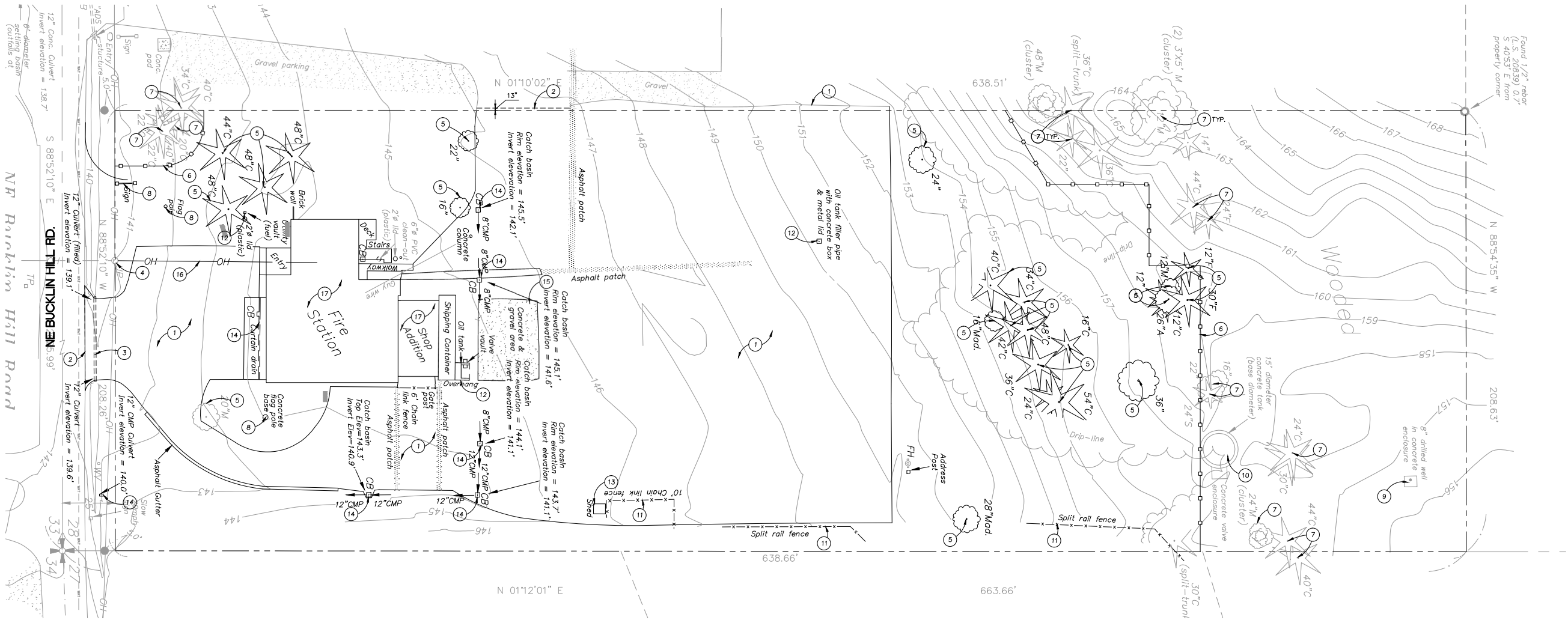
BAINBRIDGE ISLAND FIRE
DEPARTMENT
8895 MADISON AVE. NE
BAINBRIDGE, WA 98110

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LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH SUITE A
BAINBRIDGE ISLAND, WA
98110

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204



KEYNOTES

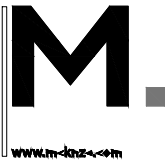
1. REMOVE EXISTING ASPHALT AND BASE ROCK
2. SAW-CUT EXISTING ASPHALT
3. REMOVE EXISTING 12" CULVERT
4. EXISTING POWER POLE TO REMAIN
5. EXISTING TREE TO BE REMOVED
6. PROVIDE TREE PROTECTION PRIOR TO DEMOLITION WORK
7. EXISTING TREE TO REMAIN
8. EXISTING SIGN AND FLAG POLE, SALVAGE AND STORE ON-SITE
9. EXISTING WELL TO REMAIN
10. EXISTING TANK AND VALVE ENCLOSURE TO REMAIN
11. REMOVE EXISTING FENCE
12. REMOVE EXISTING OIL TANK AND ASSOCIATED HARDWARE. REMOVE, DISPOSE, AND DOCUMENT IN ACCORDANCE WITH ALL APPLICABLE STATE REQUIREMENTS.
13. REMOVE EXISTING SHED
14. REMOVE ALL CATCH BASINS AND STORM DRAIN PIPES.
15. REMOVE EXISTING CONCRETE SLAB.
16. REMOVE EXISTING ELECTRICAL SERVICE.
17. REMOVE EXISTING TIRE STATION BUILDING, SHOP ADDITION AND ADJACENT STAIRS, DECK AND WALKWAYS.

DEMOLITION NOTES

1. DEMOLITION GENERALLY INCLUDES PROPER REMOVAL OF ALL EXISTING IMPROVEMENTS FROM THE SITE, INCLUDING ABOVE AND BELOW GROUND VEGETATION, UTILITIES AND STRUCTURES. KEYNOTES ARE PROVIDED WHERE SPECIFIC REQUIREMENTS MAY BE WARRANTED.
2. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL UTILITIES ARE PROPERLY TURNED OFF PRIOR TO ANY SITE OR BUILDING DEMOLITION.
3. ALL HAZARDOUS MATERIALS (IF ANY ARE FOUND TO EXIST) SHALL BE DISPOSED IN ACCORDANCE WITH DEQ REQUIREMENTS.
4. INSTALL APPROPRIATE EROSION CONTROL MEASURES AND SECURITY FENCES PRIOR TO DEMOLITION.
5. COORDINATE DEMOLITION WORK WITH THE PROPOSED SITE DEVELOPMENT PLANS.
6. ALL EXCAVATIONS SHALL BE BACKFILLED WITH MATERIALS, AND COMPACTED, AS SPECIFIED IN THE GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS.
7. DO NOT STOCKPILE DEMOLISHED MATERIALS, OR SOILS, ON-SITE FOR EXTENDED PERIODS OF TIME.

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
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Client

BAINBRIDGE ISLAND FIRE
DEPARTMENT
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BAINBRIDGE, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 22
7934 BUCKLIN HILL RD. NE

REVISIONS:

REVISION NUMBER	REVISIONS THIS SHEET	REVISION DATE
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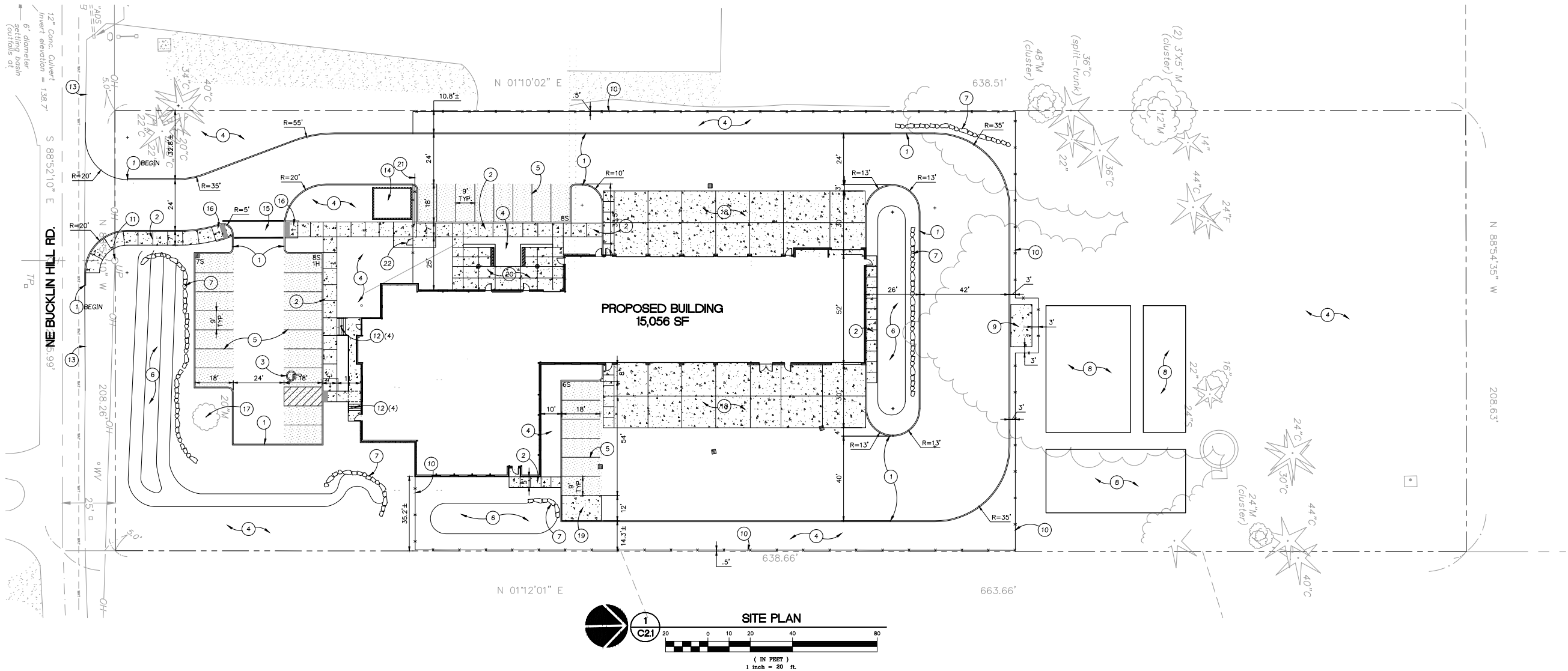
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DEMOLITION PLAN

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C2.0

JOB NO. 2150124.00



GENERAL NOTES

- ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING. PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED TO MEET CITY OF BAINBRIDGE ISLAND REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
- EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
- CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES.
- EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY-TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. (ONE CALL LOCATE UTILITY NOTIFICATION CENTER - 1-800-332-2344).
- WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE END OF THE EXISTING PIPE VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.

CURB NOTE

ALL CURB RADII TO BE 2.5' UNLESS OTHERWISE NOTED

KEYNOTES

- CONCRETE VERTICAL CURB PER DETAIL 1/C8.0
- CONCRETE SIDEWALK PER DETAIL 2/C8.0
- ADA ACCESSIBLE PARKING STALL PER DETAIL 3/C8.0
- LANDSCAPE AREA, SEE LANDSCAPE PLANS
- 4" WIDE WHITE PARKING STRIPE
- STORMWATER FACILITY, SEE GRADING PLAN
- ROCK WALL, SEE GRADING PLAN
- TEMPORARY FACILITIES
- FUELING PAD
- CHAIN LINK FENCE
- EXISTING POWER POLE TO REMAIN, PROTECT DURING CONSTRUCTION
- CONCRETE RISER, SEE GRADING PLAN
- EDGE OF ASPHALT
- TRANSFORMER
- 12" WHITE CROSSWALK STRIPE
- SIDEWALK RAMP PER DETAIL 8/C8.0 AND 9/C8.0
- EXISTING TREE TO REMAIN, PROTECT DURING CONSTRUCTION
- CONCRETE APRON, SEE PAVING LEGEND
- GENERATOR PAD
- PATIO AREA, SEE GRADING PLAN FOR DETAILS
- MOTORIZED ROLLING GATE
- PERSONNEL GATE

SITE DATA

SITE AREA	133,109 SF (3.06 AC)
BUILDING FOOTPRINT	15,056 SF
BUILDING COVERAGE	11.3%
LANDSCAPE AREA	74,794 SF (56.2%)

PARKING DATA

PARKING PROVIDED	29 SPACES
STANDARD	1 SPACE
ACCESSIBLE	0 SPACES
COMPACT	
TOTAL	30 SPACES (2.0/1,000)

LEGEND

CONCRETE VERTICAL CURB	
PROPERTY LINE	
ROCK RETAINING WALL	
MANHOLE	
CATCH BASIN	
FIRE HYDRANT	
EXISTING TREE TO REMAIN	

PAVEMENT LEGEND

(SEE SPECIFICATIONS FOR ADDITIONAL PAVEMENT DETAILS)

CAR PARKING	
3" AC OVER 6" ROCK BASE	
TRUCK AREAS	
4" AC OVER 8" ROCK BASE	
CONCRETE APRON	
6" CONCRETE (4,000 PSI)	
OVER 6" ROCK BASE	

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Client

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 22
7934 BUCKLIN HILL RD. NE

REVISIONS:

REVISION	DATE	BY	REVISIONS THIS SHEET	REVISION DATE
1	11/13/16	TWM		

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SHEET TITLE:

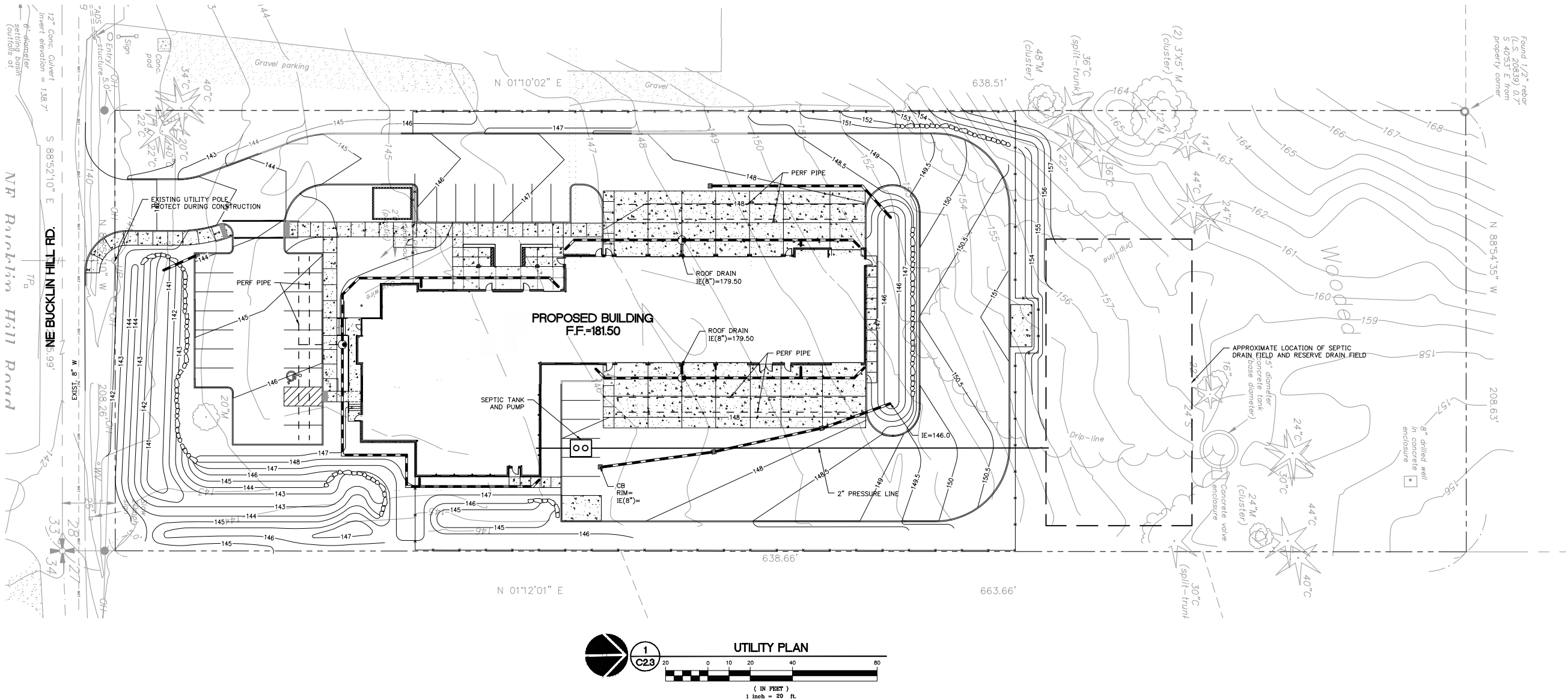
SITE PLAN

SHEET

C2.1

JOB NO. 2150124.00

SITE PLAN REVIEW: 1/13/16



UTILITY NOTES

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF BAINBRIDGE ISLAND AND THE CURRENT EDITION OF THE UNIFORM PLUMBING CODE AND THE INTERNATIONAL BUILDING CODE. ALL WORK WITHIN THE PUBLIC R.O.W. REQUIRES A PUBLIC WORKS PERMIT.
- THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
- PROVIDE CLEANOUTS AS REQUIRED IN THE CURRENT UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1101.12. NOTE: NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS.
- ALL STORM PIPING IS SIZED FOR A MANNING'S "N" VALUE = 0.013 ALL STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE NOTED.
- SEE MECHANICAL DRAWINGS FOR UTILITIES LOCATED WITHIN THE BUILDING AND TO 5' OUTSIDE THE BUILDING.
- ALL DOWNSPOUT LEADERS TO BE 6" AT 2.0% MIN. UNLESS NOTED OTHERWISE.
- VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES BY POTHOLING PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
- PROVIDE 2" PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH 3/4" 1/2" INCH DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS.
- THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY PREPARED BY ADAM & GOLDSWORTHY, INC., DATED 09/22/2015.
- CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP
- CONTRACTOR TO MAINTAIN MINIMUM 3 FT OF COVER OVER ALL WATER LINE.

LEGEND

	PROPOSED	EXISTING
PROPERTY LINE	---	---
STORM LINE	---	---
PERF PIPE	---	---
SANITARY SEWER LINE	---	---
WATER LINE	---	---
OVERHEAD WIRE	---	---
MANHOLE	---	---
CATCH BASIN	---	---
FIRE HYDRANT ASSEMBLY	---	---
SANITARY SEWER MANHOLE	---	---
UTILITY POLE	---	---

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BAINBRIDGE, WA 98110

Project

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STATION 22
7934 BUCKLIN HILL RD. NE

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NO.	REVISIONS THIS SHEET	REVISION DATE CLOSING DATE
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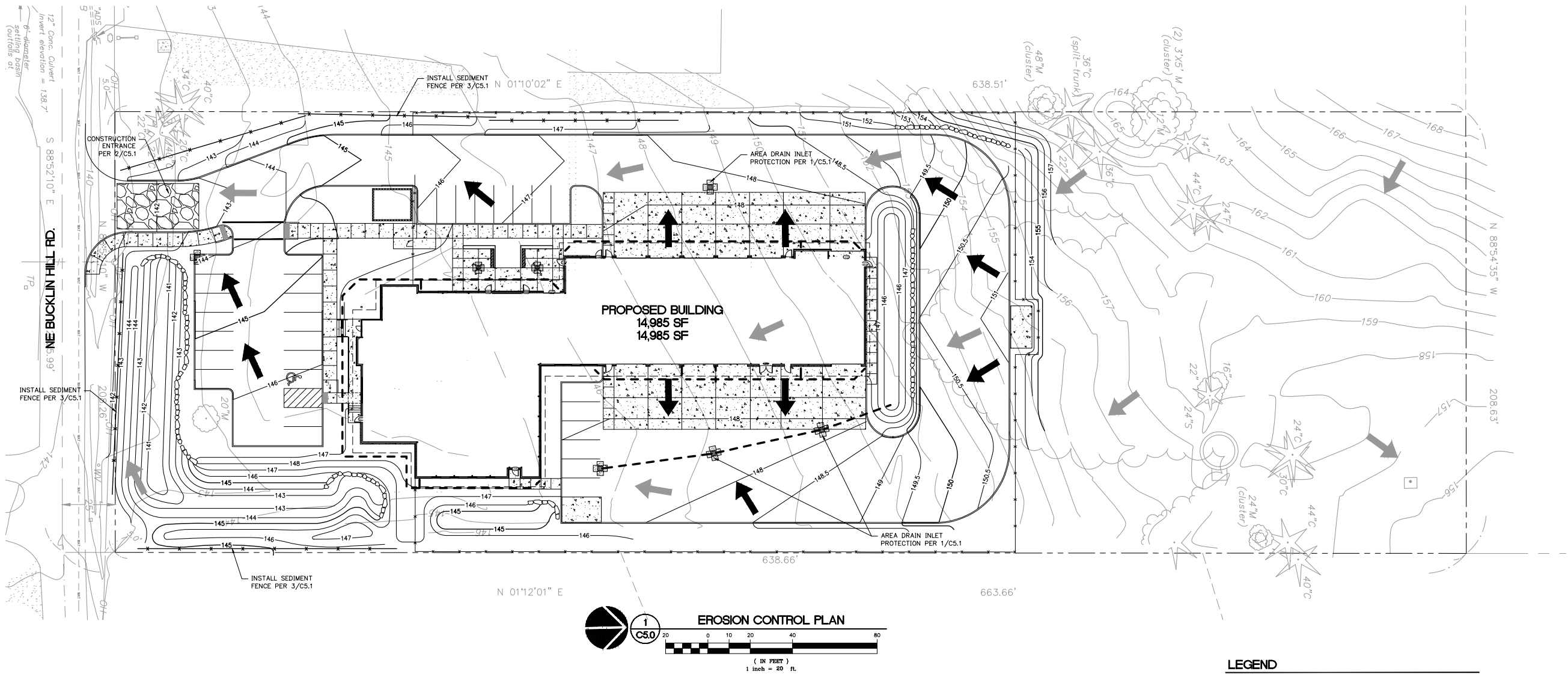
SHEET TITLE:

UTILITY PLAN

SHEET

C2.3

JOB NO. 2150124.00



LEGEND	
	SEDIMENT FENCE
	CONSTRUCTION ENTRANCE
	EXISTING DRAINAGE FLOW DIRECTION
	DRAINAGE FLOW DIRECTION
	EXISTING TREE TO REMAIN, PROVIDE TREE PROTECTION
	INLET PROTECTION

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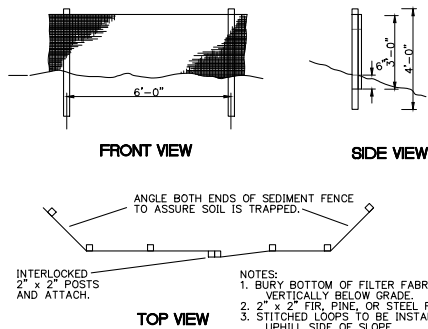
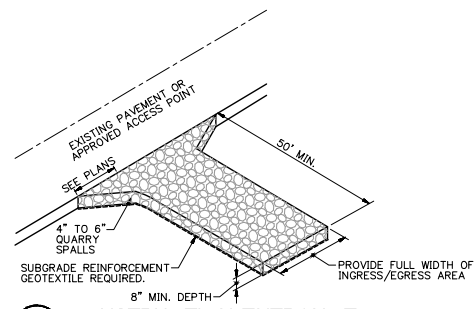
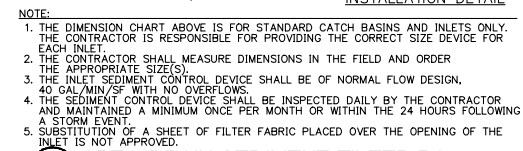
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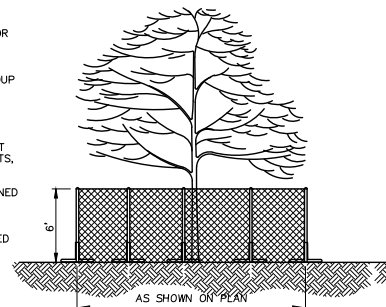
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EROSION CONTROL PLAN

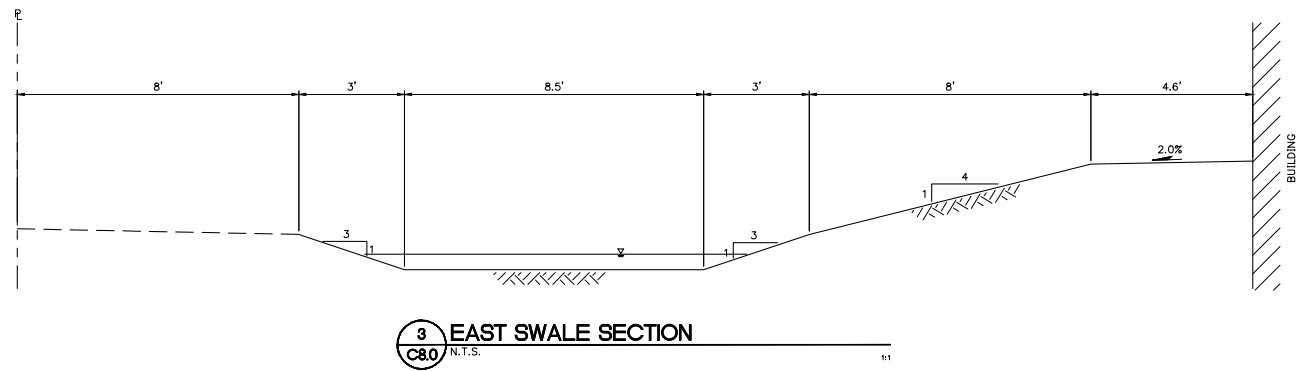
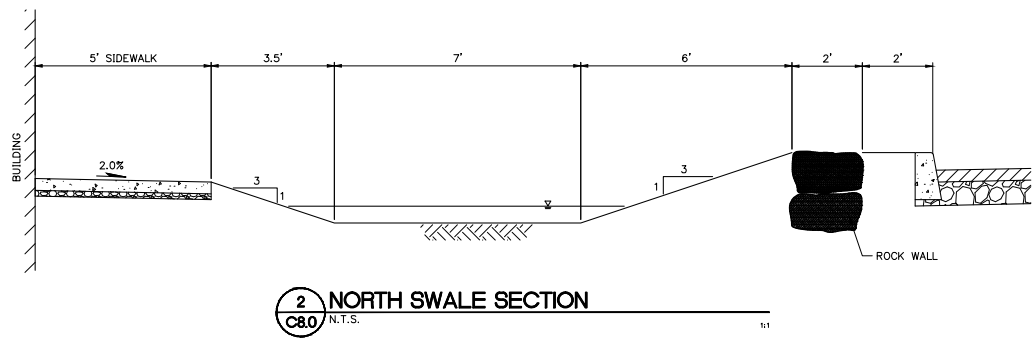
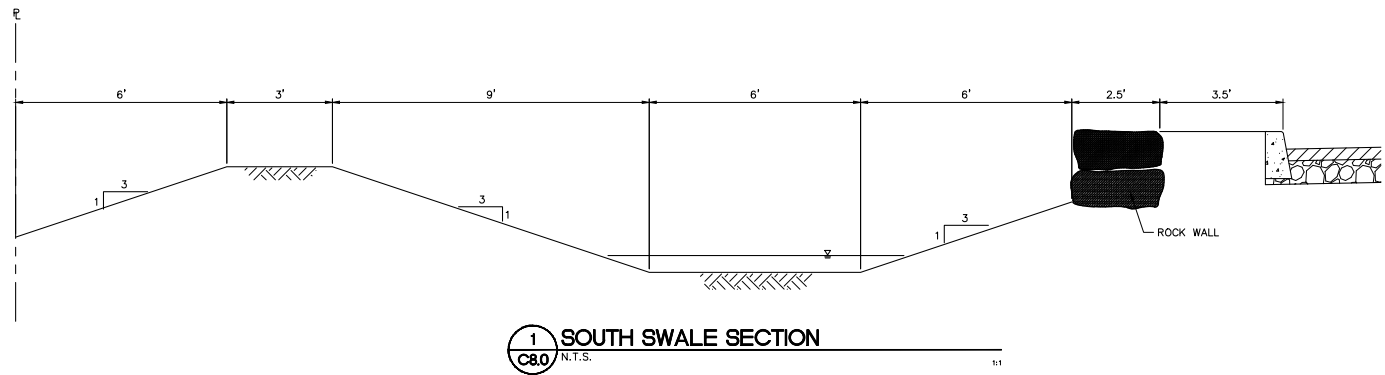
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C5.0
JOB NO. 2150124.00



EXCAVATION / TRENCHING AROUND TREES
PROPOSED TRENCHING AND EXCAVATION AROUND TREES SHALL BE COORDINATED WITH CONSULTING ARBORIST.

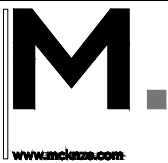


FENCE SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES. MOVEMENT OR REMOVAL OF FENCE REQUIRES APPROVAL BY CITY'S AUTHORIZED REPRESENTATIVE.



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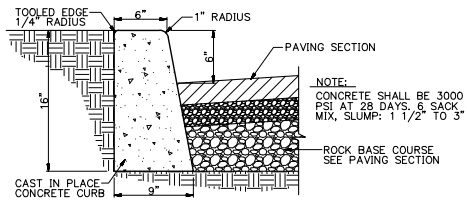
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SECTIONS

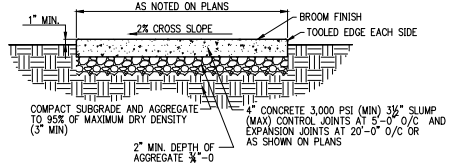
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C8.0

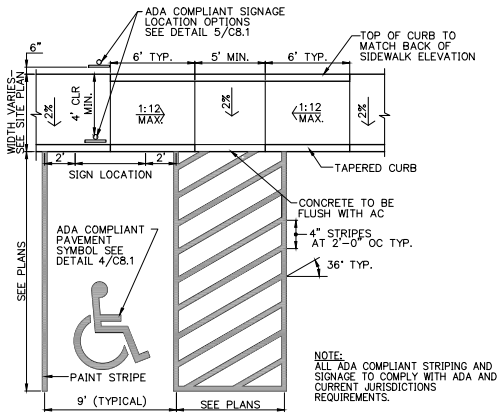
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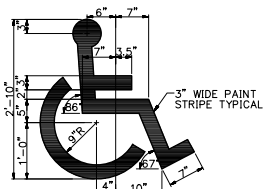
1 CONCRETE VERTICAL CURB
C8.1 N.T.S.



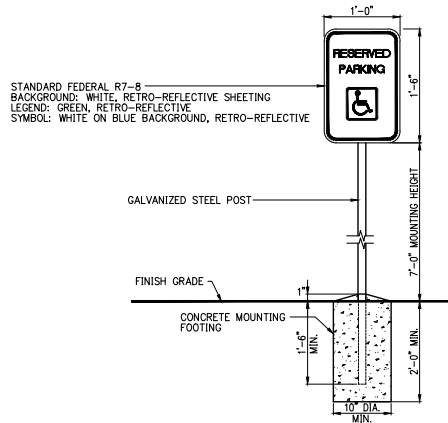
2 CONCRETE SIDEWALK
C8.1 N.T.S.



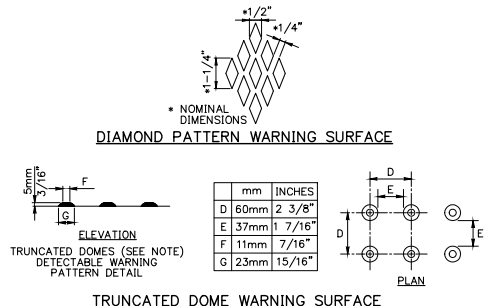
3 ADA COMPLIANT PARKING STALL
C8.1 N.T.S. WITH SQUARE WING RAMP



4 ADA COMPLIANT PARKING SYMBOL
C8.1 N.T.S.

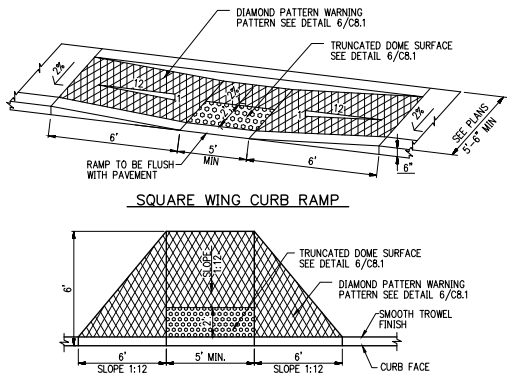


5 ADA COMPLIANT PARKING SIGN
C8.1 N.T.S.

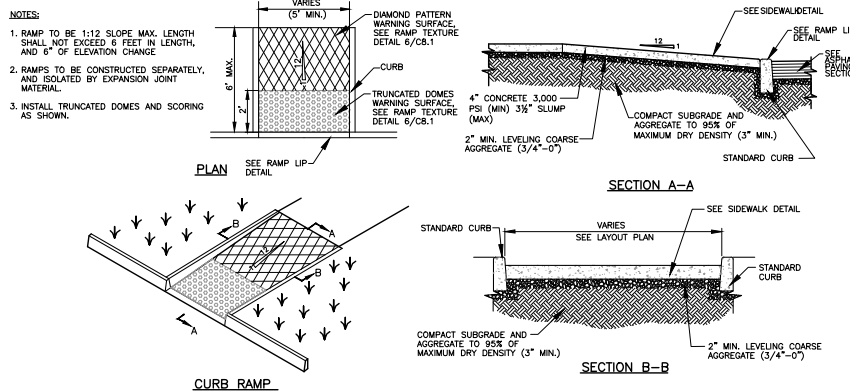


NOTE:
1. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 600MM (2') OF THROAT OF RAMP ONLY. ARRANGE DOMES USING IN-LINE PATTERN ONLY AS SHOWN IN DETAIL ABOVE. COLOR OF TEXTURE TO BE SAFETY YELLOW.
2. DIAMOND RAMP TEXTURING IS TO BE DONE WITH AN EXPANDED METAL GRATE PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE PERPENDICULAR TO THE CURB. GROOVES SHALL BE 1/8" DEEP AND 1/4" WIDE.

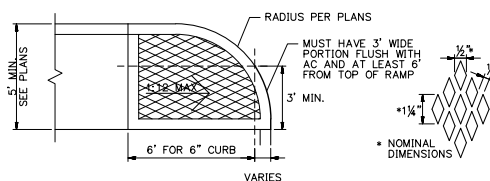
6 ADA COMPLIANT WARNING SURFACE
C8.1 N.T.S.



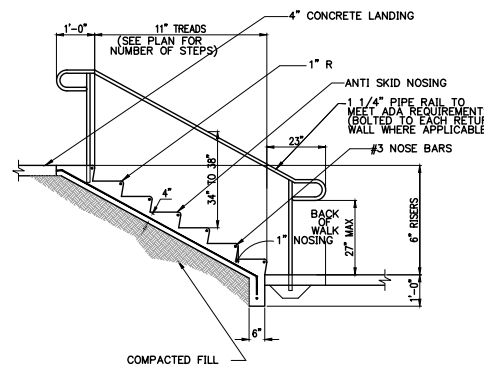
7 ADA COMPLIANT CURB RAMP
C8.1 N.T.S.



8 SQUARE CURB RAMP
C8.1 N.T.S.



9 ADA COMPLIANT CORNER CURB RAMP
C8.1 N.T.S.



10 CONCRETE STAIR
C8.1 N.T.S.

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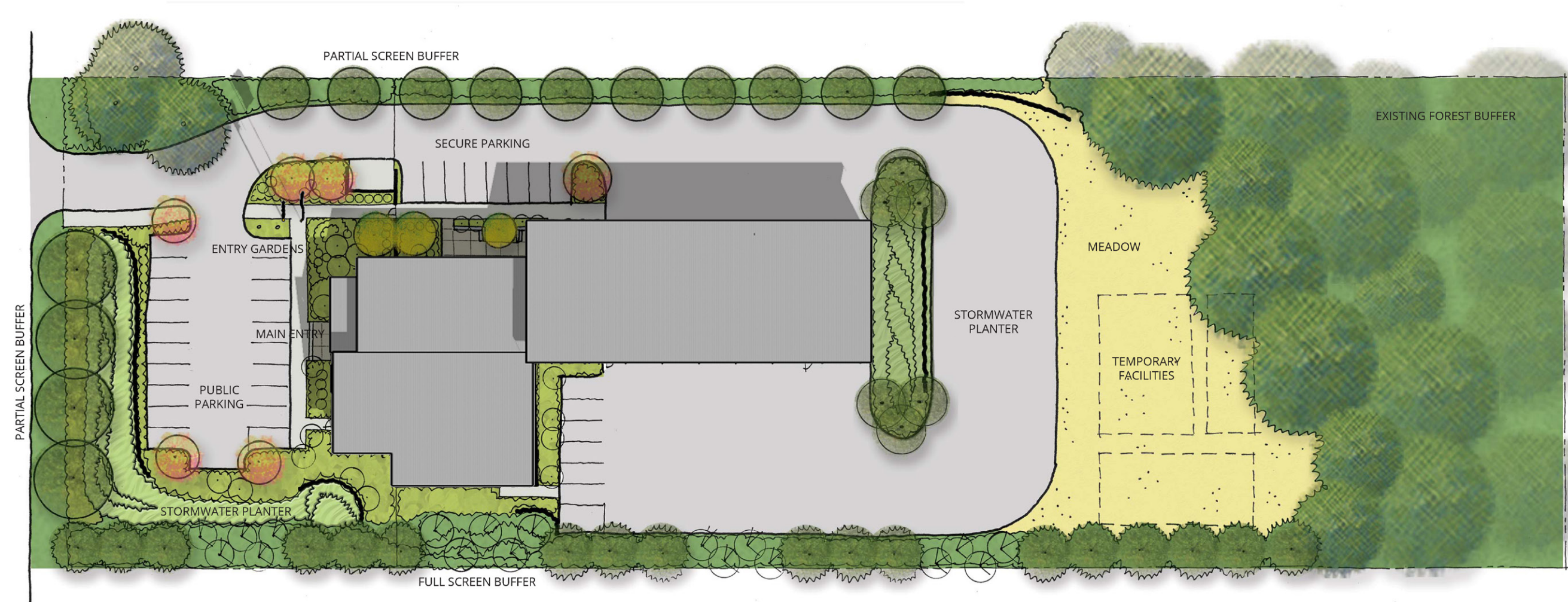
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STATION 22
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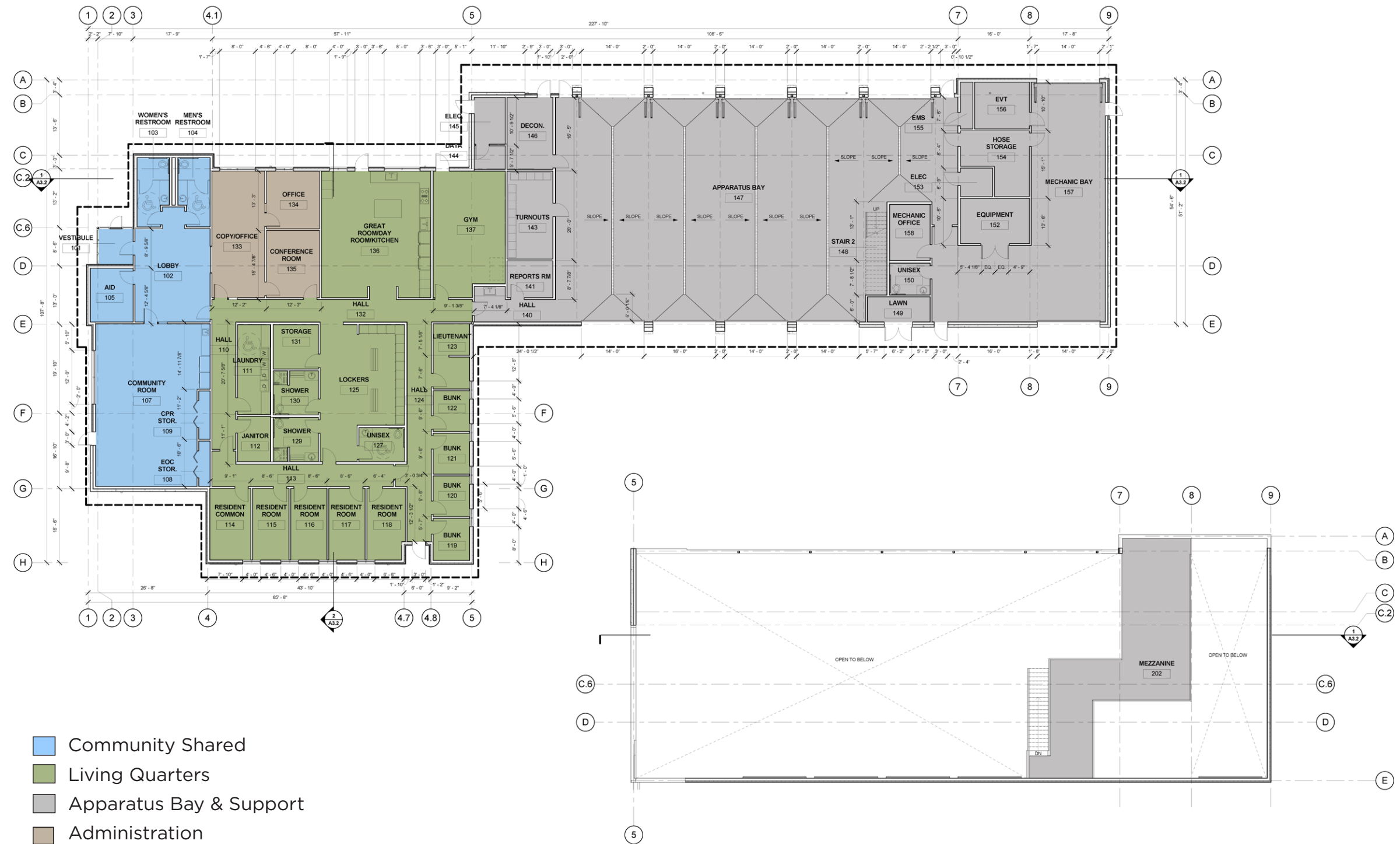
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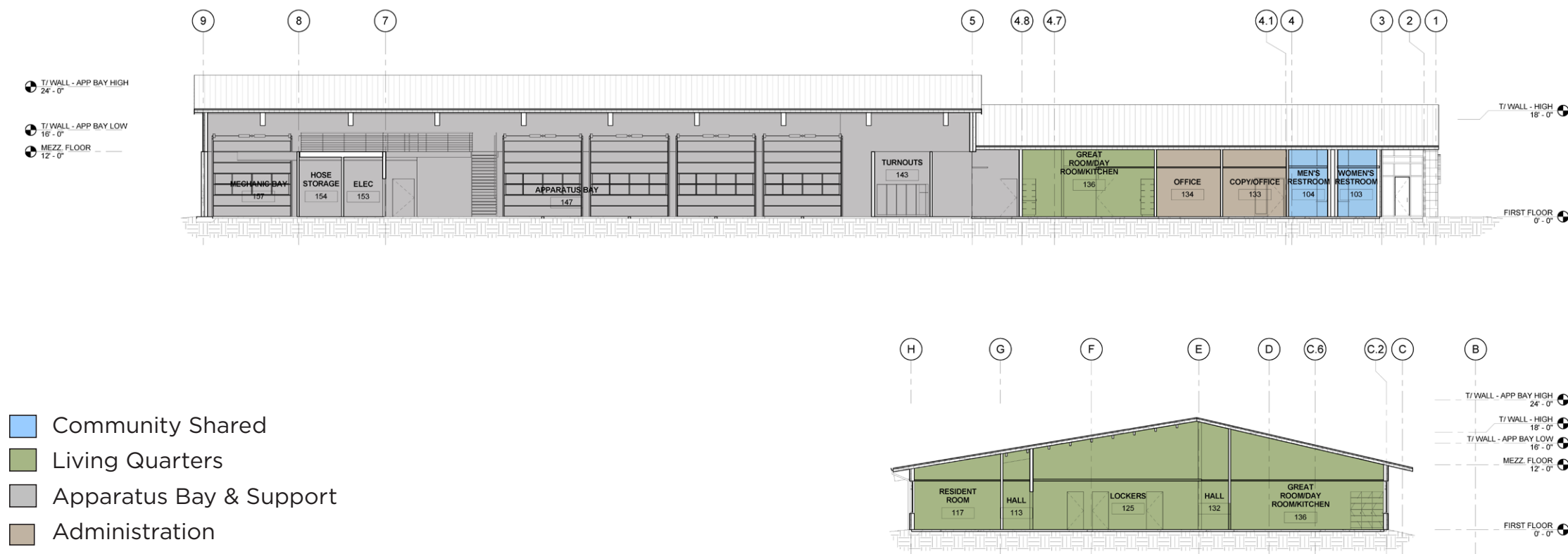
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CIVIL DETAILS

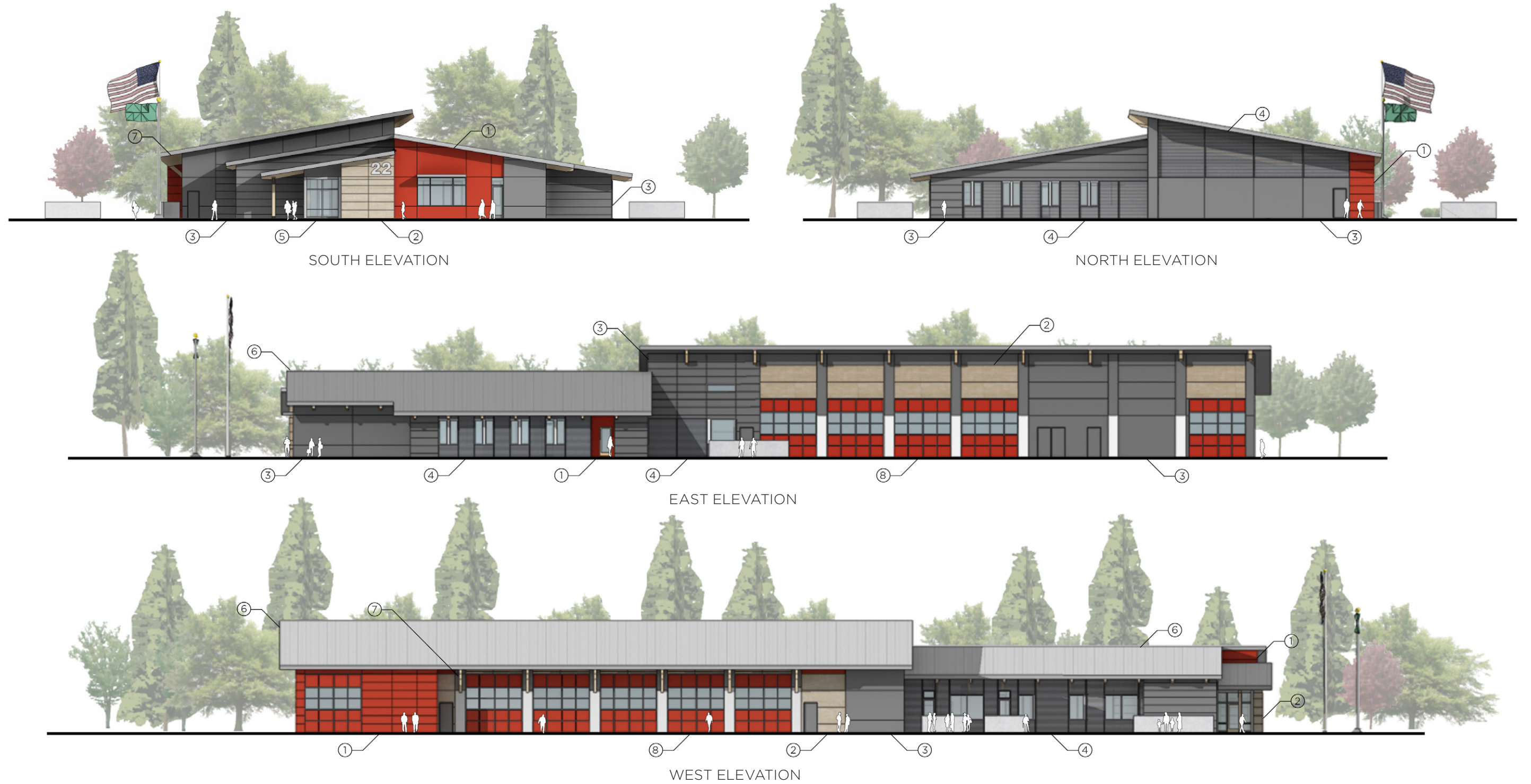
SHEET
C8.1
JOB NO. 2150124.00



⊙ N
SCALE 1" = 50'-0"







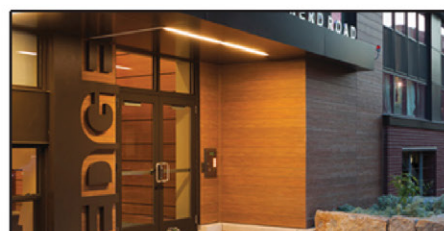
① RED FIBER CEMENT PANEL



⑤ GLASS STOREFRONT SYSTEM



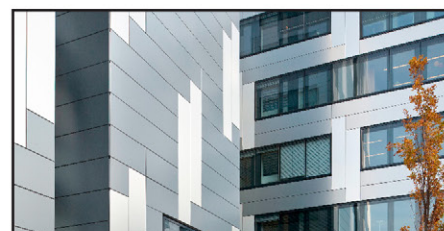
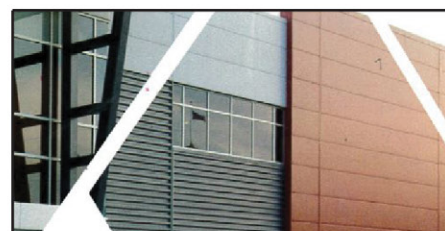
② WOOD FIBER CEMENT PANEL



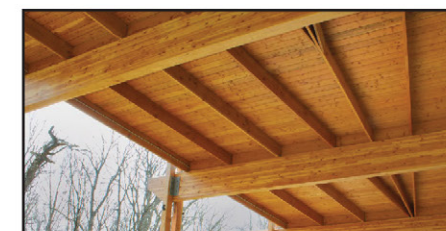
⑥ STANDING SEAM METAL ROOF



③ METAL PANEL



⑦ WOOD GLUELAM BEAM



④ CORRUGATED METAL SYSTEM



⑧ OVERHEAD ROLL UP DOORS









Bainbridge Island Fire Department- Stations 21 & 22 Landscape Buffers

January 8, 2016

The following memo is a summary of the landscape buffers (perimeter and roadside frontage) as required by BIMC 18.15.010 and how they are applied to each of the stations using buffer averaging, when necessary. The following table identifies our understanding of the buffer requirements for each property line of each project site. This memo also addresses comments (dated December 30, 2015) provided by Josh Machen of the City's Planning Department per their review of the Pre-App submittal. Landscape plans (sheets L2.0 series for each station) in the Pre-App submittal did not adequately demonstrate how the buffer requirements below were being met through site design and planting. These dimensions have been added to a new drawings sheet (L3.0 for each station) entitled Landscape Buffer Diagram which are being submitted for Site Plan Review. The information below is also included on these drawing sheets.

STATION 21 (ZONED R-2) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	319.2	50'	15,960 SF	16,021 SF
SOUTHEAST	595.8	25'	14,895 SF	8,730 SF

Summary:

The north, east and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 13'-6" (10' min. is allowable). The southeast buffer along Madison Avenue is impacted by significant site access, and helipad clear areas requirements.



STATION 22 (ZONED R-1) considered a Non-Residential Use in a Residential Zone

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	R-1 (Am Legion)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	R-0.4 (school)	NA b/c Bucklin Rd	25' AVG/ 15' MIN (PS) Bucklin
EAST	R-1 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)

DIRECTION	Linear Feet	Avg Width Req'd	SF Req'd for Averaging	SF Provided
NORTH	208.6	25'	5,205 SF	5,205 SF
WEST	638.5	20'	12,770 SF	12,779 SF
SOUTH	208.6	25'	5,205 SF	4,417 SF + Road Access
EAST	638.5	25'	15,963 SF	15,983 SF

Summary:

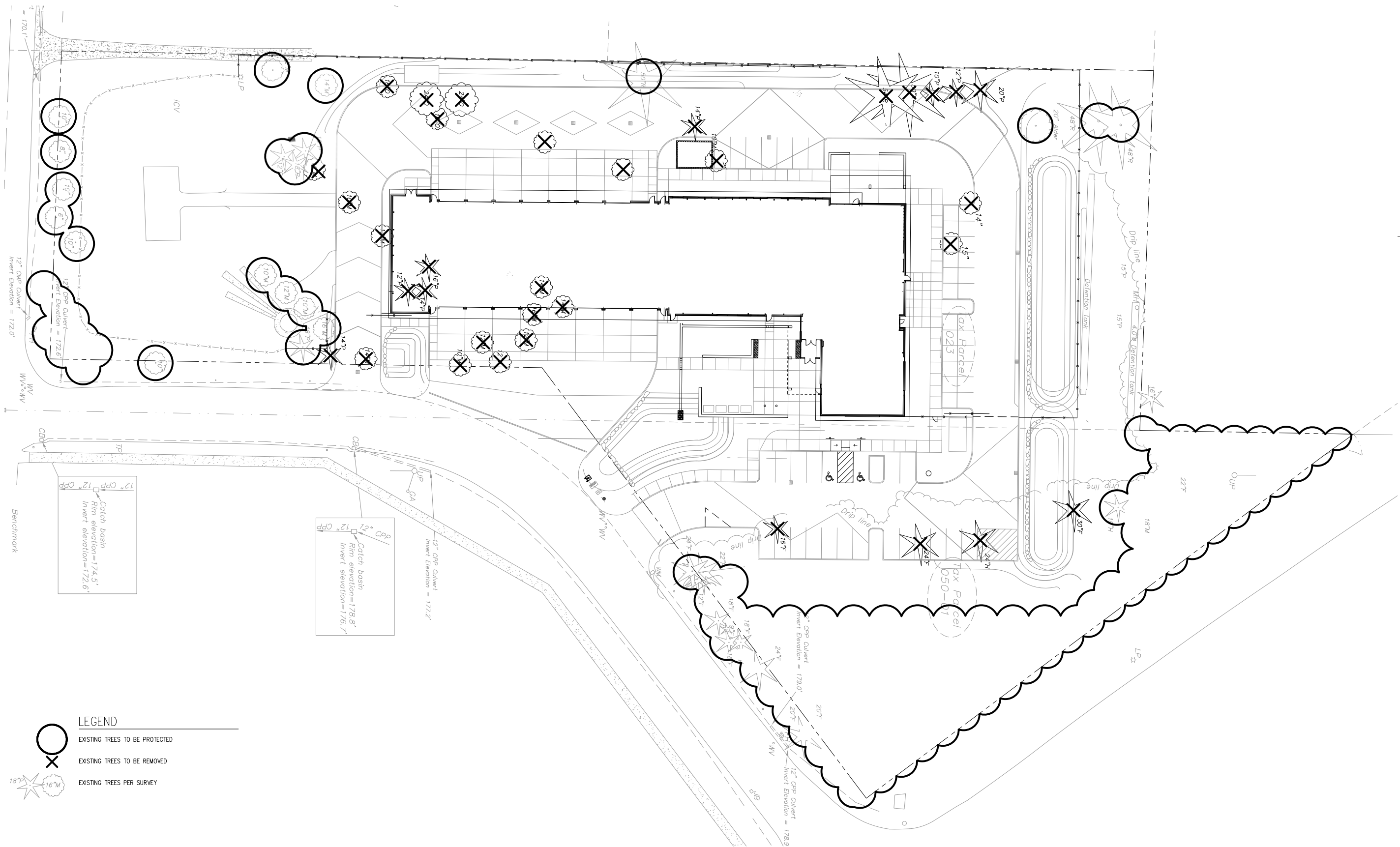
The north and south buffer requirements can be met without averaging. The west buffer will require averaging with a minimum width of 10' (10' min. is allowable). The east buffer will require averaging with a minimum width of 15' (15' min. is allowable).

Bainbridge Island Fire Department- Stations 21 & 22 Tree Retention Analysis Status

January 8, 2016

The following is a summary of the status of the tree retention analysis for the Site Plan Review (SPR) submittal. At this time, the analysis has not been completed but will be provided as a supplemental submittal as part of the SPR process.

Tree retention plans (sheets L1.0 for both stations) were submitted as part of the Pre-App package showing trees that were going to be removed and those that are planned to be retained. However, a specific analysis of tree units per BIMC 18.15.010 cannot be completed until Fischer Bouma Partnership (FBP) receives all necessary data. All tree locations were not originally surveyed and shown on the base survey for each station. While we currently indicate “areas” that tree stands will be retained on the tree retention plans, we cannot calculate the tree units within those stands until all trees are surveyed. BIFD staff provided an inventory of trees in those areas; however, the recently adopted changes to the tree retention code no longer allows trees retained within the perimeter or roadside buffer landscapes to count towards the required project tree units. As such, BIFD is in the process of having a surveyor identify the specific location of all trees on site. Once that data is provided, we will update the tree retention plans (L1.0) and provide an analysis of tree units retained/replanted.



LEGEND

EXISTING TREES TO BE PROTECTED
 EXISTING TREES TO BE REMOVED
 EXISTING TREES PER SURVEY

TREE RETENTION PLAN

1"=20'-0"

MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
FISCHER BOUMA PARTNERSHIP
310 MADISON AVENUE
SOUTH, SUITE A
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8895 MADISON AVE. NE
BAINBRIDGE ISLAND, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT STATION 21
8895 MADISON AVE. NE

JEFFREY K. BOUMA
REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO. 947

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SHEET TITLE:

TREE RETENTION PLAN

SHEET

L1.0

JOB NO. 2150124.00

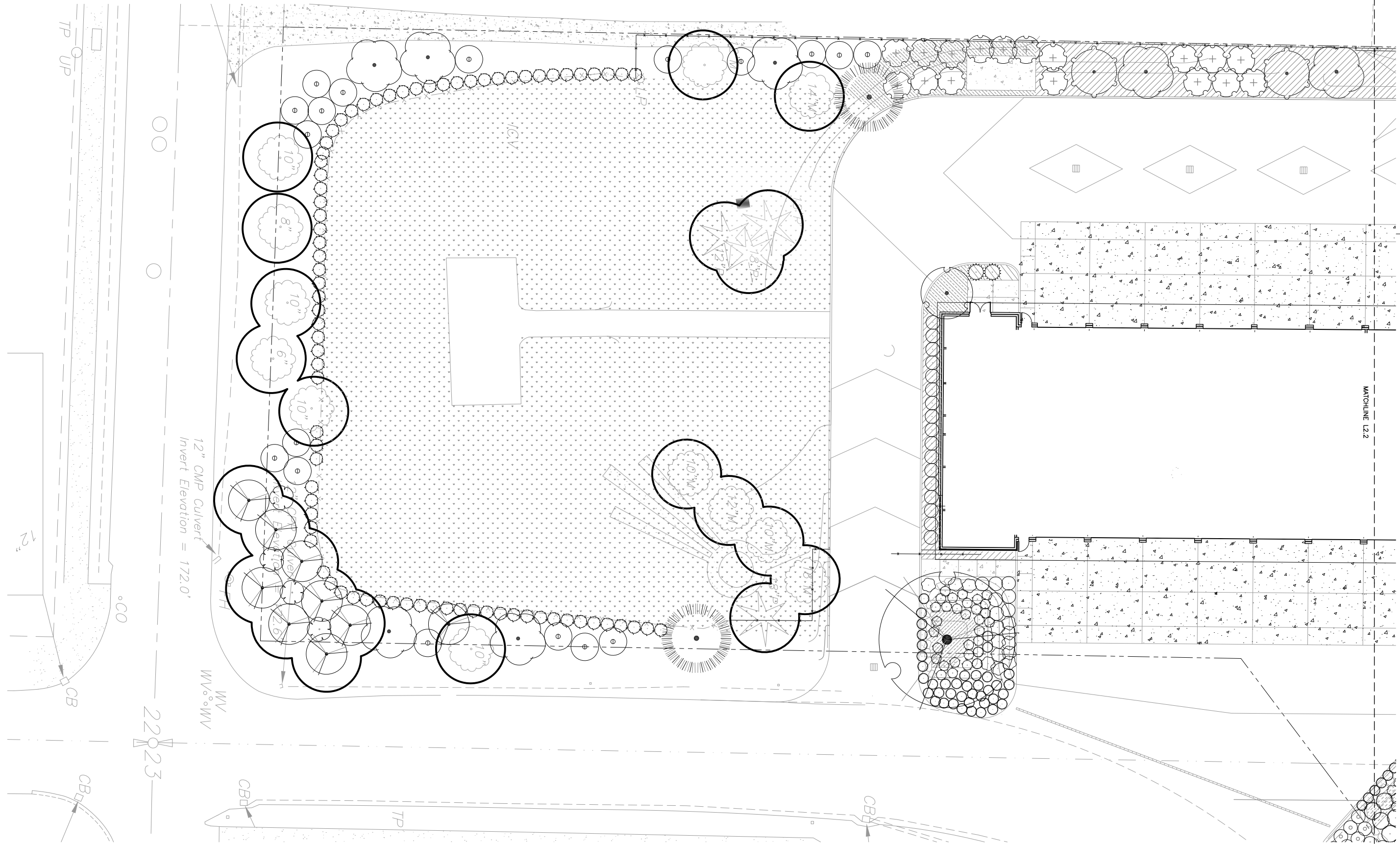
	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	ABI GRA	5	ABIES GRANDIS	GRAND FIR	NA		6' HT.
	ACE CIR	13	ACER CIRCINATUM	VINE MAPLE	B & B	2" CAL	
	ACE FRE	1	ACER FREEMANII 'JEFFERSRED' TM	AUTUMN BLAZE MAPLE	B & B	3" CAL	
	ACE RUB	1	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	B & B	2" CAL	
	ACE SAC	3	ACER SACCHARUM 'GREEN MOUNTAIN' TM	GREEN MOUNTAIN SUGAR MAPLE	B & B	2" CAL	
	AME AUT	5	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	'AUTUMN BRILLIANCE' SERVICEBERRY	B & B	2" CAL	
	ARB UNE	18	ARBUTUS UNEDO	STRAWBERRY TREE	5 GAL	NA	4' HT.
	BET LIT	15	BETULA NIGRA 'LITTLE KING' TM	FOX VALLEY BIRCH	B & B	2" CAL	
	BET UTI	3	BETULA UTILIS JACQUEMONTII	WHITEBARKED HIMALAYAN BIRCH	B & B	2" CAL	
	CHI VIR	3	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	B & B	2.5" CAL	
	COR KN3	9	CORNUS X 'KN 30-8'	VENUS DOGWOOD	NA	2" CAL	
	EXI TRE	9	EXISTING TREE	EXISTING TREE	NA		
	FRA JUN	1	FRAXINUS AMERICANA 'JUNGINGER' TM	AUTUMN PURPLE WHITE ASH	B & B	2" CAL	
	MAL GOL	7	MALUS X 'GOLDEN RAINDROPS'	CRAB APPLE	B & B	2" CAL	
	OXY ARB	3	OXYDENDRUM ARBOREUM	SOURWOOD TREE	B & B	2" CAL	
	PIN UMB	2	PINUS DENSIFLORA 'UMBRACULIFERA'	TANYOSHO PINE	NA		6' HT.
	PSE DOU	12	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	NA	NA	6' HT.
	STE PSE	4	STEWARTIA PSEUDOCAMELLIA	JAPANESE STEWARTIA	B & B	2" CAL	
	THU GRE	11	THUJA OCCIDENTALIS 'GREEN GIANT'	GREEN GIANT ARBORVITAE	NA		6' HT.
	THU PLI	16	THUJA PLICATA	WESTERN RED CEDAR	NA	NA	6' HT.
	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT		
	ARB COM	24	ARBUTUS UNEDO 'COMPACTA'	DWARF STRAWBERRY TREE	5 GAL		
	AUC GOL	3	AUCUBA JAPONICA 'MR. GOLDSTRIKE'	MR. GOLDSTRIKE AUCUBA	3 GAL		
	BER MON	17	BERBERIS THUNBERGII 'MONOMB'	CHERRY BOMB JAPANESE BARBERRY	2 GAL		
	CLE SIX	34	CLETHRA ALNIFOLIA 'SIXTEEN CANDLES'	SUMMERSWEET CLETHRA	5 GAL		
	COR FAR	291	CORNUS STOLONIFERA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	2 GAL		
	DIE COP	40	DIERVILLA LONICERA 'COPPER'	COPPER LOW BUSH HONEYSUCKLE	2 GAL		
	ESC COM	27	ESCALLONIA X 'COMPACTA'	COMPACT ESCALLONIA	5 GAL		
	EUO COM	20	EUONYMUS ALATUS 'COMPACTUS'	COMPACT BURNING BUSH	5 GAL		
	GAR JAM	36	GARRYA ELLIPTICA 'JAMES ROOF'	COAST SILK TASSEL	5 GAL		
	GAU SHA	67	GAULTHERIA SHALLON	SALAL	2 GAL		
	LON RED	12	LONICERA NITIDA 'RED TIPS'	RED TIPS BOX HONEYSUCKLE	2 GAL		
	LON PIL	5	LONICERA PILEATA	PRIVET HONEYSUCKLE	3 GAL		
	MAH AQU	114	MAHONIA AQUIFOLIUM	OREGON GRAPE	2 GAL		
	MAH COM	188	MAHONIA AQUIFOLIUM 'COMPACTA'	COMPACT OREGON GRAPE	2 GAL		
	MYR CAL	12	MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	5 GAL		
	PIC NID	8	PICEA ABIES 'NIDIFORMIS'	NEST SPRUCE	5 GAL		
	PIE FOR	8	PIERIS JAPONICA 'FOREST FLAME'	FOREST FLAME LILY OF THE VALLEY BUSH	5 GAL		
	POD RED	18	PODOCARPUS LAWRENCEI 'RED TIP'	MOUNTAIN PLUM PINE	5 GAL		
	POL MUN	13	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	1 GAL		
	RHA RUT	13	RHAPHIOLEPIS UMBELLATA 'RUTRHAPH1'	SOUTHERN MOON YEDDODAWTHORN	5 GAL		
	RHO CHI	31	RHODODENDRON X CHIONOIDES	CHIONOIDES RHODODENDRON	5 GAL		
	RHO FRA	3	RHODODENDRON X 'FRAGRANT STAR'	FRAGRANT STAR AZALEA	3 GAL		
	RIB SAN	6	RIBES SANGUINEUM	RED FLOWERING CURRANT	5 GAL		
	SPI MAG	50	SPIRAEA JAPONICA 'MAGIC CARPET'	MAGIC CARPET SPIREA	2 GAL		
	VAC OVA	48	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	2 GAL		
	ANNUALS/PERENNIALS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	
		AGA WHI	22	AGAPANTHUS X 'WHITE HEAVEN'	WHITE HEAVEN AFRICAN LILY	2 GAL	
	GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING
		ARC UVA	2,821	ARCTOSTAPHYLOS UVA-URSI 'MASSACHUSETTS'	MASSACHUSETTS KINNICKINICK	4" POT	12" o.c.
		ASA CAU	159,093	ASARUM CAUDATUM	BRITISH COLUMBIA WILD GINGER	4" POT	1" o.c.
		CAL FI2	198	CALL			

1.	SEE PLANT SCHEDULES FOR SPECIES, QUANTITIES, AND MINIMUM SPACING. SEE PLANTING DETAILS FOR INSTALLATION AND LAYOUT.	15.	SAVE OR REMOVE ON DEMO OR OTHER PLANS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.
2.	DO NOT USE EXISTING TOPSOIL- STRIP & REMOVE.	16.	THE ENTIRE WIDTH OF THE PLANTING ISLANDS SHALL CONTAIN ONLY SOIL, AND BY WAY OF ILLUSTRATION ONLY AND NOT LIMITATION, BE FREE OF GRAVEL, CONCRETE, CONSTRUCTION DEBRIS, OR OTHER FOREIGN MATERIALS.
3.	CONTRACTOR SHALL ALLOW FOR THE ADDITION OF SOIL AMENDMENTS AND CONDITIONERS IN SOIL PREPARATION AND FINISH GRADING.	17.	PLANTING AREAS TO BE IRRIGATED- IRRIGATION PLANS ARE NOT INCLUDED. IRRIGATION WILL BE DESIGN/BUILD BY CONTRACTOR BASED ON PERFORMANCE SPECIFICATIONS.
4.	ALL CONSTRUCTION MATERIAL SHALL BE EXCLUDED FROM TOPSOIL.	18.	DO NOT DIG BEFORE LOCATING UTILITIES.
5.	LAYOUT FOR ALL PLANTING AREAS TO BE VERIFIED ON SITE BY LANDSCAPE ARCHITECT DUE TO VARYING FIELD CONDITIONS AND DENSITIES OF EXISTING VEGETATION.	19.	ALL LANDSCAPE AREAS DESIGNED FOR INSTALLATION OF TREES SHALL HAVE A MINIMUM SOIL DEPTH OF 18" PLUS 8" SCARIFIED SUBGRADE. MINIMUM SOIL DEPTH SHALL INCLUDE SOILS THAT MEET SOIL SPECIFICATIONS.
6.	ALL PLANT MATERIAL SHALL CONFORM TO ANSI STANDARDS FOR NURSERY STOCK, LATEST EDITION.	20.	FOR ALL TOPSOIL, THE CONTRACTOR SHALL OBTAIN A LANDSCAPE SOIL ANALYSIS CERTIFYING THAT THE SOIL MEETS ALL SOIL SPECIFICATIONS. THE CERTIFICATION SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT AND APPROVED PRIOR TO SOIL DELIVERY.
7.	LANDSCAPE ARCHITECT WILL SUPERVISE THE PLANTING PROCESS, MODIFICATIONS TO THE PLANTING PLAN MAY OCCUR BASED ON FIELD CONDITIONS AND THE AVAILABILITY OF PLANT MATERIAL.	21.	APPLY 3" DEPTH OF ORGANIC BARK MULCH IN ALL PLANTING AREAS. MULCH TO BE FREE OF WEED SEED, SAWDUST, RESIN OR TANNIN, AND SHALL NOT CONTAIN ANY COMPOUNDS DETRIMENTAL TO PLANT GROWTH. PULL MULCH 3" AWAY FROM BASE OF PLANT.
8.	PLANTINGS WILL BE BARE AND CONTAMINATED NATIVE PLANT MATERIAL, AS APPROPRIATE AND SPECIFIED, FROM REGIONAL GENETIC STOCK. PLASTIC NURSERY IDENTIFICATION TAGS WILL BE ATTACHED TO THE STEM OF EACH PLANTING.	22.	ALL PLANT MATERIAL SHOULD BE DISEASE FREE AND ARRIVE IN A VIGOROUS GROWING CONDITION.
9.	LOCAL NURSERY STOCK WILL BE USED TO ENSURE THAT THE MATERIAL HAS ACCUMULATED TO LOCAL CONDITIONS (REDUCING PLANTING STRESS) AND IS GENETICALLY COMPARABLE WITH PLANTS IN THE LOCAL AREA.	23.	LANDSCAPE CONTRACTOR SHALL MAINTAIN THE SITE UNTIL FINAL INSPECTION AND ACCEPTANCE BY THE OWNER.
10.	FINAL PLANT LISTS WILL BE CONTINGENT UPON PLANT AVAILABILITY. IF SELECTED SPECIES ARE UNAVAILABLE LOCAL NURSERY STOCKS, THEN PRIOR APPROVAL OTHER GENUS OR SPECIES WITH SIMILAR HYDROLOGICAL REQUIREMENTS MAY BE SUBSTITUTED.	24.	ALL LANDSCAPE INSTALLATION TO BE APPROVED BY THE LANDSCAPE ARCHITECT.
11.	TREES WILL BE STAKED ONLY IF A PLANT CANNOT STAND ALONE IN A MODERATE WIND PER PLANTING DETAILS.	25.	A PRE-CONSTRUCTION CONFERENCE PRIOR TO THE START OF ANY LANDSCAPE CONSTRUCTION IS REQUIRED.
12.	ALL PLANTINGS WILL BE MULCHED WITH A MINIMUM OF 3 INCHES OF ORGANIC MULCH AS SPECIFIED TO DISCOURAGE WEED GROWTH, MINIMIZE SOIL EROSION, AND RETAIN MOISTURE. THE MULCH IS NOT TO MAKE CONTACT WITH THE PLANT STEM.	26.	PLANTS SHALL BE INSPECTED PRIOR TO PLANTING TO VERIFY CONFORMANCE WITH PLANTING SIZE AND OTHER REQUIREMENTS.
13.	DO NOT DISTURB TREES AND VEGETATION OUTSIDE LIMIT OF WORK.	27.	ALL LANDSCAPING SHALL BE WARRANTED FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE BY THE OWNER.
14.	IF TREES HAVE NOT BEEN DESIGNATED AS SAVE OR REMOVE ON DEMO OR OTHER PLANS IT SHOULD BE ASSUMED THAT THEY ARE TO BE SAVED.	28.	PRIOR TO THE END OF THE WARRANTY PERIOD, THE LANDSCAPE WILL BE INSPECTED AND DEAD OR UNHEALTHY PLANTS WILL BE REQUIRED TO BE REPLACED WITH SAME SPECIES AND SIZES.

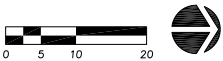
1. REFER TO ARCHITECTURAL & CIVIL DRAWINGS FOR LIMITS OF WORK AND DEMOLITION OF EXISTING SITE ITEMS.
2. REFER TO CIVIL DRAWINGS FOR LANDSCAPE GRADING AND DRAINAGE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR SITE HARDSCAPE DETAILS.

 EXISTING TREES TO BE PROTECTED – REFER TO PLANTING PLAN AND TREE RETENTION PLAN.

SITE PLAN REVIEW: 1/13/16



PLANTING PLAN - SOUTH
1"=10'-0"



MECHANICAL/ELECTRICAL
INTERFACE ENGINEERING
708 SW 3RD, SUITE 400
PORTLAND, OR 97204

LANDSCAPE
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BAINBRIDGE ISLAND, WA 98110

Project

BAINBRIDGE ISLAND FIRE DEPT
STATION 21
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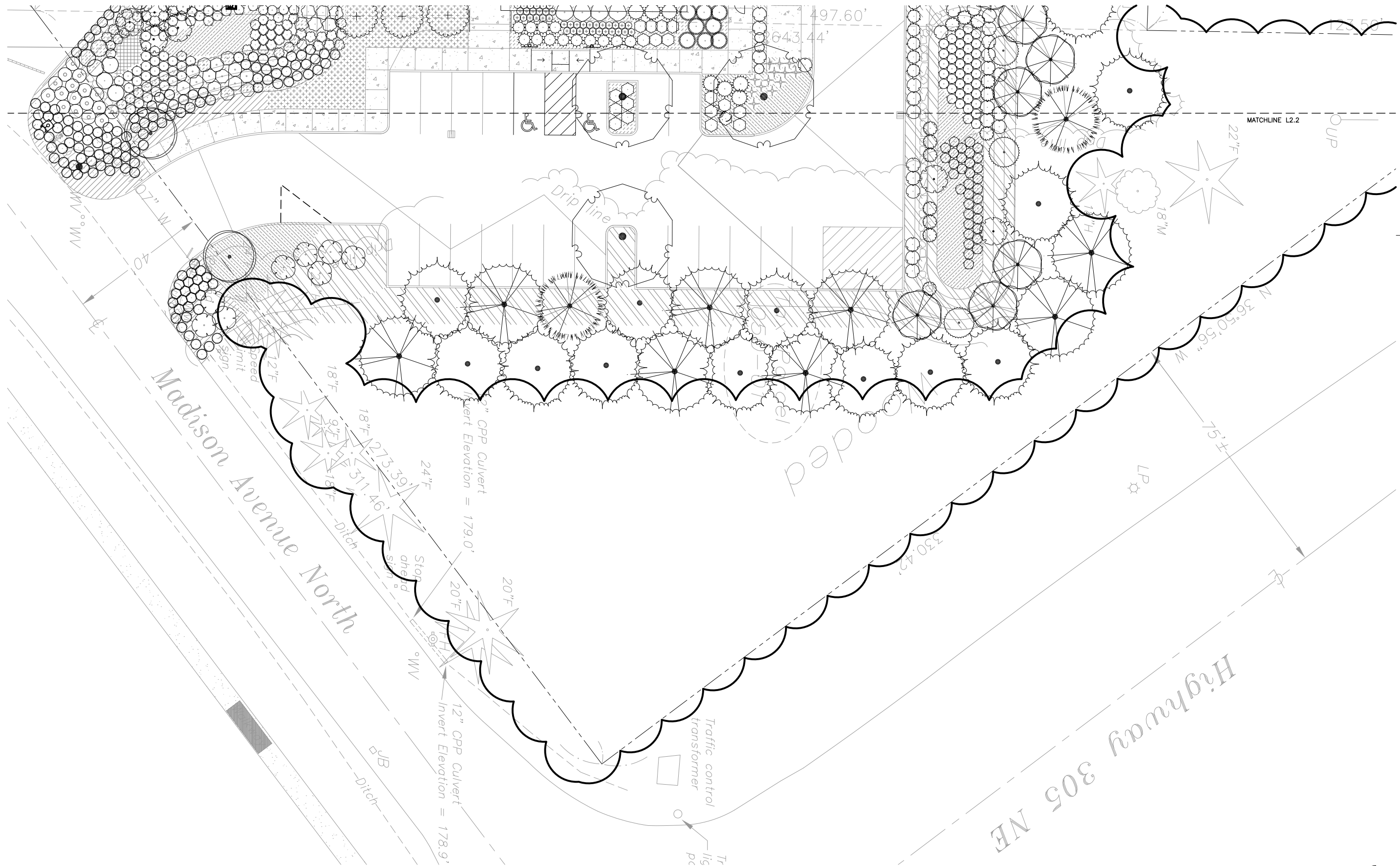
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PLANTING PLAN - SOUTH

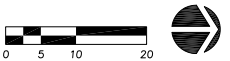
SHEET

L2.1

JOB NO. 2150124.00

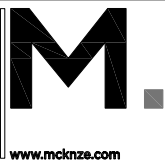


PLANTING PLAN - EAST
1"=10'-0"



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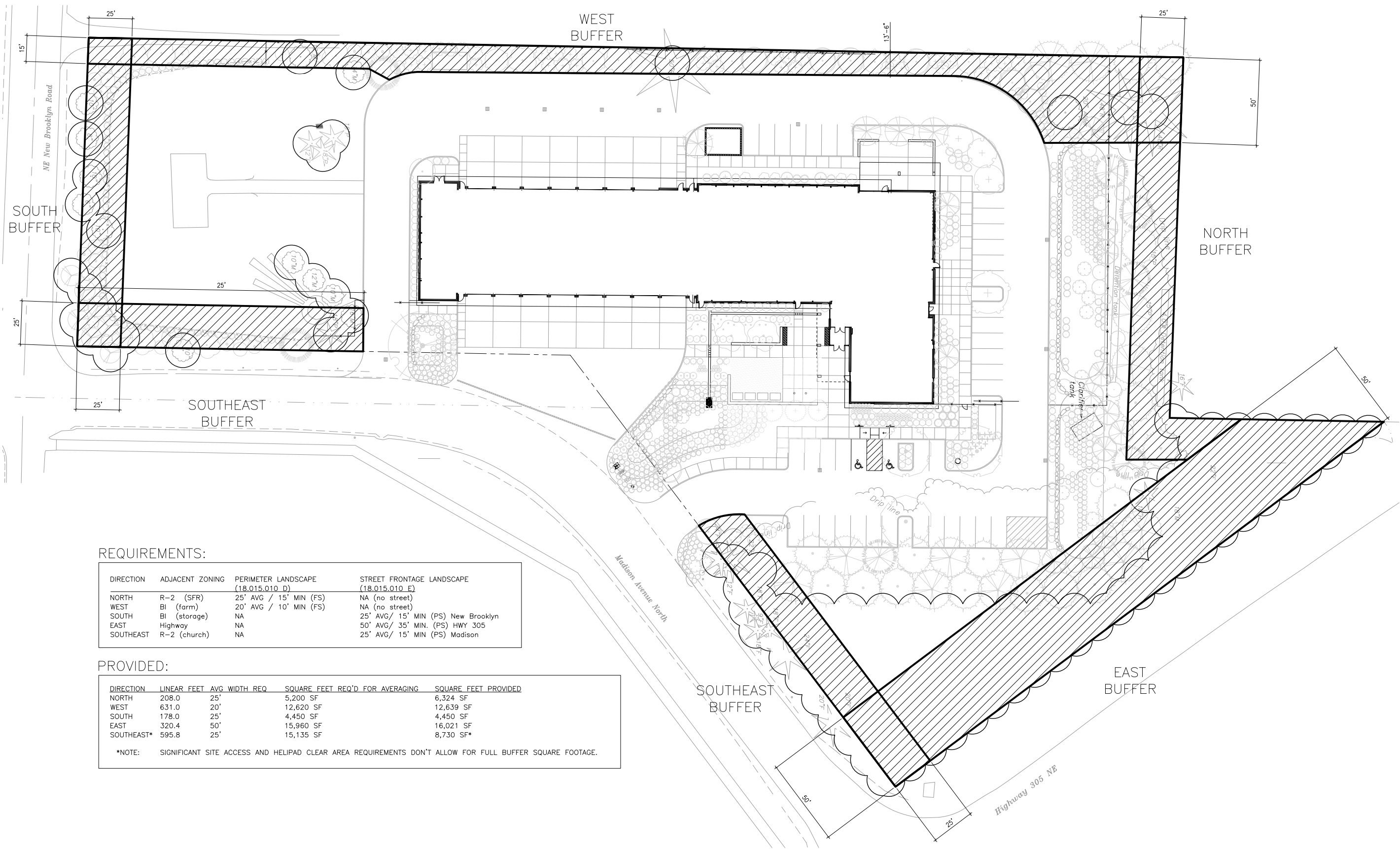
SHEET TITLE:

PLANTING PLAN - EAST

SHEET

L2.3

JOB NO. 2150124.00



REQUIREMENTS:

DIRECTION	ADJACENT ZONING	PERIMETER LANDSCAPE (18.015.010 D)	STREET FRONTAGE LANDSCAPE (18.015.010 E)
NORTH	R-2 (SFR)	25' AVG / 15' MIN (FS)	NA (no street)
WEST	BI (farm)	20' AVG / 10' MIN (FS)	NA (no street)
SOUTH	BI (storage)	NA	25' AVG/ 15' MIN (PS) New Brooklyn
EAST	Highway	NA	50' AVG/ 35' MIN. (PS) HWY 305
SOUTHEAST	R-2 (church)	NA	25' AVG/ 15' MIN (PS) Madison

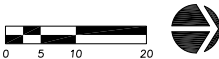
PROVIDED:

DIRECTION	LINEAR FEET	AVG WIDTH REQ	SQUARE FEET REQ'D FOR AVERAGING	SQUARE FEET PROVIDED
NORTH	208.0	25'	5,200 SF	6,324 SF
WEST	631.0	20'	12,620 SF	12,639 SF
SOUTH	178.0	25'	4,450 SF	4,450 SF
EAST	320.4	50'	15,960 SF	16,021 SF
SOUTHEAST*	595.8	25'	15,135 SF	8,730 SF*

*NOTE: SIGNIFICANT SITE ACCESS AND HELIPAD CLEAR AREA REQUIREMENTS DON'T ALLOW FOR FULL BUFFER SQUARE FOOTAGE.

LANDSCAPE BUFFER DIAGRAM

1"=20'-0"



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SHEET TITLE:

LANDSCAPE BUFFER
DIAGRAM

SHEET

L3.0

JOB NO. 2150124.00

TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/P RATING	BALLAST	LAMP(S)	INPUT WATTS	MPG/CATALOG #	NOTES
SA3H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SA4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	105W LED ARRAY OR 10,400 LUMENS, 4000K	105W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SA5	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 5 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SB4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SC	EXTERIOR WALL MOUNTED CUTOFF LUMINAIRE WITH TYPE 3 OPTICS	DIE CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	WALL MOUNTED	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	35W LED ARRAY OR 3,600 LUMENS, 4000K	35W	GARDCO 107 GULLWING SCNCE, OR APPROVED	

LUMINAIRE SCHEDULE											
TYPE	DESCRIPTION	HOUSING	SHIELDING	MOUNTING	FINISH	UL/IP RATING	BALLAST	LAMP(S)	INPUT WATTS	MFG/CATALOG #	NOTES
SA3H	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 3 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	INTERNAL HOUSESIDE SHIELD	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	100W LED ARRAY OR 10,400 LUMENS, 4000K	100W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SA4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	100W LED ARRAY OR 10,400 LUMENS, 4000K	100W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SA5	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 5 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SB4	EXTERIOR ARCHITECTURAL LED SITE LUMINAIRE WITH TYPE 4 OPTICS	NOMINAL 18-INCH WIDE BY 31.5" DEEP BY 6.5-INCH DIE-CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	SINGLE	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	80W LED ARRAY OR 10,400 LUMENS, 4000K	80W	GARDCO GULLWING GL18 SERIES, OR APPROVED	
SC	EXTERIOR WALL MOUNTED CUTOFF LUMINAIRE WITH TYPE 3 OPTICS	DIE CAST ALUMINUM AND DIE-CAST DOOR FRAME	NONE	WALL MOUNTED	AS SELECTED BY ARCHITECT	WET	ELECTRONIC	35W LED ARRAY OR 3,600 LUMENS, 4000K	35W	GARDCO 107 GULLWING SCONE, OR APPROVED	

0' 20' 40'

1" = 20'-0"

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STATION 22
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JOB NO. 2150124.00

SITE PLAN REVIEW: 1/13/16

GEOTECHNICAL ENGINEERING REPORT FIRE STATION 22

7934 Bucklin Hill Road
Bainbridge Island, Washington

Prepared for: Bainbridge Island Fire Department

Project No. 150136-02 • January 6, 2015 DRAFT

GEOTECHNICAL ENGINEERING REPORT

FIRE STATION 22

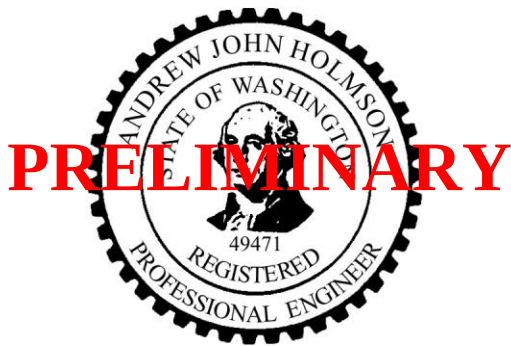
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Aspect Consulting, LLC



PRELIMINARY

Andrew J. Holmson, PE
Senior Project Geotechnical Engineer
aholmson@aspectconsulting.com

Erik O. Andersen, PE
Senior Associate Geotechnical Engineer
eandersen@aspectconsulting.com

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1 Introduction

This report presents the results of a geotechnical engineering study performed by Aspect Consulting, LLC (Aspect) for the Fire Station 22 Replacement Project (Project) located at 7934 Bucklin Hill Road, Bainbridge Island, Washington (Site).

The Project location is shown on Figure 1, *Site Location Map*. The purpose of the Project is to replace the existing fire station with a new, modern facility.

This report summarizes the results of the completed field explorations and presents Aspect's geotechnical engineering conclusions and recommendations.

1.1 Scope of Services and Authorization

Our scope of work included gathering and reviewing existing subsurface information near the Site; drilling and sampling exploratory borings; completing pilot infiltration testing; performing laboratory testing; completing engineering analyses to develop geotechnical conclusions and recommendations for design and construction of the Project; and preparing this report. Our work was completed in general accordance with our agreed-upon scope of work, authorized by Assistant Chief Luke Carpenter on June 19, 2015.

1.2 Project Description

The project is currently in the concept-level planning stage. Our Project understanding was developed through our review of concept drawings, discussions with Fire Department personnel, and discussions with the Project architect, Mackenzie Architects.

We understand the new fire station will include a north-to-south aligned multibay vehicle and equipment staging area, a two-story office, lobby, living space, and training area at the south end of the structure. The new fire station will be located centrally at the Site and shifted north of the existing fire station footprint. New public parking is planned in the southern portion of the Site, adjacent to Bucklin Hill Road.

We understand that new utility infrastructure will be required to support the replacement fire station and stormwater infiltration is proposed at the Site. Infiltration is planned through bioretention facilities located in the southeast corner of the Site and at the northern edge of the new fire station. Additionally, buried dispersion trenches are planned for the infiltration of roof stormwater along the east and west sides of the fire station. Significant cuts or fills are not anticipated for the Project.

We assume the new fire station will be designed using the standards and criteria set forth in the current version of the International Building Code (IBC; IBC 2012). The Project vertical datum is the City of Bainbridge Island Vertical Control Network and is the basis for all references to elevations contained herein.

2 Site Conditions

The Site is located on the interior of Bainbridge Island west of the intersection between Bucklin Hill Road and Blakely Avenue NE. The Site is bordered by the American Legion hall and undeveloped land to the west, by residential properties to the north and east, and by Bucklin Hill Road to the south.

The Site is rectangular shaped and oriented in a north-south direction, measuring approximately 210 feet wide (west-east) and 640 feet long (north-south). The Site currently contains the existing Fire Station 22 building, parking areas, and a water tower at the north end of the Site. The undeveloped land to the west of the Site was historically mined for sand and gravel. The parking area north of the existing station contains several circular areas that exhibit signs of settlement and depression. There are approximately one dozen of these areas and they range from 6 to 12 feet in diameter. Anecdotal evidence suggests these areas are buried piles of wood debris and stumps that were subsequently paved over to form the parking area.

The Site is gently sloping in the northern third to relatively flat over the southern two thirds with a high elevation of 168 in the northwest corner of the Site and a low elevation of 141 near the southern Site boundary. The layout and location of the existing Site features, topography, and the completed subsurface explorations are shown on Figure 2, *Site Exploration Plan*.

2.1 Subsurface Conditions

Subsurface conditions at the Site were inferred from the completed field explorations, review of applicable geologic literature, and our local geologic experience. More detailed descriptions of the field exploration, methodologies, and conditions encountered are presented in Appendix A.

2.1.1 Geology

The Project area is located in the Puget Lowland. The Puget Lowland is a complex area of tectonic subsidence flanked by two mountain ranges—the Cascades to the east, and the Olympics to the west. The sediments within the Puget Lowland result from repeated cycles of glacial and nonglacial deposition and erosion. During nonglacial cycles, the area was dominated by lowland forests and broad river valleys. During glacial cycles, ice sheets up to 3,000 feet thick occupied the Puget Lowland and surrounding areas, and carved out the deep marine waterways and river valleys, and sculpted the uplands. Deposits from these glacial and nonglacial cycles are present in the subsurface of the Project area.

The available geologic mapping (Haugerud, 2005) indicates that subsurface conditions at the Site generally consist of recent (Holocene) deposits, overlying glacial soils from the Fraser glaciation age.

2.1.2 Stratigraphy

We explored subsurface conditions with four borings (B-1 through B-4) and two test pits (PIT-1 and PIT-2) at the approximate locations shown on Figure 2. The subsurface soils, based on the completed subsurface explorations, can be grouped into four units consisting of fill, Vashon recessional outwash deposits, Vashon till, and Vashon advance outwash deposits. Details of the composition and distribution of these units are presented in more detail below.

Fill

At the ground surface, we encountered fill in each of the completed explorations. The fill varied in thickness from 1.5 to 13 feet and was present either at the ground surface or underlying a thin layer of topsoil. It generally consisted of loose to dense, slightly moist to very moist, brown to gray, very silty SAND (SM)¹, very sandy SILT (ML), or slightly gravelly to gravelly, well-graded SAND (SW), occasionally with trace silt. Well-graded sand lies below silty sand in borings B-1 and B-2, and at the surface below asphalt in B-3. The fill likely includes reworked native soils and imported soils associated with previous Site development activities.

The SPT² blow counts from the explorations in the fill ranged from 5 to 36 blows per foot, indicating highly variable relative density. The presence of fine-grained soil (soil particles passing the U.S. No. 200 sieve) makes the fill typically susceptible to disturbance during construction (it is moisture sensitive). Scattered fine organics were present in boring B-4 within the fill. Although not encountered directly in our explorations, we anticipate discrete and concentrated areas of the fill contain buried wood debris and stumps, typically within the parking area north of the existing station.

The majority of the fill can generally be expected to have low to moderate shear strength, moderate compressibility, and moderate to high permeability. In general, the fill increases in relative density with depth and becomes medium dense to dense within 5 to 7 feet bgs. The medium dense to dense fill is a recommended bearing stratum for new foundations, but the loose zones of fill should be removed or compacted in-place.

Vashon Recessional Outwash Deposits

Vashon recessional outwash deposits were encountered in PIT-1 underlying the fill at depths between 2.5 and 3.5 feet bgs. The recessional deposits consisted of medium dense, dry, light brown, SAND (SP) and silty SAND (SM). Based on encountering this soil unit in PIT-1, the northernmost exploration, we infer that recessional deposits are present near the ground surface over the northern third of the Site.

The recessional deposits can generally be expected to have moderate shear strength, moderate compressibility, and moderate to high permeability.

Vashon Till

Vashon till was encountered in PIT-1 underlying the recessional deposits between 3.5 and 4.25 feet bgs. The Vashon till consisted of dense to very dense, dry, light brown,

¹ Soil Classification per the Unified Soil Classification System (USCS). Refer to ASTM D-2488.

² SPT blow count refers to standard penetration test (SPT) N-values, in accordance with ASTM D-1586.

gravelly, very sandy SILT (ML). Based on encountering this soil unit in PIT-1, the northernmost exploration, we infer that Vashon till is present underlying a thin layer of recessional deposits near the ground surface over the northern third of the Site

The Vashon till can generally be expected to have high shear strength, low compressibility, and low permeability. The Vashon till is a recommended bearing stratum for new foundations. Infiltration facilities should penetrate through the Vashon till when encountered.

Vashon Advance Outwash

We encountered Vashon advance outwash (Qva), or Esperance Sand, underlying the Vashon till in PIT-1 and underlying the fill in PIT-2 and all four borings. Borings B-1 and B-2 were terminated in the Qva at a depth of 36.5 feet bgs and borings B-3 and B-4 were terminated in the Qva at a depth of 41.5. The Qva in borings B-1, B-2, and B-4 consisted of medium dense to very dense, slightly moist to very moist, brown and gray, SAND (SW), or slightly silty SAND (SW-SM) with trace gravel. The Qva in boring B-3 consisted of medium dense, slightly moist, brown and orange, well-graded SAND (SW) interbedded with silty SAND (SM) or poorly graded SAND (SP) with frequent laminations and trace gravel. A hard, laminated SILT (ML) layer occurs from 25.5 to 26 feet in boring B-3.

The SPT blow counts from the explorations in the glacial outwash ranged from 23 to 84 blows per foot with an average blow count of 50 blows per foot, indicating the glacial outwash was typically dense to very dense. The relative density of the unit increased in density with depth in each of the explorations. The Qva can be expected to have moderate to high shear strength, low compressibility, moderate to high permeability, and low moisture sensitivity. The Qva is a recommended bearing stratum for new foundations and the recommended soil unit for accepting stormwater infiltration.

2.1.3 Groundwater

Groundwater was not encountered in any of the completed explorations. Although not encountered during our explorations in August and November, it is possible that shallow “perched” groundwater could develop within the upper fill and recessional outwash soils where they overly the relatively fine-grained and less permeable Vashon till, typically across the northern third of the Site. The presence of short-term perched groundwater conditions will fluctuate seasonally with precipitation as well as with changes in Site and near-Site usage.

3 Seismic Design Considerations

The Site is located in a seismically active area and is less than a mile north of the Seattle Fault zone, a shallow crustal tectonic structure that is considered active (meaning it has the potential to cause earthquakes in the future). The recurrence interval of earthquakes on this fault zone is believed to be on the order of a thousand years or more.

The Site also lies within the zone of strong shaking from subduction zone earthquakes. The recurrence interval of these earthquakes is thought to be on the order of about 500 years. The most recent subduction zone earthquake occurred in 1700.

Deep intraslab earthquakes also occur in the region every decade or two, including the 2001 Nisqually earthquake. These earthquakes are generally less severe than the shallow crustal and subduction zone earthquakes, but have the potential to cause damage to older structures built before modern seismic codes were enacted, and those in liquefaction-sensitive areas.

In our opinion, design of the new structures in accordance with the current version of the IBC will mitigate seismic hazards to acceptable risk levels.

3.1 Surficial Ground Rupture

The nearest known active fault trace is a structure associated with the Seattle Fault zone and locally known as the “Welfare Strand,” approximately 1/3 of a mile south of the Site. Recent studies made by the United States Geological Survey (USGS) (e.g., Johnson et al., 1994, and Johnson et al., 1999) suggest that this northern trace of the east-west trending Seattle Fault Zone projects in the vicinity of Eagle Harbor on Bainbridge Island. Due to the suspected long recurrence interval of the fault zone, and the offset of the Site from the known preferred rupture surface, the potential for surficial ground rupture at the Site is considered low during the expected life of the improvements.

3.2 Landslides and Liquefaction

3.2.1 *Seismically Induced Landslides*

Due to the relatively flat topography of the Site and presence of moderate to high shear-strength glacial soils near the ground surface, the Site slopes present a low risk of seismically induced landslides.

3.2.2 *Liquefaction*

Due to the inherent density of the glacial soils underlying the Site and the general absence of shallow, continuous groundwater, the liquefaction potential for the soils at the Site is considered low.

3.3 Ground Response

IBC code-based seismic design is based on the “Maximum Considered Earthquake (MCE)” with a two-percent probability of exceedance (PE) in 50 years (2,475-year return period). The USGS (USGS, 2008) has completed probabilistic ground motion studies and maps for Washington.

Current IBC design methodologies express the effects of site-specific subsurface conditions on the ground motion response in terms of the “Site Class.” The Site Class can be correlated to the average density in the upper 100 feet of the soil profile. Based on the results of our subsurface exploration program, our regional experience with the geologic materials underlying the Site, and using the 2012 IBC criteria, the Site would be characterized as Seismic Site Class D. The proposed fire station requires designation as a risk category IV (essential) structure.

The mapped, maximum considered earthquake spectral response accelerations for short period ($S_s = 1.458g$; and for 1-second period ($S_1 = 0.575g$). Site coefficients for this Site are $F_a = 1.0$, $F_v = 1.5$. The maximum considered earthquake spectral response accelerations adjusted for Site class effects are $S_{ds} = 0.972g$, $S_{d1} = 0.575g$.

4 Conclusions and Recommendations

4.1 General

The following sections present the results of our engineering analyses and recommendations for earthwork, foundation support, and other pertinent geotechnical design issues.

4.2 Earthwork

Site excavation and grading can be completed with standard construction equipment. The fill that mantles the Site should be anticipated to be variable and, although not encountered in our explorations, the fill may contain oversized cobbles, small boulders, wood debris, or other remnant debris. Anecdotal evidence suggests that piles of wood debris and stumps were buried beneath areas of the existing parking area north of the existing station. Removal and disposal of these concentrated zones of wood debris will be required to prepare the Site for new foundations and pavements.

Excavation activities will be significantly easier and more cost-effective during the drier summer months. Appropriate erosion control measures should be implemented prior to beginning earthwork activities in accordance with the local regulations.

4.2.1 *Wet Weather Earthwork*

Earthwork is typically most economical when performed under dry weather conditions; however, earthwork may proceed during wet weather conditions provided the appropriate provisions are in place. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations apply:

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean structural fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance.
- The ground surface within the construction area should be graded to promote runoff of surface water and to prevent the ponding of water.
- Material used as structural fill should consist of clean, granular soil containing less than 7 percent fines. Gravel Borrow in accordance with Section 9-03.14(1) of the Washington State Department of Transportation (WSDOT) Standard Specifications (WSDOT, 2014) is a suitable wet weather structural fill.
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left

uncompacted and exposed to moisture. Soils that become too wet for compaction should be removed and replaced with clean granular materials.

- Excavation and placement of fill should be observed by the Geotechnical Engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved.
- Appropriate erosion and sedimentation best management practices (BMPs) should be strategically implemented in accordance with the local regulations.

4.2.2 Temporary Excavation Stability and Permanent Slopes

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor. All temporary cuts in excess of 4 feet in height that are not protected by trench boxes or otherwise shored, should be sloped in accordance with Part N of Washington Administrative Code (WAC) 296-155 (WAC, 2009).

In general, soils across the Site classify as OSHA Soil Classification Type B and C. Temporary excavation cut slopes in existing fill should be sloped no steeper than 1.5H:1V (Horizontal:Vertical) and temporary cuts in advance outwash should be no steeper than 1H:1V. The cut slope inclinations estimated above are applicable to excavations without groundwater seepage, or runoff, and assume dewatered conditions. Flatter slopes will likely be necessary in areas where ground water seepage exists, or where construction equipment surcharges are placed in close proximity to the crest of the excavation.

With time and the presence of seepage and/or precipitation, the stability of temporary unsupported cut slopes can be significantly reduced. Therefore, all temporary slopes should be protected from erosion by installing a surface water diversion ditch or berm at the top of the slope. In addition, the Contractor should monitor the stability of the temporary cut slopes, and adjust the construction schedule and slope inclination accordingly. Vibrations created by traffic and construction equipment may cause caving and raveling of the temporary slopes. In such an event, lateral support for the temporary slopes should be provided by the Contractor to prevent loss of ground support.

Permanent slopes for the Project should be no steeper than 2H:1V.

4.2.3 Structural Fill

Portions of the existing fill material that will be excavated for the Project may be suitable for reuse as structural fill. Excavated material should be visually inspected by the Geotechnical Engineer to determine its potential use as structural fill.

In general, suitable structural fill material for the Project is fill placed within 3 percent of its optimum moisture content per the American Society for Testing and Materials (ASTM) ASTM D-1557 (modified Proctor test) and does not contain deleterious materials, greater than 5 percent organics, or particles larger than 3 inches in diameter. Structural fill should be placed and compacted to at least 95 percent of the maximum dry density (MDD) as determined by test method ASTM D-1557.

During dry weather construction imported structural fill may be granular material with less than 10 percent fines such as Select Borrow as specified in Section 9-03.14(3) of the WSDOT Standard Specifications. In wet weather conditions or situations requiring free-draining backfill, we recommend using import material meeting the criteria for Gravel Borrow as specified in Section 9-03.14(1) of the WSDOT Standard Specifications.

Class A Gravel Backfill for Foundations as specified in Section 9-03.12(1)A of the WSDOT Standard Specifications should be used for base rock underneath structures. Crushed Surfacing Base Course (CSBC) as specified in Section 9-03.9(3) of the WSDOT Standard Specifications should be used as base rock for new pavement. If desired, lean concrete or controlled density fill (CDF) can also be used as structural fill.

Within a lateral distance of 3 feet of any wall, smaller, possibly hand-operated equipment should be used in conjunction with thinner soil lifts to achieve the required compaction so as not to damage the structure.

The procedure to achieve the specified minimum relative compaction depends on the size and type of compacting equipment, the number of passes, thickness of the layer being compacted, and certain soil properties. When size of the excavation restricts the use of heavy equipment, smaller equipment can be used, but the soil must be placed in thin enough lifts to achieve the required compaction. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved. The frequency of the in-place density testing can be determined at the time of final design when more details of the Project grading and backfilling plans are available.

4.3 Foundations

Although the current project plans are conceptual, the following general foundation criteria are provided. Spread footings and/or structural slabs may be used for building support. Bearing surfaces for the footings should be prepared as described below.

4.3.1 Site Preparation

Site preparation within the proposed foundation areas should include removal of all topsoil, debris, loose fill soils, and any other deleterious materials. Based on our completed explorations, the removal of the loose fill soils will require excavations on the order of 3 to 7 feet bgs in order to reach the suitable bearing stratum of medium dense to dense fill and/or native glacial deposits. For planning purposes, the average excavation depth to reach the suitable bearing stratum will be on the order of 5 feet. The inferred presence of buried wood debris piles and stumps across the parking area north of the existing station will require additional excavation depths to remove the deleterious matter from beneath all new structure foundation, slabs, and pavement. An Aspect geotechnical engineer or engineering geologist should be on site to observe and verify fill removals and approve prepared subgrades.

The on-Site soils contain a moderate amount of fine-grained particles, which makes them moisture sensitive and subject to disturbance when wet. The Contractor must use care during Site preparation and excavation operations, so that any bearing surfaces are not

disturbed. If this occurs, the disturbed material should be removed to expose undisturbed material.

All bearing surfaces should be trimmed neat, and carefully prepared. All loose or softened soil should be removed from the bearing surface prior to placing concrete, structural fill, or capillary break materials. We recommend that all bearing surfaces be observed by the Geotechnical Engineer to verify that the recommendations of this report have been followed.

If bearing surfaces are open during the winter season or periods of wet weather, it may be helpful to provide a layer of crushed rock or gravel to help preserve the subgrade. If gravel is used to protect the bearing surfaces, it should meet the gradation requirements for Class A Gravel Backfill for Foundations, as described in Section 9-03.12(1)A of the WSDOT Standard Specifications.

4.3.2 Foundation Design Criteria

Based on our observations of the Site soil conditions, the bearing stratum is approximately 5 feet below the existing ground surface. The overlying loose fill and any other deleterious debris should be removed from the footprint of the new fire station structure. The variability and the loose portion of the fill and presence of organics/wood debris create a hazard for total and differential settlement of the new structures.

To achieve foundation bearing at the depths described above, we recommend overexcavation of the unsuitable fill and replacement with structural fill. Guidance of overexcavation and replacement is shown on Figure 3, *Typical Overexcavation Details*.

As an alternative to overexcavation and replacement, footings may also be deepened to the bearing layer, and foundation stem walls would be made taller to extend up above finished ground surface.

For spread footings, we recommend an allowable foundation bearing pressure of 2,500 pounds per square foot (psf) be utilized for design purposes, including both dead and live loads for the proposed structures. An increase in the above-mentioned bearing pressure of one-third may be used for short-term wind or seismic loading. Perimeter footings should be buried at least 18 inches into the surrounding soil for frost protection; interior footings require only 12 inches burial below adjacent finished grade. No footing should be founded in or above yielding/loose or organic soils.

We estimate the total settlement of the foundation designed in accordance with our recommendations will be less than 1 inch. Differential settlements can be expected to be less than half the total settlement. The majority of these settlements will occur during construction as the loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, an ultimate coefficient of friction of 0.55 may be assumed along the interface between the base of the footing and subgrade soils. An ultimate passive earth pressure of 425 pounds per cubic foot (pcf) may be assumed for undisturbed soils adjacent to below-grade elements. The upper 1 foot of

passive resistance should be neglected in design, unless the ground is protected/surfaced by pavement. The recommended coefficient of friction and passive pressure values are ultimate values that do not include a safety factor. We recommend applying a factor of safety of at least 1.5 in design for determining allowable values for coefficient of friction and passive pressure.

4.3.3 Slabs-on-Grade

Concrete slabs-on-grade should be designed in accordance with the American Concrete Institute (ACI) Committee 360 Guide to Design of Slabs-on-Ground. We recommend overexcavation of the loose zones of fill and any deleterious matter and replacement with structural fill beneath all structural slabs. To provide uniform support for the floor slab and to provide a capillary break, we recommend the floor slab be underlain by a capillary break. The capillary break material should consist of a minimum of 6 inches of free-draining, crushed rock or well-graded sand and gravel compacted to at least 95 percent MDD. The capillary break material should have a maximum particle size of $\frac{3}{4}$ inch, with no more than 80 percent passing the No. 4 sieve and less than 5 percent fines (material passing the U.S. Standard No. 200 sieve). In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structures, a 10-mil polyethylene vapor barrier should be placed directly over the capillary break. The vapor barrier should be installed in accordance with the manufacturer's recommendations.

For slabs that are designed as beam on elastic foundation, a modulus of vertical subgrade reaction of 200 pounds per cubic inch (pci) may be utilized.

4.4 Wall Considerations

Based on our project understanding, no basement structures are planned. However, the grade differential across the footprint of the building footprint may necessitate low retaining walls.

Yielding walls, such as cantilever retaining walls, should be designed using a lateral earth pressure based on an equivalent fluid having a unit weight of 35 pcf. Nonyielding or restrained walls should be designed for an equivalent fluid weight of 55 pcf. For these values to be used, a subsurface drain combined with a free-draining wall backfill material that meets the gradation requirements described in Section 9-03.12(2) of the WSDOT Standard Specifications for Gravel Backfill for Walls should be utilized. Refer to Section 4.5, *Drainage Considerations* for subsurface drain recommendations.

Earthquake shaking will subject retaining walls to a temporary additional earth pressure. We estimated the lateral seismic soil pressure increment using the Mononobe-Okabe method, with consideration of the possible backfill soil properties, design earthquake, and assuming a relatively level backslope. We recommend an average seismic soil pressure increment of $8H$ (where H is the height of the wall) represented by a uniform rectangular pressure along the height of the wall.

Over-compaction of the backfill behind walls should be avoided. In this regard, we recommend compacting the backfill to about 90 percent of the MMD (ASTM D-1557). Heavy compactors and large pieces of construction equipment should not operate within 5 feet of any embedded wall to avoid the buildup of excessive lateral pressures.

Compaction close to the walls should be accomplished using hand-operated vibratory plate compactors.

Lateral forces that may be induced on the wall due to other surcharge loads should be considered by the Structural Engineer.

4.5 Drainage Considerations

The outside edge of all perimeter footings and embedded walls should be provided with a drainage system consisting of a 4-inch-diameter, perforated, rigid pipe embedded in free-draining gravel meeting the requirements of Section 9-03.12(4) of the WSDOT Standard Specifications for Gravel Backfill for Drains. The footing and wall drains should be a minimum of 1 foot thick, and a layer of low permeability soils should be used over the upper foot of the drain section to reduce potential for surface water to enter the drain curtain. Prefabricated drain mats combined with relatively free-draining backfill may be used as an alternative to washed-rock footings and wall drains.

Final grades around the proposed structures should be sloped such that surface water drains away from the structures. Downspouts and roof drains should not be connected to the foundation drains in order to reduce the potential for flooding foundation drains and clogging. The footing drains should include clean-outs to allow periodic maintenance and inspection.

4.5.1 Stormwater Infiltration

We understand that stormwater infiltration through bioretention facilities is proposed along the southeastern edge of the Site and immediately north of the new fire station. Additionally, buried dispersion trenches are planned for the infiltration of roof stormwater along the east and west sides of the new fire station. The results of our studies indicate that infiltration of stormwater in the manner proposed is feasible at the Site and will not result in any hydrogeologic changes off-Site or downgradient of the proposed infiltration areas.

Our field testing and analyses support the use of a long-term design infiltration rate of 2.5 inches per hour for the bioretention facility proposed in the southeast corner of the Site and the roof stormwater dispersion trenches. We recommend a long-term design infiltration rate of 10 inches per hour for the bioretention facility proposed north of the new fire station. The base of the bioretention facilities should reach the identified receptor elevations/depths as shown in Table 1.

Table 1 – Stormwater Infiltration Recommendations

Infiltration Area	Receptor Elevation (ft)	Measured ⁽¹⁾ Infiltration Rate (in/hr)	Design Infiltration Rate ⁽²⁾ (in/hr)
Southeast Bioretention Area	139	7.5	2.5
North Bioretention Area	148	35	10
Roof Stormwater Infiltration Trenches ⁽³⁾	143 ⁽⁴⁾	N/A	2.5

Notes:

1. Measured in accordance with small-scale pilot infiltration test (PIT) methods (Ecology, 2014).

2. Factored from the measured infiltration rate (Ecology, 2014).
3. PIT testing was not completed at the infiltration trench locations. These recommendations reflect observed consistency of the subsurface conditions with the infiltration rates measured in PIT-2.
4. The receptor elevation for the roof stormwater infiltration trenches is approximate and will generally be dependent on the location of the infiltration trenches. A minimum depth of 5 feet bgs should be achieved in all cases.

Field infiltration testing was completed in general accordance with the small-scale pilot infiltration test (PIT) methods described in the *2014 Stormwater Management Manual for Western Washington* with minor modifications to facilitate more expedited testing and to provide more reliable estimates of infiltration rate. The PITs were excavated to the approximate identified receptor elevations/depths filled with water from the on-Site facilities, soaked/saturated for several hours, and then falling-head tests were performed. Falling-head tests measure the drop in water level over time and the results of the completed tests are shown in Appendix C. After testing, the pits were overexcavated to directly explore the conditions below the receptor depths. Logs of the pit excavations are presented in Appendix A.

Infiltration tests were conducted in PIT-1 and PIT-2 at depths ranging from 4.5 to 5.5 feet bgs. The receptor soils in the bottom of PIT-1 consisted of dark gray, very gravelly SAND (SP) and sandy GRAVEL (GP). The receptor soils in the bottom of PIT-2 consisted of silty SAND (SM) with trace gravel. The processed infiltration test data is presented in Appendix C.

Based on the measured or *in-situ* infiltration test results, the long-term design infiltration rates indicated on Table 1 should may be utilized for design of the infiltration facilities in the areas indicated. These rates include a combined correction factor (CF_{TOT}) of 28 to 33 percent to account for site variability, scaling the test pit infiltration method up to a Site scale, and for influent control. These correction factors were selected based on the 2014 Stormwater Management Manual for Western Washington.

4.6 Pavement Considerations

The near-surface fill will provide suitable support for new pavement sections provided the zones of concentrated organics and deleterious debris are removed from the pavement subgrade. All pavement subgrades should be carefully prepared. Prior to placing base course and pavement, all pavement subgrades should be proof-rolled with a fully loaded dump truck or equivalent. An Aspect geotechnical engineer or engineering geologist should observe and evaluate the proof rolling operation. Any soft areas identified should be sub-excavated to relatively firm and unyielding subgrade and backfilled with compacted structural fill to the design subgrade elevation. To provide for quality construction practices and materials, we recommend all pavement work and mix-design considerations conform to City of Bainbridge Island Public Works and/or WSDOT standards.

In non-roadway parking areas, a pavement section consisting of 3 inches of hot mix asphalt (HMA) over 6 inches of base course would be appropriate. However, along access drives and in areas where the fire trucks travel frequently and/or turn a tight radius, we recommend a minimum section of 4 inches of HMA over 8 inches of base course. We recommend CSBC for the pavement base course and Crushed Surfacing Top

Course (CSTC) may be used over the CSBC for the upper 2 to 3 inches of the base course section. CSBC and CSTC should be as specified in Section 9-03.9(3) of the Standard Specifications should be used as base course for pavements.

For rigid (concrete) pavement sections, we recommend a minimum of 8 inches of concrete over 8 inches of crushed surfacing. The concrete should have a minimum 28-day compressive strength of 4,000 pounds per square inch (psi).

The recommended pavement section is not intended to support extensive construction traffic, such as dump trucks and concrete Redi-mix trucks. Pavements subject to heavy construction traffic may be damaged and require repair.

Drainage is an essential aspect of pavement performance. We recommend providing all paved areas with positive drainage to remove surface water and water within the base course. This will be particularly important in cut sections or at low points within the paved areas, such as at catch basins.

5 Additional Project Design and Construction Monitoring

At the time of this report, site plans, site grading, structural plans, and construction methods have not been finalized and the recommendations presented herein are based on preliminary Project information. If Project developments result in changes to the assumptions made herein, we should be contacted to determine if our recommendations should be revised.

This letter report is issued with the understanding that the information and recommendations contained herein will be brought to the attention of the appropriate design team personnel and incorporated into the project plans and specifications, and the necessary steps will be taken to verify that the Contractor and subcontractors carry out such recommendations in the field. We do not direct the Contractor's operations, and we cannot be responsible for the safety of personnel other than our own on the Site; the safety of others is the responsibility of the Contractor. The Contractor should notify the property owner if he considers any of the recommended actions presented herein unsafe.

We are available to provide geotechnical engineering and monitoring services during construction. The integrity of the foundation depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent.

6 References

- American Society for Testing and Materials (ASTM), 2012, American Society of Testing Materials Annual Book of Standards, Vol. 4.08, West Conshohocken, Pennsylvania.
- Haugerud, R., 2005, Preliminary Geologic Map of Bainbridge Island, Washington, USGS Open File Report 2005-1387.
- International Building Code (IBC), 2012, International Building Code. Prepared by International Code Council, January 2012.
- Johnson et al., 1994, Origin and Evolution of the Seattle Fault and Seattle Basin, Washington, *Geology*, v. 22, p. 71-74.
- Johnson et al., 1999, Active Tectonics of the Seattle Fault and Central Puget Sound Washington-Implications for Earthquake Hazards, *Geological Society of America Bulletin*, July 1999, v. 111, n. 7, p. 1042-1053.
- United States Geological Survey (USGS), 2008, United States National Seismic Hazard Maps: <http://gldims.cr.usgs.gov/nshmp2008/viewer.htm>.
- Washington Department of Ecology (Ecology), 2014. Stormwater Management Manual for Western Washington. Publication Number 14-10-055. December 2014.
- Washington State Department of Transportation (WSDOT), 2014, Standard Specifications for Road, Bridge and Municipal Construction, Document M 41-10.
- Washington State Legislature, 2009, Washington Administrative Code (WAC), April 1, 2009.

7 Limitations

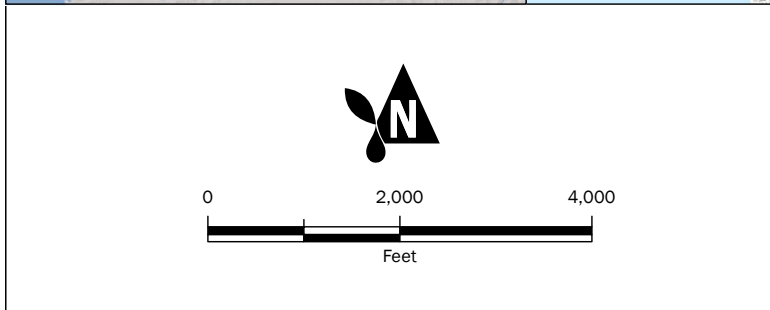
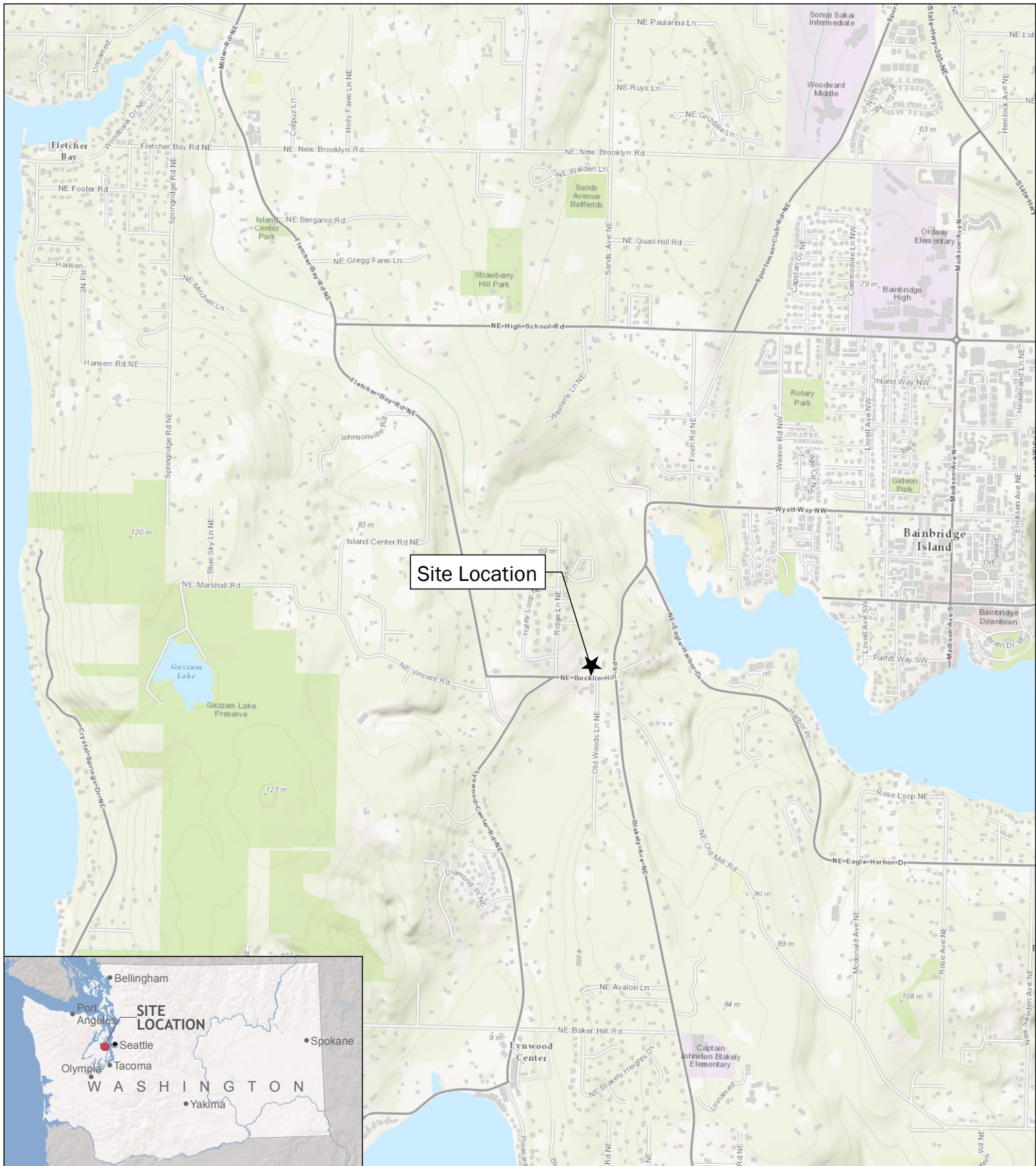
Work for this project was performed for the Bainbridge Island Fire Department (Client), and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

This report and our conclusions and interpretations should not be construed as a warranty of the subsurface conditions. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations and may not be detected by a geotechnical study. Further geotechnical evaluations, analyses, and recommendations may be necessary for the final design of this project.

If there is a substantial lapse of time between the submission of this report and the start of construction, or if conditions have changed due to construction operations at or near the Site, it is recommended that this report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

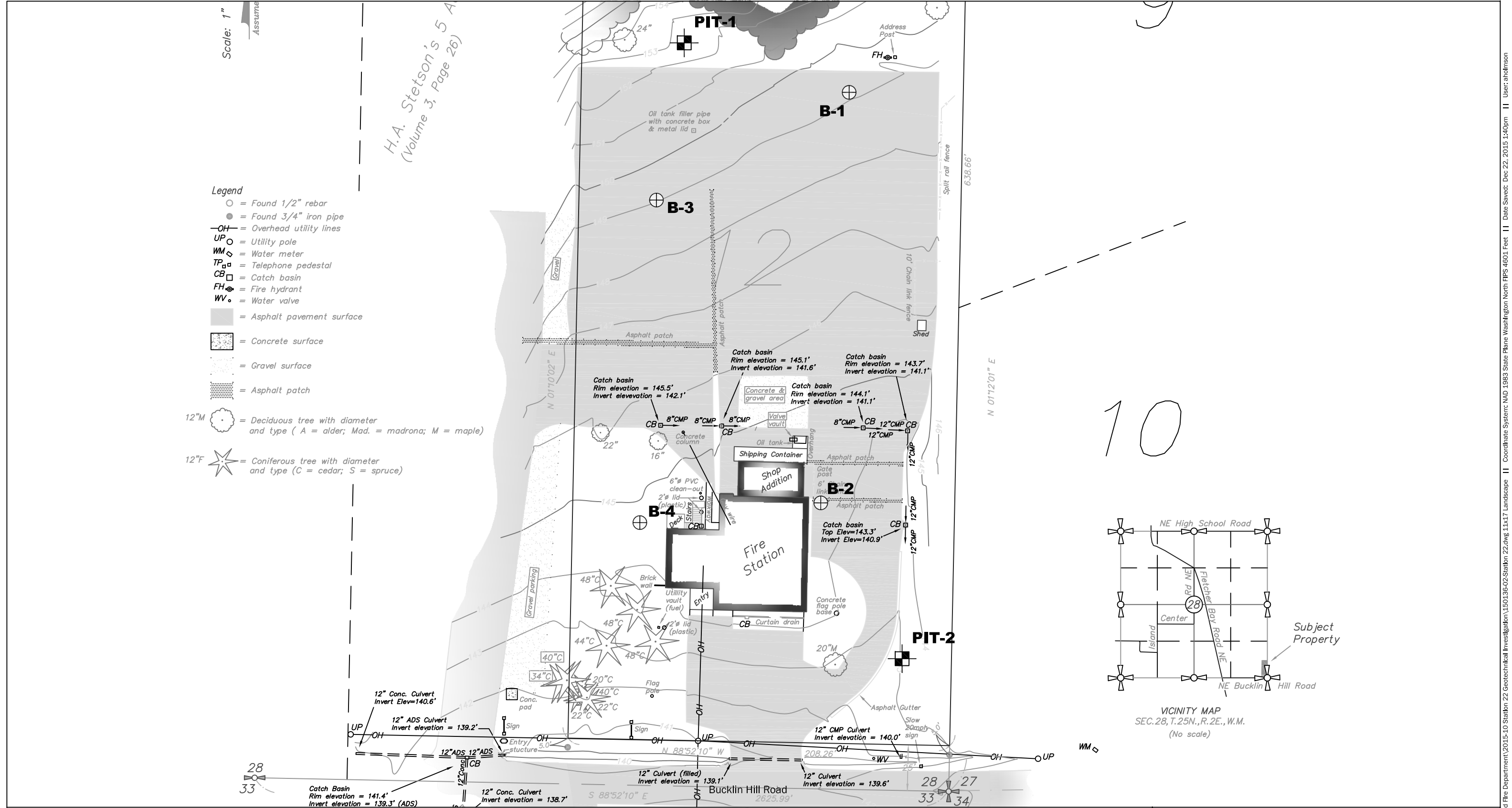
FIGURES



Site Location Map

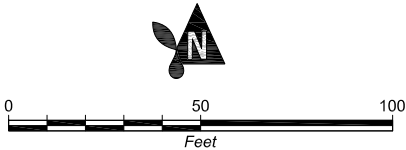
Bainbridge Island Fire Department, Station 22
7934 Bucklin Hill Road
Bainbridge Island, Washington

	OCT-2015	BY: AJH/SCC	FIGURE NO. 1
	PROJECT NO. 150136	REV BY: SCC	



Legend

- ⊕ Soil Boring Location (August, 2015)
- ⊞ Pilot Infiltration Test (PIT) Location (November, 2015)



Site Exploration Plan

Bainbridge Island Fire Department, Station 22
7934 Bucklin Hill Road
Bainbridge Island, Washington

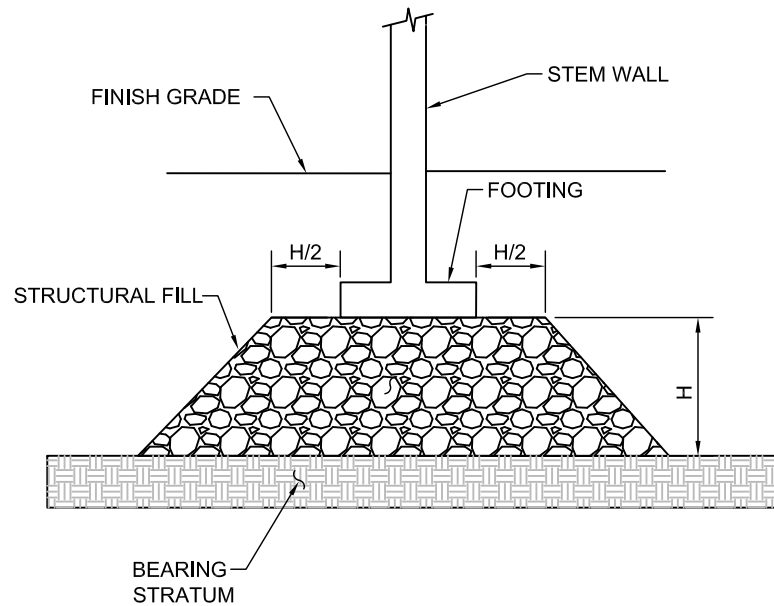


DEC-2015
PROJECT NO.
150136

BY:
AJH/SCC
REVISED BY:
-

FIGURE NO.
2

OVEREXCAVATION AND REPLACEMENT FOR SPREAD FOOTING

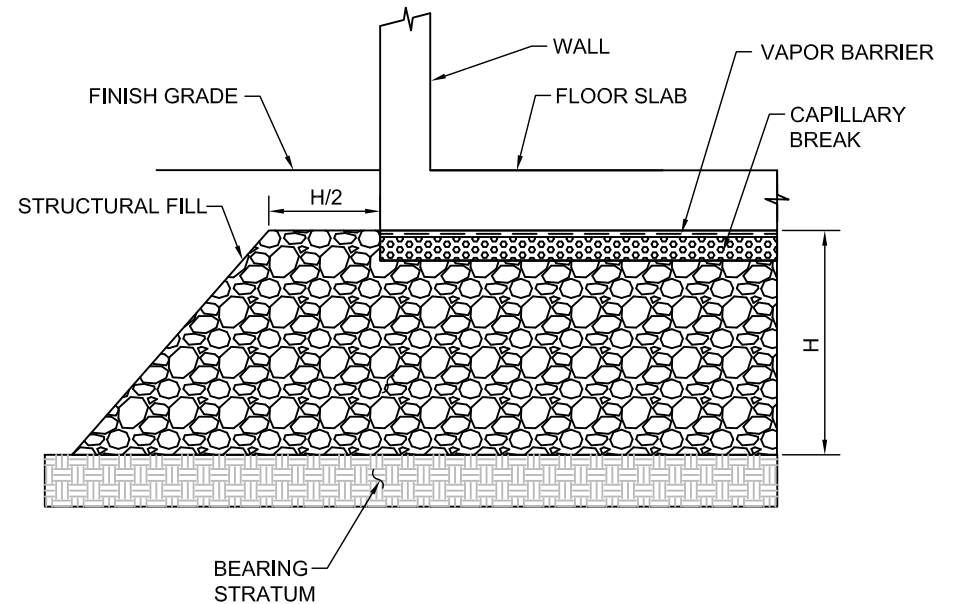


NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

OVEREXCAVATION AND REPLACEMENT FOR STRUCTURAL SLAB



NOT TO SCALE

NOTES:

- 1) DRAINAGE DETAILS NOT SHOWN
- 2) REFER TO REPORT TEXT FOR ADDITIONAL DETAILS

Typical Overexcavation Details

Bainbridge Island Fire Department, Station 22
7934 Bucklin Hill Road
Bainbridge Island, Washington



DEC-2015

PROJECT NO.
150136-02

BY:
AJH
REV BY:
-

FIGURE NO.

3

APPENDIX A

Subsurface Explorations

A.1 Field Exploration Program

A.1.1 Geotechnical Borings

Geotechnical borings B-1 through B-4 were drilled using hollow-stem auger drilling techniques. The drilling was subcontracted to Geologic Drill, an experienced and licensed local driller. Drilling was completed with a trailer-mounted drill rig and 8-inch-diameter (3¹/₄-inch-inside-diameter) hollow-stem auger equipment. The locations of the four borings are shown on Figure 2. The borings were all advanced to depths ranging between 36.5 and 41.5 feet bgs.

Sampling was completed at selected depth intervals using the Standard Penetration Test (SPT) in general accordance with ASTM Method D-1586. This involves driving a 2-inch-outside-diameter split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling from a distance of 30 inches. The number of blows for each 6-inch interval is recorded and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance (“N”) or blow count. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils.

An Aspect geologist was present throughout the field exploration program to observe the drilling procedure, assist in sampling, and to prepare descriptive logs of the exploration. Soils were classified in general accordance with ASTM D-2488, *Standard Practice for Description and Identification of Soils* (Visual-Manual Procedure). The summary exploration log represents our interpretation of the contents of the field logs. The stratigraphic contacts shown on the individual summary logs represent the approximate boundaries between soil types; actual transitions may be more gradual. The subsurface conditions depicted are only for the specific date and locations reported, and therefore, are not necessarily representative of other locations and times.



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 200' N of NE corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6224499, -122.54265

Exploration Number

B-1

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

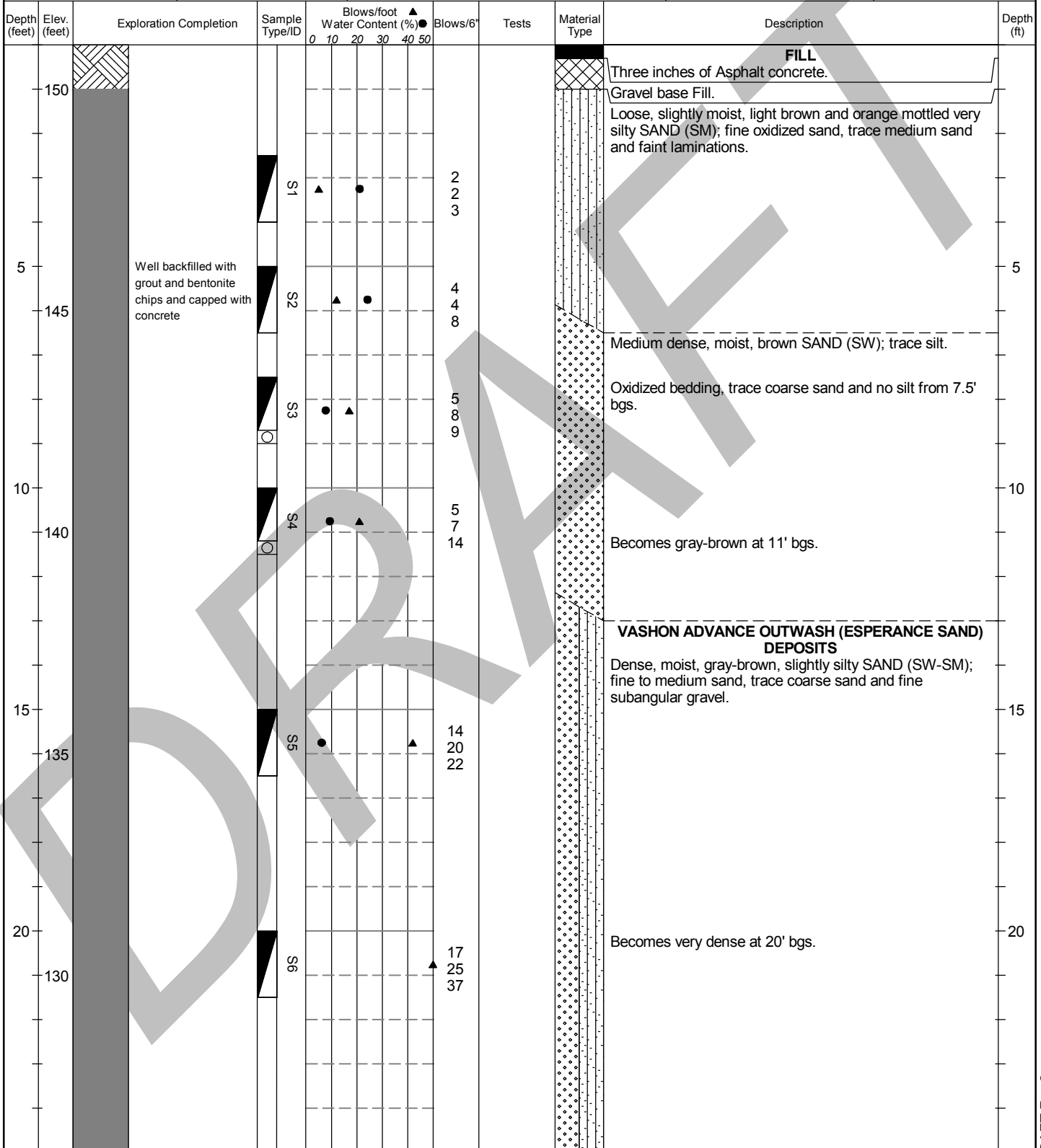
151'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 2

Sheet 1 of 2

150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location

7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 200' N of NE corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6224499, -122.54265

Exploration Number

B-1

Contractor

Geologic Drilling

Equipment

Rotary drill rig

Sampling Method

Cathead; 140 lb hammer; 30" drop

Ground Surface (GS) Elev. (NAVD88)

151'

Operator

Blaine

Exploration Method(s)

Hollow-stem auger

Work Start/Completion Dates

8/4/2015

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot						Blows/6'	Tests	Material Type	Description	Depth (ft)
				0	10	20	30	40	50					
125			5S							15			Very thinly bedded, alternating light gray thin beds and very fine laminations at 25' bgs.	
										25				
										35				
30			8S							22			Becomes predominantly fine sand, trace medium sand, alternating light gray-brown laminations and dark gray very fine laminations at 30' bgs.	30
120										34				
										50				
35			6S							15			Becomes very moist and slightly silty at 35' bgs.	35
115										20				
										34				
													Bottom of exploration at 36.5 ft. BGS.	
40														
110														
45														45
105														

Legend

No Soil Sample Recovery

SPT (ASTM 1586)

Plastic Limit

Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF

Approved by: AJH

DRAFT

Figure No. A- 2

Sheet 2 of 2

ASPECT STANDARD EXPLORATION TEMPLATE P:\GINTW\PROJECTS\BIFD22-150136.GPJ December 22, 2015

Review Stage:DRAFT Rev2

**150136 - Bainbridge Island Fire Station 22****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

7934 NE Bucklin Hill Rd, Bainbridge Island, WA, At repair garage entrance.

47.6218861, -122.54268

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

150'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

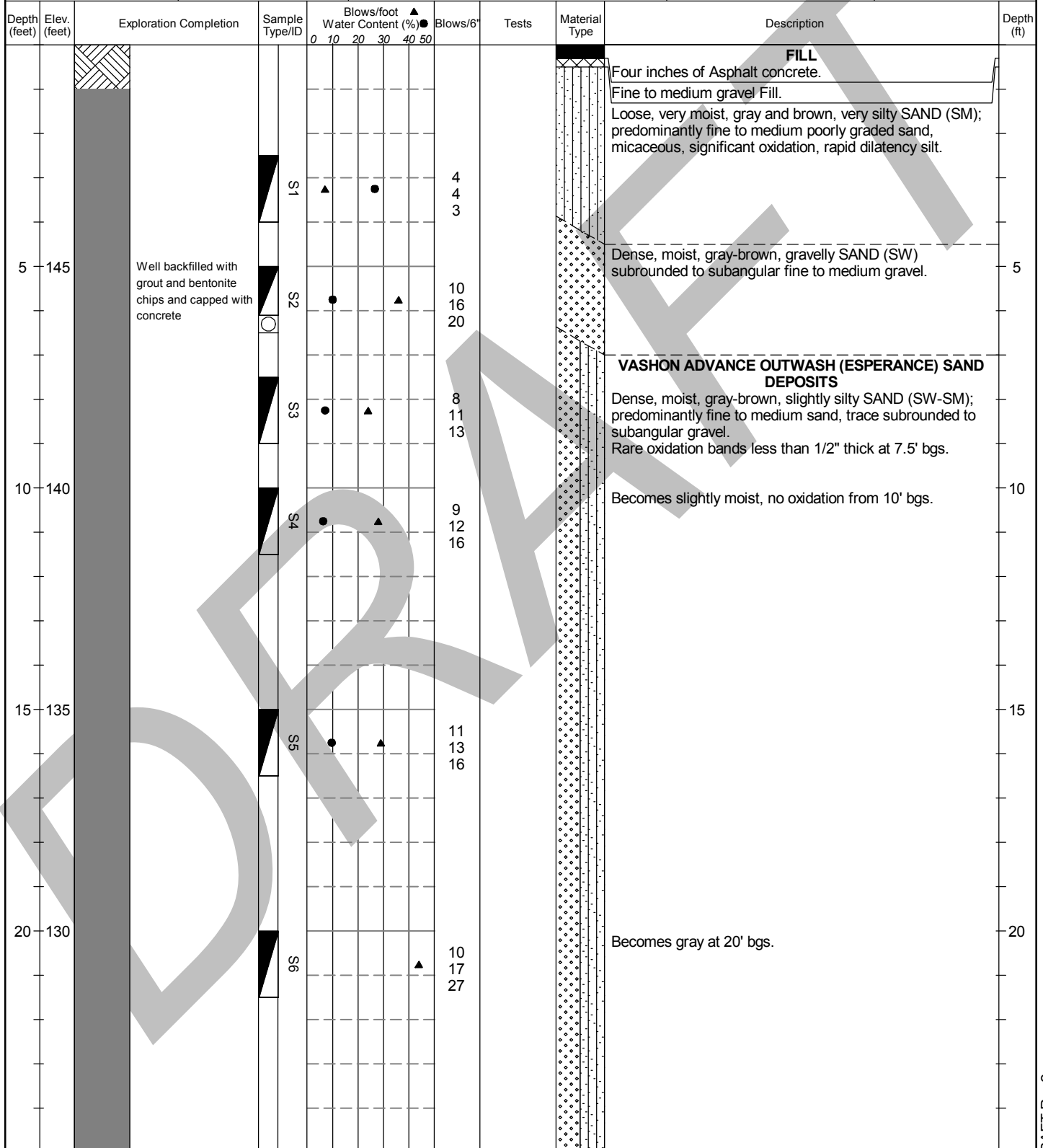
Blaine

Hollow-stem auger

8/4/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**DRAFT**
Figure No. A- 4

Sheet 1 of 2

**150136 - Bainbridge Island Fire Station 22****Geotechnical Exploration Log**

Project Address & Site Specific Location

Coordinates (Lat,Lon WGS84)

Exploration Number

7934 NE Bucklin Hill Rd, Bainbridge Island, WA, At repair garage entrance.

47.6218861, -122.54268

B-2

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Geologic Drilling

Rotary drill rig

Cathead; 140 lb hammer; 30" drop

150'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

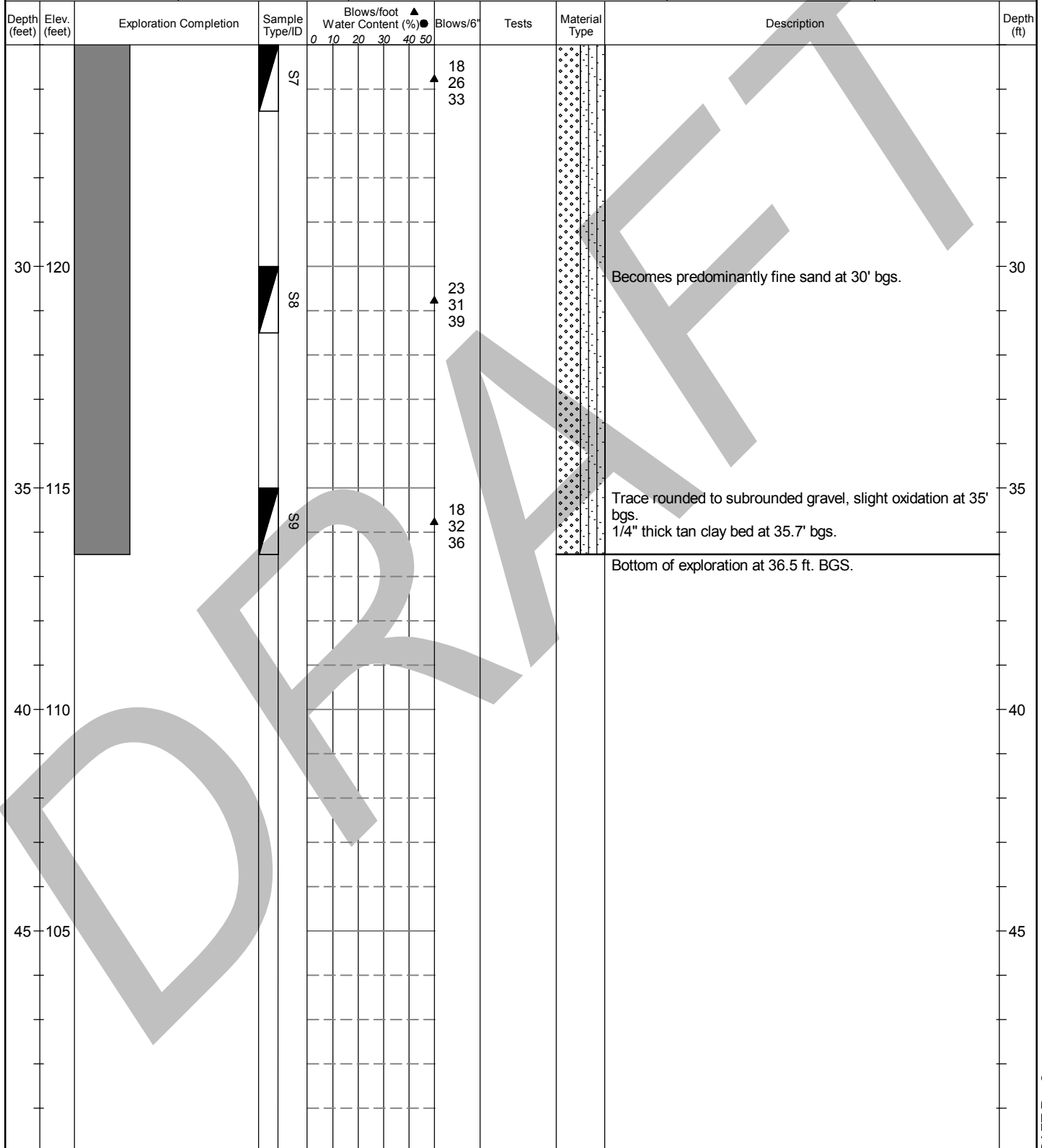
Blaine

Hollow-stem auger

8/4/2015

NA

No Water Encountered

**Legend**

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH**DRAFT**
Figure No. A- 4

Sheet 2 of 2



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 180' N of NW corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6222895, -122.54311

Exploration Number

B-3

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

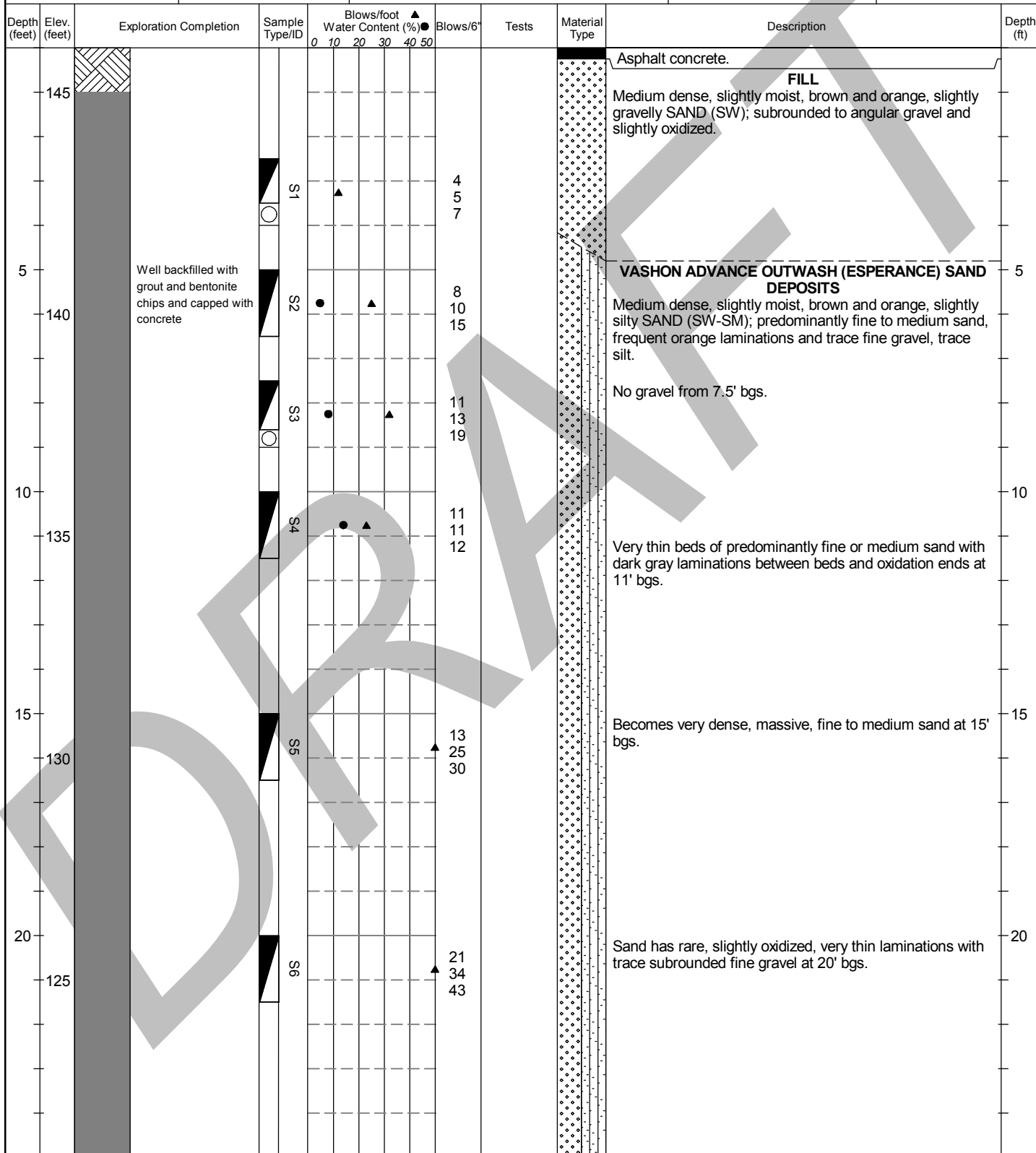
146'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 6

Sheet 1 of 2



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 180° N of NW corner Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.6222895, -122.54311

Exploration Number

B-3

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

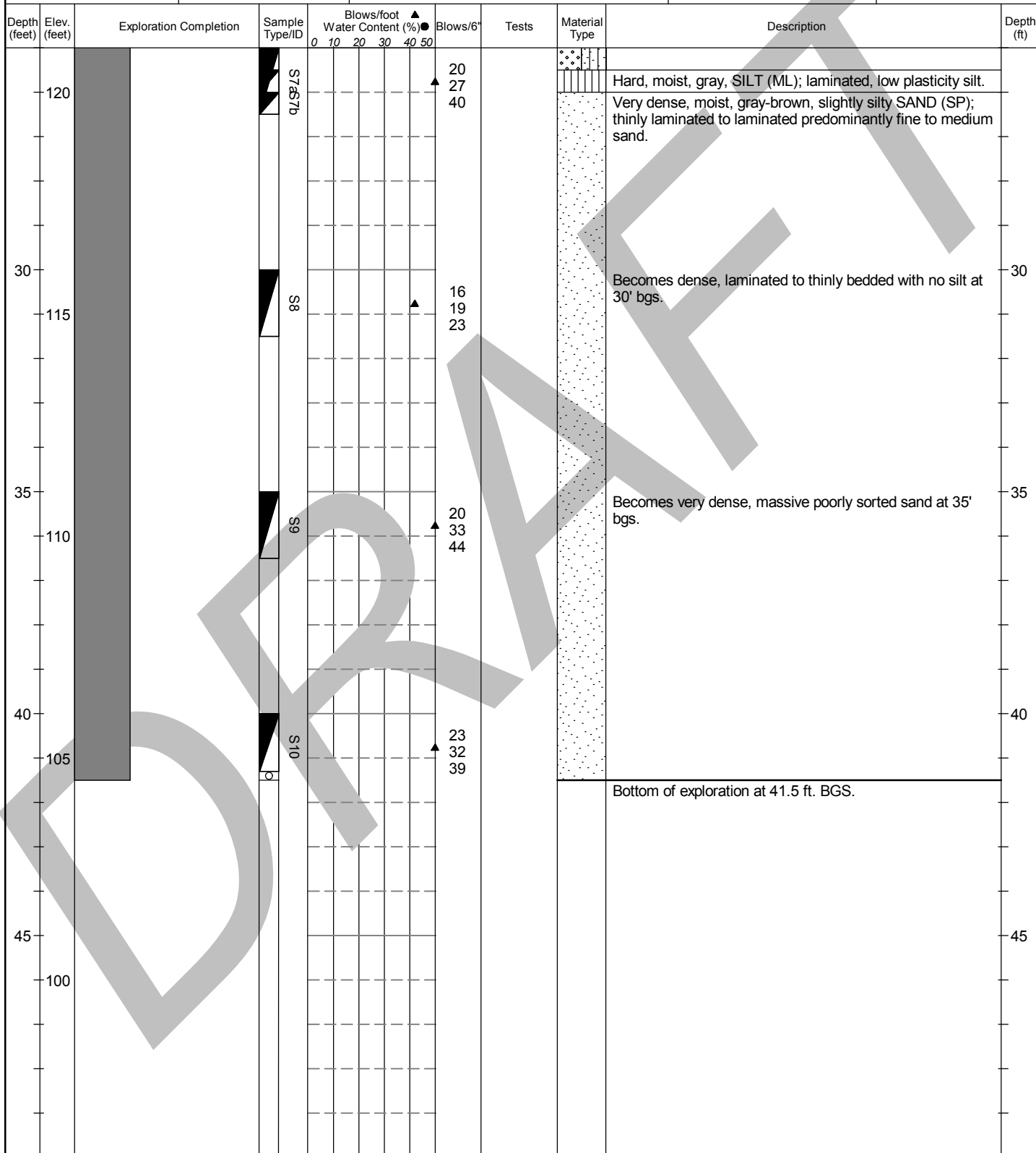
146'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 6

Sheet 2 of 2



150136 - Bainbridge Island Fire Station 22

Geotechnical Exploration Log

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 50' NW of NW corner Sta 22.

Coordinates (Lat, Lon WGS84)

47.6219322, -122.54312

Exploration Number

B-4

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

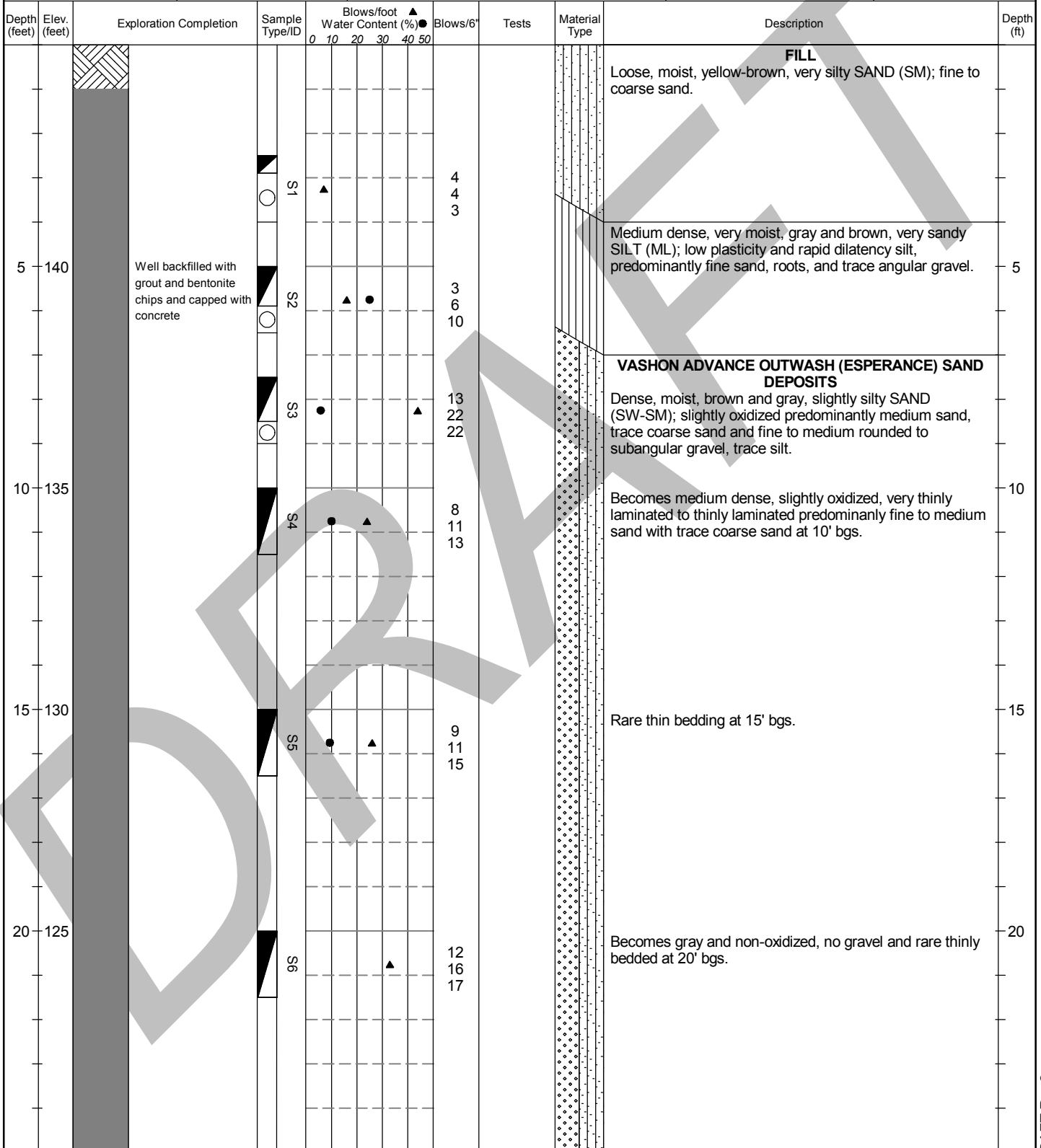
145'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 8

Sheet 1 of 2



150136 - Bainbridge Island Fire Station 22

Geotechnical Exploration Log

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 50' NW of NW corner Sta 22.

Coordinates (Lat, Lon WGS84)

47.6219322, -122.54312

Exploration Number

B-4

Contractor

Geologic Drilling

Operator

Blaine

Equipment

Rotary drill rig

Exploration Method(s)

Hollow-stem auger

Sampling Method

Cathead; 140 lb hammer; 30" drop

Work Start/Completion Dates

8/4/2015

Ground Surface (GS) Elev. (NAVD88)

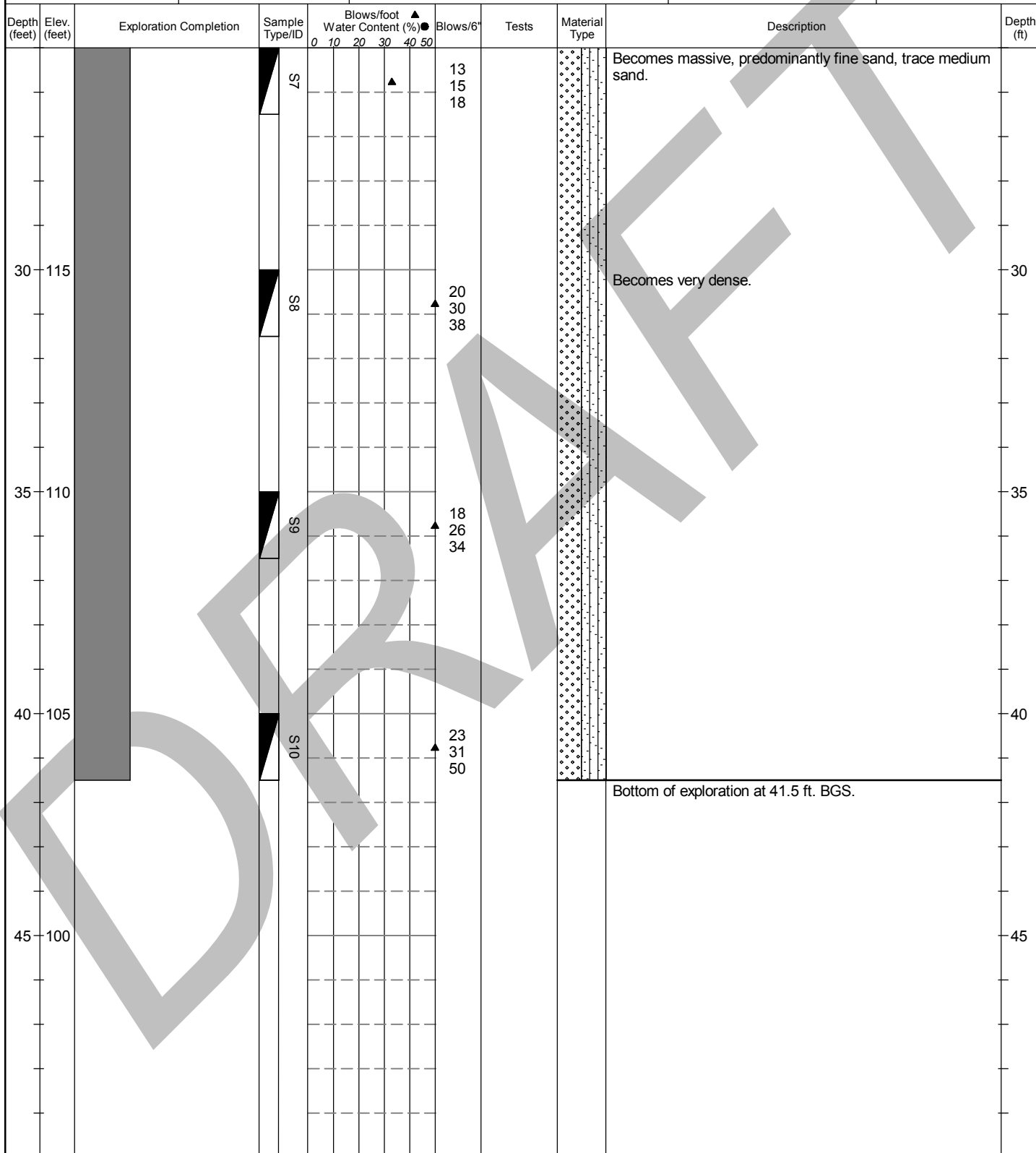
145'

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

- ☐ No Soil Sample Recovery
- ☒ SPT (ASTM 1586)

Plastic Limit — Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

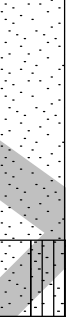
Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A- 8

Sheet 2 of 2

ASPECT STANDARD EXPLORATION TEMPLATE P:\GINT\PROJECTS\BIFD22-150136.GPJ December 22, 2015

		150136 - Bainbridge Island Fire Station 22 <i>Project Address & Site Specific Location</i> 7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 205' North of Sta 22 repair garage.				Geotechnical Exploration Log <i>Coordinates (Lat, Lon WGS84)</i> 47.622497, -122.54302		<i>Exploration Number</i> Pit-1	
		<i>Contractor</i> BIFD		<i>Equipment</i> Case 580 Super M		<i>Sampling Method</i> Grab		<i>Ground Surface (GS) Elev. (NAVD88)</i> 153'	
<i>Operator</i> Lee Rosenbaum		<i>Exploration Method(s)</i> Backhoe		<i>Work Start/Completion Dates</i> 11/3/2015		<i>Top of Casing Elev. (NAVD88)</i> NA		<i>Depth to Water (Below GS)</i> No Water Encountered	

Depth (feet)	Elev. (feet)	Exploration Completion	Sample Type/ID	Blows/foot						Blows/6'	Tests	Material Type	Description	Depth (ft)
				0	10	20	30	40	50					
		 Test pit backfilled with native soil.											TOPSOIL Very loose, slightly moist, dark brown silty SAND (SM).	
													FILL Loose slightly moist, brown, very silty SAND (SM).	
													VASHON RECESSIONAL DEPOSITS Medium dense, dry, light brown, slightly silty SAND (SP-SM); poorly graded fine to medium sand.	
													VASHON TILL Very dense, dry, light brown, gravelly, very sandy SILT (ML); rounded to subangular fine to medium gravel.	
													VASHON ADVANCE OUTWASH Dense to very dense, moist, dark gray, very gravelly SAND (SP) interbedded with sandy GRAVEL (GP); poorly graded dominantly fine to medium sand, subrounded to subangular fine to medium gravel, poorly graded gravel in lenses.	5
150			 Small Scale Pit, GS									Very dense, wet, gray, slightly silty SAND (SP-SM); fine to medium sand, trace gravel.		
5													Bottom of exploration at 8.5 ft. BGS.	
													Note: Vertical walls with slight wall collapsing around water level during infiltration.	
145														
10														
140														
15														
135														

Legend  Grab Sample		Plastic Limit ——— Liquid Limit No Water Encountered		For detailed Soil Graphic Descriptions, see Figure A- 1. Logged by: JGF Approved by: AJH		DRAFT Figure No. A- Sheet 1 of 1	
--	--	--	--	--	--	--	--

Review Stage: DRAFT Rev0



150136 - Bainbridge Island Fire Station 22

Project Address & Site Specific Location
7934 NE Bucklin Hill Rd, Bainbridge Island, WA, 65' ESE of SE corner of Sta 22.

Geotechnical Exploration Log

Coordinates (Lat, Lon WGS84)

47.621612, -122.54247

Exploration Number

Pit-2

Contractor

BIFD

Equipment

Case 580 Super M

Sampling Method

Grab

Ground Surface (GS) Elev. (NAVD88)

143'

Operator

Lee Rosenbaum

Exploration Method(s)

Backhoe

Work Start/Completion Dates

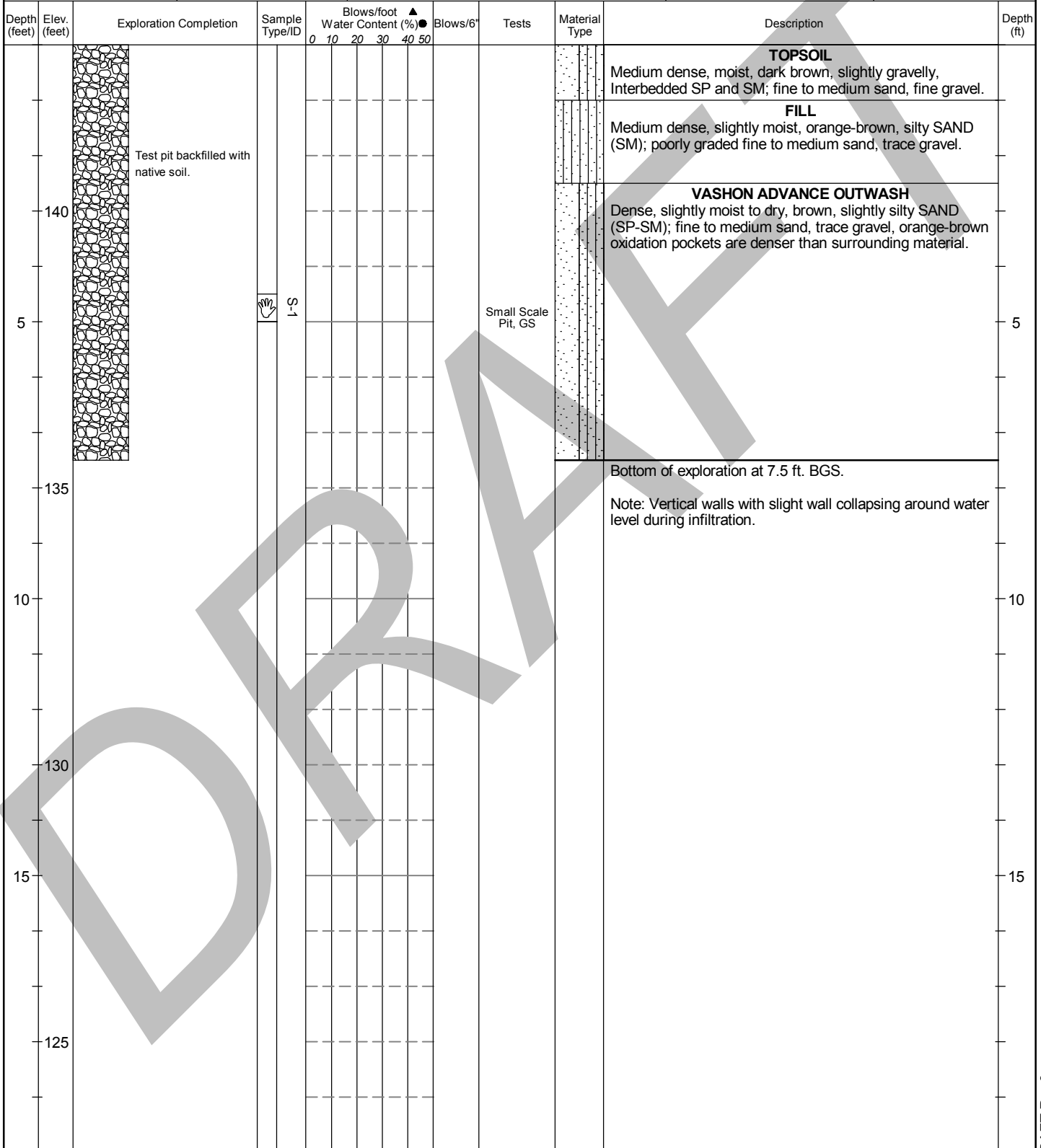
11/3/2015

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

No Water Encountered



Legend

Grab Sample

Plastic Limit Liquid Limit

No Water Encountered

Water Level

For detailed Soil Graphic Descriptions, see Figure A- 1.

Logged by: JGF
Approved by: AJH

DRAFT
Figure No. A-

Sheet 1 of 1

APPENDIX B

Laboratory Testing Results

B.1 Geotechnical Laboratory Testing

Laboratory tests were conducted on selected soil samples to characterize certain engineering (physical) properties of the Site soils. Laboratory testing included determination of grain-size distribution, moisture content, and organic content. The laboratory tests were conducted in general accordance with appropriate ASTM test methods. Test procedures are discussed below.

The grain-size distribution of selected samples was analyzed in general accordance with ASTM D-422, *Standard Test Method for Particle-Size Analysis of Soils* without hydrometer determination of fines content. The moisture content of selected samples was analyzed in general accordance with ASTM D-2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*. The organic content of selected samples was analyzed in general accordance with ASTM C 40, *Standard Test Method for Organic Impurities in Fine Aggregates*.

The results of the grain-size distribution tests are presented as curves in Appendix B, plotting percent finer by weight versus grain size. The results of the moisture content tests are presented in tabular form in Appendix B and graphically on the boring logs in Appendix A. The results of the organic content tests are presented in Appendix B.

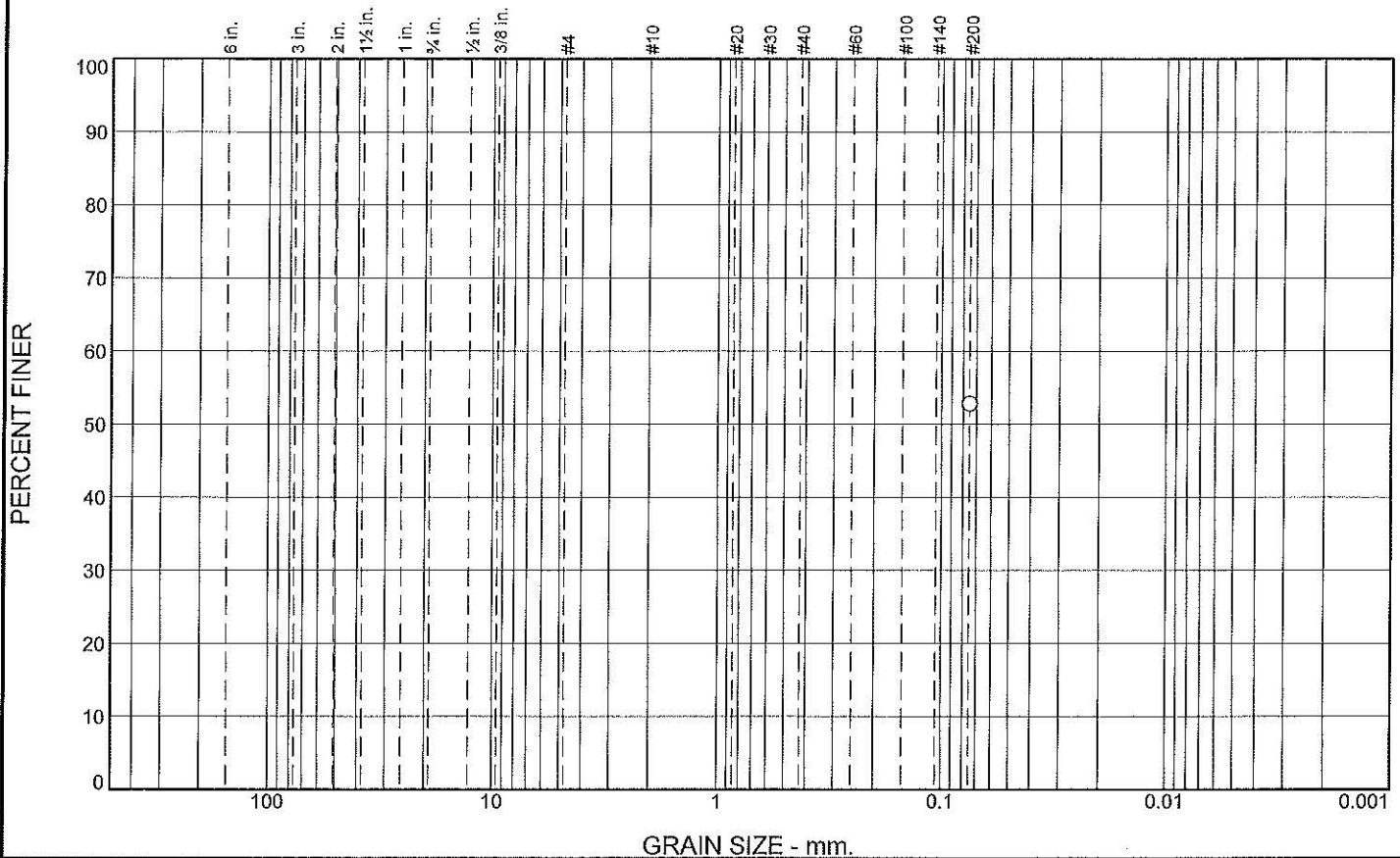
Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Bainbridge Island Fire Station 22 Bucklin Hill P#150136/08-175

HMA Sample #	Aspect Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7803-1	S-1	B-1/2.5'-4'	8/11/2015	8/12/2015	M7	123.0	970.0	822.3	21.1
7803-2	S-2	B-1/5'-6.5'	8/11/2015	8/12/2015	S-10	112.8	915.1	758.7	24.2
7803-3	S-3	B-1/7.5'-9'	8/11/2015	8/12/2015	3A	214.0	859.9	813.9	7.7
7803-4	S-4	B-1/10'-11.5'	8/11/2015	8/12/2015	4A	212.8	888.1	830.6	9.3
7803-5	S-5	B-1/15'-16.5'	8/11/2015	8/12/2015	2A	217.4	1041.6	993.9	6.1
7803-6	S-1	B-2/2.5'-4'	8/11/2015	8/12/2015	1A	213.3	1023.8	853.7	26.6
7803-7	S-2	B-2/5'-6.5'	8/11/2015	8/12/2015	M1	226.2	899.0	837.6	10.0
7803-8	S-3	B-2/7.5'-9'	8/11/2015	8/12/2015	M2	214.10	997.20	945.80	7.0
7803-9	S-4	B-2/10'-11.5	8/11/2015	8/12/2014	AJ	164.90	641.80	613.9	6.2
7803-10	S-5	B-2/15'-16.5'	8/11/2015	8/12/2015	X6	196.1	667.50	626.20	9.6
7803-11	S-2	B-3/5'-6.5'	8/11/2015	8/12/2015	X9	230.8	677.0	656.8	4.7
7803-12	S-3	B-3/7.5'-9'	8/11/2015	8/12/2015	AB	157.4	626.9	592.10	8.0
7803-13	S-4	B-3/10'-11.5'	8/11/2015	8/12/2015	9A	162.0	624.3	567.9	13.9
7803-14	S-2	B-4/5'-6.5'	8/11/2015	8/12/2015	X5	198.3	738.8	630.8	25.0
7803-15	S-3	B-4/7.5'-9'	8/11/2015	8/12/2015	X8	194.5	931.2	891.4	5.7
7803-16	S-4	B-4/10'-11.5'	8/11/2015	8/12/2015	X7	193.0	574.7	540.1	10.0
7803-17	S-5	B-4/15'-16.5'	8/11/2015	8/12/2015	M4	190.2	724.8	679.30	9.3

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						52.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	52.8		

* (no specification provided)

Soil Description
B-1 S-1 2.5'-4'

Atterberg Limits
PL= LL= PI=

Coefficients
D₉₀= D₈₅= D₆₀=
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification
USCS= AASHTO=

Remarks
Station 22 Bucklin Hill

Location: B-1 S-1
Sample Number: 7803-1

Depth: 2.5-4'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-1 S-1

Depth: 2.5-4'

Sample Number: 7803-1

Material Description: B-1 S-1 2.5'-4'

Date: 08/12/2015

Testing Remarks: Station 22 Bucklin Hill

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 453.00
 Tare Wt. = 123.00
 Minus #200 from wash = 52.8%

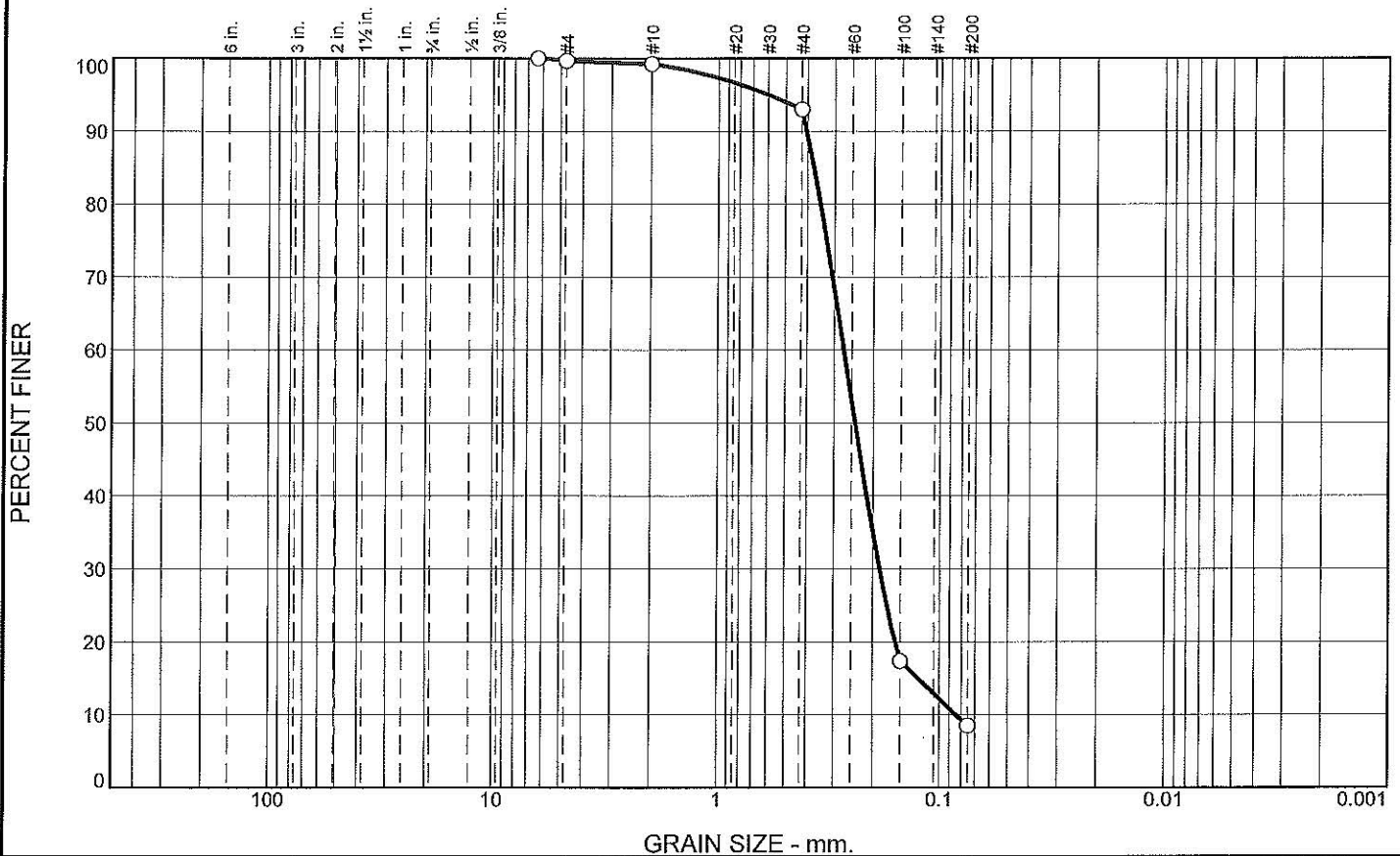
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
822.30	123.00	#200			52.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										52.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	6.2	84.5	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/4"	100.0		
#4	99.6		
#10	99.2		
#40	93.0		
#100	17.4		
#200	8.5		

* (no specification provided)

Soil Description

Sand with Silt

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 0.4040

D₈₅= 0.3742

D₆₀= 0.2720

D₅₀= 0.2414

D₃₀= 0.1865

D₁₅= 0.1246

D₁₀= 0.0842

C_u= 3.23

C_c= 1.52

Classification

USCS= SW-SM

AASHTO=

Remarks

Station 22 Bucklin Hill

B-2 S-3 7.5'-9'

Location: B-2 S-3

Sample Number: 7803-8

Depth: 7.5'-9'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/20/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-2 S-3

Depth: 7.5'-9'

Sample Number: 7803-8

Material Description: Sand with Silt

Date: 08/12/2015

USCS Classification: SW-SM

Testing Remarks: Station 22 Bucklin Hill

B-2 S-3 7.5-9'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 888.70

Tare Wt. = 214.10

Minus #200 from wash = 7.8%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
945.80	214.10	1/4"	0.00	0.00	100.0
		#4	2.60	0.00	99.6
		#10	3.20	0.00	99.2
		#40	45.60	0.00	93.0
		#100	553.20	0.00	17.4
		#200	64.80	0.00	8.5

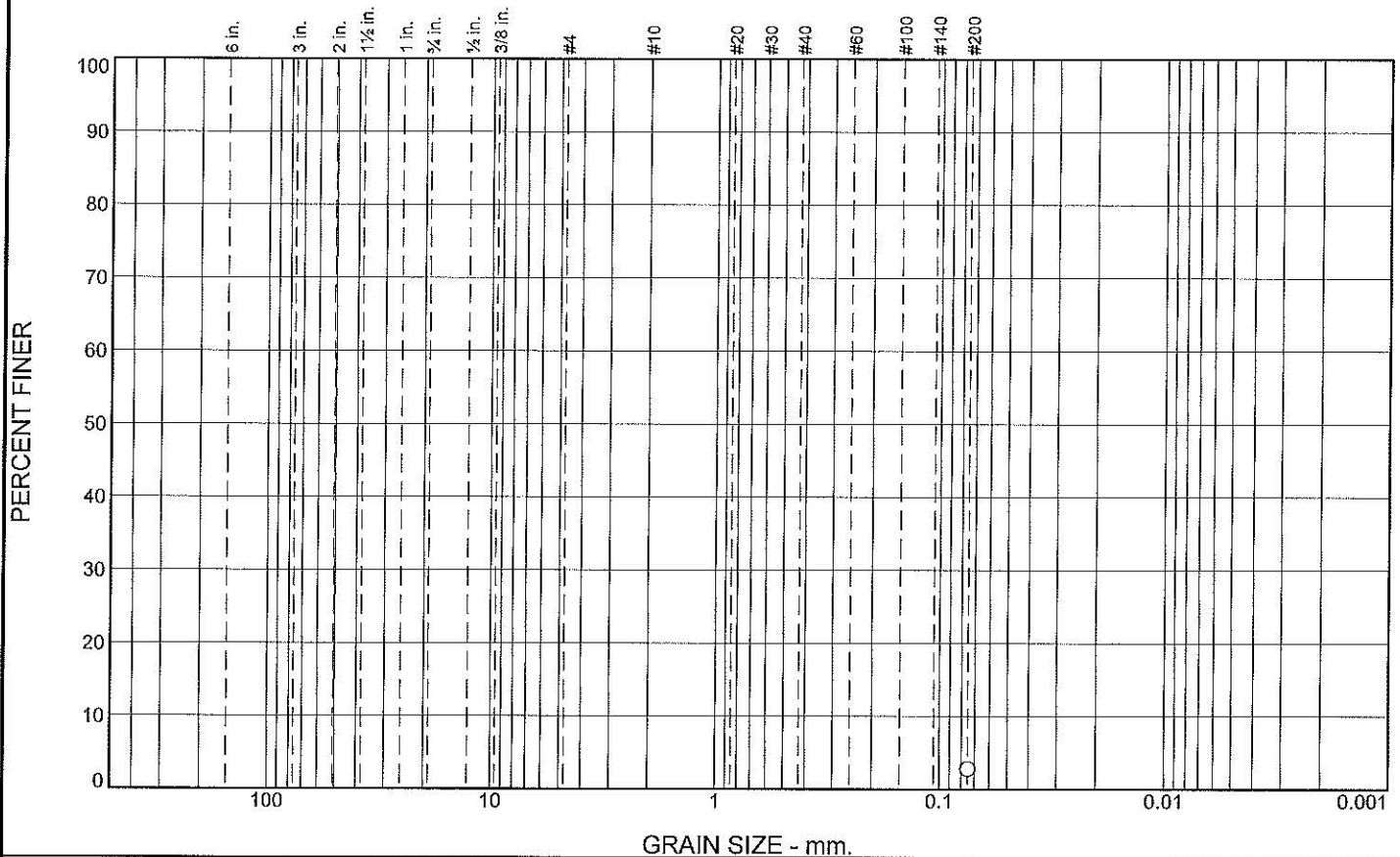
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.4	6.2	84.5	91.1			8.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0842	0.1246	0.1584	0.1865	0.2414	0.2720	0.3489	0.3742	0.4040	0.6037

Fineness Modulus	C _u	C _c
1.23	3.23	1.52

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	2.8		

* (no specification provided)

Soil Description
B-3 S-2 5-6.5'

Atterberg Limits
 PL= LL= PI=
 D₉₀= D₈₅= D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= AASHTO=

Remarks
 Statin 22 Bucklin Hill
 B-3 S-2 5-6.5'

Location: B-3 S-2
 Sample Number: 7803-11 Depth: 5-6.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
 Project: Bainbridge Island Fire Station 21 and 22

 Project No: 150136/08-175 Figure

Tested By: B.H. Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-3 S-2

Depth: 5-6.5'

Sample Number: 7803-11

Material Description: B-3 S-2 5-6.5'

Date: 08/12/2015

Testing Remarks: Statin 22 Bucklin Hill

B-3 S-2 5-6.5'

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 644.80
Tare Wt. = 230.80
Minus #200 from wash = 2.8%

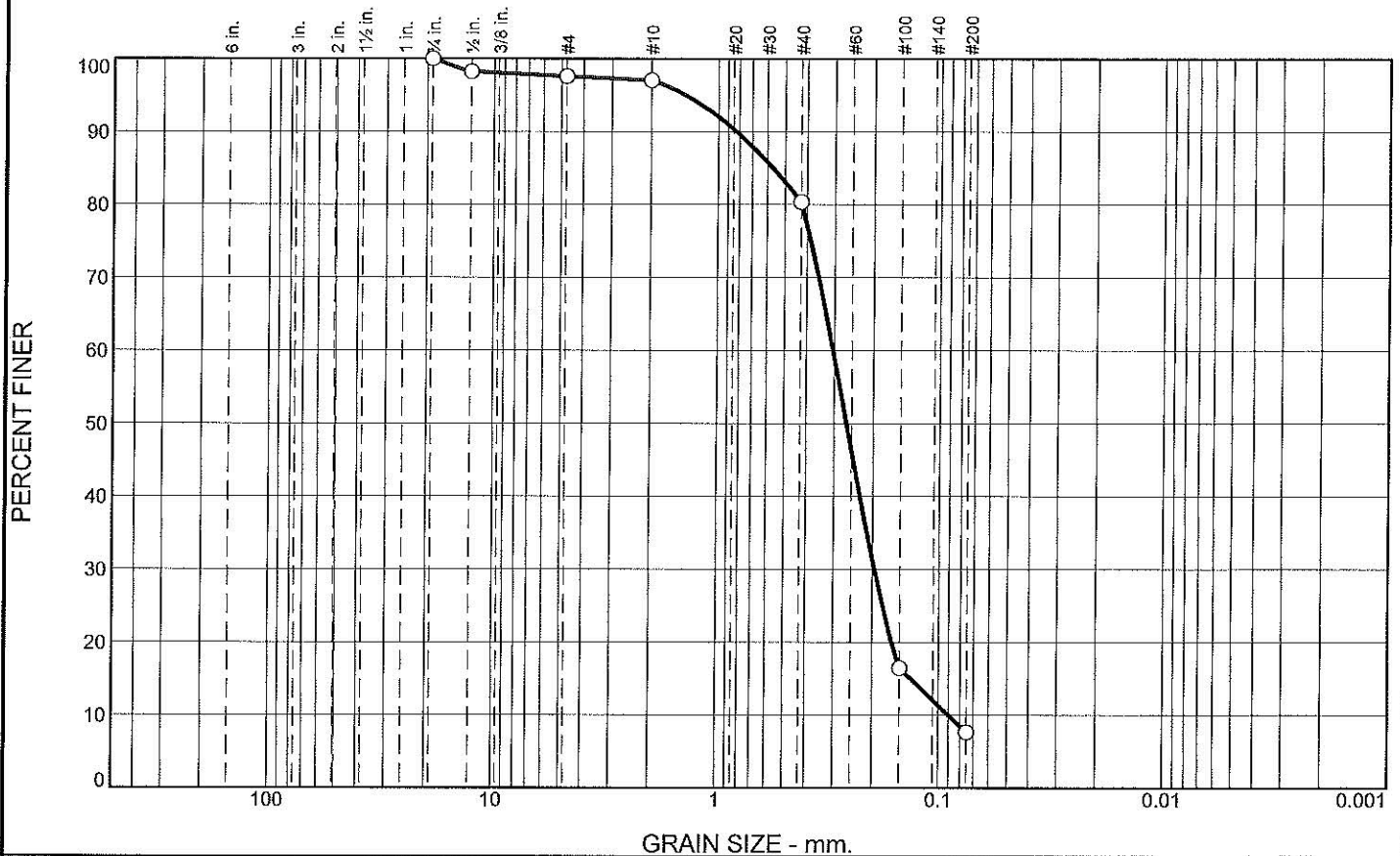
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
656.80	230.80	#200			2.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
										2.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	0.6	16.6	72.7	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	98.2		
#4	97.6		
#10	97.0		
#40	80.4		
#100	16.5		
#200	7.7		

* (no specification provided)

Soil Description
Sand with Silt

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.8283 D₈₅= 0.5675 D₆₀= 0.3051
 D₅₀= 0.2644 D₃₀= 0.1961 D₁₅= 0.1337
 D₁₀= 0.0901 C_u= 3.38 C_c= 1.40

Classification
 USCS= SW-SM AASHTO=

Remarks
 Station 22 Bucklin Hill
 B-4 S-5 15-16.5

Location: B-4 S-5
 Sample Number: 7803-17

Depth: 15-16.5'

Date: 08/12/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC
 Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

GRAIN SIZE DISTRIBUTION TEST DATA

8/18/2015

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project Number: 150136/08-175

Location: B-4 S-5

Depth: 15-16.5'

Sample Number: 7803-17

Material Description: Sand with Silt

Date: 08/12/2015

USCS Classification: SW-SM

Testing Remarks: Station 22 Bucklin Hill
B-4 S-5 15-16.5

Tested by: B.H

Checked by: JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 645.50
Tare Wt. = 190.20
Minus #200 from wash = 6.9%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
679.30	190.20	3/4"	0.00	0.00	100.0
		1/2"	8.60	0.00	98.2
		#4	3.20	0.00	97.6
		#10	2.80	0.00	97.0
		#40	81.40	0.00	80.4
		#100	312.60	0.00	16.5
		#200	43.00	0.00	7.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.4	2.4	0.6	16.6	72.7	89.9			7.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0901	0.1337	0.1631	0.1961	0.2644	0.3051	0.4219	0.5675	0.8283	1.4080

Fineness Modulus	C _u	C _c
1.53	3.38	1.40

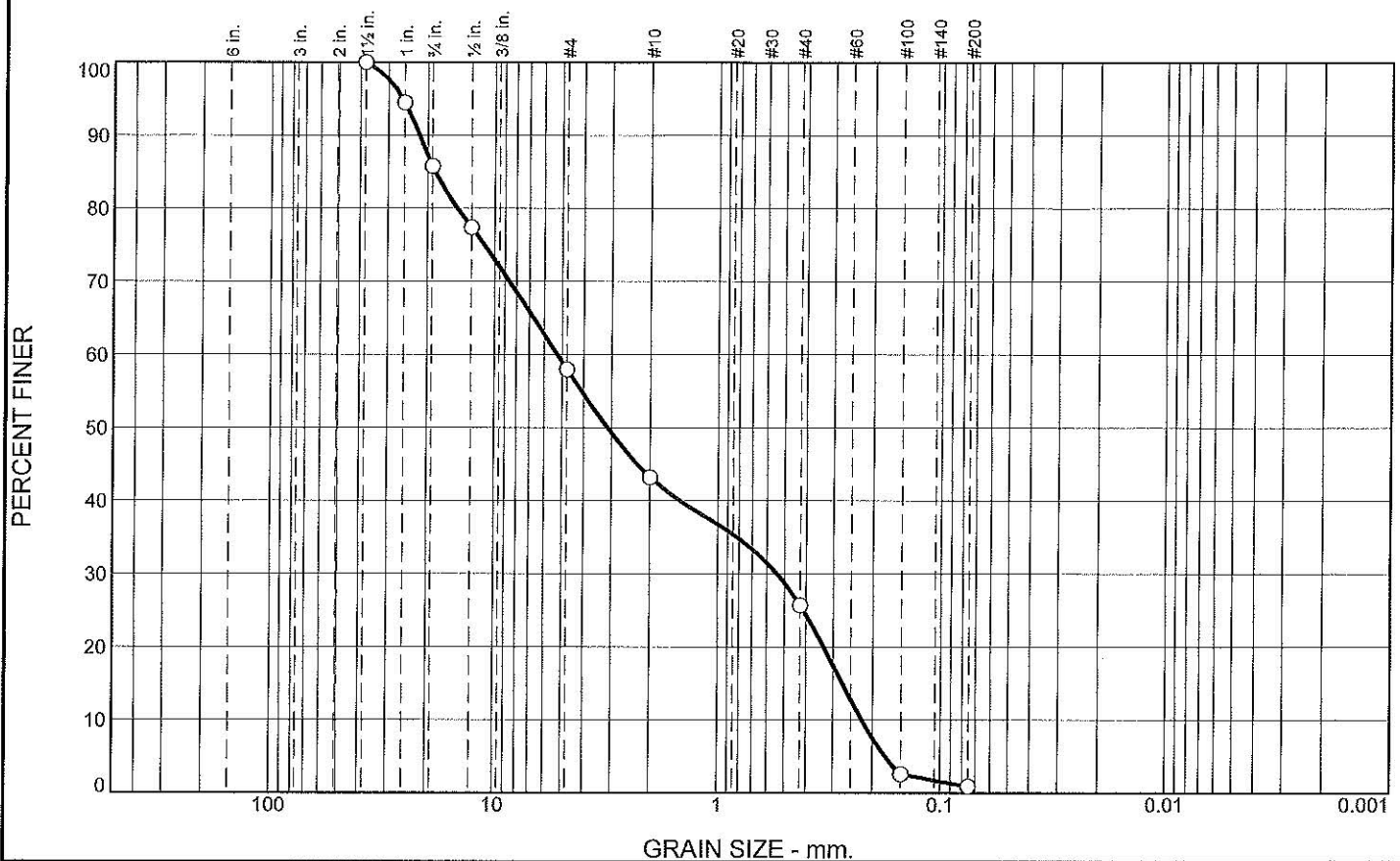
Hayre McElroy & Associates, LLC

Moisture Contents

Moisture Content Test Results (ASTM D2216) - Island Fire Station 22 Project# 150136/08175

HMA Sample #	Sample #	Location	Date Received	Date of Test	Tare #	Wt of Tare	Tare+ Wet	Tare+ Dry	Moisture %
7815-1	TP-1 S-1	5.5'	11/6/2015	11/6/2015	B-4	15.7	740.0	721.3	2.7
7815-2	TP-2 S-1	4.5'	11/6/2015	11/6/2015	A-19	15.8	523.2	465.8	12.8

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.2	27.9	14.7	17.5	24.8	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	94.4		
3/4"	85.8		
1/2"	77.4		
#4	57.9		
#10	43.2		
#40	25.7		
#100	2.6		
#200	0.9		

* (no specification provided)

Soil Description		
Sand with Gravel		
Atterberg Limits		
PL=	LL=	PI=
Coefficients		
D ₉₀ = 21.8353	D ₈₅ = 18.5137	D ₆₀ = 5.2651
D ₅₀ = 3.1297	D ₃₀ = 0.5410	D ₁₅ = 0.2731
D ₁₀ = 0.2232	C _u = 23.58	C _c = 0.25
Classification		
USCS= SP	AASHTO=	
Remarks		
TP-1 S-1 5.5'		

Location: TP-1 S-1

Sample Number: 7815-1

Depth: 5.5'

Date: 11/10/2015

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting LLC

Project: Bainbridge Island Fire Station 21 and 22

Project No: 150136/08-175

Figure

Tested By: B.H

Checked By: JAM

APPENDIX C

Infiltration Testing Results

C.1 Pilot Infiltration Tests (PITs)

Two small-scale PITs were completed at the Site in the locations shown on Figure 2. The PITs were completed in general accordance with the small-scale pilot infiltration test (PIT) methods described in the *2014 Stormwater Management Manual for Western Washington* with minor modifications to facilitate more expedited testing and to provide more reliable estimates of infiltration rate.

The PITs were excavated to the approximate proposed receptor depth for the infiltration facilities being considered, filled with water from the on-Site facilities, soaked/saturated for several hours, and then falling-head tests were performed.

Excavation for the small-scale PITs was completed with a Case 580 backhoe and water for the testing was supplied by the Fire Department on-Site facilities. The excavations were completed to the approximate proposed receptor depth of 4.5 to 5.5 feet bgs and samples were obtained at the receptor depth. The excavations were typically 5 feet square in dimension. The excavations were filled with at least one foot of water and soaked for several hours and then inflow was stopped to allow for falling-head testing. The water level (stage) within the pits was monitored and recorded with a manual staff gauge as well as a submersible pressure transducer (diver) setup to take readings every minute during the testing. Upon completion of the falling-head testing, the pits were excavated an additional 3 to 4 feet in depth to further characterize the soil conditions below the receptor depth.

Logs of the test pits are shown in Appendix A. Plots of the infiltration test data are shown in Appendix C.

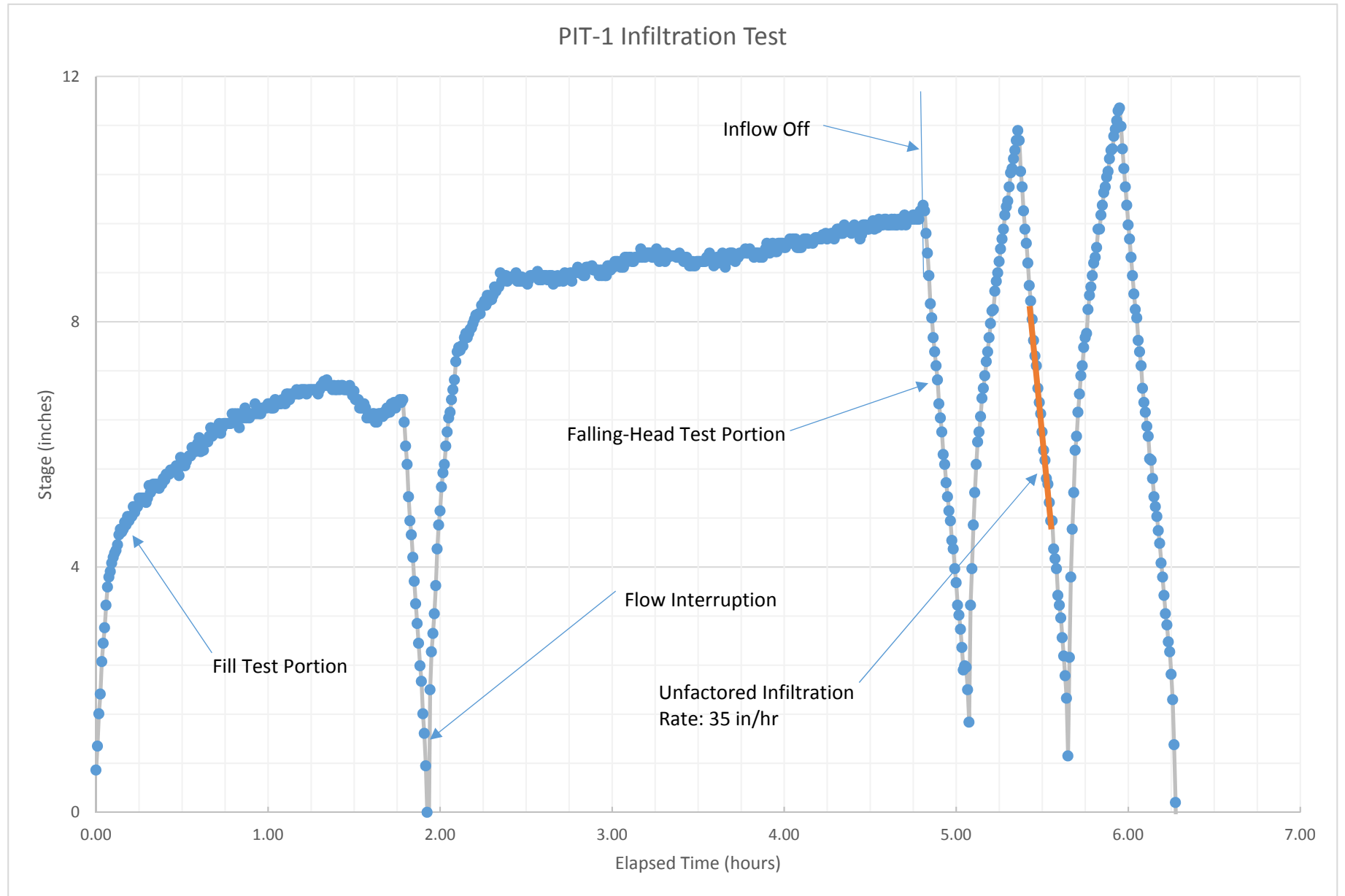


Figure C-1

PIT-1 Infiltration Test Data

BIFD Station 22

150136-02

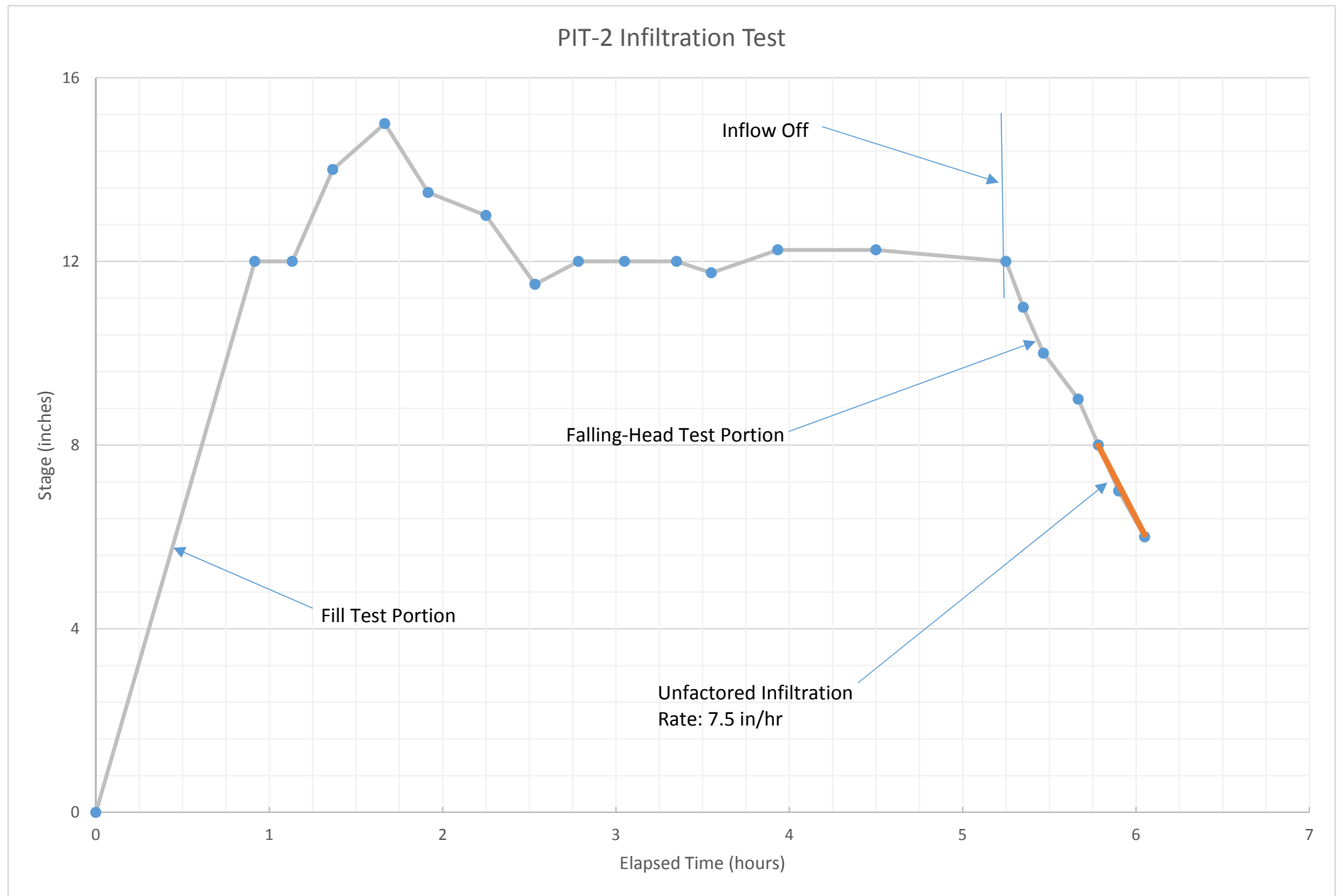
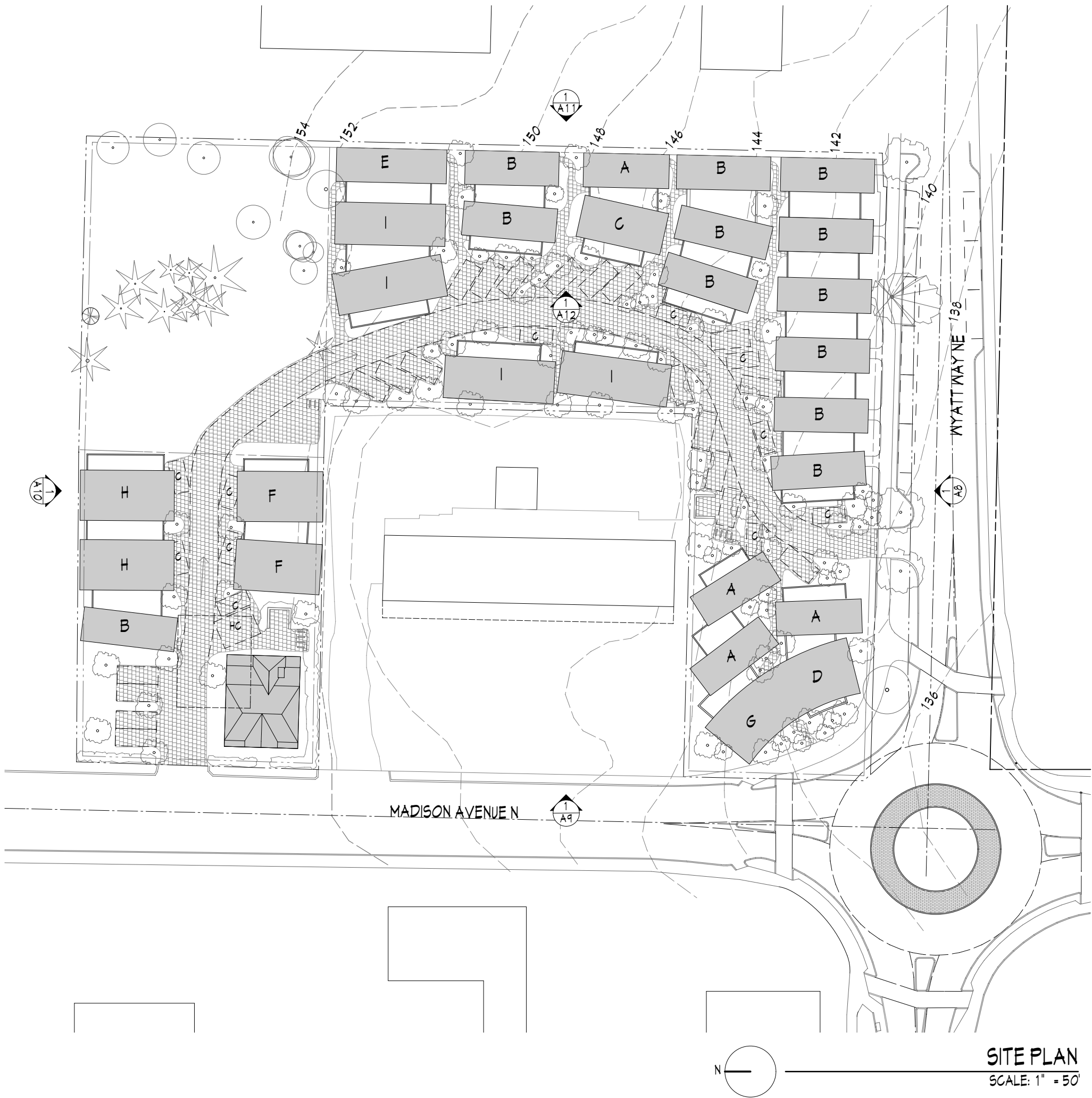


Figure C-2
PIT-2 Infiltration Test Data
BIFD Station 22
150136-02

_Volumes\MacServerProd\Projects\Wyatt & Madison 2014\01_CADD\01_ArchCAD\150901_Wyatt & Madison.pln, 12/9/15, 10:21 AM



VICINITY MAP



CORNER OF WYATT AND MADISON



LOOKING SOUTH DOWN MADISON

APPLICANT: JIM LAUGHLIN
P.O. BOX 10607, BAINBRIDGE ISLAND, WA 98110
ZONING: MADISON AVENUE DISTRICT
TOTAL SITE AREA: 1.7 ACRES
PROPOSED GROSS BUILDING AREA: 31,204 SQFT
PROPOSED BUILDING FOOTPRINT: 20,688 SQFT
PROPOSED LOT COVERAGE (BLDG FOOTPRINT): 27.1%
IMPERVIOUS SURFACE PERCENTAGE,
(NOT INCLUDING PERMEABLE PAVERS FOR ROAD): 27.1%
OPEN SPACE PERCENTAGE (LESS BUILDING + PAVING FOOTPRINT): 46.6%
PERCENTAGE OF SITE LANDSCAPED: 50%
NUMBER OF UNITS PROVIDED: 28
PARKING PROVIDED: TOTAL OF: 32 PARKING SPOTS; 20 REGULAR PARKING SPOTS, 11
COMPACT PARKING SPOTS, 1 HANDICAP SPOT
BIKE PARKING: 10 BIKE PARKING SPOTS
EXISTING TREE COUNT: 4 T.U.
REQUIRED TREE UNITS (T.U.) PER BIMC SECTION 18.15.010:
40 X 1.7 ACRES = 68
TOTAL TREE UNITS = 68
BUILDING HEIGHT: VARIES 16' - 28'

UNIT TYPE SUMMARY			
BUILDING	SF	1BR	2BR
A	576 (FL1) 229 (FL2) 805 TOTAL	4	
B	640 (FL1) 229 (FL2) 869 TOTAL	12	
C	720 (FL1) 543 (FL2) 1,313 TOTAL		1
D	816 (FL1) 816 TOTAL	1	
E	768 (FL1) 489 (FL2) 1,257 TOTAL		1
F	864 (FL1) 633 (FL2) 1,497 TOTAL		2
G	912 (FL1) 384 (FL2) 1,296 TOTAL		1
H	960 (FL1) 730 (FL2) 1,690 TOTAL		2
I	960 (FL1) 665 (FL2) 1,625 TOTAL		4
TOTAL	31,204 SQFT	17	11

- SHEET INDEX
- A1 SITE PLAN, VICINITY PLAN, & GENERAL NOTES
 - A2 SITE PLAN
 - A3 LANDSCAPE PLAN
 - A4 LANDSCAPE KEY
 - A5 EXTERIOR LIGHTING PLAN
 - A6 OVERALL FIRST FLOOR PLAN
 - A7 OVERALL SECOND FLOOR PLAN
 - A8 SITE ELEVATION - WYATT STREET ELEVATION
 - A9 SITE ELEVATION - MADISON AVE N ELEVATION
 - A10 SITE ELEVATION- NORTH PROPERTY ELEVATION
 - A11 SITE ELEVATION - EAST PROPERTY ELEVATION
 - A12 SITE SECTION - SITE SECTION THROUGH INTERNAL STREET
 - A13 SITE SURVEY
 - C1 UTILITY PLAN



LOOKING EAST DOWN WYATT

12/9/15

3009 REGISTERED ARCHITECT
JAMES L. CUTLER
State of Washington

REVISIONS	DATE	DESCRIPTION

Cutler Anderson Architects
135 Paritt Way SW Bainbridge Island, WA 98110
P:206.842.4710 F:206.842.4420
Email: contact@cutler-anderson.com

WYATT MADISON
BAINBRIDGE ISLAND, WASHINGTON

SITE PLAN, VICINITY
PLAN, GENERAL
NOTES

A.1

NOTE: Do not scale drawings

[illegible]

Cutler Anderson Architects
135 Parfitt Way SW. Bainbridge Island, WA 98110
P:206.842.4710 F:206.842.4420
Email: contact@cutler-anderson.com

WYATT MADISON
BAINBRIDGE ISLAND, WASHINGTON

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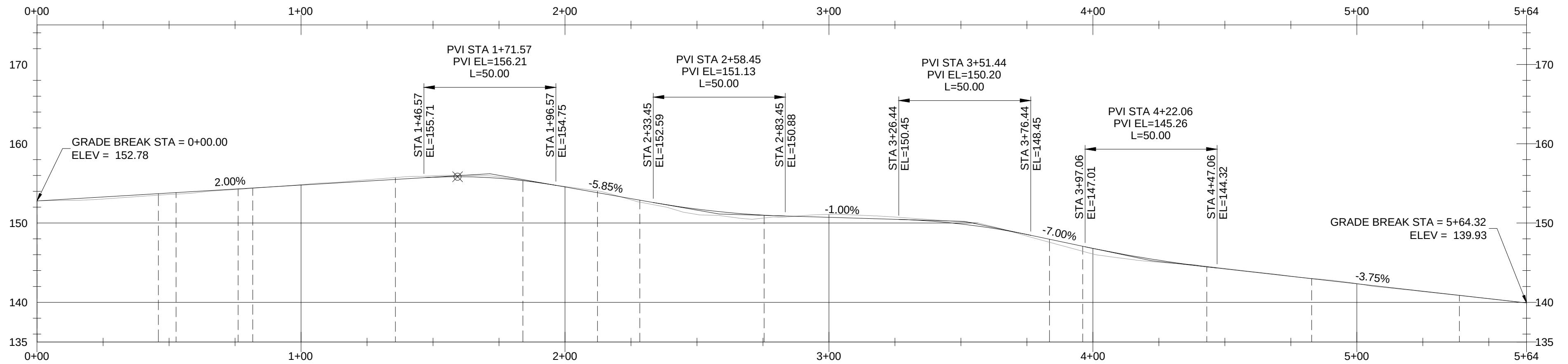
SITE PLAN

A.2



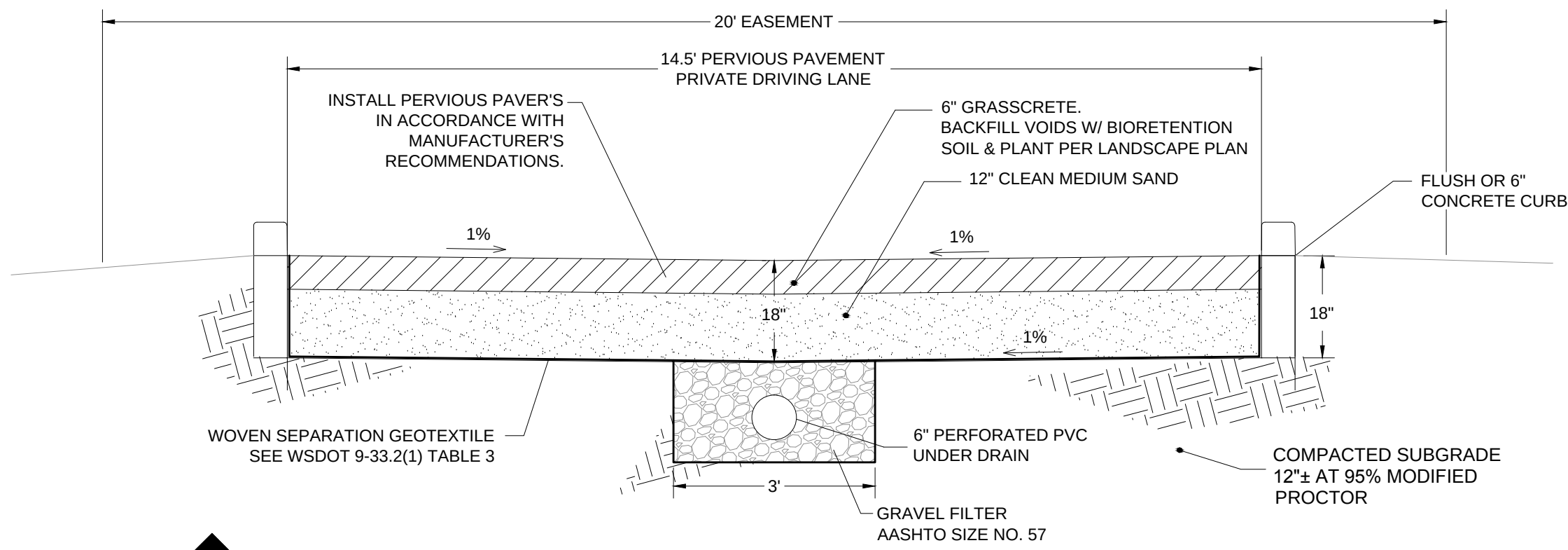
SITE PLAN 1
SCALE: 1" = 30'

NOTE: Do not scale drawings



DRIVEWAY CL PROFILE

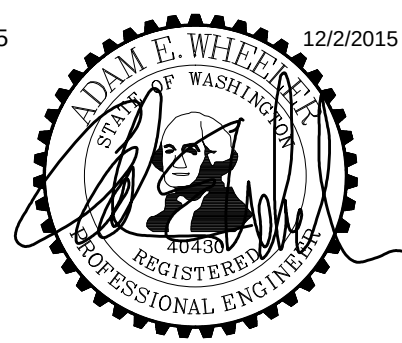
SCALE: 1" = 30' H
1" = 10' V



A
C2

DRIVEWAY SECTION

NO SCALE



PRELIMINARY DRIVEWAY PROFILE & SECTION
WYATT COTTAGES
SITE PLAN & DESIGN REVIEW SUBMITTAL

BROWNE • WHEELER
ENGINEERS, INC
241 ERICKSEN AVENUE NE
BAINBRIDGE ISLAND, WA 98110
P 206.842.0605 INFO@BrowneWheeler.COM

MADISON AVENUE
DEVELOPMENT, INC.
JIM LAUGHLIN
2930 WESTLAKE AVENUE N
SEATTLE, WA 98109
206.660.0374

DATE 12/2/2015
DESIGNED K. LAUGHLIN
DRAWN K. LAUGHLIN
CHECKED A. WHEELER
PROJECT # MA14-02