File No. EA2020-120

CITY OF RICHLAND
Determination of Non-Significance

Description of Proposal:	Construction of a commercial storage facility consisting of four (4) commercial buildings totaling approximately 90,226 square feet, installation of approximately 66 paved parking spaces and related infrastructure. Approximately 13,226 cubic yards of grading/filling will occur to prepare the site.
Proponent:	Luxe Locker Attn: Amy F. McNally, AIA 4300 N. Richmond Street Appleton, WI 54913
Location of Proposal:	The proposed project will occur at 2705 Fermi Drive upon an approximate 5.3 acre site located at the intersection of Stevens Drive and Curie Street, Richland, WA 99352. The parcel is described as Lot 2 of Short Plat 3612 (APN 123083013612002).
Lead Agency:	City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

( ) There is no comment for the DNS.

(**X**) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days from the date of issuance.

( ) This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official: Mike Stevens
Position/Title: Planning Manager
Address: 625 Swift Blvd., MS #35, Richland, WA 99352
Date: September 8, 2020

Signature______________________________

COMMUNITY DEVELOPMENT DEPARTMENT
625 Swift Blvd, Richland, WA 99352
Phone: 509-942-7794 Fax: 509-942-7764

GRADING PERMITS

Grading permits are regulated by Appendix J of the 2015 IBC. Fees are according to the fee schedule of the 1997 UBC Appendix Chapter 33, Table A-33-A (plan review fee) and Table A-33-B (grading permit).

SUBMITTAL REQUIREMENTS:

1. **Application for Grading Permit**
2. **Affidavit for Grading Operations**
3. **Site Plan -** A site plan showing existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work shall be submitted. The grades must also show in detail that it complies with all the requirements for slopes and setbacks in Appendix J. The site plan must also show the existing grades on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of Appendix J. The City requires 6 sets of the site plan to be submitted.
4. **Geotechnical Report -** A soils report prepared by a registered design professional shall be provided. It must contain the minimum following information:
    a. Existing soils types and distribution of existing soils.
    b. Conclusions and recommendations for grading procedures, specifically describing that all Appendix J requirements are being met.
    c. Soil design criteria for any structures (walls, etc.) or embankments, required to accomplish the proposed grading.
    d. Slope stability studies and recommendations, specifically describing that all Appendix J requirements are being met, including recommendations and conclusions regarding site geology.
    e. Liquefaction study (required only where mapped maximum earthquake Ss is greater than 0.5g).
5. **SEPA required if more than 500 CY being moved.**

Inspection Process after Permit Issuance

In addition to periodic inspections by the City (pre-fill placement, all buried items—such as filter fabrics, etc.—prior to burial, and at least one inspection of one layer of fill placement during compaction), the owner shall hire either a certified special inspector or a registered design professional to inspect all work in accordance with Section 1705.6 of the 2015 IBC (site preparation, during fill placement, in-place density evaluations). Written field reports and density test reports by either the special inspector or by the registered design professional shall be submitted to the City following each site visit. A final inspection by the City will occur when all the work is done, all written reports have been submitted, AND written final letter from the special inspector or registered design professional is received. Final letter shall document compliance with the Geotechnical Report.

Please read and have your professionals read and apply each section of Appendix J concerning excavations, fills, and especially SETBACKS and drainage, terracing, and erosion. The plans and reports submitted before permit issuance must clearly show how each of these sections is being addressed in your proposal.

CITY OF RICHLAND

www.ci.richland.wa.us

Application for Grading Permit

PROJECT NAME / OWNER NAME
Luxelocker Richland / Richland Storage Partners, LLC / Mychal Gorden

Owner's or Tenant's Mailing Address / City / State / Zip: 1845 McCulloch Blvd Ste A6, Lake Havasu City, AZ 86403
Phone Number: 928-854-5436

Fax Number:
Cell Number: 928-230-9876
EMail: mychal@desertlandgroup.com

Property Owner (if different from Project Owner):
Phone Number:

Property Owner's current Address / City / State / Zip:

Project Contact Name & Company: Amy F McNally / Consolidated Construction Co. Inc.
Contact Number: 920-882-2573
EMail: amcnally@1call2build.com

ADDRESS OF PROPERTY 2705 Fermi Drive, Richland, WA

Tax Parcel #: 123083013612002
Subdivision:
Lot: Lot 2 SP3612
Block:

Lender Information – required for projects over $5000 in valuation per RCW 19.27.095
If a lender or bond company is not loaning monies on this project, please check here: ☒

LENDING INSTITUTION – Name/Address:
Phone Number:

Description of project: (fully describe the type of grading to be done, fill to be used, wetlands, etc.)
The grading to be done is to accommodate the 4 buildings being built on site and the associated paving. The grades will be adjusted per the grading plan to allow vehicular and pedestrian access to the site. As well as making sure the storm water that will be generated during weather events remains on site and is able to penetrate back into the soil.

ESTIMATED # OF CUBIC YARDS OF EARTH TO BE MOVED, FILLED, AND/OR GRADED: 13,226 **CUBIC YARDS**

CONTRACTOR FOR PROJECT (please note that all sub-contractors also must have a City of Richland business license)

Name: Consolidated Construction Co. Inc. / Jason Pettitt
City Business License **Required prior to permit issuance** ☒ Yes ☐ No

Address/City/State/Zip: 4300 N Richmond Street, Appleton, WI 54913
Phone: 920-882-2533

Fax Number:
Cell Number: 920-850-7074
EMail: jpettitt@1call2build.com

CIVIL ENGINEER (required for certain grading permits, see Appendix J of the 2015 IBC)

Name: Mac Hall
St License #: 57958
Phone Number: 701-300-0677
Fax Number:

Address/City/State/Zip: 103 1st Avenue West, Suite 300, Dickinson, ND 58601
EMail: mac.hall@ae2s.com

SOILS ENGINEER (required for certain grading permits, see Appendix J of the 2015 IBC)

Name: Clint Nealey PE
St License #: 20111154
Phone Number: 509-375-7844
Fax Number:

Address/City/State/Zip: 4412 SW Corbett Avenue, Portland, OR 97239
EMail: clint.nealey@pbsusa.com

Billing Account: - check party responsible for fees:
☐ Owner
☒ Contractor
☐ Applicant

FOR OFFICE USE ONLY
PERMIT#
INITIALS

☒ I understand that this permit application is valid for 180 days. If the permit is not obtained within 180 days, all submittal documents will be discarded.

Signature of Owner or Authorized Agent

August 14, 2020
Date

COMMUNITY DEVELOPMENT DEPARTMENT
625 Swift Blvd., Richland, WA 99352
Phone: 509-942-7794 Fax: 509-942-7764

AFFIDAVIT FOR GRADING OPERATIONS

REQUIREMENTS FOR CITY INSPECTION OF GRADING

2705 Fermi Drive, Richland, WA

Address or legal description of property where project is being proposed

New commercial development consisting of 4 buildings and associated pavement and landscaping.

Description of project (i.e., new commercial building, addition, new residence, etc.)

EXPLANATION OF CITY INSPECTION REQUIREMENTS

In accordance with the Appendix J of the IBC, it is the City's policy that grading operations shall require a permit. "Grading" is the movement of soil in the form of excavation and/or placement of fill. The City recognizes that grading is a necessary and beneficial activity when appropriately managed to reduce harmful effects to the community and the environment. Under an issued grading permit, multiple inspections will be specified. These City inspections are in addition to the required on-site observation and written field reports by the soils engineer AND are in addition to any required soils compaction testing by third-party testing agencies. To verify that you understand the requirements to receive a grading permit and to have the grading work inspected by the City, we are requiring the contractor, owner, or owner's agent who picks up the grading permit to sign this affidavit attesting that they understand the potential penalties allowed by law for failure to call for City inspection of the grading work.

The preliminary meeting noted in item #1 on the "green" permit sign-off card is ***MANDATORY.*** This meeting helps establish with the City inspector what the parameters of the grading operations will be, what kind of inspections will be needed, and how often.

As allowed by law in RMC Title 21 and building code Section 109, failure to call for inspections may result in fines of up to $5000/day and other legal penalties to be levied against the owner of the property, as well as notices to "stop work".

The City does not want to hinder development work, but serious grading problems have occurred because of failure to follow permit requirements. The City does not want to delay your project, so please follow these inspection requirements.

AFFIDAVIT

By signing below, I hereby affirm that I have read and understand the inspection requirements. I further attest and affirm that I understand the legal ramifications, including penalties as noted by law, for failure to call for City inspection of the grading work for which this permit is being issued. My signature below represents a good faith effort to ensure that the grading contractor will call for City inspection of the grading work as noted on the permit sign-off card ("green card"). I will keep this sign-off card and the field set of approved plans on the job site for the City inspector to use during inspections. If a sub-contractor is hired to accomplish the grading work, I hereby affirm that all information relating to City inspections as noted herein and as noted on the permit sign-off card will be given to the sub-contractor. If I am not the owner of the property for which this permit is being issued, then by my signature, I attest that I am an authorized agent of the owner and have authority to sign this affidavit on behalf of the owner.

August 14, 2020

Signature of owner (or authorized representative of owner or corporation) Date

SEPA ENVIRONMENTAL 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.

A. Background [HELP]

1. Name of proposed project, if applicable: Luxelocker - Richland

2. Name of applicant: Amy F. McNally, AIA

3. Address and phone number of applicant and contact person: 4300 N Richmond Street, Appleton, WI 54913, 920-882-2573

4. Date checklist prepared: August 17, 2020

5. Agency requesting checklist: City of Richland Community Development Department

6. Proposed timing or schedule (including phasing, if applicable): The schedule is to start demo and grading in September and proceed directly into construction. We will finish up with landscaping and paving in spring with an anticipated completion date of April.

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 further expansion at this time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. We have an Phase I Environmental Site Assessment complete for the property, available upon request.

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. I do not know of any other proposals regarding this property.

10. List any government approvals or permits that will be needed for your proposal, if known. We are looking for a grading permit and building permits for this proposal.

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.) Luxe Locker – Richland is a commercial storage facility located in the northern portion of Richland, Washington. The proposed facility will consist of 4 commercial buildings, totaling approximately 90,226 square feet, along with 66 parking spaces to the north and paved drive isles and access to the interior units. The project will consist of approximately 13,226 cubic yards of earth to be moved/filled.

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. The project is located on an approximate 5.3 acre parcel located at the intersection of Stevens Drive and Curie Street in Richland, Washington. The parcel is bounded by an existing industrial facility (Western Sintering Company Inc.) to the south and Fermi Avenue to the East. The parcel is specifically Lot 2 SP3612, Parcel No. 123083013612002, containing 5.32 acres, more or less.

B. Environmental Elements [HELP]

1. *Earth* [help]

a. General description of the site: The existing site comprises an area of approximately 5.32 acres of mainly flat land, with elevations ranging from 406 to 408. Typical existing slopes for the site range from 0 to 2 percent. The site is undeveloped scrubland with no current use and includes no existing buildings; however, there are two existing concrete foundations on the eastern side of the parcel.

(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 2%.

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. A geotechnical report prepared by PBS decribes the local geology as " underlain by Pleistocene age outburst flood sediments consisting of sand, silt, and fluvial gravels (Riedel and Fecht, 1994; Schuster, 1994)". PBS goes on to generally describe the subsurface conditions / units as follows:
Fill: Variable fill consisting of sand and coarse-garined, round gravel from the ground surface to approximately 0.5 to 1.5 feet below ground surface. Fill was generally brown and non-plastic.
Sand: 2 to 3 feet of poorly graded sand was observed below the gravel fill. The sand was generally fine-grained and ranged in color from brown to olive.
Gravel: Brown to dark brown, poorly graded gravel was found to the termination depth of 10 feet below ground surface. Particles were generally coarse-grained and rounded or subrounded. Silt, sand and cobbles were intermixed with the gravel.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. No

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 proposed parcel will have an approximate infill volume of 12,181 cubic yards of fill. The imported fill material will be sourced locally by a local excavator to be determined.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. Erosion could occur during excavation and filling activities; however, erosion control and sedimentation measures will be implemented per local, state, and federal requirements to mitigate any erosion during and after construction. The site will have some infill slopes of three feet horizontal to one foot vertical (33.33%). The expected duration of construction activities where erosion may occur is 6-7 months depending on the weather.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximately 4.3 acres of the project site will be impervious surface comprised of paved parking lots and buildings. The remaining 1.0 acres will be pervious surface consisting of natural vegetated soils, or infiltration basins.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: Installation of perimeter site controls consisting of silt fence to limit discharges off site. Maintaining and re-establishing natural vegetation in infiltration basins and other pervious surfaces. Dust control during construction through moistening excavated or disturbed soils as needed throughout construction.

2. Air [help]

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. Emissions include dust and exhaust during construction, with minimal emissions after completion associated with vehicle exhaust from the offices and storage business.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. No

c. Proposed measures to reduce or control emissions or other impacts to air, if any: Apply water during construction to control dust and stabilize soils after construction.

3. Water [help]

a. Surface Water: [help]

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. No

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. No

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. None

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. No

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. No

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. No

b. Ground Water: [help]

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

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. None

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 storm water runoff from the site will be conveyed to two surface infiltration basins proposed in the northwest and northeast corners of the project site. This water will infiltrate into the existing sub surface soils. The static groundwater levels for the project site are anticipated to be at a depth of 50 feet below ground surface based on regional groundwater logs available from the Washington State Department of Ecology.

2) Could waste materials enter ground or surface waters? If so, generally describe. No

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe. No, the peak runoff from a 25-year 24-hour storm is fully retained on the project site. Drainage patterns in the vicinity of the project are not being altered or modified from the proposed project.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: Two infiltration basins are proposed to provide peak runoff control for the project.

4. Plants [help]

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

_X__deciduous tree: alder, maple, aspen, other
____evergreen tree: fir, cedar, pine, other
_X__shrubs
_X__grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, 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? The entire site will be cleared of the grasses and sage brush. Existing street trees that interfere with driveways with will be removed as well.

c. List threatened and endangered species known to be on or near the site. None

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: None

e. List all noxious weeds and invasive species known to be on or near the site.

5. *Animals* [help]

a. List any birds and other animals which have been observed on or near the site 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. None

c. Is the site part of a migration route? If so, explain. Yes, the area is part of the Pacific Flyway

d. Proposed measures to preserve or enhance wildlife, if any: None

e. List any invasive animal species known to be on or near the site. None

6. *Energy and Natural Resources* [help]

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. At this time buildings A & B will be unfinished tenant spaces however we do not anticipate any manufacturering uses. Buildings A & B will use natural gas for heat and electric for all power needs. Buildings C & D will use electric for all power needs including heat in Building C.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. No.

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: Project will follow energy code requirements

7. *Environmental Health* [help]

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 hazards known.

1) Describe any known or possible contamination at the site from present or past uses. Per the Phase I Environmental Site Assessment there is no known contamination at this site.

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. None

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. This project is governed by condo owner's association CC&R's that would restrict the use and storage of this type of material.

4) Describe special emergency services that might be required. No special emergency services will be required.

5) Proposed measures to reduce or control environmental health hazards, if any: CC&R's will be in place to control the types of materials that will be stored and used on this property.

b. *Noise*

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? Street noise from local roads, but nothing that will affect development.

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. In the short term there will be construction noises such as earthwork, large trucks coming to the site to complete construction of the 4 buildings on site. In the long term part of this development is a storage facility for recreational vehicles so motor homes and trailered vehicles. The remaining 2 buildings could be various uses in which it could be anticipated that delivery vehicles of various sizes would visit the site.

3) Proposed measures to reduce or control noise impacts, if any: None

8. Land and Shoreline Use [help]

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. Most adjacent sites are currently vacant so I would anticipate little impact to nearby properties.

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? This site hasn't been used as working farmlands or working forest lands in recent history

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: No, there are no surrounding working farm or forest land operations.

c. Describe any structures on the site. There are currently no structures on the site.

d. Will any structures be demolished? If so, what? No

e. What is the current zoning classification of the site? The site is currently zoned I-M, Medium Industrial

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

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

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. No.

i. Approximately how many people would reside or work in the completed project? There will be no people residing at the site and as the final uses of Buildings A & B won't be defined until tenants move in the number of people working here is unknown.

j. Approximately how many people would the completed project displace? No people will be displaced by this project.

k. Proposed measures to avoid or reduce displacement impacts, if any: None

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: We have worked with both the City of Richland and the Port of Benton to ensure the overall project fits within their vision for this area. It provides a good space and convenient location to small businesses looking for a place to grow.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any: None

9. Housing [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. No residential units are a part of this project.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. None

c. Proposed measures to reduce or control housing impacts, if any: None

10. Aesthetics [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? The highest point of any building is just over 32' and the primary building materials are decorative concrete block, EIFS and metal wall panel.

b. What views in the immediate vicinity would be altered or obstructed? As most of the adjacent properties are vacant there wouldn't be any views altered or obstructed.

b. Proposed measures to reduce or control aesthetic impacts, if any: In addition to building design there will be landscaping to make this an attractive project.

11. Light and Glare [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? I don't believe that we are proposing any materials other than glazing that would produce a glare to surrounding areas. The glazing primarily faces north so there shouldn't be any glare or reflections from the sun on the glazing. Exterior lights for security and safety will be on during non-daylight hours

b. Could light or glare from the finished project be a safety hazard or interfere with views? No

c. What existing off-site sources of light or glare may affect your proposal? None

d. Proposed measures to reduce or control light and glare impacts, if any: None

12. Recreation [help]

a. What designated and informal recreational opportunities are in the immediate vicinity? None

b. Would the proposed project displace any existing recreational uses? If so, describe. No this project won't 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: A portion of this project is storage facilities for recreational vehicles such as campers, boats, ATVs, etc.

13. Historic and cultural preservation [help]

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 ? If so, specifically describe. No.

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.

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.
None.

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 items of historic, cultural, or archaeological significance are uncovered during construction, the work will be stopped and the appropriate authorities will be notified.

14. Transportation [help]

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. There are streets along 3 sides of the property and we are including drives to 2 of them for access to the businesses located here. The drives access Fermi Drive on the east and Curie Street on the north. Stevens Drive runs along the west side of the property and is accessed via Curie Street. See the plans included in this permit application.

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 closest bus stop to this site is just under 1 mile away.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? The project has 66 parking spaces proposed and as the property is vacant land currently we won't be eliminating any.

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). No, none are planned.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. No.

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?

The ITE Trip Generation handbook was used to estimate the average daily trips for the development as follows:

Land Use Category 750 – Office Park, Buildings A and B:
11.07 trips per day per 1,000 sf * 34,890 sf/1,000 = 386 trips per day

Land Use Category 151 – Mini-Warehouse, Buildings C and D:
1.51 trips per day per 1,000 sf * 55,336 sf/1,000 = 84 trips per day.

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. No.

h. Proposed measures to reduce or control transportation impacts, if any: None.

15. Public Services [help]

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 development would increase the need for public services such as fire protection and police protection similar to other commercial developments.

b. Proposed measures to reduce or control direct impacts on public services, if any.
None.

16. Utilities [help]

a. Circle utilities currently available at the site:
[✓ electricity], [✓ natural gas], [✓ water], refuse service, telephone, [✓ sanitary sewer], septic system, other ___________

c. 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 proposed project will be served by domestic water and fire flow provided by The City of Richland. The project will also have sanitary sewer service connecting to the City of Richland's sewer infrastructure.

C. Signature [HELP]

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: Amy F McNally

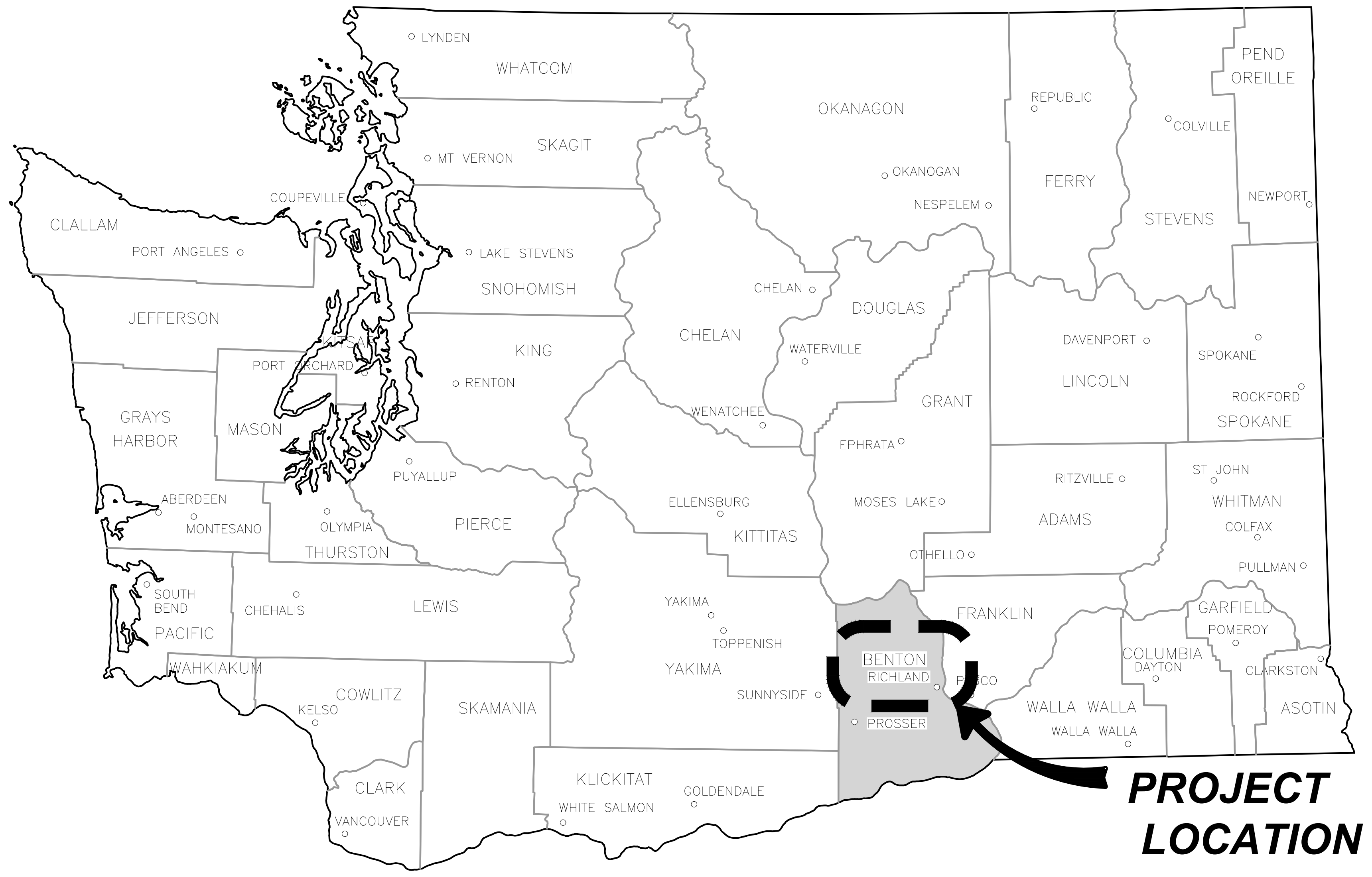
Name of signee Amy F McNally

Position and Agency/Organization Architect, Consolidated Construction Co. Inc.

Date Submitted: 8-17-2020

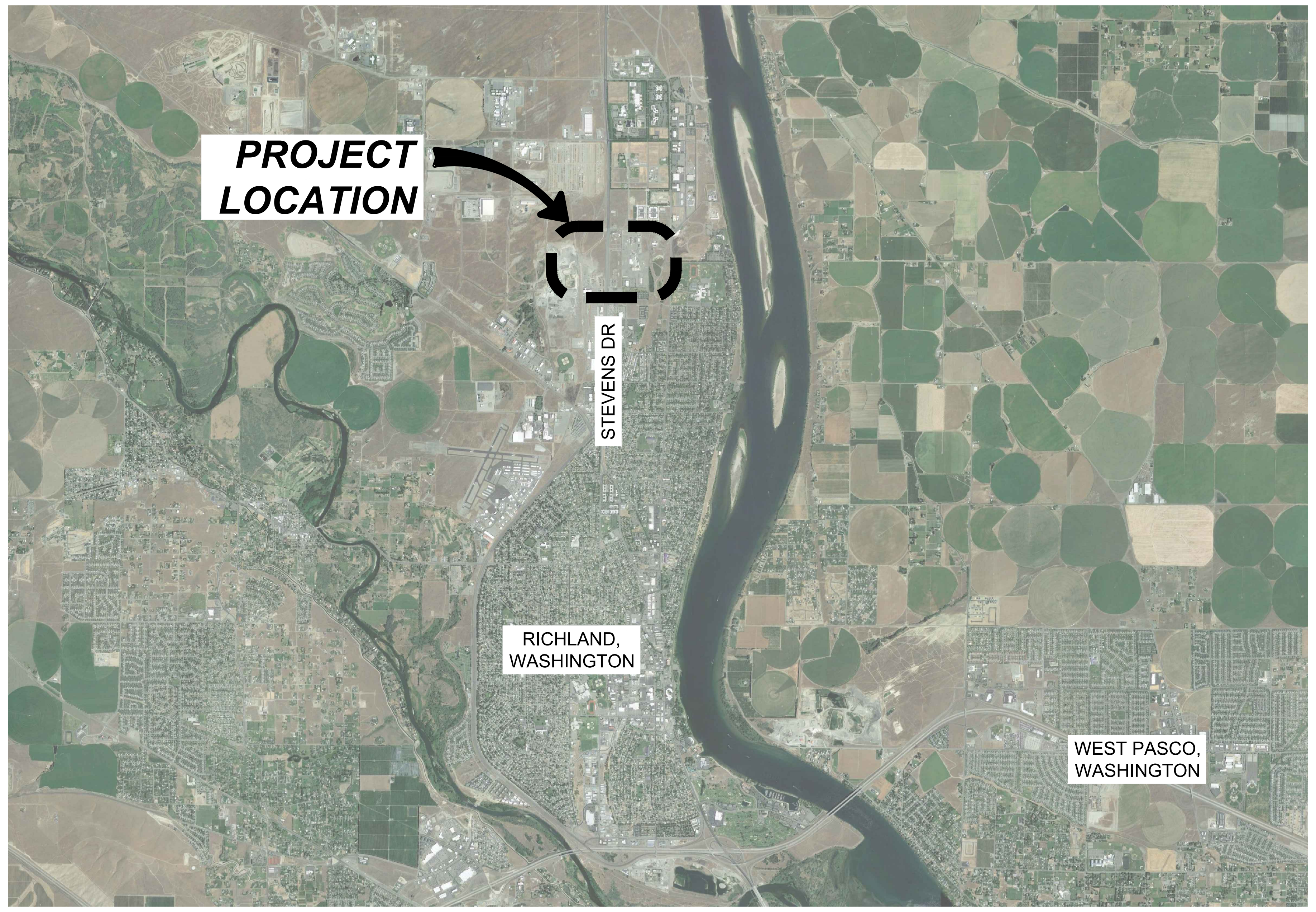
D. Supplemental sheet for nonproject actions [HELP]

(**IT IS NOT NECESSARY** to use this sheet for project actions) This section is not needed so the following sheets have been eliminated.



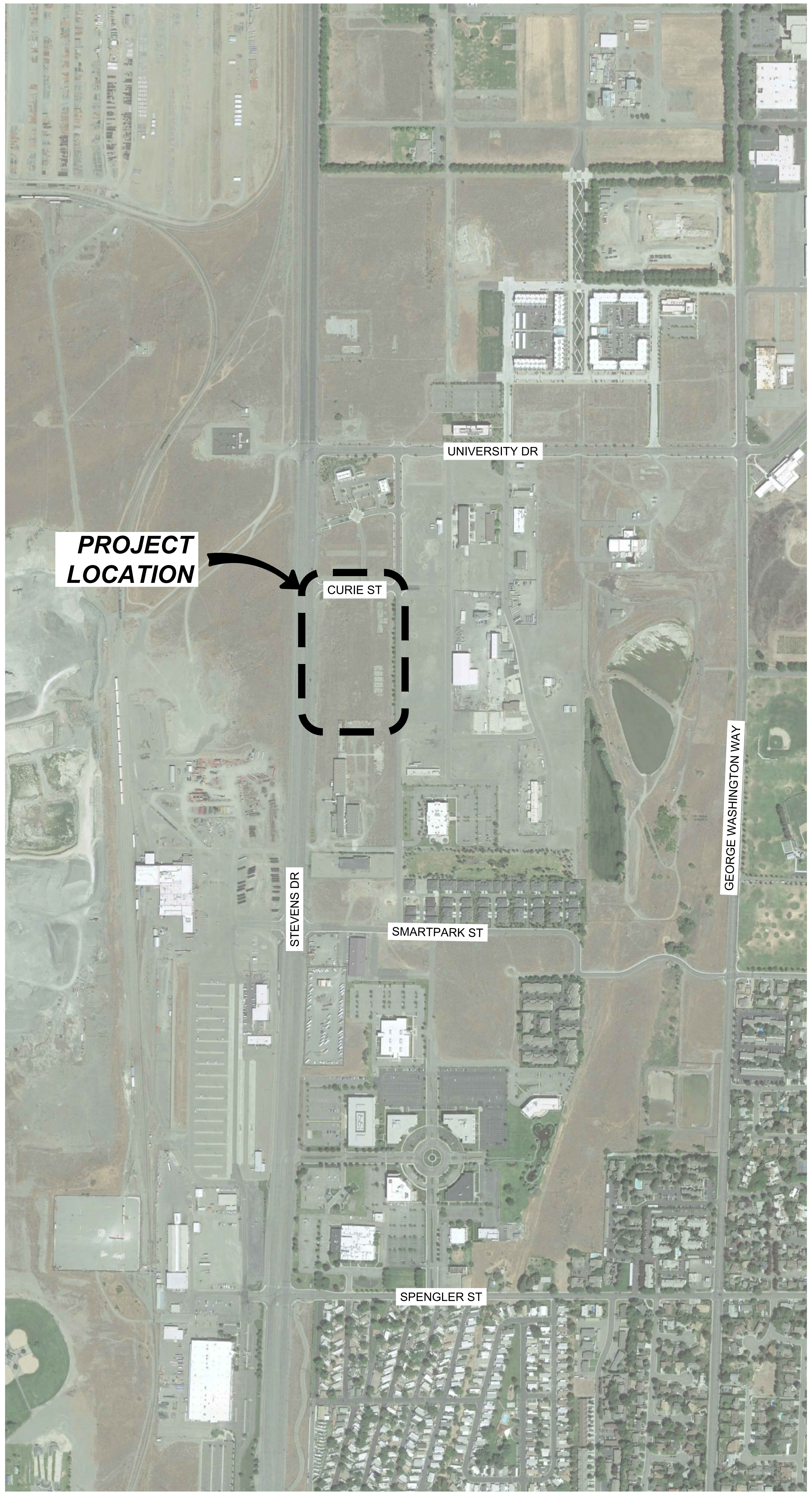
1 C1 LOCATION MAP

NOT TO SCALE



2 C1 VICINITY MAP

NOT TO SCALE



3 C1 PROJECT MAP

NOT TO SCALE

HATCH DESIGN ARCHITECTURE
6126 W. STATE ST.
BOISE, IDAHO 83703
OFFICE: (208) 475-3204
FAX: (208) 475-3205

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08-12-20
MARION FRANK HALL IV
57958

PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION- COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
VICINITY MAP

SHEET NUMBER
C1
SHEET

CIVIL ABBREVIATIONS

(OTHER ABBREVIATIONS MAY APPEAR ON DRAWINGS ASSOCIATED WITH SPECIFIC WORK)

&	- AND
∠	- ANGLE
@	- AT
℄	- CENTERLINE
°	- DEGREES
Δ	- DELTA
Ø	- DIAMETER
□	- SQUARE
±	- PLUS / MINUS
ABS	- ACRYLONITRILE-BUTADIENE-STYRENE
ACI	- AMERICAN CONCRETE INSTITUTE
ACP	- ASBESTOS CEMENT PIPE
ADD'L	- ADDITIONAL
ADDM.	- ADDENDUM
ADJ.	- ADJUSTABLE
AGGR.	- AGGREGATE
ALT.	- ALTERNATE
APPR.	- APPROACH
APPROX.	- APPROXIMATE
APPURT.	- APPURTENANCE
ARCH.	- ARCHITECT or ARCHITECTURAL
AR MH	- AIR RELEASE MANHOLE
ARV	- AIR RELEASE VALVE
ASSY.	- ASSEMBLY
ASTM	- AMERICAN SOCIETY FOR TESTING MATERIALS
AVE	- AVENUE
AVV	- AIR / VACUUM VALVE
BFV	- BUTTERFLY VALVE
BITUM.	- BITUMINOUS
BL	- BUILDING LINE
BLDG.	- BUILDING
BLK.	- BLOCK
B.O.	- BY OTHERS
BP	- BEGINNING OF PROJECT
BRG.	- BEARING
BSMT.	- BASEMENT
BVC	- BEGIN VERTICAL CURVE
C-C	- CENTER TO CENTER
C&G	- CURB AND GUTTER
CB	- CATCH BASIN
CDF	- CONTROLLED DENSITY FILL
CF	- CUBIC FEET
CI	- CAST IRON
CIP	- CAST IRON PIPE
C.I.P.	- CAST IN PLACE
CJ	- CONSTRUCTION JOINT
CL	- CENTERLINE
CMP	- CORRUGATED METAL PIPE
CO	- CLEANOUT
CONC.	- CONCRETE
CONSTR.	- CONSTRUCTION
CONT.	- CONTINUOUS
CNTRL.	- CONTROL
CSP	- CORRUGATED STEEL PIPE
CSV	- CURB STOP VALVE
CTR	- CENTER
CU	- COPPER
CY	- CUBIC YARD
DEPR.	- DEPRESSION
DTL	- DETAIL
DI or D.I.	- DUCTILE IRON
DIA.	- DIAMETER
DIM.	- DIMENSION
DIP	- DUCTILE IRON PIPE
DIST.	- DISTANCE
DR	- DRIVE
DRWY	- DRIVEWAY
DWG.	- DRAWING
E.	- EAST
E-W	- EAST TO WEST
EA.	- EACH
E.F.	- EACH FACE
EJ	- EXPANSION JOINT
ELEC.	- ELECTRICAL
ELEV.	- ELEVATION
EP	- END OF PROJECT
EQ.	- EQUAL
EVC	- END VERTICAL CURVE
E.W.	- EACH WAY
EXIST.	- EXISTING
EXP.	- EXPANSION
FDN.	- FOUNDATION
FIN.	- FINISH
FL	- FLOW LINE OR FLANGE
FLR.	- FLOOR
FM	- FORCE MAIN
FRP	- FIBERGLASS REINFORCED PLASTIC
FT.	- FOOT
G&S	- GROOVE AND SHOULDER
GA.	- GAGE
GALV.	- GALVANIZED
GR.	- GRADE
GRD.	- GROUND
GV	- GATE VALVE
H	- HATCH
HDD	- HORIZONTAL DIRECTIONAL DRILLING
HDPE	- HIGH DENSITY POLYETHYLENE
HORZ.	- HORIZONTAL
HR.	- HANDRAIL
HT.	- HEIGHT
HYD	- HYDRANT
I.D.	- INSIDE DIAMETER
I.E.	- INVERT ELEVATION
IN.	- INCH
INSUL	- INSULATION
INV.	- INVERT
JT.	- JOINT
K	- RATE OF CURVATURE
L	- LENGTH OF CURVE
LB	- POUND
LCCP	- LINED CONCRETE CYLINDER PIPE
LF	- LINEAR FEET
LVC	- LENGTH OF VERTICAL CURVE
LVL	- LEVEL
MAX.	- MAXIMUM
MECH	- MECHANICAL
MFG.	- MANUFACTURER
MH	- MANHOLE
MJ or M.J.	- MECHANICAL JOINT
MIN.	- MINIMUM
MNDOT	- MINNESOTA DEPARTMENT OF TRANSPORTATION
MTDOT	- MONTANA DEPARTMENT OF TRANSPORTATION
MTR.	- METER
N.	- NORTH
N-S	- NORTH TO SOUTH
NA	- NOT APPLICABLE
NDDOT	- NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
NPT	- NIPPLE
NTS	- NOT TO SCALE
O.C.	- ON CENTER
O.D.	- OUTSIDE DIAMETER
OH.	- OVERHEAD
OPNG.	- OPENING
OSHA	- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	- POINT OF CURVATURE
PC	- PRECAST
P.C.C.	- PORTLAND CEMENT CONCRETE
PE	- POLYETHYLENE
PE or P.E.	- PLAIN END
PEP	- POLYETHYLENE PIPE
PI	- POINT OF INTERSECTION
PO	- PUSH ON
POLY	
PRV	- PRESSURE REDUCING VALVE
PSI	- POUNDS PER SQUARE INCH
PT	- POINT OF TANGENCY
PLV	- PLUG VALVE
PVC	- POLYVINYL CHLORIDE
PVI	- POINT OF VERTICAL INTERSECTION
R or RAD	- RADIUS
R.	- RISER
RCCP	- REINFORCED CONCRETE CYLINDER PIPE
RCP	- REINFORCED CONCRETE PIPE
RDL	- ROOF DRAIN LINE
RES	- RESERVOIR
REQ'D.	- REQUIRED
REQ'MTS.	- REQUIREMENTS
RJ	- RESTRAINED JOINT
S.	- SOUTH
S-N	- SOUTH TO NORTH
SAN	- SANITARY
SCH.	- SCHEDULE
SD	- STORM DRAIN
SECT.	- SECTION
SF	- SQUARE FEET
SIM.	- SIMILAR
SS	- SANITARY SEWER
SSSL	- SANITARY SEWER SERVICE LEAD
ST	- STREET
STA	- STATION
STD.	- STANDARD
STL.	- STEEL
STN. STL.	- STAINLESS STEEL
STR.	- STRUCTURAL
STRUCT	- STRUCTURAL
SUP.	- SUPPORT
SWPP	- STORM WATER POLLUTION PROTECTION
SY	- SQUARE YARD
TC	- TOP OF CONCRETE
TEMP.	- TEMPORARY
THK.	- THICK
TOC	- TOP OF CASTING
T.O.P.	- TOP OF PIPE
TOS	- TOP OF STEEL
TYP.	- TYPICAL
UON	- UNLESS OTHERWISE NOTED
USACE	- U.S. ARMY CORPS OF ENGINEERS
VCP	- VITRIFIED CLAY PIPE
VERT.	- VERTICAL
W.	- WEST
W-E	- WEST TO EAST
W/	- WITH
W/O	- WITHOUT
WM	- WATERMAIN
WRF	- WATER RECLAMATION FACILITY
WSL	- WATER SERVICE LEAD
WTF	- WATER TREATMENT FACILITY
WTP	- WATER TREATMENT PLANT
WWF	- WELDED WIRE FABRIC
WWTP	- WASTE WATER TREATMENT PLANT

CIVIL BOUNDARY LEGEND

——— — ———	SECTION LINE
━━ ━ ━ ━━	PROPERTY BOUNDARY
—— – – ——	PROPERTY LINE / LOT LINE
— — — — —	EASEMENT LINE
——R/W——	RIGHT-OF-WAY
——P/E——	PERMANENT EASEMENT
——C/E——	CONSTRUCTION EASEMENT
——U/E——	UTILITY EASEMENT

CIVIL UTILITY LEGEND

EXISTING	PROPOSED	
——>——	—>——SS—	SANITARY SEWER
—>>>——>>>—	—>—SSFM—	SANITARY SEWER FORCEMAIN
●	●	SANITARY MANHOLE
©	●	SANITARY CLEANOUT
	●	SANITARY DROP MANHOLE
	●	SANITARY WYE
	▮	SANITARY PLUG
	●	SANITARY PIG
——>>——	—>>——SD—	STORM DRAIN PIPE
●	●	AREA INLET
●	●	BEEHIVE INLET
■	■	CURB INLET
●	●	STORM MANHOLE
◁	◀	FES OUTFALL
——|——	——W——	WATER LINE
●	●	CURB STOP
●	●	WATER MANHOLE
●	●	AIR RELEASE MANHOLE
⬢	●	METER MANHOLE
●	■	GATE VALVE
○	●	HOSE BIB
✚	✚	FIRE HYDRANT
●		WELL
	✚	AIR RELEASE HYDRANT
	▮	BUTTERFLY VALVE
	○	PRESSURE REDUCING MANHOLE
	●	SLIDE MANHOLE
	■	PLUG VALVE
	✚	WATER CROSS
	▬	WATER TEE
	◀	WATER FITTING
	[	WATER CAP
	▮	WATER COUPLING
	▪	WATER REDUCER
	▬	SADDLE
——CTV——		CABLE TV LINE
■TV		CABLE TV PEDESTAL
——T——		TELEPHONE LINE
■T		TELEPHONE PEDESTAL
——TFO——		FIBER OPTIC LINE
■TFO		FIBER OPTIC PEDESTAL
——G——		GAS LINE
●V		GAS LINE VENT
——UGE——		ELECTRIC, UNDERGROUND
——OHE——		ELECTRIC, OVERHEAD
●		ELECTRIC UTILITY POLE
■		ELECTRIC BOX
●		ELECTRIC MANHOLE
C		ELECTRIC GUY
☀ ■—●		ELECTRIC LIGHT
■		ELECTRIC SIGNAL ARM
■		ELECTRIC SIGNAL
●		ELECTRIC PUSH-TO-WALK
■		UNKNOWN PEDESTAL
●		UNKNOWN MANHOLE
●		UNKNOWN VALVE

CIVIL TOPOGRAPHIC LEGEND

EXISTING	PROPOSED	
\\\\\\\\	————	BUILDING
——X——	——X——	FENCE, BARBED WIRE
——XX——	——XX——	FENCE, WOVEN WIRE
—○——○—	——●——	FENCE, CHAINLINK
—□——□—	——■——	FENCE, WOOD
—◇——◇—	—◆——◆—	FENCE, VINYL
⌒⌒⌒		TREE - GROUP
✳		TREE - CONIFEROUS
✿		TREE - DECIDUOUS
○		SHRUB / BUSH
⊥		SIGN
MP		MILE POST
⊗		BORE HOLE
⊞ ROW		RIGHT-OF-WAY MONUMENT
— —900— —	——(900)——	CONTOUR - INDEX
~ ~ ~	~~~~	CONTOUR - INTERMEDIATE

CIVIL SURFACE LEGEND

EXISTING	PROPOSED	
▒	▨	BITUMINOUS PAVEMENT
░	▓	CONCRETE
░	▩	GRAVEL

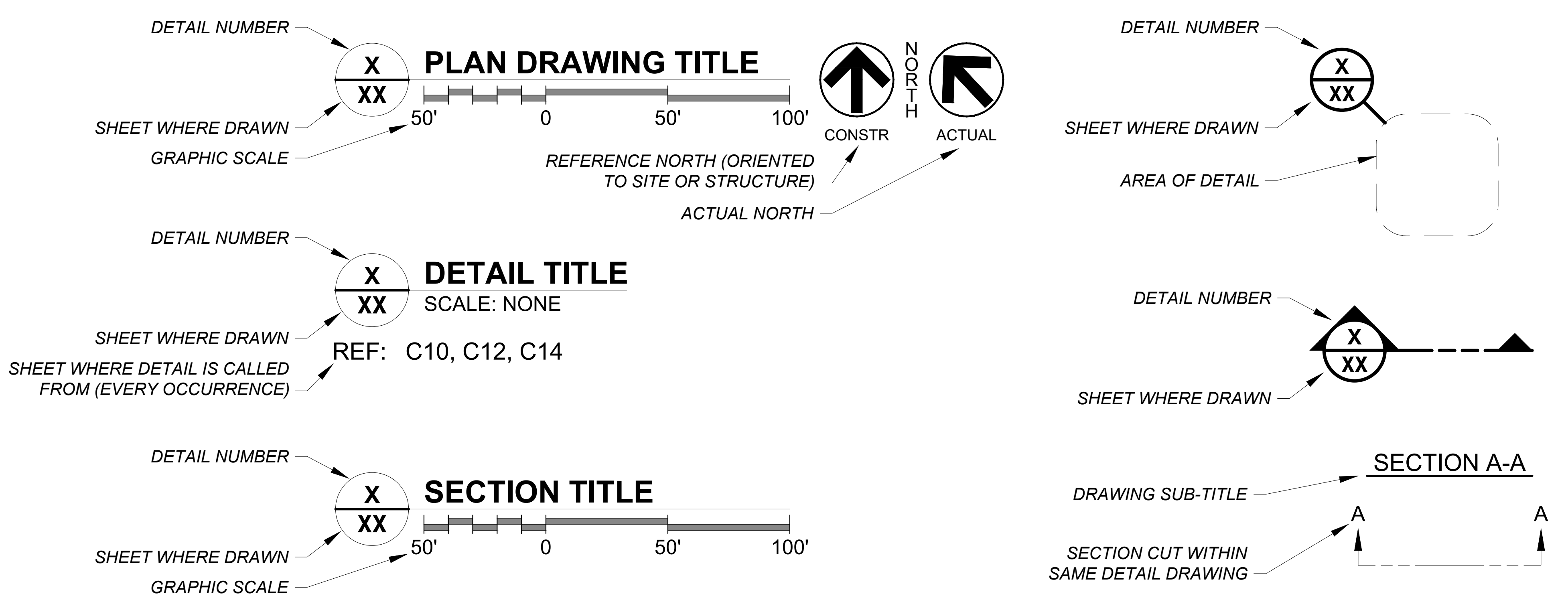
BENCHMARK AND DATUM INFORMATION

- BASIS OF BEARING: NAD83(11) WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE.
- UNITS OF MEASURE: US SURVEY FEET GRID DISTANCES. MULTIPLY GRID DISTANCES BY A COMBINED SCALE FACTOR OF 1.000094929 TO ACHIEVE GROUND DISTANCES. REFERENCE SURVEY DISTANCES AND LOT AREA ARE GROUND DISTANCES. MULTIPLY GROUND DISTANCES BY A COMBINED SCALE FACTOR OF 0.999905080 TO ACHIEVE SURVEYED GRID DISTANCES.
- VERTICAL DATUM: NAVD88 CITY OF RICHLAND DATUM.

CIVIL DRAWING SYMBOLS

⊕ 100'-0"± FLOOR	EXISTING ELEVATION & LOCATION IN SECTION VIEW (CONTRACTOR TO VERIFY)
⊞ 100'-0"± FLOOR	EXISTING ELEVATION & LOCATION IN PLAN VIEW (CONTRACTOR TO VERIFY)
◐ 108'-0" WALL	PROPOSED ELEVATION & LOCATION IN SECTION VIEW
▚ 108'-0" FLOOR	PROPOSED ELEVATION & LOCATION IN PLAN VIEW
——\/\——	BREAKLINE (OBJECT CONTINUES, DRAWING ENDS)
~~►	DIRECTION OF FLOW
\[1\]	EXISTING NOTES
⬠ 1	DEMOLITION NOTES
⬡ 1	CONSTRUCTION NOTES
(1)	PIPING SCHEDULE ITEMS
\[EQUIP\]	EQUIPMENT SCHEDULE ITEMS

DRAWING, SECTION AND DETAIL CONVENTIONS



HATCH DESIGN ARCHITECTURE
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08-12-20
MARION FRANK HALL IV
57958
REGISTERED PROFESSIONAL ENGINEER

PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION- COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
ABBREVIATIONS AND LEGEND

SHEET NUMBER
C2
SHEET

CONSTRUCTION NOTES

(THESE NOTES ARE NOT ALL-INCLUSIVE. ALL WORK MUST COMPLY WITH CURRENT EDITION OF THE CITY OF RICHLAND STANDARD SPECIFICATIONS)

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST REVISION OF THE CITY OF RICHLAND STANDARD SPECIFICATIONS AND DETAILS AND THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PLEASE CONFIRM THAT YOU HAVE THE LATEST SET OF STANDARD SPECS AND DETAILS BY VISITING THE CITY'S WEB PAGE.

2. ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, UTILITY EASEMENT, OR INVOLVING THE CONSTRUCTION OF PUBLIC INFRASTRUCTURE WILL REQUIRE THE APPLICANT TO OBTAIN A RIGHT-OF-WAY PERMIT PRIOR TO CONSTRUCTION. A PLAN REVIEW AND INSPECTION FEE IN THE AMOUNT EQUAL TO 5% OF THE CONSTRUCTION COSTS OF THE WORK THAT WILL BE ACCEPTED AS PUBLIC INFRASTRUCTURE OR IS WITHIN THE RIGHT-OF-WAY OR EASEMENT WILL BE COLLECTED AT THE TIME THE PERMIT IS ISSUED. A STAMPED, ITEMIZED ENGINEER'S ESTIMATE (OPTION OF PROBABLE COST) SHALL BE USED TO CALCULATE THE 5% FEE.

3. ONCE THE PLANS HAVE BEEN ACCEPTED BY THIS DEPARTMENT, A PRE-CONSTRUCTION CONFERENCE WILL BE REQUIRED PRIOR TO THE START OF ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY OR EASEMENT. CONTACT THE PUBLIC WORKS ENGINEERING DIVISION AT (509) 942-7500 OR (509) 942-7742 TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE.

4. WHEN THE CONSTRUCTION IS SUBSTANTIALLY COMPLETE A PRELIMINARY SET OF "RECORD DRAWINGS" SHALL BE PREPARED BY A LICENSED SURVEYOR AND INCLUDE ALL CHANGES AND DEVIATIONS. PLEASE REFERENCE THE PUBLIC WORKS DOCUMENT "RECORD DRAWING REQUIREMENTS & PROCEDURES" FOR A COMPLETE DESCRIPTION OF THE RECORD DRAWING PROCESS. AFTER REVIEW OF THE PAPER COPY, A FINAL CORRECTED COPY OF THE RECORD DRAWINGS SHALL BE SUBMITTED ALONG WITH A CAD AND PDF COPY OF THEM.

5. NO WORK ON THIS PROJECT SHALL COMMENCE UNTIL A CITY OF RICHLAND RIGHT-OF-WAY CONSTRUCTION PERMIT HAS BEEN ISSUED.

6. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

7. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE LICENSED BY THE STATE OF WASHINGTON AND BE BONDED TO DO THE WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL PROVIDE THE CITY A CERTIFICATE OF INSURANCE PRIOR TO ISSUANCE OF THE RIGHT-OF-WAY CONSTRUCTION PERMIT.

8. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL HAVE A CURRENT CITY OF RICHLAND BUSINESS LICENCE.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CONSTRUCTION DEFICIENCIES FOR A PERIOD OF ONE-YEAR FROM THE DATE OF ACCEPTANCE BY THE CITY OF RICHLAND.

10. THE CONTRACTOR SHALL BE REQUIRED TO CALL 1-800-424-5555 OR "811" A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCING ANY EXCAVATION ACTIVITIES TO DETERMINE FIELD LOCATIONS OF ALL UNDERGROUND UTILITIES.

11. ANY CHANGES OR MODIFICATIONS TO THE PROJECT PLANS SHALL FIRST BE APPROVED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.

12. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED WITH THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

13. THE FACE OF CURB SHALL BE STAMPED AT ALL UTILITY CROSSINGS, MAIN LINES AND SERVICE LINES AS FOLLOWS: "S" - SANITARY SEWER, "I" - IRRIGATION, "G" - GAS, "W" - WATER, "C" - CONDUITS, "D" - STORM DRAIN

14. ALL FIRE HYDRANTS AND GUARD POSTS SHALL BE PAINTED OSHA SAFETY YELLOW, QUICKSET ENAMEL NO. 3472 HYDRANT YELLOW AS MANUFACTURED BY FARWEST PAINT MANUFACTURING COMPANY OR AN APPROVED EQUAL.

15. FIRE HYDRANTS AND GUARD POSTS SHALL BE INSTALLED AT 2-FEET BEHIND THE BACK OF SIDEWALK TO THE FACE OF EQUIPMENT WHERE THE SIDEWALK IS ADJACENT TO THE CURB AND 6-FEET BEHIND THE BACK OF CURB WHERE THE SIDEWALK IS NOT ADJACENT TO THE CURB UNLESS OTHERWISE NOTED ON THE PLANS.

16. ANY DAMAGED OR BADLY DETERIORATED CONCRETE CURB, GUTTER AND SIDEWALK WITHIN PUBLIC RIGHT-OF-WAY SHALL BE REMOVED AND REPLACED. THIS INCLUDES ANY CURB DAMAGED BY CONSTRUCTION EQUIPMENT DURING THE PROJECT.

17. 2-INCHES OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED BENEATH ALL SIDEWALKS PRIOR TO PLACEMENT OF CONCRETE.

18. ALL STORM DRAINAGE MANHOLES WITH A GRATED LID SHALL BE CONSTRUCTED WITH A "SUMP" IN THE BOTTOM OF THEM, AND ALL STORM MANHOLES WITH SOLID LIDS SHALL HAVE CHANNELED BASES, IN ACCORDANCE WITH THE STANDARD DETAILS.

19. IRRIGATION VALVE BOXES OR LIDS WITHIN THE ROADWAY OR PUBLIC RIGHT-OF-WAY NEED TO BE PER CITY OF RICHLAND SPEC" "RICH 931" CAST IRON LID SHALL HAVE "IRR" CAST INTO TOP.

20. A MINIMUM HORIZONTAL SEPARATION OF TEN-FEET SHALL BE MAINTAINED BETWEEN WATER MAINS AND SEWER MAINS AND SERVICE LINES. WATER MAINS SHOULD CROSS OVER THE TOP OF SEWER MAINS WITH A MINIMUM VERTICAL SEPARATION OF 18-INCHES. ANY CROSSING WITH A VERTICAL SEPARATION OF LESS THAN 18" OR ANY CROSSING IN WHICH THE WATER MAIN CROSSES BELOW THE SEWER MAIN SHALL BE IN ACCORDANCE WITH WASHINGTON STATE DEPARTMENT OR ECOLOGY STANDARDS. PRESSURIZED SEWER MAINS SHALL NOT CROSS OVER POTABLE WATER MAINS IN ANY CASE. IF A MINIMUM VERTICAL SEPARATION OF 12" CANNOT BE MAINTAINED BETWEEN MAINLINE PIPES, CDF OR CONCRETE SHALL BE USED AS BACKFILL IN PLACE OF NATIVE SOILS OR GRAVEL.

21. RESIDENTIAL SEWER SERVICES SHALL BE 4-INCHES IN DIAMETER AND SHALL NOT EXCEED 10-FEET BEYOND THE RIGHT-OF-WAY INTO THE LOT. THE END SHALL BE MARKED WITH A MARKER POST INSTALLED IN ACCORDANCE WITH CITY STANDARD DETAILS.

22. RESIDENTIAL WATER SERVICES SHALL BE 1-INCH IN DIAMETER AND SHALL EXTEND 1-FOOT BEYOND THE BACK OF SIDEWALK THROUGH THE CURB STOP. THE END SHALL BE MARKED WITH A BLUE MARKER POST INSTALLED IN ACCORDANCE WITH CITY STANDARD DETAILS.

23. THE CONTRACTOR SHALL TAKE ANY NECESSARY MEANS TO KEEP FROM TRACKING MUD AND DEBRIS OUT ONTO THE EXISTING STREETS, AND SHALL ALSO KEEP MUD AND ANY OTHER DEBRIS FROM HIS SITE FROM ENTERING THE EXISTING PUBLIC STORM DRAINAGE SYSTEM.

24. THE CONTRACTOR SHALL SUPPLY A DUST CONTROL PLAN PRIOR TO STARTING WORK IN ACCORDANCE WITH RMC CHAPTER 9.16.046, SECTION J.

25. ALL DISTURBED AREAS SHALL BE HYDRO-SEEDED AT THE COMPLETION OF THE PROJECT.

26. THE CONTRACTOR SHALL TAKE CARE TO PREVENT CONSTRUCTION SITE RUNOFF FROM ENTERING INTO THE CITY'S STORMWATER SYSTEM, IN ACCORDANCE WITH RMC CHAPTER 16.05. CONSTRUCTION MATERIALS THAT MAY INTRODUCE SEDIMENT INTO THE STORMWATER SYSTEM MAY NOT BE STOCKPILED IN THE STREET. SUCH MATERIALS MAY INCLUDE BUT NOT BE LIMITED TO: CONSTRUCTION MATERIALS, SOIL, SAND, GRAVELS, ETC.

SITE EARTHWORK NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CLEARING, STRIPPING, GRUBBING, TREE MOVES, AND STUMPING WITHIN AREAS OF NEW IMPROVEMENTS. ALL CLEARING AND WASTE MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF LEGALLY AT CONTRACTORS EXPENSE. THE CONTRACTOR SHALL DETERMINE OF MATERIAL TO BE REMOVED, SUCH AS TREES, STUMPS, AND STRIPPING. ALL TREES AND NATURAL VEGETATION OUTSIDE OF CLEARING LIMITS SHALL BE RETAINED AND PROTECTED. AREAS UNDERLYING STRUCTURAL IMPROVEMENTS INCLUDED, BUT NOT LIMITED TO PAVEMENT, CURB, AND SIDEWALK SHALL BE STRIPPED OF 6-INCES OF EXISTING MATERIAL OR AS DETERMINED BY THE ENGINEER.

2. ALL EXCESS EXCAVATED CUT MATERIAL SHALL BE STOCKPILED ON SITE AS DIRECTED BY THE ENGINEER. ANY STOCKPILED MATERIAL FROM EXCAVATION SHALL BE REMOVED FROM CITY RIGHT-OF-WAY, EASEMENTS, AND DRAINAGE WAYS.

3. CONSTRUCTION STAKING ARE THE RESPONSIBILITY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED.

4. THE GRADING CONTRACTOR SHALL DESIGNATE THE LOCATION FOR WASTING SPOIL MATERIALS AND A LETTER FROM THE OWNER GIVING PERMISSION FOR SAID DISPOSAL PRIOR TO STARTING ON-SITE CONSTRUCTION.

5. THE CONTRACTOR IS HEREBY ADVISED THAT NO PERSON SHALL USE ANY MECHANICAL EQUIPMENT FOR LAND LEVELING OR CLEARING, ROAD CONSTRUCTION, TRENCHING, EXCAVATING, DEMOLITION OR ENGAGE IN ANY EARTHMOVING ACTIVITY WITHOUT FIRST OBTAINING A PERMIT.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COMPACTION TESTING REQUIRED ON SUBGRADE, BASE COURSE, AND PAVEMENT.

7. ALL NON-COMPACTABLE MATERIAL SHALL BE REMOVED AND REPLACED PRIOR TO COMPACTION OF SUBGRADE.

STORMWATER RUNOFF MANAGEMENT

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.

2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL.

3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS POSSIBLE AND NOT LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO WASHINGTON CONSTRUCTION GENERAL PERMIT FOR CONSTRUCTION ACTIVITY.

4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OF 0.5 INCHES OR GREATER. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE WASHINGTON CONSTRUCTION GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES.

5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN THE BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

6. CONTRACTOR SHALL CONTACT THE CITY OF RICHLAND PUBLIC WORKS DEPARTMENT FOR INSPECTION OF ALL STORM WATER FACILITIES & BMPS PRIOR TO BACKFILLING THE EXCAVATION. 24 HOURS MINIMUM NOTICE IS REQUIRED. APPROVAL OF STORM WATER BMPS IS CONTINGENT UPON INSPECTION.

7. STORM WATER BMPS HAVE BEEN DESIGNED TO RETAIN THE 25-YR, 24-HR DESIGN STORM.

SANITARY SEWER NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE WASHINGTON STATE DEPARTMENT OF ECOLOGY PUBLICATION "CRITERIA FOR SEWAGE WORKS DESIGN" (THE "ORANGE BOOK").

2. SEWER SERVICES SHALL BE A MINIMUM SIZE OF 6" PVC SDR 35.

3. SEWER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 4-FEET OF COVER, UNLESS OTHERWISE NOTED ON THE PLANS.

4. A MINIMUM HORIZONTAL SEPARATION OF TEN-FEET SHALL BE MAINTAINED BETWEEN WATER MAINS AND SEWER MAINS AND SERVICE LINES. WATER MAINS SHOULD CROSS OVER THE TOP OF SEWER MAINS WITH A MINIMUM VERTICAL SEPARATION OF 18-INCHES. ANY CROSSING WITH A VERTICAL SEPARATION OF LESS THAN 18-INCHES OR ANY CROSSING IN WHICH THE WATER MAIN CROSSES BELOW THE SEWER MAIN SHALL BE IN ACCORDANCE WITH WASHINGTON STATE DEPARTMENT OF ECOLOGY STANDARDS (SEWER LINES SHALL BE CONSTRUCTED OF WATER-CLASS PIPE, CROSSING PIPES SHALL BE CENTERED SO THAT THE ENDS ARE EQUIDISTANT FROM ONE ANOTHER, INTERSECTIONS OF PIPES SHALL BE ENCASED IN CONCRETE, ETC.) PRESSURIZED SEWER MAINS SHALL NOT CROSS OVER POTABLE WATER MAINS IN ANY CASE. IF A MINIMUM VERTICAL SEPARATION OF 12" CANNOT BE MAINTAINED BETWEEN MAINLINE PIPES, CDF OR CONCRETE SHALL BE USED AS BACKFILL IN PLACE OF NATIVE SOILS OR GRAVEL.

5. SEWER MAINS THAT ARE STUBBED FOR FUTURE EXTENSIONS SHALL HAVE A MANHOLE OR STANDARD CLEANOUT AT THE END OF THE STUB. CAPPED SEWER MAINLINES ARE NOT ALLOWED.

6. MANHOLES OR CLEANOUTS OUTSIDE OF PAVED AREAS SHALL HAVE A CONCRETE COLLAR AROUND THEM PER CITY OF RICHLAND STANDARD DETAILS.

7. SEWER MAINS SHALL BE EXTENDED TO ALL ADJACENT PROPERTIES, 10-FEET PAST THE END OF PAVEMENT. THE SEWER MAIN MAY NEED TO BE EXTENDED FURTHER IF IT IS DEEP, AND/OR IF THE NATIVE SOILS ARE PRONE TO SLOUGHING OR CAVING.

SWPPP NOTES

1. SITE DISTURBANCES FOR THIS PROJECT WILL REQUIRE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN OBTAINED FROM ACHD AND THE CITY OF RICHLAND.

2. IF DISTURBANCE BY CONTRACTORS AND OR OWNERS IS ONE ACRE OR GREATER AS PART OF CONSTRUCTION ACTIVITIES, THE FOLLOWING SHALL BE PERFORMED, IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

3. FILE A NOTICE OF INTENT (NOI) WITH EPA'S CONSTRUCTION GENERAL PERMIT (CGP).

4. PREPARE A SWPPP PLAN.

5. FOLLOW THE SWPPP PLAN AND CGP TO INSTALL ALL ONSITE SIGNAGE.

6. MAINTAIN COPIES OF THE NOI, CGP, AND SWPPP PLAN ON-SITE WHERE IT CAN BE EASILY ACCESSED WHEN REQUESTED.

7. PERFORM REGULAR INSPECTIONS PER GUIDELINES ESTABLISHED IN THE SWPPP AND REQUIREMENTS OF THE CGP. PROPER DOCUMENTATION SHALL BE PERFORMED PER THE REQUIREMENTS OF THE SWPPP PLAN.

8. WHEN ALL WORK IS COMPLETED AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES ARE PERFORMING APPROPRIATELY, A NOTICE OF TERMINATION (NOT) SHALL BE FILED.

9. THESE NOTES MAY NOT BE ALL INCLUSIVE, AND ARE PROVIDED AS A GENERAL GUIDELINE. CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING ALL APPLICABLE REQUIREMENTS AND REGULATIONS.

WATER MAIN NOTES

1. ALL WATER MAINS SHALL BE INSTALLED WITH 4-FEET OF COVER. LEGITIMATE CONFLICTS THAT ARISE DURING DESIGN OR IN THE FIELD CAN FORCE THE WATER MAIN TO BE INSTALLED SHALLOWER OR DEEPER THAN THIS. UNDER NO CIRCUMSTANCES SHALL THE AMOUNT OF COVER OVER A WATER MAIN BE LESS THAN 30-INCHES OR GREATER THAN 66-INCHES. THE WATER MAIN SHALL RETURN TO 48-INCHES OF COVER IMMEDIATELY BEYOND THE CONFLICT. VERTICAL BENDS SHOULD BE AVOIDED UNLESS NECESSARY.

2. LIVE WATER TAPS OR CUT-INS TO EXISTING WATER LINES SHALL BE PERFORMED BY CITY CREWS. THE CONTRACTOR SHALL SUPPLY ALL MATERIALS, EXCAVATION, AND TRAFFIC CONTROL BUT THE CONNECTION TO EXISTING CITY WATER LINES SHALL BE COMPLETED BY CITY CREWS AT THE DEVELOPER'S EXPENSE.

3. 8-INCH WATER MAINS IN RESIDENTIAL STREETS MAY BE CLASS 150, AWWA C900 POLYVINYL CHLORIDE PIPE. WATER MAINS LARGER THAN 8-INCHES, OR MAINS THAT ARE OUTSIDE OF THE ROADWAY, OR WATER MAINS IN COMMERCIAL AND INDUSTRIAL AREAS SHALL BE CLASS 50 DUCTILE IRON PIPE. IF THE NATIVE SOIL IS EXCEPTIONALLY ROCKY THE WATERMAIN SHALL BE DUCTILE IRON INSTEAD OF PVC.

4. THE FOLLOWING ARE OPTIONS AVAILABLE WHEN CONNECTING TO OR EXTENDING AN EXISTING CITY DOMESTIC WATERMAIN: 1) A NEW 8-INCH GATE VALVE SHALL BE INSTALLED AT THE POINT OF CONNECTION TO ISOLATE THE NEW, UNTESTED WATERMAIN FROM THE EXISTING CITY MAIN. 2) THE CONTRACTOR SHALL PROVIDE A PRESSURE TEST SHOWING THAT THE EXISTING WATERMAIN STUB CAN HOLD 150 PSI FOR 2 HOURS AND CAN THEREFORE PASS A STANDARD PRESSURE (AND BACTERIOLOGICAL) TEST. THE CONTRACTOR THEREFORE TAKES RESPONSIBILITY FOR THE EXISTING WATERMAIN STUB THAT HE IS CONNECTING TO. 3) THE NEW MAIN SHALL BE INSTALLED AND PRESSURE TESTED ENTIRELY SEPARATE FROM THE EXISTING WATER STUB, AND THE CITY WATER CREWS WILL MAKE THE CONNECTION BETWEEN NEW AND EXISTING AFTER THE WATERMAIN HAS BEEN TESTED AND ACCEPTED AS PUBLIC INFRASTRUCTURE. THIS WILL RESULT IN AN ADDITIONAL FEE.

5. VALVES 8-INCHES AND SMALLER SHALL BE GATE VALVES. VALVES 10-INCHES AND LARGER SHALL BE BUTTERFLY VALVES.

HATCH DESIGN ARCHITECTURE
6126 W. STATE ST.
BOISE, IDAHO 83703
OFFICE: (208) 475-3204
FAX: (208) 475-3205

08-12-20
MARION FRANK HALL IV
57958

PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

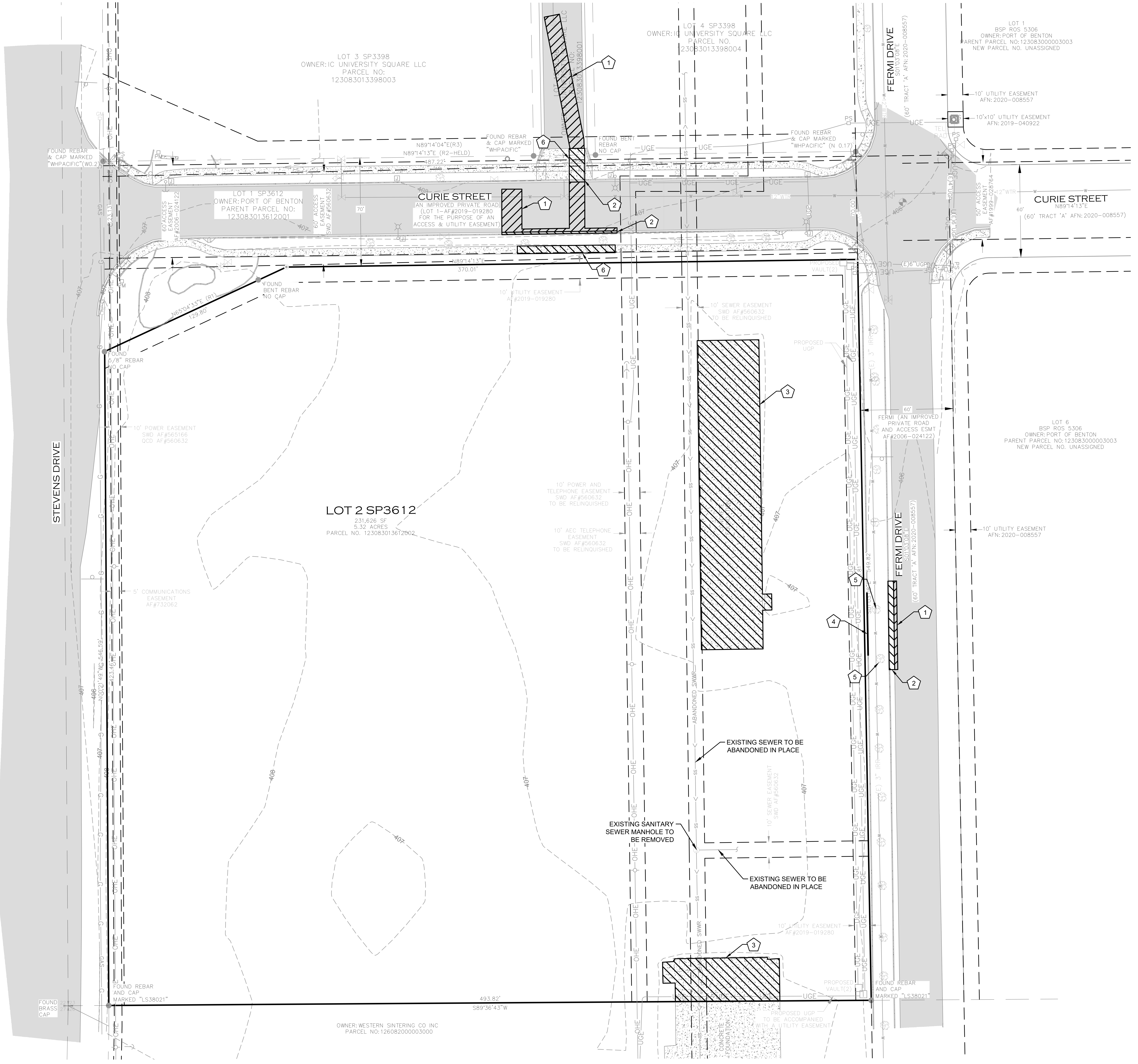
DELTA	DATE	DESCRIPTION- COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
CONSTRUCTION NOTES

SHEET NUMBER

SHEET



NORTH

0 30
Scale in Feet

GENERAL NOTES

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2. SEE ARCHITECTURAL/FOUNDATION PLANS FOR ALL ACTUAL BUILDING DIMENSIONS. DIMENSIONS SHOWN ON CIVIL PLANS ARE APPROXIMATE.

REMOVAL NOTES

▨	REMOVE ASPHALT PAVEMENT
▧	REMOVE CONCRETE PAVEMENT
1	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT
2	REMOVE EXISTING CURB AND GUTTER
3	REMOVE EXISTING CONCRETE FOUNDATION
4	REMOVE EXISTING CURB
5	REMOVE EXISTING TREE
6	REMOVE EXISTING CONCRETE DRIVEWAY AND SIDEWALK

AES2

HATCH DESIGN ARCHITECTURE
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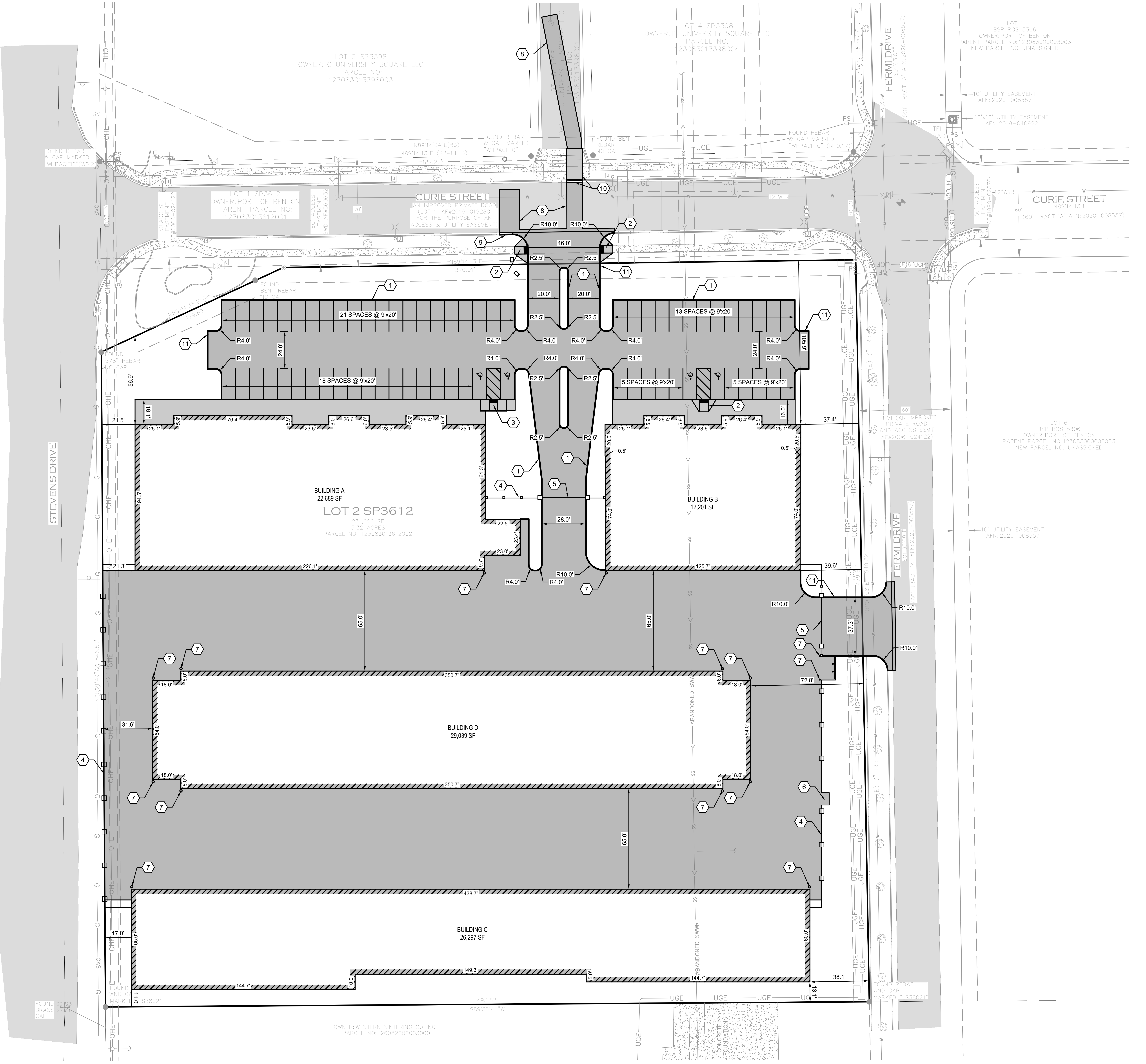
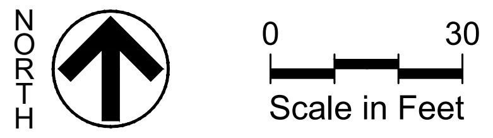
DELTA	DATE	DESCRIPTION-COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER
C4
SHEET





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CONSTRUCTION NOTES

▨	CONSTRUCT CONCRETE PAVEMENT PER DETAIL 1/C10. SEE PLAN FOR SPECIFIC DIMENSIONS.
1	CONSTRUCT CONCRETE CURB, GUTTER AND SIDEWALK PER RICHLAND STANDARD DETAIL ST1
2	CONSTRUCT SIDEWALK RAMP PER RICHLAND STANDARD DETAIL ST4
3	CONSTRUCT SIDEWALK RAMP PER RICHLAND STANDARD DETAIL ST5
4	CONSTRUCT PERIMETER FENCE PER ARCHITECTURAL PLANS
5	CONSTRUCT ENTRANCE GATE PER ARCHITECTURAL PLANS
6	CONSTRUCT DUMP STATION PER ARCHITECTURAL PLANS
7	CONSTRUCT CONCRETE BOLLARD PER ARCHITECTURAL PLANS
8	CONSTRUCT ASPHALT PAVEMENT PATCH PER CITY OF RICHLAND STANDARD DETAIL U2.
9	CONSTRUCT CONCRETE CURB AND GUTTER PER CITY OF RICHLAND STANDARD DETAIL ST1
10	CONSTRUCT CONCRETE VALLEY GUTTER AND PAVEMENT. MATCH EXISTING THICKNESS OF BASE AND PAVEMENT
11	CONSTRUCT CONCRETE CURB SCUPPER (SEE GRADING PLAN)

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08-12-20
MARION FRANK HALL IV
57958

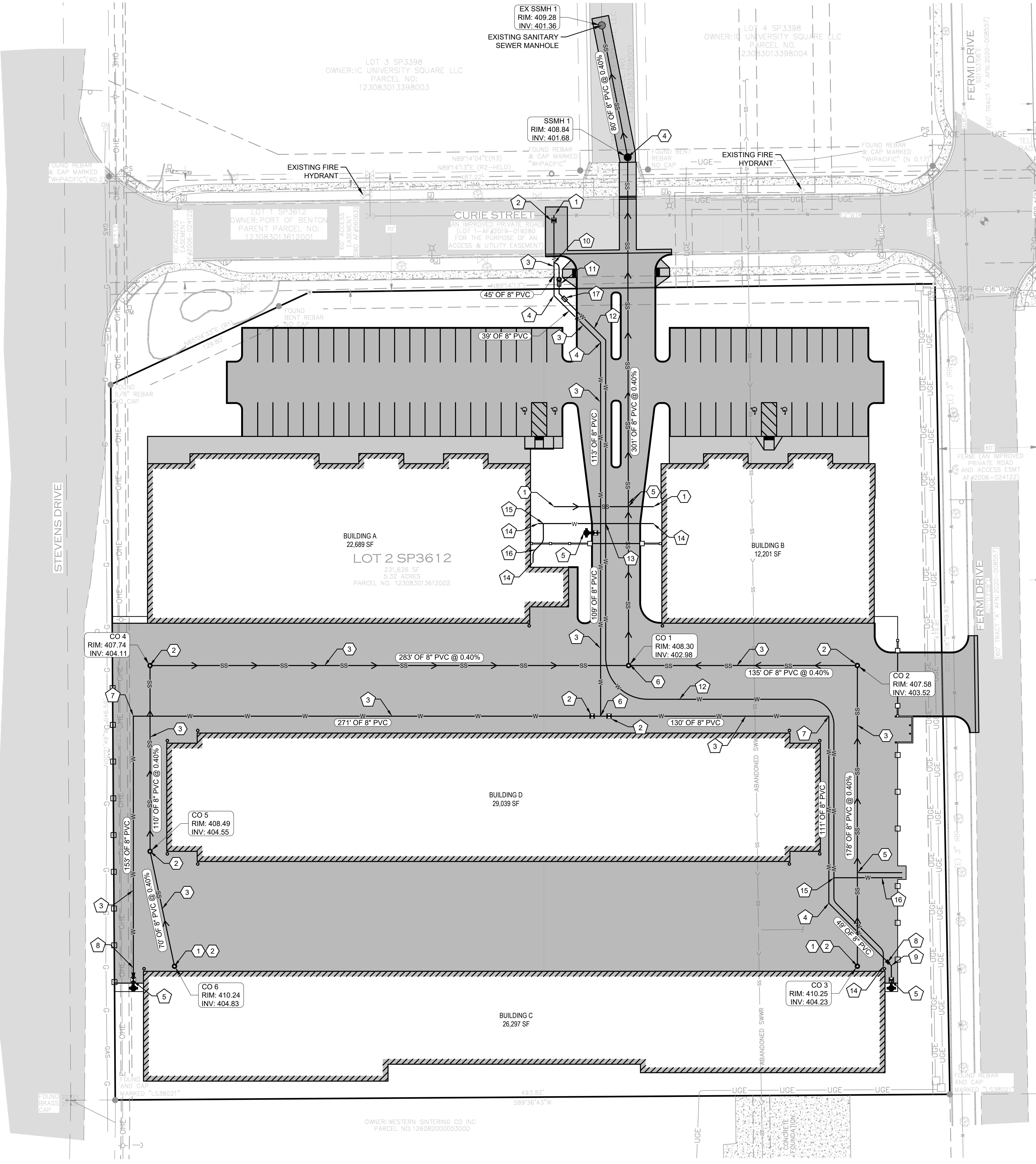
PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION-COMMENTS

DATE:	AUGUST 12, 2020
DRAWN BY:	EJ
CHECKED BY:	MFH
JOB NUMBER:	19163

SHEET TITLE
SITE PLAN

SHEET NUMBER
C5
SHEET



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2. SEE ARCHITECTURAL/FOUNDATION PLANS FOR ALL ACTUAL BUILDING DIMENSIONS. DIMENSIONS SHOWN ON CIVIL PLANS ARE APPROXIMATE.

SANITARY SEWER NOTES

1 CONNECT TO SANITARY SEWER SERVICE FROM PROPOSED BUILDING. SEE PLUMBING PLANS FOR CONTINUATION.

2 INSTALL 6" PVC CLEANOUT WITH SINGLE WYE PER CITY OF RICHLAND STANDARD DETAIL S9.

3 INSTALL 8" PVC SDR35 SANITARY SEWER SERVICE LINE.

4 INSTALL STANDARD PRECAST SANITARY SEWER MANHOLE PER CITY OF RICHLAND STANDARD DETAIL S4. CONNECT TO EXISTING SANITARY SEWER MAIN. FIELD VERIFY EXISTING SANITARY SEWER MAIN SIZE.

5 INSTALL 6"x4" WYE PER CITY OF RICHLAND STANDARD DETAIL S2.

6 INSTALL6" PVC CLEANOUT WITH DOUBLE WYE PER CITY OF RICHLAND STANDARD DETAIL S9.

WATER NOTES

1 CONNECT TO EXISTING WATER MAIN PER CITY OF RICHLAND STANDARD DETAIL W10. FIELD VERIFY DEPTH AND LOCATION OF EXISTING WATER MAIN.

2 INSTALL 8" GATE VALVE PER CITY OF RICHLAND STANDARD DETAIL W9.

3 INSTALL 8" C900 PVC FIRE MAIN

4 INSTALL 8" 45° DI BEND AND RESTRAINTS PER TABLE ON CITY OF RICHLAND STANDARD DETAIL W16-A & W16-B.

5 INSTALL FIRE HYDRANT AND AUXILIARY VALVE PER CITY OF RICHLAND STANDARD DETAIL W14.

6 INSTALL 8" DI TEE AND RESTRAINTS PER TABLE ON CITY OF RICHLAND STANDARD DETAIL W16-A & W16-B.

7 INSTALL 8" 90° DI BEND AND RESTRAINTS PER TABLE ON CITY OF RICHLAND STANDARD DETAIL W16-A & W16-B.

8 INSTALL 8"x6" DI REDUCER AND RESTRAINTS PER TABLE ON CITY OF RICHLAND STANDARD DETAIL W16-A & W16-B.

9 INSTALL 6" DI 45° BEND AND RESTRAINTS PER TABLE ON CITY OF RICHLAND STANDARD DETAIL W16-A & W16-B.

10 CONNECT TO 8" WATER MAIN PER CITY OF RICHLAND STANDARD DETAIL W2.

11 INSTALL 2" DOMESTIC WATER METER PER CITY OF RICHLAND STANDARD DETAIL W4.

12 INSTALL 2" HDPE CTS TUBING DOMESTIC WATER SERVICE LINE.

13 INSTALL 2" BRASS CROSS

14 SEE PLUMBING PLAN FOR CONTINUATION OF WATER SERVICE.

15 INSTALL 2"x1.5" BRASS TEE

16 INSTALL 1.5" CTS DOMESTIC TUBING DOMESTIC WATER SERVICE LINE.

17 INSTALL REDUCED PRESSURE BACKFLOW ASSEMBLY PER CITY OF RICHLAND STANDARD DETAIL W19.

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08-12-20
MARION FRANK HALL IV
57958

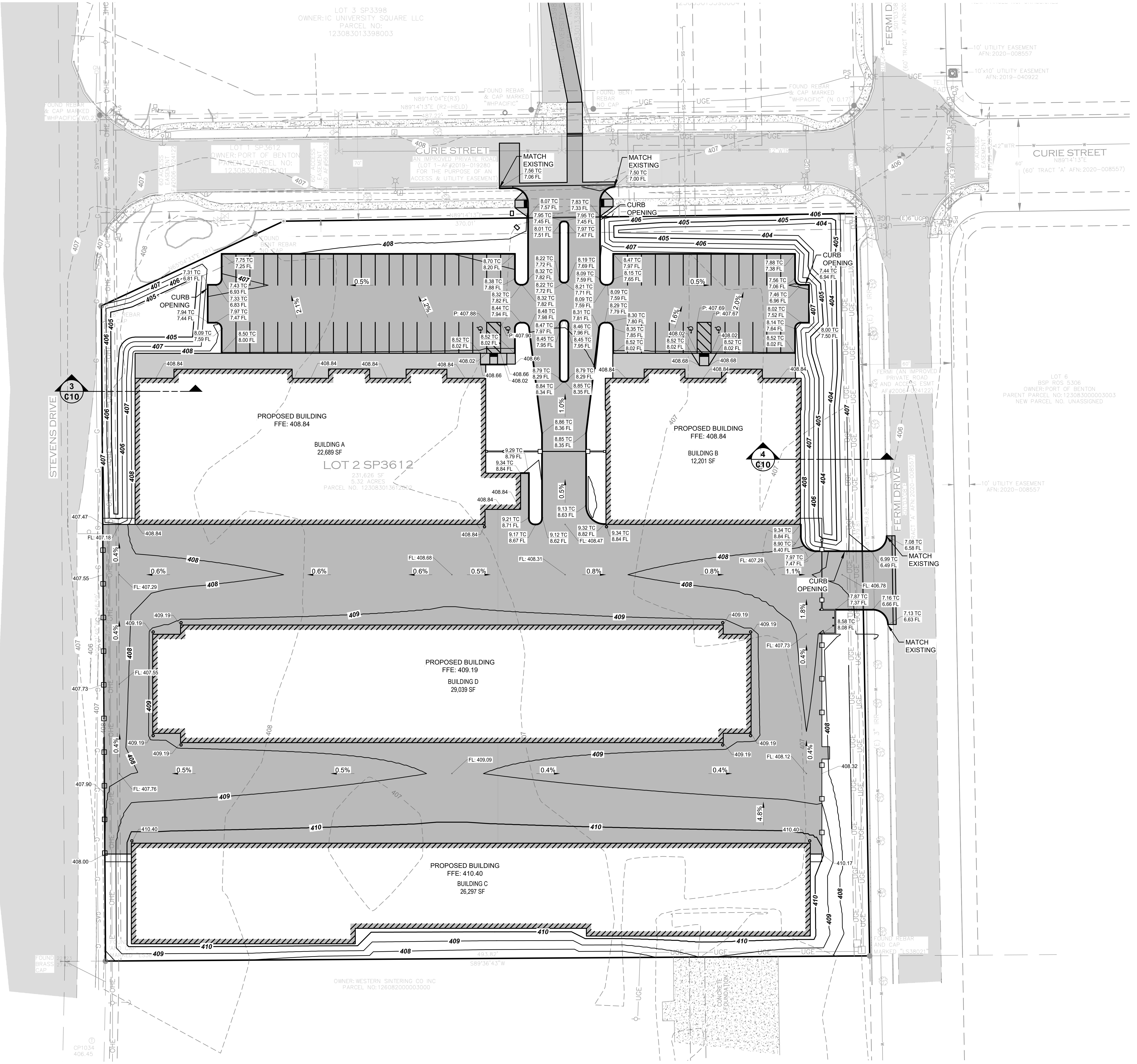
PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION-COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
UTILITY PLAN

SHEET NUMBER
SHEET C6



AES2

NORTH

0 30
Scale in Feet

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GRADING NOTES

1. PERFORM CUTTING AND FILLING TO CONTOURS SHOWN. ALL ROUGH GRADES SHALL HAVE POSITIVE DRAINAGE PRIOR TO PLACEMENT OF TOPSOIL.
2. CONTOURS AND CUT/FILL DEPTHS ARE OF FINISHED TOPSOIL, TOP OF PAVEMENT OR TOP OF GRAVEL.

TC - TOP OF CURB
FL - FLOW LINE
P - FINISHED PAVEMENT

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DATE: AUGUST 12, 2020
DRAWN BY: EJ
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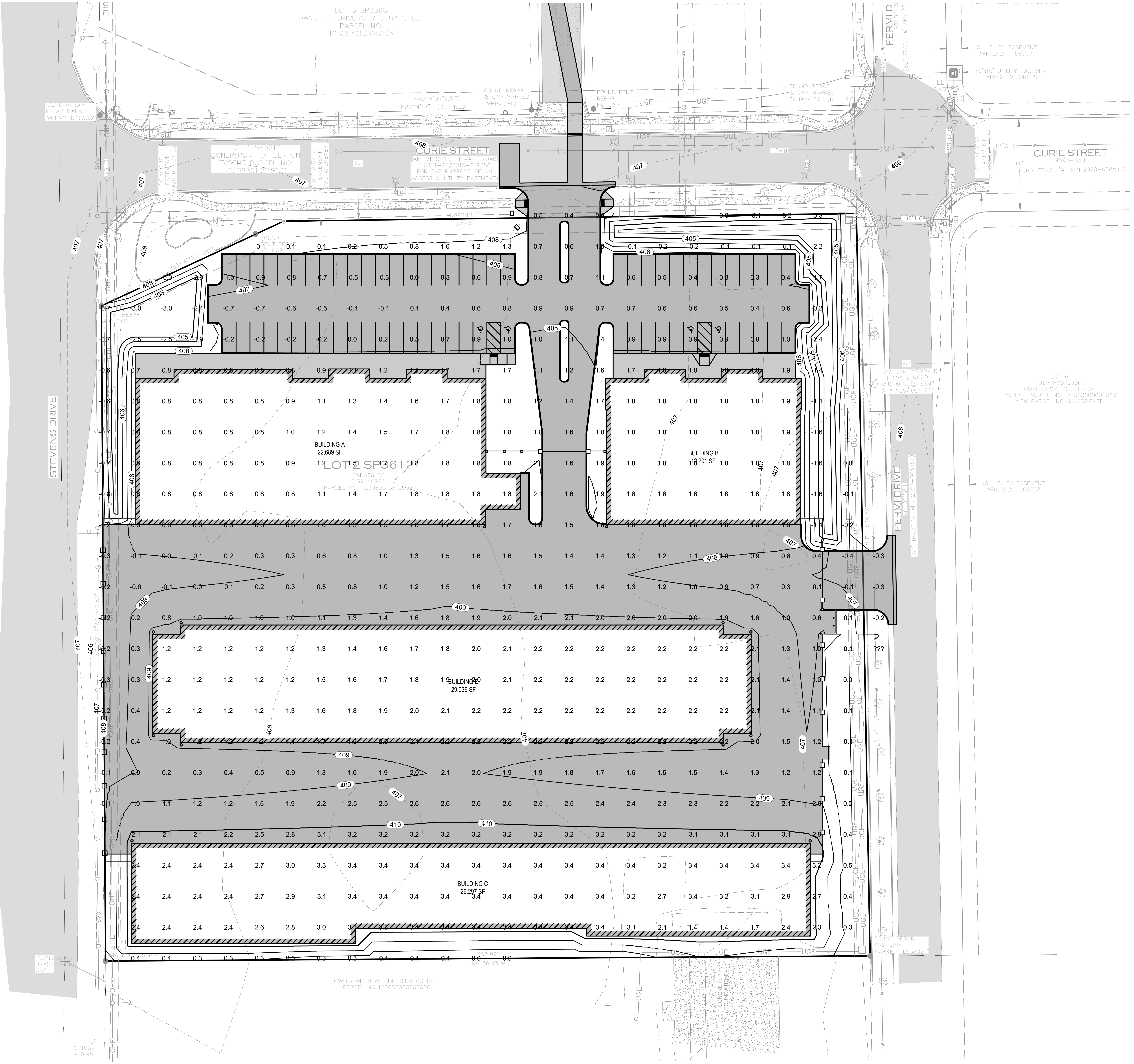
SHEET TITLE
GRADING PLAN

SHEET NUMBER
C7
SHEET



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EARTHWORK NOTES

1. FINISHED GRADE TO EXISTING GRADE

   TOTAL CUT: 1,045 CY
   TOTAL FILL: 12,181 CY

   FILL FACTOR ASSUMED: 1.00

   NEGATIVE - CUT
   POSITIVE - FILL

2.. EARTHWORK VOLUME IS SOIL ONLY (ASPHALT AND AGGREGATE ARE NOT INCLUDED)

3. THE QUANTITIES SHOWN ARE AN ESTIMATE AND MAY NOT REFLECT ACTUAL QUANTITIES OBSERVED DURING CONSTRUCTION. THE CONTRACTOR SHALL PERFORM HIS/HER OWN CALCULATION TO OBTAIN QUANTITIES. ENGINEER TO SPOT CHECK GRADES PRIOR TO CONTRACTOR INSTALLING AGGREGATE, AND ASPHALT/CONCRETE. CONTRACTOR TO MAKE ANY EARTHWORK MODIFICATIONS DEEMED NECESSARY BY ENGINEER. THIS SHALL BE INCIDENTAL TO THE BID PRICE.

HATCH DESIGN ARCHITECTURE
6126 W. STATE ST.
BOISE, IDAHO 83703
OFFICE: (208) 475-3204
FAX: (208) 475-3205

08-12-20
MARION FRANK HALL IV
57958

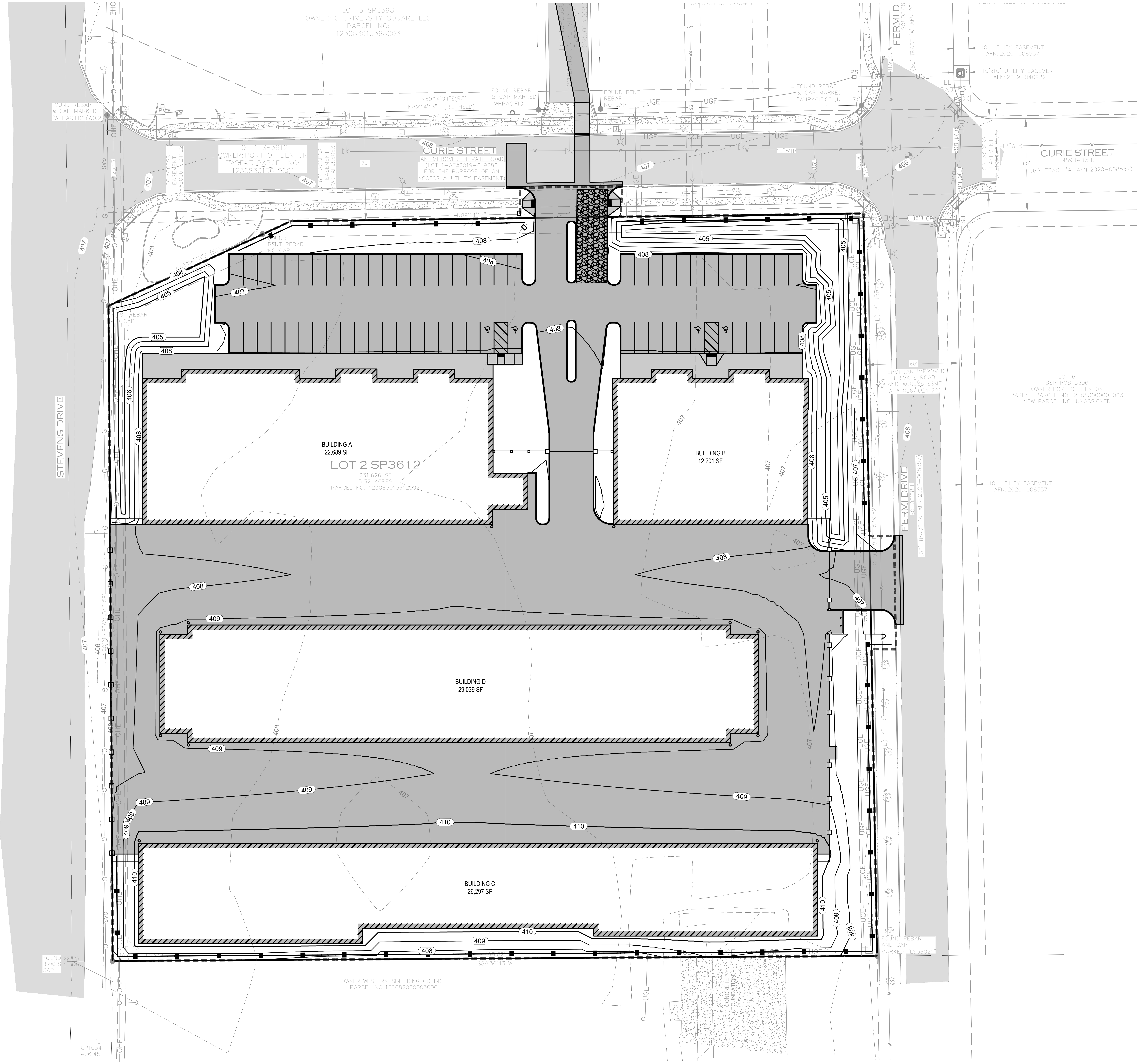
PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION- COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
CUT FILL PLAN

SHEET NUMBER
C8
SHEET



GENERAL NOTES

1. CONTACT WASHINGTON ONE CALL TWO DAYS PRIOR TO START OF ANY EXCAVATION FOR LOCATIONS OF BURIED UTILITIES. CALL 1-800-424-5555 OR 811. THE LOCATIONS OF ANY AND ALL UNDERGROUND UTILITIES SHOWN ARE BASED UPON ABOVE GROUND EVIDENCE (INCLUDING, BUT NOT LIMITED TO, MANHOLES, INLETS, AS-BUILT MAPS, AND MARKS MADE ON THE GROUND BY OTHERS) AND ARE SPECULATIVE IN NATURE. THERE MAY BE UNDERGROUND UTILITIES WHETHER IN SERVICE OR ABANDONED, FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH THE ABOVE GROUND EVIDENCE WAS NOT OBSERVED. FURTHERMORE, THE UTILITIES MAY NOT BE IN THE EXACT LOCATIONS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO THE START OF CONSTRUCTION. ANY AND ALL DAMAGES THAT MAY OCCUR FROM THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE ANY AND ALL UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES OR VARIANCES TO THE PLANS ARE FOUND.
2. SEE ARCHITECTURAL/FOUNDATION PLANS FOR ALL ACTUAL BUILDING DIMENSIONS. DIMENSIONS SHOWN ON CIVIL PLANS ARE APPROXIMATE.

LEGEND

- - - -	GRADING LIMITS
▨	STABILIZED CONSTRUCTION ENTRANCE PER CITY OF RICHLAND DETAIL S16
—■—	SILT FENCE PER CITY OF RICHLAND DETAIL S16

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08-12-20
MARION FRANK HALL IV
57958

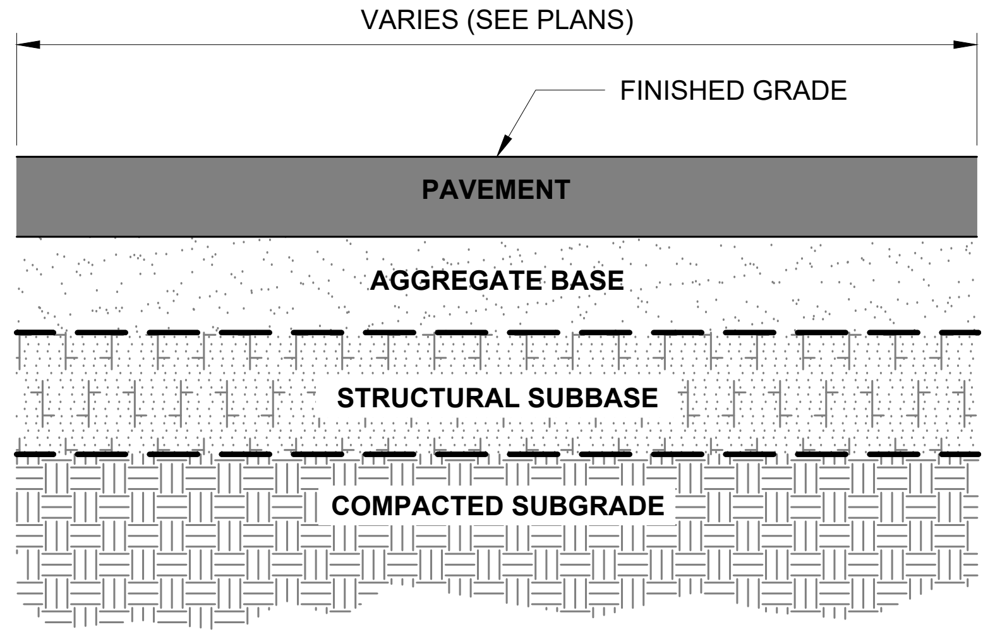
PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION- COMMENTS

DATE:	AUGUST 12, 2020
DRAWN BY:	EJ
CHECKED BY:	MFH
JOB NUMBER:	19163

SHEET TITLE
EROSION CONTROL PLAN

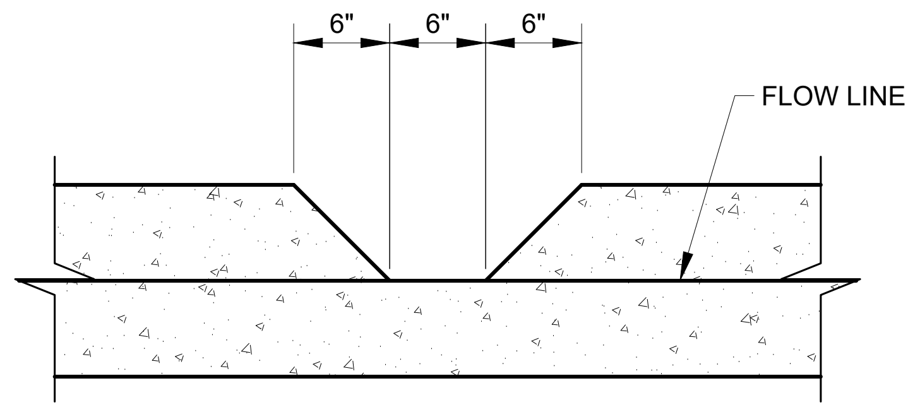
SHEET NUMBER
C9
SHEET



PAVEMENT MATERIAL	PAVEMENT	AGGREGATE BASE (95% COMPACTION)
ASPHALT	3.5"	10"
CONCRETE	6"	4"

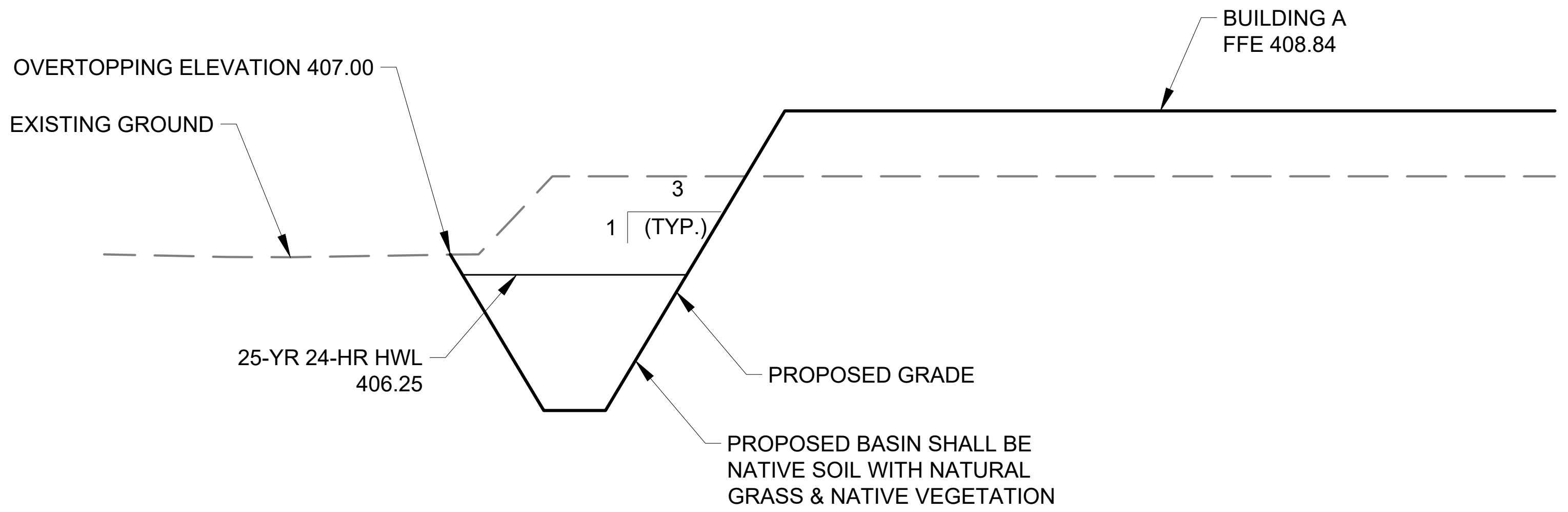
1 C10 PAVEMENT SECTIONS

NOT TO SCALE



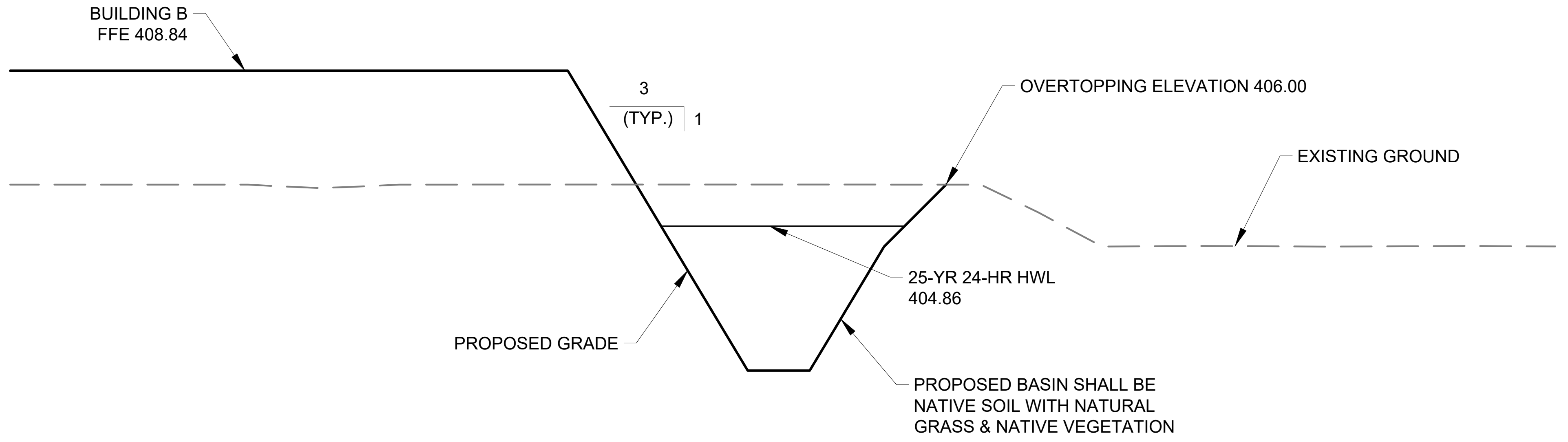
2 C10 CURB OPENING

NOT TO SCALE



3 C10 WEST DITCH SECTION

NOT TO SCALE



4 C10 EAST DITCH SECTION

NOT TO SCALE

HATCH DESIGN ARCHITECTURE
6126 W. STATE ST.
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OFFICE: (208) 475-3204
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08-12-20
MARION FRANK HALL IV
57958
PROFESSIONAL ENGINEER

PROPOSED DEVELOPMENT:
LUXELOCKER
XXX, RICHLAND, WA 99354

DELTA	DATE	DESCRIPTION- COMMENTS

DATE: AUGUST 12, 2020
DRAWN BY: EJ
CHECKED BY: MFH
JOB NUMBER: 19163

SHEET TITLE
STANDARD DETAILS

SHEET NUMBER
C10
SHEET

Geotechnical Engineering Report

Luxelocker Storage
Stevens Drive and Curie Street
Richland, Washington

Prepared for:
Consolidated Construction Co., Inc.
4300 N Richmond Street
Appleton, Wisconsin 54913

June 15, 2020
PBS Project 66200.000

PBS
4412 SW CORBETT AVENUE
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Geotechnical Engineering Report

Luxelocker Storage
Stevens Drive and Curie Street
Richland, Washington

Prepared for:
Consolidated Construction Co., Inc.
4300 N Richmond Street
Appleton, Wisconsin 54913

June 15, 2020
PBS Project 66200.000

Prepared by:

CLINTON DURAN NEALEY
STATE OF WASHINGTON
20111154
REGISTERED
PROFESSIONAL ENGINEER
6/15/2020

Clint Nealey, PE
Geotechnical Staff Engineer
PBS Engineering and Environmental Inc.

Reviewed by:

Saiid Behboodi

Saiid Behboodi, PE, GE (OR)
Principal Geotechnical Engineer
PBS Engineering and Environmental Inc.

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Supporting Data

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FIGURES

APPENDICES

1 INTRODUCTION

1.1 General

This report presents results of PBS Engineering and Environmental Inc. (PBS) geotechnical engineering services for the proposed storage facility located at Stevens Drive and Curie Street in Richland, Washington (site). The general site location is shown on the Vicinity Map, Figure 1. The locations of PBS' explorations in relation to existing and proposed site features are shown on the Site Plan, Figure 2.

1.2 Purpose and Scope

The purpose of PBS' services was to develop geotechnical design and construction recommendations in support of the planned storage facility. This was accomplished by performing the following scope of services.

1.2.1 Literature and Records Review

PBS reviewed various published geologic maps of the area for information regarding geologic conditions and hazards at or near the site. PBS also reviewed previously completed reports for the project vicinity.

1.2.2 Subsurface Explorations

PBS excavated eight test pits within the proposed development footprint to depths of up to 10 feet below the existing ground surface (bgs). The test pits were logged and representative soil samples collected by a member of the PBS geotechnical engineering staff. Interpreted test pit logs are included as Figures A1 through A8 in Appendix A, Field Explorations.

1.2.3 Field Infiltration Testing

Two open-hole, falling-head field infiltration tests were completed in test pits TP-1 and TP-6 within the proposed development at a depth of approximately 4 feet bgs. Infiltration testing was monitored by PBS geotechnical engineering staff.

1.2.4 Soils Testing

Soil samples were returned to our laboratory and classified in general accordance with the Unified Soil Classification System (ASTM D2487) and/or the Visual-Manual Procedure (ASTM D2488). Laboratory tests included natural moisture contents and grain-size analyses. Laboratory test results are included in the exploration logs in Appendix A, Field Explorations; and in Appendix B, Laboratory Testing.

1.2.5 Geotechnical Engineering Analysis

Data collected during the subsurface exploration, literature research, and testing were used to develop site-specific geotechnical design parameters and construction recommendations.

1.2.6 Report Preparation

This Geotechnical Engineering Report summarizes the results of our explorations, testing, and analyses, including information relating to the following:

- Field exploration logs and site plan showing approximate exploration locations
- Laboratory test results
- Infiltration test results
- Groundwater levels and considerations
- Liquefaction potential
- Shallow foundation recommendations:
    - Minimum embedment

    - Allowable bearing pressure
    - Estimated settlement
    - Sliding coefficient
- Earthwork and grading, cut, and fill recommendations:
    - Structural fill materials and preparation
    - Utility trench excavation and backfill requirements
    - Slab and pavement subgrade preparation
    - Wet weather considerations
- Seismic design criteria in accordance with the 2018 International Building Code (IBC) with state of Washington amendments
- Slab-on-grade design recommendations
- Asphalt concrete (AC) pavement section recommendations

1.3 Project Understanding

PBS understands that Summerlin Desert LLC plans to construct a self-storage facility capable of storing boats and recreational vehicles as well as servicing industrial tenants. Current plans include four buildings ranging from approximately 12,000 to 34,000 square feet with associated parking and access lanes. Storage bays with overhead doors will range from 16 to 19 feet high.

2 SITE CONDITIONS

2.1 Surface Description

The rectangular site is located southeast of the intersection of Stevens Drive and Curie Street in Richland, Washington. The property is bounded by Fermi Avenue to the east and by an industrial facility occupied by Western Sintering Company Inc. to the south. The site topography rolls very gently, with site elevations ranging from 397 feet above mean sea level (amsl) to 400 feet amsl. Previous site development is evident with slabs present at the northeast and southeast corners of the parcel. Approximately 2 to 3 inches of asphalt pavement was observed within the northeast quarter of the site during our explorations.

2.2 Geologic Setting

The site is located within the eastern extent of the Yakima fold and thrust belt, a structural-tectonic sub-province occupying the western extent of the greater Columbia Basin geologic province. The Columbia Basin province is separated from the Deschutes-Columbia Plateau and Blue Mountains Provinces of Oregon by the Oregon border. The province is composed primarily of volcanic basement rocks of the Columbia River Basalt Group (CRBG) subdivided into smaller recognizable flows and members that are overlain by Quaternary deposits (Derkey et al., 2006). These older flood basalts were generated by volcanic eruptions in eastern Oregon, eastern Washington, and western Idaho between 16.7 million years ago (Ma) and 5.5 Ma (Reidel, 2004).

The Yakima fold and thrust belt is an actively deforming series of faults and folds that is accommodating clockwise rotation through crustal shortening within the western Columbia Province (McCaffrey et al., 2016). Active Quaternary and Holocene faults are found throughout this sub-province. Northwest-southeast and east-west trending anticlinal ridges and wide synclinal valleys dominate much of the Yakima fold and thrust belt. Reverse faulting is pervasive along the flanks of these anticline-syncline complexes (Gomberg et al., 2012). The eastern-most extent of the Yakima fold and thrust belt is continued across the Oregon-Washington border by the Horse Heaven Anticline (locally referred to as the Horse Heaven Hills) and the Wallula fault system before reaching the Blue Mountains province of Oregon.

The Horse Heaven Anticline forms the local topographic high point along the southern margin of the Columbia Basin, and has been continuously incised by the ancestral and historical Columbia River resulting in a narrow water gap at the southern extent of the Columbia Basin (Reidel and Fecht, 1994; Schuster, 1994). Throughout the Pleistocene, cataclysmic outburst flood waters from Glacial Lake Missoula resulted in rapid sedimentation as floodwaters ponded behind the Horse Heaven Anticline. Slowing flood waters blanketed the basin with slackwater flood deposits over much of the low lying areas as well as creating extensive gravel bar complexes near the Columbia River. After glacial outburst flooding, reworking of fine-grained material by aeolian processes has created deposits of loess in elevated areas that were not directly affected by glacial floodwaters.

2.3 Local Geology

The site is mapped as underlain by Pleistocene age outburst flood sediments consisting of sand, silt, and fluvial gravels (Riedel and Fecht, 1994; Schuster, 1994). The fine sediments are described as rhythmically bedded lacustrine silt and fine- to coarse-sand of predominately quartz and feldspar grains, with basalt in coarser sands. The fluvial gravels generally decrease in grain size away from the primary waterways and consist of sand to boulder sized particles.

2.4 Subsurface Conditions

The site was explored by excavating eight test pits to depths of approximately 10 feet bgs. The excavation was performed by Soo Good LLC of Pasco, Washington, using a Deere 50G excavator equipped with a 24-inch, toothed bucket.

PBS has summarized the subsurface units as follows:

FILL:	Variable fill consisting of sand and coarse-grained, rounded gravel was encountered from the ground surface to approximately 0.5 to 1.5 feet bgs in all test pits except test pit TP-3. The fill was generally brown and non-plastic with scattered roots.
SAND:	In all test pits except TP-3, 2 to 3 feet of poorly graded sand was observed below the gravel fill. The sand was generally fine-grained and ranged in color from brown to olive. Relative density of sand ranged from medium dense to very dense.
GRAVEL:	Brown to dark brown, poorly graded gravel was found to the termination depth in all test pits. Particles were generally coarse-grained and rounded or subrounded. Silt, sand, and cobbles were intermixed with the gravel, with occasional boulders observed at approximately 8 feet bgs.

2.5 Groundwater

Static groundwater was not encountered during our explorations. Based on a review of regional groundwater logs available from the Washington State Department of Ecology, we anticipate that the static groundwater level is present at a depth greater than 50 feet bgs. Please note that groundwater levels can fluctuate during the year depending on climate, irrigation season, extended periods of precipitation, drought, and other factors.

2.6 Infiltration Testing

PBS completed two open-hole, falling-head infiltration tests in test pits TP-1 and TP-6 at a depth of 4 feet bgs within the gravel. The infiltration testing was conducted in general accordance with the Stormwater Management Manual for Eastern Washington procedures. During testing, the excavations were filled with water to achieve a minimum 1-foot-high column of water. After a period of saturation, the height of the water column in the test pits was then measured initially and at regular, timed intervals. Results of our field infiltration testing are presented in Table 1.

Table 1. Infiltration Test Results

Test Location	Depth (feet bgs)	Field Measured Infiltration Rate (in/hr)	Soil Classification
TP-1	4	5.3	Silty GRAVEL (GM)
TP-6	4	5.2	Poorly Graded GRAVEL with Silt (GP-GM)

The infiltration rates listed in Table 1 are not permeabilities/hydraulic conductivities, but field-measured rates, and do not include correction factors related to long-term infiltration rates. The design engineer should determine the appropriate correction factors to account for the planned level of pre-treatment, maintenance, vegetation, siltation, etc. Field-measured infiltration rates are typically reduced by a minimum factor of 2 to 4 for use in design.

Soil types can vary significantly over relatively short distances. The infiltration rates noted above are representative of one discrete location and depth. Installation of infiltration systems within the layer the field rate was measured is considered critical to proper performance of the systems.

3 CONCLUSIONS AND RECOMMENDATIONS

3.1 Geotechnical Design Considerations

The subsurface conditions at the site consist of undocumented gravel fill, fine-grained sand, and coarse-grained gravel with scattered roots. Based on our observations and analyses, conventional foundation support on shallow spread footings is feasible for the proposed new building. Excavation with conventional equipment is feasible at the site. Foundations should not be constructed on top of undocumented fill.

The grading and final development plans for the project had not been completed when this report was prepared. Once completed, PBS should be engaged to review the project plans and update our recommendations as necessary.

3.2 Shallow Foundations

Shallow spread footings bearing on native medium dense to very dense sand may be used to support loads associated with the proposed development, provided the recommendations in this report are followed. Footings should not be supported on undocumented fill.

3.2.1 Minimum Footing Widths/Design Bearing Pressure

Continuous wall and isolated spread footings should be at least 18 and 24 inches wide, respectively. Footings should be sized using a maximum allowable bearing pressure of 2,500 pounds per square foot (psf). This is a net bearing pressure and the weight of the footing and overlying backfill can be disregarded in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads. Allowable bearing pressures may be increased by one-third for seismic and wind loads.

Footings will settle in response to column and wall loads. Based on our evaluation of the subsurface conditions and our analysis, we estimate post-construction settlement will be less than 1 inch for the column and perimeter foundation loads. Differential settlement will be on the order of one-half of the total settlement.

3.2.2 Footing Embedment Depths

PBS recommends that all footings be founded a minimum of 24 inches below the lowest adjacent grade. The footings should be founded below an imaginary line projecting upward at a 1H:1V (horizontal to vertical) slope from the base of any adjacent, parallel utility trenches or deeper excavations.

3.2.3 Footing Preparation

Excavations for footings should be carefully prepared to a neat and undisturbed state. A representative from PBS should confirm suitable bearing conditions and evaluate all exposed footing subgrades. Observations should also confirm that loose or soft materials have been removed from new footing excavations and concrete slab-on-grade areas. Localized deepening of footing excavations may be required to penetrate loose, wet, or deleterious materials. PBS recommends the exposed subgrade beneath footings, slabs, and pavement be compacted prior to placing aggregate base rock.

PBS recommends a layer of compacted, crushed rock be placed over the footing subgrades to help protect them from disturbance due to foot traffic and the elements. Placement of this rock is the prerogative of the contractor; regardless, the footing subgrade should be in a dense or stiff condition prior to pouring concrete. Based on our experience, approximately 4 inches of compacted crushed rock will be suitable beneath the footings.

3.2.4 Lateral Resistance

Lateral loads can be resisted by passive earth pressure on the sides of footings and grade beams, and by friction at the base of the footings. A passive earth pressure of 250 pounds per cubic foot (pcf) may be used for footings confined by native soils and new structural fills. The allowable passive pressure has been reduced by a factor of two to account for the large amount of deformation required to mobilize full passive resistance. Adjacent floor slabs, pavements, or the upper 12-inch depth of adjacent unpaved areas should not be considered when calculating passive resistance. For footings supported on native soils or new structural fills, use a coefficient of friction equal to 0.40 when calculating resistance to sliding. These values do not include a factor of safety (FS).

3.3 Floor Slabs

Satisfactory subgrade support for building floor slabs can be obtained from the native sand subgrade prepared in accordance with our recommendations presented in the Site Preparation, Wet/Freezing Weather and Wet Soil Conditions, and Imported Granular Materials sections of this report. A minimum 6-inch-thick layer of imported granular material should be placed and compacted over the compacted subgrade. Thicker aggregate sections may be necessary where undocumented fill is present, soft/loose soils are present at subgrade elevation, and/or during wet conditions. Imported granular material should be composed of crushed rock or crushed gravel that is relatively well graded between coarse and fine, contains no deleterious materials, has a maximum particle size of 1 inch, and has less than 5 percent by dry weight passing the US Standard No. 200 Sieve.

Floor slabs supported on a subgrade and base course prepared in accordance with the preceding recommendations may be designed using a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci).

3.4 Seismic Design Considerations

3.4.1 Code-Based Seismic Design Parameters

According to the Site Class Map of Benton County, Washington (Palmer, 2004), the site is located within an area classified as Site Class C, characterizing the profile as stiff soil. Based on subsurface conditions encountered in our explorations combined with DCP blow counts, Site Class C is appropriate for use in design. The seismic design criteria, in accordance with the 2018 International Building Code IBC with state of Washington amendments, are summarized in Table 2.

Table 2. 2018 IBC Seismic Design Parameters

Parameter	Short Period	1 Second
Maximum Credible Earthquake Spectral Acceleration	S_s = 0.40 g	S_1 = 0.16 g
Site Class	C	
Site Coefficient	F_a = 1.30	F_v = 1.50
Adjusted Spectral Acceleration	S_{MS} = 0.52 g	S_{M1} = 0.23 g
Design Spectral Response Acceleration Parameters	S_{DS} = 0.35 g	S_{D1} = 0.16 g

g= Acceleration due to gravity

3.4.2 Liquefaction Potential

Liquefaction is defined as a decrease in the shear resistance of loose, saturated, cohesionless soil (e.g., sand) or low plasticity silt soils, due to the buildup of excess pore pressures generated during an earthquake. This results in a temporary transformation of the soil deposit into a viscous fluid. Liquefaction can result in ground settlement, foundation bearing capacity failure, and lateral spreading of ground.

Based on a review of the *Washington Division of Geology and Earth Resources,* the site is shown as having a low liquefaction hazard. Based on the soil types, relative density of site soils encountered in our explorations, and expected depth to groundwater, our current opinion is that the risk of structurally damaging liquefaction settlement at the site is low. Subsequently, the risk of structurally damaging lateral spreading is also low.

3.5 Temporary and Permanent Slopes

All temporary cut slopes should be excavated with a smooth-bucket excavator, with the slope surface repaired if disturbed. In addition, upslope surface runoff should be rerouted to not run down the face of the slopes. Equipment should not be allowed to induce vibration or infiltrate water above the slopes, and no surcharges are allowed within 25 feet of the slope crest.

Permanent cut and fill slopes up to 10 feet high can be inclined at 2H:1V in medium dense or better silty sand and sand or compacted structural fill. If slow seepage is present, use of a rock blanket or a suitably revegetated, reinforced erosion control blanket may be required. PBS should be consulted if seepage is present; additional erosion control measures, such as additional drainage elements, and/or flatter slopes, may also be required. Exposed soils that are soft or loose may also require these measures. Fill slopes should be over-built and cut back into compacted structural fill at the design inclination using a smooth-bucket excavator. Erosion control is critical to maintaining slopes.

3.6 Ground Moisture

3.6.1 General

The perimeter ground surface and hard-scape should be sloped to drain away from all structures and away from adjacent slopes. Gutters should be tight-lined to a suitable discharge and maintained as free-flowing. All crawl spaces should be adequately ventilated and sloped to drain to a suitable, exterior discharge.

3.6.2 Vapor Flow Retarder

A continuous, impervious barrier must be installed over the ground surface in the crawl space and under slabs of all structures. Barriers should be installed per the manufacturer's recommendations.

3.7 Pavement Design

The provided pavement recommendations were developed using the American Association of State Highway and Transportation Officials (AASHTO) design methods and our experience with similar projects, and references the associated Washington Department of Transportation (WSDOT) specifications for construction. Our evaluation considered a maximum of two trucks per day for a 20-year design life.

The minimum recommended pavement section thicknesses are provided in Table 3. Depending on weather conditions at the time of construction, a thicker aggregate base course section could be required to support construction traffic during preparation and placement of the pavement section.

Table 3. Minimum AC Pavement Sections

Traffic Loading	AC (inches)	Base Course (inches)	Subgrade
Pull-in Car Parking, Drive Lanes, and Access Roads	3.5	10	Dense subgrade as verified by PBS personnel*

* Subgrade must pass proofroll

The asphalt cement binder should be selected following WSDOT SS 9-02.1(4) – Performance Graded Asphalt Binder. The AC should consist of ½-inch hot mix asphalt (HMA) with a maximum lift thickness of 3 inches. The AC should conform to WSDOT SS 5-04.3(7)A – Mix Design, WSDOT SS 9-03.8(2) – HMA Test Requirements, and WSDOT SS 9-03.8(6) – HMA Proportions of Materials. The AC should be compacted to 91 percent of the maximum theoretical density (Rice value) of the mix, as determined in accordance with ASTM D2041, following the guidelines set in WSDOT SS 5-04.3(10) – Compaction.

Heavy construction traffic on new pavements or partial pavement sections (such as base course over the prepared subgrade) will likely exceed the design loads and could potentially damage or shorten the pavement life; therefore, we recommend construction traffic not be allowed on new pavements, or that the contractor take appropriate precautions to protect the subgrade and pavement during construction.

If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section.

4 CONSTRUCTION RECOMMENDATIONS

4.1 Site Preparation

Construction of the proposed storage facility will involve clearing and grubbing of the existing vegetation or demolition of possible existing structures. Demolition should include removal of existing concrete, pavement, utilities, etc., throughout the proposed new development. Underground utility lines or other abandoned structural elements should also be removed. The voids resulting from removal of foundations or loose soil in utility lines should be backfilled with compacted structural fill. The base of these excavations should be excavated to stiff/dense native subgrade before filling, with sides sloped at a minimum of 1H:1V to allow for uniform compaction. Materials generated during demolition should be transported off site or stockpiled in areas designated by the owner's representative. The exposed sand subgrade should be compacted beneath any proposed structures and pavement.

4.1.1 Proofrolling/Subgrade Verification

Following site preparation and prior to placing aggregate base over shallow foundation, floor slab, and pavement subgrades, the exposed subgrade should be evaluated either by proofrolling or another method of subgrade verification. The subgrade should be proofrolled with a fully loaded dump truck or similar heavy, rubber-tire construction equipment to identify unsuitable areas. If evaluation of the subgrades occurs during wet conditions, or if proofrolling the subgrades will result in disturbance, they should be evaluated by PBS using a steel foundation probe. We recommend that PBS be retained to observe the proofrolling and perform the subgrade verifications. Unsuitable areas identified during the field evaluation should be compacted to a dense condition or be excavated and replaced with structural fill.

4.1.2 Wet/Freezing Weather and Wet Soil Conditions

Due to the presence of fine-grained silt and sands in the near-surface materials at the site, construction equipment may have difficulty operating on the near-surface soils when the moisture content of the surface soil is more than a few percentage points above the optimum moisture required for compaction. Soils disturbed during site preparation activities, or unsuitable areas identified during proofrolling or probing, should be removed and replaced with compacted structural fill.

Site earthwork and subgrade preparation should not be completed during freezing conditions, except for mass excavation to the subgrade design elevations. We recommend the earthwork construction at the site be performed during the dry season.

Protection of the subgrade is the responsibility of the contractor. Construction of granular haul roads to the project site entrance may help reduce further damage to the pavement and disturbance of site soils. The actual thickness of haul roads and staging areas should be based on the contractors' approach to site development, and the amount and type of construction traffic. The imported granular material should be placed in one lift over the prepared undisturbed subgrade and compacted using a smooth-drum, non-vibratory roller. A geotextile fabric should be used to separate the subgrade from the imported granular material in areas of repeated construction traffic. Depending on site conditions, the geotextile should meet Washington State Department of Transportation (WSDOT) SS 9-33.2 – Geosynthetic Properties for soil separation or stabilization. The geotextile should be installed in conformance with WSDOT SS 2-12.3 – Construction Geosynthetic (Construction Requirements) and, as applicable, WSDOT SS 2-12.3(2) – Separation or WSDOT SS 2-12.3(3) – Stabilization.

4.1.3 Compacting Test Pit Locations

The test pit excavations were backfilled using the excavator bucket and relatively minimal compactive effort; therefore, soft or loose spots can be expected at these locations. We recommend that the relatively uncompacted soil be removed from the test pits to a depth of at least 3 feet below finished subgrade elevation in pavement areas and to full depth in building areas. The resulting excavation should be backfilled with structural fill.

4.2 Excavation

The near-surface soils at the site can be excavated with conventional earthwork equipment. Sloughing and caving should be anticipated. All excavations should be made in accordance with applicable Occupational

Safety and Health Administration (OSHA) and state regulations. The contractor is solely responsible for adherence to the OSHA requirements. Trench cuts may stand relatively vertical to a depth of approximately 4 feet bgs, provided no groundwater seepage is present in the trench walls. Open excavation techniques may be used provided the excavation is configured in accordance with the OSHA requirements, groundwater seepage is not present, and with the understanding that some sloughing may occur. Trenches/excavations should be flattened if sloughing occurs or seepage is present. Use of a trench shield or other approved temporary shoring is recommended if vertical walls are desired for cuts deeper than 4 feet bgs.

4.3 Structural Fill

Structural fill should be placed over subgrade that has been prepared in conformance with the Site Preparation and Wet/Freezing Weather and Wet Soil Conditions sections of this report. Structural fill material should consist of relatively well-graded soil, or an approved rock product that is free of organic material and debris, and contains particles not greater than 3 inches nominal dimension.

The suitability of soil for use as compacted structural fill will depend on the gradation and moisture content of the soil when it is placed. As the amount of fines (material finer than the US Standard No. 200 Sieve) increases, soil becomes increasingly sensitive to small changes in moisture content and compaction becomes more difficult to achieve. Soils containing more than about 5 percent fines cannot consistently be compacted to a dense, non-yielding condition when the water content is significantly greater (or significantly less) than optimum.

If fill and excavated material will be placed on slopes steeper than 5H:1V, these must be keyed/benched into the existing slopes and installed in horizontal lifts. Vertical steps between benches should be approximately 2 feet.

4.3.1 On-Site Soil

On-site soils encountered in our explorations are generally suitable for placement as structural fill during moderate, dry weather when moisture content can be maintained by air drying and/or addition of water. The fine-grained fraction of the site soils are moisture sensitive, and during wet weather, may become unworkable because of excess moisture content. In order to reduce moisture content, some aerating and drying of fine-grained soils may be required. The material should be placed in lifts with a maximum uncompacted thickness of approximately 8 inches and compacted to at least 92 percent of the maximum dry density, as determined by ASTM D1557 (modified proctor).

4.3.2 Imported Granular Materials

Imported granular material used during periods of wet weather or for haul roads, building pad subgrades, staging areas, etc., should be pit or quarry run rock, crushed rock, or crushed gravel and sand, and should meet the specifications provided in WSDOT SS 9-03.14(2) – Select Borrow. In addition, the imported granular material should be fairly well graded between coarse and fine, and of the fraction passing the US Standard No. 4 Sieve, less than 5 percent by dry weight should pass the US Standard No. 200 Sieve.

Imported granular material should be placed in lifts with a maximum uncompacted thickness of 9 inches and be compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

4.3.3 Base Aggregate

Base aggregate for floor slabs and beneath pavements should be clean crushed rock or crushed gravel. The base aggregate should contain no deleterious materials, meet specifications provided in WSDOT SS 9-03.9(3) – Crushed Surfacing Base Course, and have less than 5 percent (by dry weight) passing the US Standard No. 200

Sieve. The imported granular material should be placed in one lift and compacted to at least 95 percent of the maximum dry density, as determined by ASTM D1557.

4.3.4 Foundation Base Aggregate

Imported granular material placed at the base of excavations for spread footings, slabs-on-grade, and other below-grade structures should be clean, crushed rock or crushed gravel, and sand that is fairly well graded between coarse and fine. The granular materials should contain no deleterious materials, have a maximum particle size of 1½ inch, and meet WSDOT SS 9-03.12(1)A – Gravel Backfill for Foundations (Class A). The imported granular material should be placed in one lift and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

4.3.5 Trench Backfill

Trench backfill placed beneath, adjacent to, and for at least 2 feet above utility lines (i.e., the pipe zone) should consist of well-graded granular material with a maximum particle size of 1 inch and less than 10 percent by dry weight passing the US Standard No. 200 Sieve, and should meet the standards prescribed by WSDOT SS 9-03.12(3) – Gravel Backfill for Pipe Zone Bedding. The pipe zone backfill should be compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557, or as required by the pipe manufacturer or local building department.

Within pavement areas or beneath building pads, the remainder of the trench backfill should consist of well-graded granular material with a maximum particle size of 1½ inches, less than 10 percent by dry weight passing the US Standard No. 200 Sieve, and should meet standards prescribed by WSDOT SS 9-03.19 – Bank Run Gravel for Trench Backfill. This material should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department. The upper 2 feet of the trench backfill should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D1557.

Outside of structural improvement areas (e.g., roadway alignments or building pads), trench backfill placed above the pipe zone should consist of excavated material free of wood waste, debris, clods, or rocks greater than 6 inches in diameter and meet WSDOT SS 9-03.14 – Borrow and WSDOT SS 9-03.15 – Native Material for Trench Backfill. This general trench backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local building department.

4.3.6 Stabilization Material

Stabilization rock should consist of pit or quarry run rock that is well-graded, angular, crushed rock consisting of 4- or 6-inch-minus material with less than 5 percent passing the US Standard No. 4 Sieve. The material should be free of organic matter and other deleterious material. WSDOT SS 9-13.1(5) – Quarry Spalls can be used as a general specification for this material with the stipulation of limiting the maximum size to 6 inches.

5 ADDITIONAL SERVICES AND CONSTRUCTION OBSERVATIONS

In most cases, other services beyond completion of a final geotechnical engineering report are necessary or desirable to complete the project. Occasionally, conditions or circumstances arise that require additional work that was not anticipated when the geotechnical report was written. PBS offers a range of environmental, geological, geotechnical, and construction services to suit the varying needs of our clients.

PBS should be retained to review the plans and specifications for this project before they are finalized. Such a review allows us to verify that our recommendations and concerns have been adequately addressed in the design.

Satisfactory earthwork performance depends on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. We recommend that PBS be retained to observe general excavation, stripping, fill placement, footing subgrades, and/or pile installation. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

6 LIMITATIONS

This report has been prepared for the exclusive use of the addressee, and their architects and engineers, for aiding in the design and construction of the proposed development and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without express written consent of the client and PBS. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments, and conclusions presented in this report are based upon information derived from our literature review, field explorations, laboratory testing, and engineering analyses. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that PBS is notified immediately so that we may reevaluate the recommendations of this report.

Unanticipated fill, soil and rock conditions, and seasonal soil moisture and groundwater variations are commonly encountered and cannot be fully determined by merely taking soil samples or completing explorations such as soil borings or test pits. Such variations may result in changes to our recommendations and may require additional funds for expenses to attain a properly constructed project; therefore, we recommend a contingency fund to accommodate such potential extra costs.

The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, if conditions have changed due to natural causes or construction operations at or adjacent to the site, or if the basic project scheme is significantly modified from that assumed, this report should be reviewed to determine the applicability of the conclusions and recommendations presented herein. Land use, site conditions (both on and off site), or other factors may change over time and could materially affect our findings; therefore, this report should not be relied upon after three years from its issue, or in the event that the site conditions change.

7 REFERENCES

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:
- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:
- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept* *responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are <u>Not</u> Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

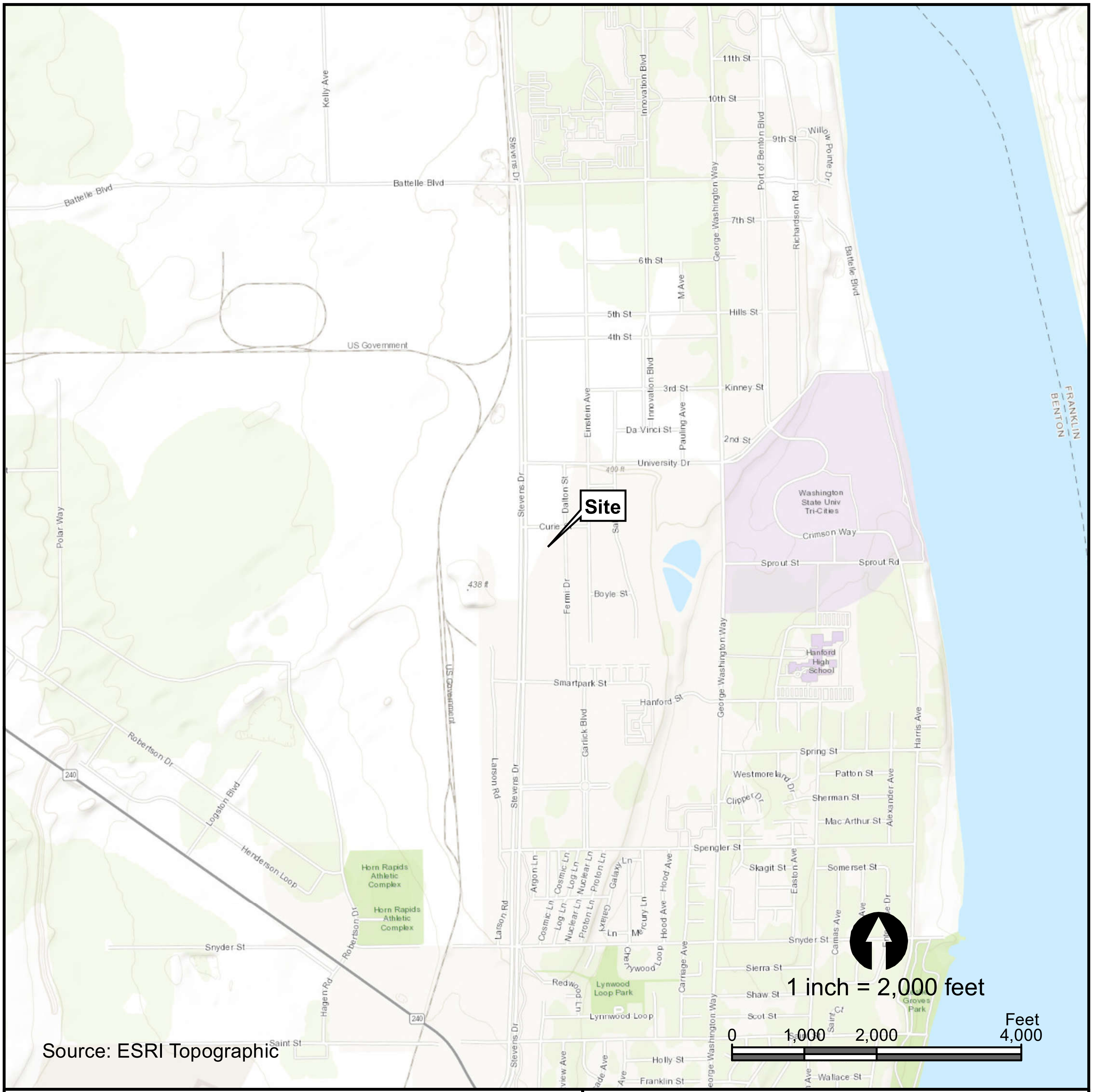
Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are <u>not</u> building-envelope or mold specialists.***

GBA
GEOPROFESSIONAL
BUSINESS
ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

Figures



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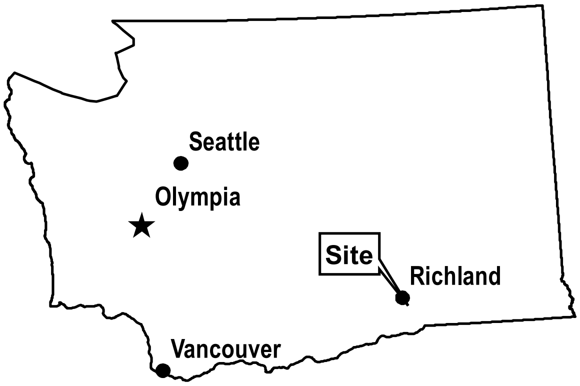

VICINITY MAP

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

DATE: JUNE 2020 · PROJECT: 66200.000

PBS

FIGURE

1

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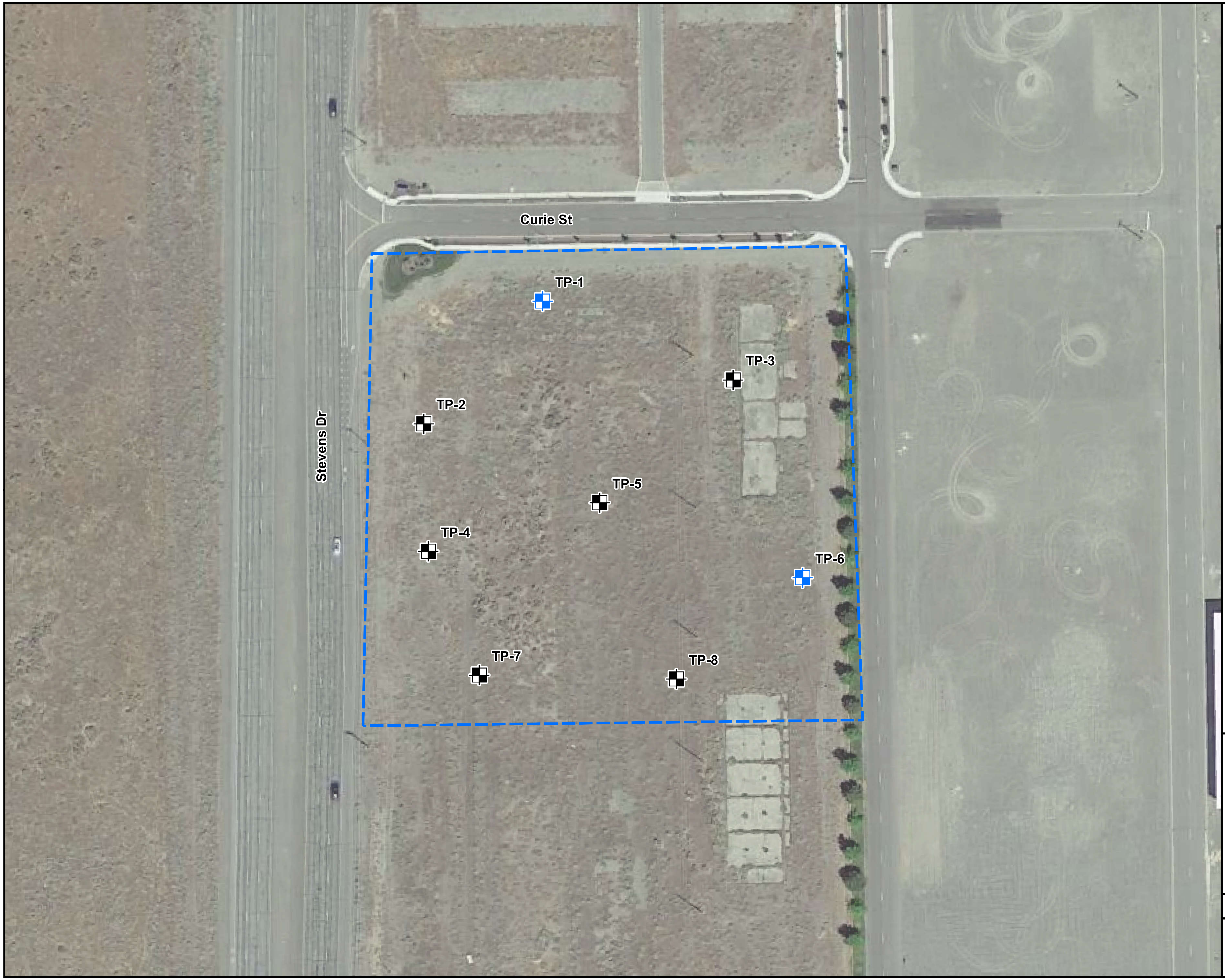

EXPLANATION

🟦 TP-1 - Test pit name and approximate location with infiltration test

■ TP-2 - Test pit name and approximate location

▭ Approximate site boundary

1 inch = 100 feet

0 50 100 200 Feet

SITE PLAN

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

DATE: JUNE 2020 · PROJECT: 66200.000

PBS

FIGURE
2

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Appendix A

Field Explorations

Appendix A: Field Explorations

A1 GENERAL

PBS explored subsurface conditions at the project site by excavating test pits to depths of up to 10 feet bgs on May 12, 2020. The approximate locations of the explorations are shown on Figure 2, Site Plan. The procedures used to advance the test pits, collect samples, and other field techniques are described in detail in the following paragraphs. Unless otherwise noted, all soil sampling and classification procedures followed engineering practices in general accordance with relevant ASTM procedures. "General accordance" means that certain local excavation and descriptive practices and methodologies have been followed.

A2 TEST PITS

A2.1 Excavation

Test pits were excavated using a Deere 50G excavator equipped with a 24-inch-wide, toothed bucket provided and operated by Soo Good LLC of Pasco, Washington. The test pits were observed by a member of the PBS geotechnical staff, who maintained a detailed log of the subsurface conditions and materials encountered during the course of the work.

A2.2 Sampling

Representative disturbed samples were taken at selected depths in the test pits. The disturbed soil samples were examined by a member of the PBS geotechnical staff and sealed in plastic bags for further examination.

A2.3 Test Pit Logs

The test pit logs show the various types of materials that were encountered in the excavations and the depths where the materials and/or characteristics of these materials changed, although the changes may be gradual. Where material types and descriptions changed between samples, the contacts were interpreted. The types of samples taken during excavation, along with their sample identification number, are shown to the right of the classification of materials. The natural water (moisture) contents are shown farther to the right. Measured seepage levels, if observed, are noted in the column to the right.

A3 MATERIAL DESCRIPTION

Initially, samples were classified visually in the field. Consistency, color, relative moisture, degree of plasticity, and other distinguishing characteristics of the soil samples were noted. Afterward, the samples were reexamined in the PBS laboratory, various standard classification tests were conducted, and the field classifications were modified where necessary. The terminology used in the soil classifications and other modifiers are defined in Table A-1, Terminology Used to Describe Soil.

Table A-1
Terminology Used to Describe Soil

Soil Descriptions

Soils exist in mixtures with varying proportions of components. The predominant soil, i.e., greater than 50 percent based on total dry weight, is the primary soil type and is capitalized in our log descriptions (SAND, GRAVEL, SILT, or CLAY). Smaller percentages of other constituents in the soil mixture are indicated by use of modifier words in general accordance with the ASTM D2488-06 Visual-Manual Procedure. “General Accordance” means that certain local and common descriptive practices may have been followed. In accordance with ASTM D2488-06, group symbols (such as GP or CH) are applied on the portion of soil passing the 3-inch (75mm) sieve based on visual examination. The following describes the use of soil names and modifying terms used to describe fine- and coarse-grained soils.

Fine-Grained Soils (50% or greater fines passing 0.075 mm, No. 200 sieve)

The primary soil type, i.e., SILT or CLAY is designated through visual-manual procedures to evaluate soil toughness, dilatency, dry strength, and plasticity. The following outlines the terminology used to describe fine-grained soils, and varies from ASTM D2488 terminology in the use of some common terms.

Primary soil NAME, Symbols, and Adjectives			Plasticity Description	Plasticity Index (PI)
SILT (ML & MH)	**CLAY (CL & CH)**	**ORGANIC SOIL (OL & OH)**		
SILT		Organic SILT	Non-plastic	0 – 3
SILT		Organic SILT	Low plasticity	4 – 10
SILT/Elastic SILT	Lean CLAY	Organic SILT/ Organic CLAY	Medium Plasticity	10 – 20
Elastic SILT	Lean/Fat CLAY	Organic CLAY	High Plasticity	20 – 40
Elastic SILT	Fat CLAY	Organic CLAY	Very Plastic	>40

Modifying terms describing secondary constituents, estimated to 5 percent increments, are applied as follows:

Description	% Composition	
With Sand	% Sand ≥ % Gravel	15% to 25% plus No. 200
With Gravel	% Sand < % Gravel	
Sandy	% Sand ≥ % Gravel	≤30% to 50% plus No. 200
Gravelly	% Sand < % Gravel	

Borderline Symbols, for example CH/MH, are used when soils are not distinctly in one category or when variable soil units contain more than one soil type. **Dual Symbols,** for example CL-ML, are used when two symbols are required in accordance with ASTM D2488.

Soil Consistency terms are applied to fine-grained, plastic soils (i.e., PI ≥ 7). Descriptive terms are based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586-84, as follows. SILT soils with low to non-plastic behavior (i.e., PI < 7) may be classified using relative density.

Consistency Term	SPT N-value	Unconfined Compressive Strength	
		tsf	kPa
Very soft	Less than 2	Less than 0.25	Less than 24
Soft	2 – 4	0.25 – 0.5	24 – 48
Medium stiff	5 – 8	0.5 – 1.0	48 – 96
Stiff	9 – 15	1.0 – 2.0	96 – 192
Very stiff	16 – 30	2.0 – 4.0	192 – 383
Hard	Over 30	Over 4.0	Over 383

Soil Descriptions

Coarse - Grained Soils (less than 50% fines)

Coarse-grained soil descriptions, i.e., SAND or GRAVEL, are based on the portion of materials passing a 3-inch (75mm) sieve. Coarse-grained soil group symbols are applied in accordance with ASTM D2488-06 based on the degree of grading, or distribution of grain sizes of the soil. For example, well-graded sand containing a wide range of grain sizes is designated SW; poorly graded gravel, GP, contains high percentages of only certain grain sizes. Terms applied to grain sizes follow.

Material NAME	Particle Diameter	
	Inches	Millimeters
SAND (SW or SP)	0.003 – 0.19	0.075 – 4.8
GRAVEL (GW or GP)	0.19 – 3	4.8 – 75
Additional Constituents:		
Cobble	3 – 12	75 – 300
Boulder	12 – 120	300 – 3050

The primary soil type is capitalized, and the fines content in the soil are described as indicated by the following examples. Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 percent. Other soil mixtures will have similar descriptive names.

Example: Coarse-Grained Soil Descriptions with Fines

>5% to < 15% fines (Dual Symbols)	≥15% to < 50% fines
Well graded GRAVEL with silt: GW-GM	Silty GRAVEL: GM
Poorly graded SAND with clay: SP-SC	Silty SAND: SM

Additional descriptive terminology applied to coarse-grained soils follow.

Example: Coarse-Grained Soil Descriptions with Other Coarse-Grained Constituents

Coarse-Grained Soil Containing Secondary Constituents	
With sand or with gravel	≥ 15% sand or gravel
With cobbles; with boulders	Any amount of cobbles or boulders.

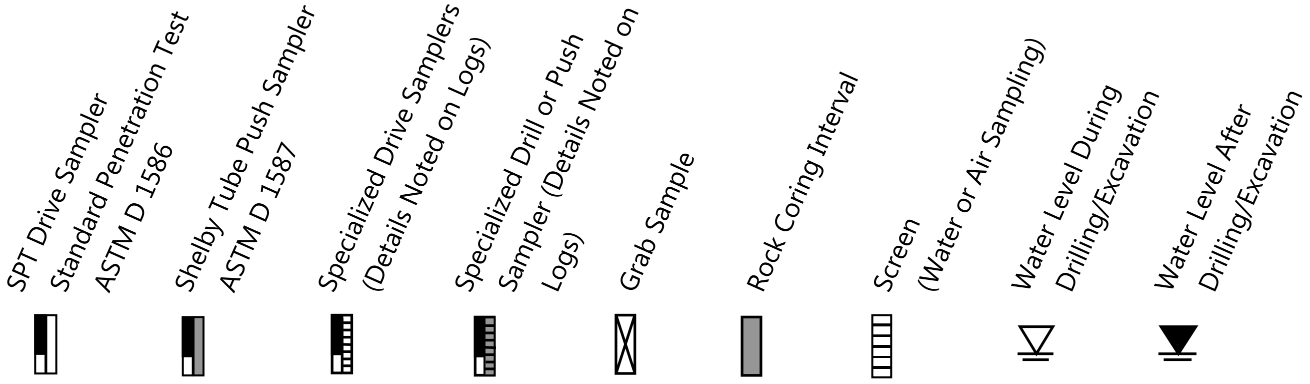
Cobble and boulder deposits may include a description of the matrix soils, as defined above.

Relative Density terms are applied to granular, non-plastic soils based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586-84.

Relative Density Term	SPT N-value
Very loose	0 – 4
Loose	5 – 10
Medium dense	11 – 30
Dense	31 – 50
Very dense	> 50

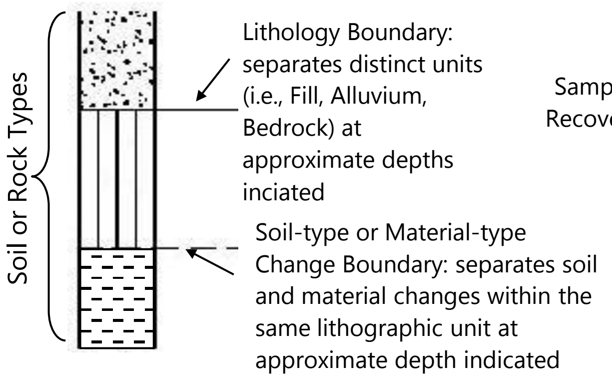
Table A-2
Key To Test Pit and Boring Log Symbols

SAMPLING DESCRIPTIONS

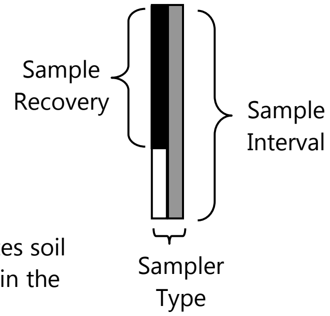


LOG GRAPHICS

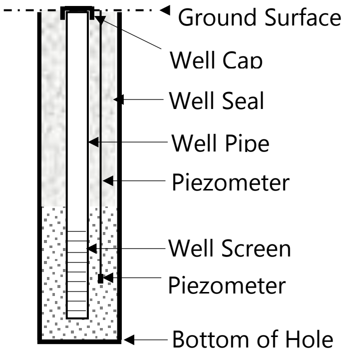
Soil and Rock



Sampling Symbols



Instrumentation Detail



Geotechnical Testing Acronym Explanations

PP	Pocket Penetrometer	HYD	Hydrometer Gradation
TOR	Torvane	SIEV	Sieve Gradation
DCP	Dynamic Cone Penetrometer	DS	Direct Shear
ATT	Atterberg Limits	DD	Dry Density
PL	Plasticity Limit	CBR	California Bearing Ratio
LL	Liquid Limit	RES	Resilient Modulus
PI	Plasticity Index	VS	Vane Shear
P200	Percent Passing US Standard No. 200 Sieve	bgs	Below ground surface
OC	Organic Content	MSL	Mean Sea Level
CON	Consolidation	HCL	Hydrochloric Acid
UC	Unconfined Compressive Strength		

Details of soil and rock classification systems are available on request.

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

PBS PROJECT NUMBER:
66200.000

TEST PIT TP-1

APPROX. TEST PIT TP-1 LOCATION:
(See Site Plan)

Lat: 46.33045 Long: -119.28243

MATERIAL DESCRIPTION

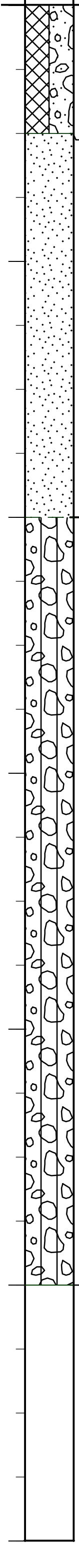
Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

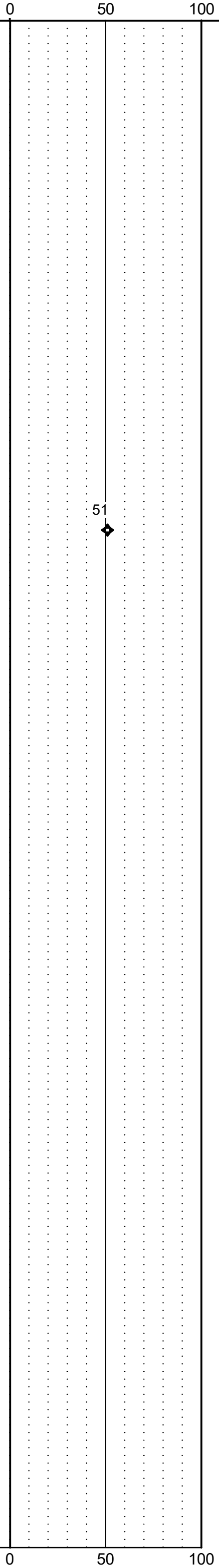
◆ DYNAMIC CONE PENETROMETER
☒ STATIC PENETROMETER
● MOISTURE CONTENT %

COMMENTS

Surface Conditions: Sage Brush

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	COMMENTS
0.0	Brown, poorly graded GRAVEL (GP) with sand; fine sand; fine to coarse, rounded gravel; moist **FILL** roots to 6 inches bgs	0.0			
	Brown, poorly graded SAND (SP); fine sand; moist	1.0			
2.0				S-1	
					Infiltration testing completed at 4 feet bgs
4.0	Very dense, brown, silty GRAVEL (GM) with sand and cobbles; non-plastic; medium sand; coarse, rounded gravel; moist	4.0	P200 DCP	S-2	P200 = 19%
6.0					
	becomes dark gray				
8.0					Caving at 8 feet bgs
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0			
12.0					





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COMPLETED: 5/12/2020

EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A1

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

PBS PROJECT NUMBER:
66200.000

TEST PIT TP-2

APPROX. TEST PIT TP-2 LOCATION:
(See Site Plan)
Lat: 46.33011 Long: -119.28292

MATERIAL DESCRIPTION

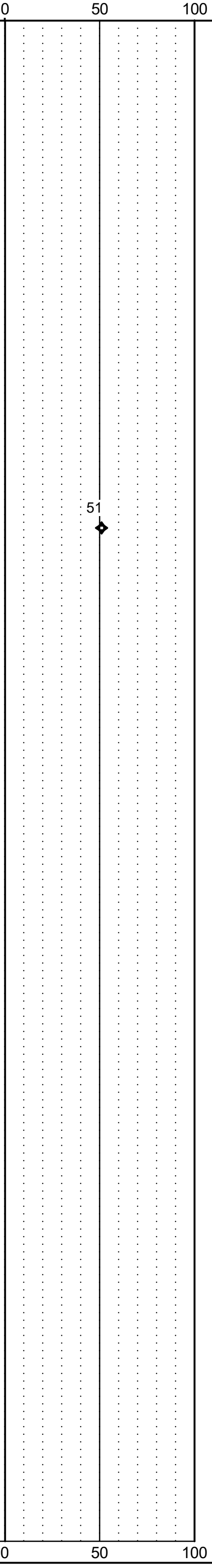
Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

◆ DYNAMIC CONE PENETROMETER
☒ STATIC PENETROMETER
● MOISTURE CONTENT %

COMMENTS

Surface Conditions: Sage Brush

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	COMMENTS
0.0	Brown, poorly graded GRAVEL (GP) with sand, roots, and cobbles; fine sand; fine to coarse, rounded to subrounded gravel; moist **FILL**	0.0			
	Dark brown, poorly graded SAND (SP) with roots; fine sand; moist	0.5			
2.0				☒ S-1	
4.0	Very dense, brown; poorly graded GRAVEL (GP) with sand and cobbles; fine sand; fine to coarse, rounded to subrounded gravel; moist	4.0	DCP	☒ S-2	
6.0					
					Caving at 7 feet bgs
8.0	becomes gray; with medium sand and coarse gravel				
				☒ S-3	
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0			
12.0					



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COMPLETED: 5/12/2020

EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A2

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

PBS PROJECT NUMBER:
66200.000

TEST PIT TP-3

APPROX. TEST PIT TP-3 LOCATION:
(See Site Plan)
Lat: 46.33022 Long: -119.28166

MATERIAL DESCRIPTION

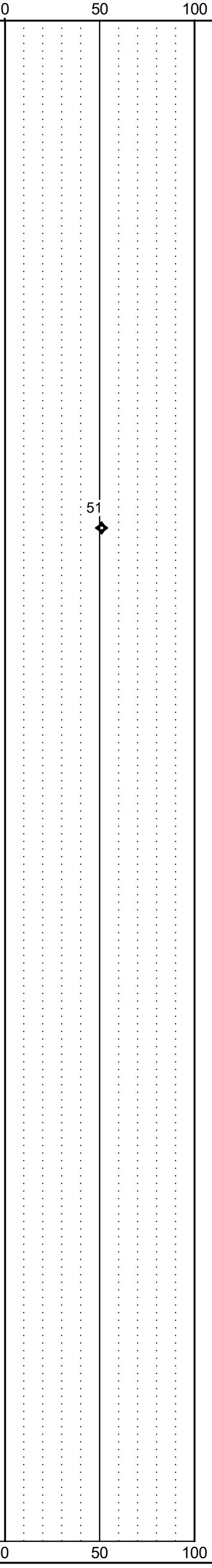
Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

◆ DYNAMIC CONE PENETROMETER
☒ STATIC PENETROMETER
● MOISTURE CONTENT %

COMMENTS

Surface Conditions: Sage Brush

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	COMMENTS
0.0	Brown, poorly graded GRAVEL (GP) with sand, roots, and cobbles; fine to medium sand; coarse, rounded to subrounded gravel; moist	0.0			
2.0	weak cementation			☒ S-1	
4.0	becomes very dense, without roots		DCP	☒ S-2	
6.0					
8.0	boulders at 8 feet bgs				Caving at 8 feet bgs
				☒ S-3	
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0			
12.0					



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COMPLETED: 5/12/2020

EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

TEST PIT TP-4

PBS PROJECT NUMBER:
66200.000

APPROX. TEST PIT TP-4 LOCATION:
(See Site Plan)

Lat: 46.32975 Long: -119.28291

Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

◆ DYNAMIC CONE PENETROMETER
☒ STATIC PENETROMETER
● MOISTURE CONTENT %

Surface Conditions: Sage Brush

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	DCP (0–100)	COMMENTS
0.0	Brown, poorly graded GRAVEL (GP) with sand; fine sand; fine to coarse, rounded to subrounded gravel; moist **FILL**	0.0				
1.0	Loose, brown, poorly graded SAND (SP); fine sand; moist	1.0				
2.0			DCP	S-1	10	
4.0	Very dense, brown, poorly graded GRAVEL (GP) with sand and cobbles; fine sand; coarse, rounded to subrounded gravel; moist	4.0	DCP	S-2	51	
7.0	becomes gray; with medium sand					Caving at 7 feet bgs
9.5				S-3		
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0				
12.0						

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EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A4
Page 1 of 1

PBS

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

PBS PROJECT NUMBER:
66200.000

TEST PIT TP-5

APPROX. TEST PIT TP-5 LOCATION:
(See Site Plan)

Lat: 46.32988 Long: -119.28221

Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

Legend: ◆ DYNAMIC CONE PENETROMETER; ☒ STATIC PENETROMETER; ● MOISTURE CONTENT % (scale 0 – 50 – 100)

Surface Conditions: Sage Brush

DEPTH FEET	MATERIAL DESCRIPTION	TESTING	SAMPLE TYPE SAMPLE ID	DYNAMIC CONE PENETROMETER	COMMENTS
0.0	Brown, poorly graded GRAVEL (GP) with sand, roots, and cobbles; fine sand; fine to coarse, rounded gravel; moist **FILL**				
1.0	Olive brown, poorly graded SAND (SP) with roots; fine to medium sand; moist				
2.0	grades without roots	DCP	☒ S-1	21	
3.0	Very dense, brown, poorly graded GRAVEL (GP) with sand and cobbles; fine sand; coarse, rounded gravel; moist				
4.0		DCP	☒ S-2	51	
9.0					Caving at 9 feet bgs
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.				

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EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A5
Page 1 of 1

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

PBS PROJECT NUMBER:
66200.000

TEST PIT TP-6

APPROX. TEST PIT TP-6 LOCATION:
(See Site Plan)
Lat: 46.32966 Long: -119.28139

DEPTH FEET	MATERIAL DESCRIPTION Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	◆ DYNAMIC CONE PENETROMETER ☒ STATIC PENETROMETER ● MOISTURE CONTENT % 0 50 100	COMMENTS Surface Conditions: Sage Brush
0.0	Dark brown, poorly graded SAND (SP) with roots; medium sand; moist **FILL**	0.0				
	Brown, poorly graded GRAVEL (GP) with sand and roots; fine sand; fine to coarse gravel; moist	0.5				
	Medium dense, brown, poorly graded SAND (SP) with roots; fine sand; moist	1.5				
2.0			DCP	☒ S-1	◆ 28	
						Infiltration testing completed at 4 feet bgs
4.0	Brown, poorly graded GRAVEL (GP-GM) with silt, sand, and cobbles; non-plastic; fine to medium sand; coarse, rounded gravel; moist	4.0	P200	☒ S-2		P200 = 13%
6.0						
8.0						
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0				
12.0						

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EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A6
Page 1 of 1

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

TEST PIT TP-7

PBS PROJECT NUMBER:
66200.000

APPROX. TEST PIT TP-7 LOCATION:
(See Site Plan)
Lat: 46.32940 Long: -119.28271

MATERIAL DESCRIPTION

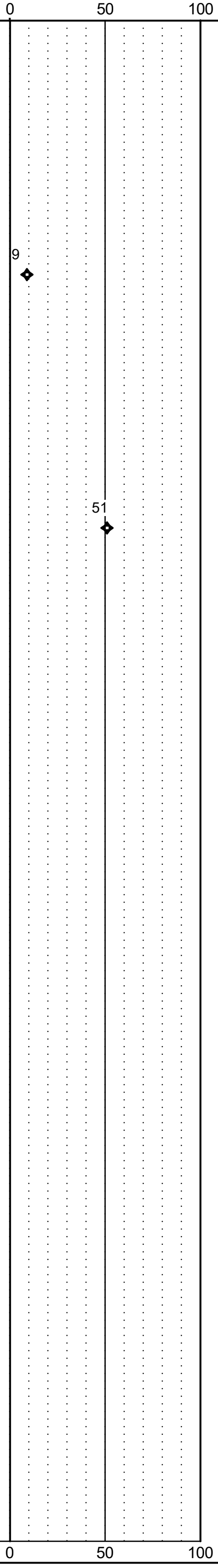
Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

◆ DYNAMIC CONE PENETROMETER
⊠ STATIC PENETROMETER
● MOISTURE CONTENT %

COMMENTS

Surface Conditions: Sage Brush

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	DYNAMIC CONE PENETROMETER	COMMENTS
0.0	Brown, poorly graded GRAVEL (GP) with sand and roots; fine sand; coarse, founded to subrounded gravel; moist **FILL** grades without roots	0.0				
1.5	Loose, brown, poorly graded SAND (SP); fine sand; moist	1.5				
2.0			DCP	S-1	9	
4.0	Very dense, dark gray, poorly graded GRAVEL (GP) with sand and cobbles; medium sand; coarse, rounded to subrounded gravel; moist	4.0	DCP	S-2	51	
7.0						Caving at 7 feet bgs
8.0	boulders at 8 feet bgs					
9.5				S-3		
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0				
12.0						



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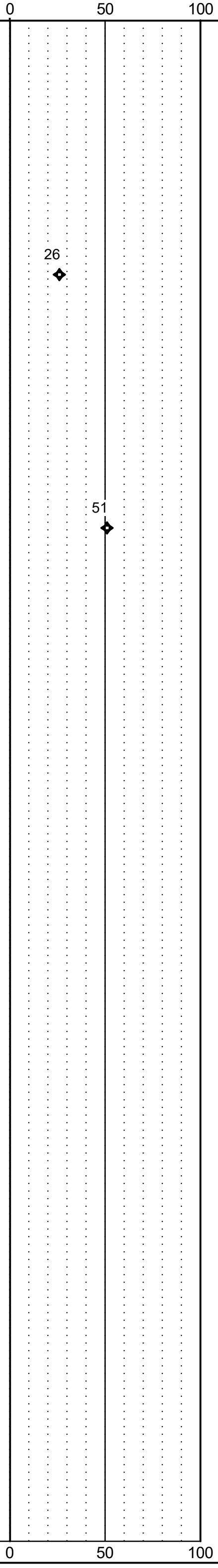
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A7
Page 1 of 1

LUXELOCKER STORAGE RICHLAND, WASHINGTON	**TEST PIT TP-8**	
PBS PROJECT NUMBER: 66200.000	APPROX. TEST PIT TP-8 LOCATION: (See Site Plan) Lat: 46.32938 Long: -119.28191	

DEPTH FEET	MATERIAL DESCRIPTION Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	◆ DYNAMIC CONE PENETROMETER ☒ STATIC PENETROMETER ● MOISTURE CONTENT %	COMMENTS Surface Conditions: Sage Brush
0.0	Brown, poorly graded GRAVEL (GP) with sand and roots; fine sand; fine to coarse, rounded to subrounded gravel; moist **FILL**	0.0				
1.0	Medium dense, dark brown, poorly graded SAND (SP) with roots; fine sand; moist	1.0				
2.0			DCP	☒ S-1	26	
3.0	Very dense, brown, poorly graded GRAVEL (GP) with sand and cobbles; fine sand; coarse, rounded gravel; moist	3.0				
4.0			DCP	☒ S-2	51	
7.0	becomes dark gray; with medium sand					
10.0	Final depth 10.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	10.0				
12.0						



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COMPLETED: 5/12/2020

EXCAVATED BY: Soo Good LLC
EXCAVATION METHOD: Deere 50G with Toothed Bucket

FIGURE A8
Page 1 of 1

Appendix B

Laboratory Testing

Appendix B: Laboratory Testing

B1 GENERAL

Samples obtained during the field explorations were examined in the PBS laboratory. The physical characteristics of the samples were noted and field classifications were modified where necessary. During the course of examination, representative samples were selected for further testing. The testing program for the soil samples included standard classification tests, which yield certain index properties of the soils important to an evaluation of soil behavior. The testing procedures are described in the following paragraphs. Unless noted otherwise, all test procedures are in general accordance with applicable ASTM standards. "General accordance" means that certain local and common descriptive practices and methodologies have been followed.

B2 CLASSIFICATION TESTS

B2.1 Visual Classification

The soils were classified in accordance with the Unified Soil Classification System with certain other terminology, such as the relative density or consistency of the soil deposits, in general accordance with engineering practice. In determining the soil type (that is, gravel, sand, silt, or clay) the term that best described the major portion of the sample is used. Modifying terminology to further describe the samples is defined in Table A-1, Terminology Used to Describe Soil, in Appendix A.

B2.2 Moisture (Water) Contents

Natural moisture content determinations were made on samples of the fine-grained soils (that is, silts, clays, and silty sands). The natural moisture content is defined as the ratio of the weight of water to dry weight of soil, expressed as a percentage. The results of the moisture content determinations are presented on the logs of the test pits in Appendix A and on Figure B1, Summary of Laboratory Data, in Appendix B.

B2.3 Grain-Size Analyses (P200 Wash)

Washed sieve analyses (P200) were completed on samples to determine the portion of soil samples passing the No. 200 Sieve (i.e., silt and clay). The results of the P200 test results are presented on the exploration logs in Appendix A and on Figure B1, Summary of Laboratory Data, in Appendix B.

SUMMARY OF LABORATORY DATA

LUXELOCKER STORAGE
RICHLAND, WASHINGTON

PBS PROJECT NUMBER:
66200.000

SAMPLE INFORMATION				MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
TP-1	S-2	4	323.0	2.9				19			
TP-6	S-2	4	349.0	2.9				12			

LAB SUMMARY 66200.000_TP1-8_20200515.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 5/28/20:RPG

FIGURE B1