Hearings Examiner Meeting Agenda
Thursday, May 29, 2025, 5:00 PM
Council Chambers, 616 NE 4th AVE

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OPTION 1 -

1. Go to www.zoom.us and download the app or click "Join A Meeting" and use Meeting ID – 838 1830 7681
2. Or, from any device click https://us06web.zoom.us/j/83818307681

OPTION 2 - Join by phone (audio only):
Dial 877-853-5257 and enter meeting ID# 838 1830 7681

For Public Comment:
Click the raise hand icon in the app or by phone, hit *9 to "raise your hand", or email to communitydevelopment@cityofcamas.us

These will be entered into the meeting record. Emails received up until one hour before the start of the meeting will be emailed to the Meeting Body prior to the meeting start time.

CALL TO ORDER

INTRODUCTIONS AND INSTRUCTIONS

HEARING ITEM

1. City of Camas PFAS Treatment Equipment Well 13 (CUP25-1002)

CLOSE OF MEETING

LAND USE DECISION

STAFF REPORT

Proposed Updates to the Existing Well 13 facility

Planning Case Number CUP25-1002

Report Date: May 22, 2025

TO	Hearings Examiner	**HEARING DATE**	May 29, 2025
PROPOSAL	Shoreline Conditional Use Permit, Type III Conditional Use Permit, Minor Design Review, Critical Area, Archeological, and SEPA Review for the proposed updates to the Existing Well 13, including, but not limited to, installing per- and polyfluoralkyl substances (PFAS) treatment equipment, adding a new generator, building addition for new electrical room, chemical/well room for a proposed new well and construction of a driveway off East 1st Avenue on three adjacent properties totaling approximately 0.56 acres in size, situated in the MF-18 - Multifamily Residential Zone.		
LOCATION	The site is located at 1250 East 1st Avenue, Camas, WA 98607, in the NE ¼ of Section 11, Township 1 North, Range 3 East, Camas, WA, Parcel Numbers: 90928000, 91031000, and 91034000.		
APPLICANT/ CONTACT	Mike Odren, MacKay Sposito 18405 SE Mill Plain Blvd., Suite 100 Vancouver, WA 98683	**OWNER**	City of Camas 841 NE 22nd Ave. Camas, WA 98607
APPLICATION SUBMITTED	March 10, 2025	**APPLICATION COMPLETE**	March 25, 2025
PUBLIC NOTICES	A Notice of Application was mailed to property owners within 300 feet of the site and published in the Post Record on April 9, 2025. Legal publication #998190. A Notice of Public Hearing was mailed to property owners within 300 feet of the site and published in the Post Record on May 15, 2025. Legal publication #1007310.		

APPLICABLE LAW: The application was submitted on March 10, 2025, and the applicable codes are those codes that were in effect at the date of the application's first submittal. Camas Municipal Code (CMC) Title 16 Environment, Title 17 Land Development, and Title 18 Zoning.

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SUMMARY

An application has been made to the City of Camas for a shoreline conditional use permit and minor design review for the proposed updates to Well 13. Specifically, the proposed improvements include, but are not limited to, installing PFAS treatment equipment, adding a new generator, a building addition for a new electrical room, building addition for new chemical/well room, and constructing a driveway off East 1st Avenue to accommodate a well pump crane. The proposed upgrades will be constructed in two stages. Stage One will include the following:

- Construction of new electrical room
- Construction of new generator pad
- Construction of new transformer pad and gravel access
- Installation of two ion exchange tanks on concrete pad
- Installation of covered bag filter pad and associated bag filters
- Installation of new driveway for crane truck
- Removal of Well 4 building

Stage two will include:

- Installation of new well
- Construction of new chemical/well building
- Installation of four ion exchange tanks on two concrete pads

Construction hours and activities are proposed to take place between 7am-7pm, Monday through Friday.

The site is located at 1250 East 1st Avenue, in the MF-18 – Multifamily Residential Zone and consists of three separate parcels totaling approximately 0.56 acres in size, further identified as Tax Parcels 90928000, 91031000, and 91034000. It should be noted that Clark County GIS shows parcels 91031000 and 91034000 are part of the Washougal River Greenway. However, the entire site has been historically used as a municipal well site.

A Conditional Use Permit (CUP07-03) was approved in July 2007 for the construction of the existing single-story building for the existing well and treatment equipment on the subject site.

Existing zoning and land uses adjacent to the project site are as follows:

Direction	Zoning	Use
North	Community Commercial – CC	Parking Lot
East	Multifamily Residential (MF-18)	Single-Family attached townhomes

South	Multifamily Residential (MF-18)	Open Space
West	Multifamily Residential (MF-18)	Single-family detached homes

The project area includes two existing buildings, an abandoned well (Well 4) and Well 13. Surrounding land use to the north, east, and west consists of high-density residential development, with Lacamas Creek to the south. The topography gently slopes to the south-southeast but is generally level in the north and central portions. The southern portion of the site, waterward of the top of the bank, slopes steeply (58 percent slopes) toward Lacamas Creek. Vegetation in the north and central portion of the site consists of landscaped and ornamental native and non-native trees and shrubs, a native balsam poplar (Populus balsamifera) and black walnut (Juglans nigra). Typical lawn species, mixed with a small percentage of other herbaceous plants, are present and routinely mowed and maintained throughout. Vegetation in the southern portion of the site consists of one Oregon white oak (Quercus garryana), Douglas fir (Pseudotsuga menziesii), cottonwood, and beaked hazelnut (Corylus cornuta) within the greenway at the top of the bank and Himalayan blackberry (Rubus armeniacus) along the steep slopes. Lacamas Creek, a Type S stream, is a shoreline of state-wide significance and runs along the southern boundary.

Frontage improvements along East 1st Avenue were previously constructed to current city standards. As such, the applicant states that no further frontage improvements are anticipated except for installation of a new driveway to accommodate a well pump crane.

There is an existing driveway approach that serves Cramer Lane located to the east of the site which provides vehicular access to the existing well buildings. This driveway will continue to be utilized for the project. Existing vegetation consists of a mix of native and non-native ornamental trees, shrubs, and grass. Environmental constraints consist of a 200-foot shoreline buffer from the Ordinary High-Water Mark for Lacamas Creek located south of the site. The site also borders the Washougal River Greenway to the south.

The proposed development does or can comply with the applicable standards of the Camas Municipal Code.

FINDINGS

TITLE 16 ENVIRONMENT

State Environmental Policy Act **CMC Chapter 16.07**

A SEPA checklist was submitted, and a Determination of Non-Significance was issued on April 17, 2025, with the comment period closing at 5:00pm on May 1, 2025. During the SEPA comment period, two comments were received, one from Department of Archeology & Historic Preservation (DAHP) and one from Department of Ecology. DAHP has requested the applicant to obtain a DAHP permit prior to any ground disturbance. Department of Ecology is requesting that the applicant review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes", posted at Ecology's website. The correspondence has been included in the public record.

> **FINDING:** Staff finds the comments provided by DAHP and the Department of Ecology should be complied with.

Archaeological Historic Preservation **CMC Chapter 16.31**

An Archaeological Predetermination Survey was performed by Archaeological Investigation Northwest on February 9, 2007, for the initial request for a CUP to construct the well facility. The survey report indicated that the project area had previously been heavily impacted by the construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is

recommended as not eligible for listing in the NRHP, and they recommend no additional study at the site. The report and findings are not subject to the open public records act and as such, the city cannot disclose the results.

FINDING: Staff finds a condition of approval is warranted that if potential artifacts are discovered during construction, work must immediately cease, and both the State Department of Archaeological and Historic Preservation and the City shall be notified.

Critical Areas — CMC Chapter 16.51

Clark County GIS identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report and Shoreline Narrative have been prepared by MacKay Sposito Inc., dated January 22, 2025. The shoreline critical areas report describes the current conditions and the extent of wetlands and fish and wildlife habitat conservation areas (FWHCA). Per this report, no wetlands were observed within the project area.

Lacamas Creek (Type S) is mapped at the southern border of the project site. According to the Critical Areas Report, the standard riparian buffer for a Type S stream is 150 feet (CMC 16.61.040.D), however; the City of Camas SMP 5.3.(2)(b) states that the FWHCA buffers lots fronting on First Avenue between SE Garfield St. and NE Third St., are modified to 20 feet from the top of slopes exceeding 40 percent (the PSA is located between SE Garfield St. and NE Third St. and slopes are approximately 58%). Shoreline management areas extend landward 200 feet on a horizontal plane from the OHWM and are under the jurisdiction of the City of Camas SMP (2021).

No terrestrial species identified by the USFWS IPaC database as potentially present were observed within the project survey area, and no suitable habitats for these species were observed within or near the site (USFWS 2024a). Listed threatened fish are mapped within Lacamas Creek (Table 4) and assumed to be present.

Oregon White Oak Woodlands are considered stands of oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25% or where total canopy coverage of the stand is <25%, but oak accounts for at least 50% of the canopy coverage. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands greater than one acre in size. In urban or urbanizing areas, single oaks or stands of less than one acre may also be considered a priority when found particularly valuable to fish and wildlife (WDFW 2024).

As noted in the critical areas report, one oak (Oak 1) measuring approximately 26 inches in diameter at breast height (dbh) was mapped in the southern portion of the project survey rea. Based on the WDFW functional assessment for individual oak trees, Oak 1 scored Medium Function (Nolan and Azerrad 2024). The functional assessment for Oak 1 is provided in Table 2 of the report.

According to the report, all permanent and temporary impacts to wetland and fish and wildlife habitat conservation areas will be avoided; no trees, or shrubs will be removed within the stream buffer, biodiversity area, or Oregon white oak dripline (Appendix A, Figure 3). As there are no permanent or temporary impacts to wetland and fish and wildlife habitat conservation area critical areas, no restoration or mitigation for these natural resources is proposed.

FINDING: Staff found the proposed project is generally in compliance with applicable guidelines of CMC Chapter 16.51 as conditioned.

TITLE 18 ZONING

Design Review **CMC Chapter 18.19**

As per CMC 18.19.020, design review is required for the proposed project as the project is considered a commercial use that is located in the multiple-family residential zone. The proposed project includes, but is not limited to, installing PFAS treatment equipment, adding a new generator, a building addition for a new electrical room, building addition for new chemical/well room, and constructing a driveway off East 1st Avenue to accommodate a well pump crane.

The project area is located on the southwest corner of the intersection of East 1st Avenue and SE Cramer Lane. There is an existing parking lot and church located across East 1st Avenue, to the north of the project site. The site is adjacent to single-family residential development to the west and multi-family (attached townhomes) to the east. The Washougal River is to the south of the site.

The preliminary site plan shows buildings are massed to the front (street facing) side of the site to enhance and preserve the residential quality of the neighborhood streetscape. Filtration equipment is located to the greatest extent to the rear of the site, on the SE Cramer Lane side, to screen and reduce their presence to the E 1st Avenue and neighboring properties. The size of the buildings is in scale with the neighboring single-story single-family residence and two-story townhome complex and appropriate to the MF-18 zoning. Pedestrian circulation is provided on the main street frontage via the existing public sidewalk and along the east side of the site/west side of SE Cramer Lane with a new sidewalk connecting to the existing gravel pathway in the Washougal River Greenway south of the site.

The additions to the building are designed to be integrated extensions of the existing building design. The existing building is designed with articulated masonry walls and lap siding that embodies the residential feel of the street. The roof uses an architectural grade composite shingle, seen on neighboring buildings, with overhangs and brackets at the gable ends that are distinctly residential in character. The additions will replicate and match these details to create a design that looks uniform, finished and as a singular complete design.

The building walls facing the main street frontage in stage 1 and stage 2 are designed with articulation of faux windows, residential style doors, masonry detailing, roof overhangs and brackets to add scale and composition to the facades that matches the residential character of the neighborhood and avoids a “blank” look. Stage 1 composition features the gable end of the building fronting the street. The design uses window and door composition to articulate the façade; masonry detailing to establish a base and detail banding of the building and create a smaller scale to the elevation. Lap siding for the wood framed construction above the masonry is used to break up the top quarter of the wall. The roof is also further articulated with overhangs, brackets, and exposed collar ties to add depth, scale, and interest to the elevation. The Stage 2 design features the eave side of the building for its frontage, but it uses the same detailing with windows, masonry, and roof overhangs to break up the massing and composition of the elevation and bring a residential fell to the frontage.

The proposed design for the additions will continue the design of the existing building to create a cohesive look. The color palette features natural, muted tones, such as grays, pastels, and tans. The PFAS filtration tanks shall be in a muted green tone to blend in with the natural vegetation at the back of the site.

The plan incorporates new plantings, including Oregon ash and Paperbark maple trees along with shrubs like Isanti dogwood, Oregon grape, and salal, spaced strategically to enhance site aesthetics and environmental resilience while meeting landscape buffer requirements. Groundcover will consist of a hydroseeded meadow of native species. The site will feature an automatic irrigation system, and all landscaping will comply with City of Camas regulations. The preliminary landscape plan provides for year-round color and texture and will afford the site a cohesive design with trees and shrubs that are adapted to the climate of the Pacific Northwest and match surrounding environments. The project application

includes a request for minor design review approval for the proposed modifications and can be conditioned to be in compliance with the Design Review Manual.

> **FINDING:** Staff found the proposed project is generally in compliance with the Design Review Manual, and applicable design principles and guidelines of CMC Chapter 18.19 as conditioned.

Conditional Use Permit — CMC Chapter 18.43

CMC Chapter 18.43.050 Criteria for Conditional Use Permit Approval:

The hearings examiner shall be guided by the following criteria in granting or denying a conditional use permit:

A. The proposed use will not be materially detrimental to the public welfare, or injurious to the property or improvements in the vicinity of the proposed use, or in the district in which the subject property is situated;

The applicant is seeking a Conditional Use Permit to update the existing Well 13 facilities on the subject property which is conditionally permitted under CMC 18.07 040 – Table 2. The proposed development is consistent with the goals and policies outlined in the City of Camas Comprehensive Plan. The project aligns with the City's commitment to ensuring safe and reliable public infrastructure by upgrading critical water treatment facilities to address per- and polyfluoroalkyl substances (PFAS) contamination. This directly supports the Comprehensive Plan's objectives related to public health, environmental protection, and sustainable water resource management.

Furthermore, the project is compatible with land use policies promoting essential public services within established urban areas. The site, located in the Multifamily Residential- 18 (MF-18) zone, has historically functioned as a public utility site, and the proposed improvements will enhance its operational efficiency while maintaining compatibility with surrounding uses. The staged approach to development ensures that necessary infrastructure will be in place to support both existing and future site functions, in alignment with the City's growth management strategies

> **FINDING:** The proposed development is an allowed use, subject to the approval of a conditional use permit, per CMC Chapter 18.07 Use Authorization and will not be detrimental to the public or injurious to adjacent uses as discussed and conditioned throughout this staff report.

B. The proposed use shall meet or exceed the development standards that are required in the zoning district in which the subject property is situated;

As the applicant has outlined in the project narrative, and along with the submitted plans and supplemental documents, the proposed redevelopment of the project area meets or exceeds the development standards of the MF-18 – Multifamily Residential zoning district. The building's architecture, provided parking and site layout are designed to maintain the cohesive design of the site, ensuring visual harmony with the existing structures. As such, the design complies with all relevant development standards of the zoning district and aligns with the existing character of the subject property as well as the surrounding area.

<u>Roads</u>

The proposed project is to meet the requirements of CMC 17.19.040.B Streets and the Camas Design Standards Manual (CDSM).

The proposed development is located at 1250 E 1st Avenue, which is on the south side of E 1st Avenue and on the west side of SE Cramer Lane. E 1st Avenue is classified as an existing fully improved local road with

curb and sidewalk on both sides of the road along the frontage of the proposed improvements. SE Cramer Lane is an existing local road with approximately 20 feet of pavement width that provides vehicular access to the Well #13 site on the west side and Three Rivers condominiums on the east side. There are not any sidewalks on either side of the road as this road primarily serves as an access to the Well 13 facility and the city owned open space along the Washougal River. SE Cramer Lane dead-ends approximately 200 feet south of the centerline of E 1st Avenue.

[E 1st Avenue]
Per CMC 17.19.040.B.1, half-width street improvements and per CMC 17.19.040.B.5 dedication of additional right-of-way may be required for a development when it is necessary to meet the minimum street width standards or when lack of such dedication would cause or contribute to an unsafe road or intersection.

The street frontage adjacent to Well 13 and the proposed development is fully improved, therefore neither half-width street improvements nor dedication of additional right-of-way is required. ***Staff concurs.***

However, portions of the existing sidewalk are worn and have potential tripping hazards due to cracked sidewalk panels.

> Staff recommends a condition of approval that prior to engineering plan approval, the applicant should be required to submit final site plans that include the removal and replacement of all portions of the existing sidewalk that are worn or cracked.

The only access to the existing Well 13 building is currently from SE Cramer Lane. Per the preliminary Site Plans (Exhibit 11), the applicant is proposing to construct a new driveway approach off E 1st Avenue to accommodate a well pump crane truck.

> Staff recommends a condition of approval that prior to engineering plan approval, the applicant should be required to submit final site plans that include a commercial driveway approach.

[SE Cramer Lane]
Per the preliminary Site Plans (Exhibit 11), the applicant is proposing to construct a 5-foot-wide sidewalk along the west side of SE Cramer Lane and install 3 driveway approaches to serve the future chemical room, electrical room, and generator. The applicant is also proposing to construct a gravel pad behind the new sidewalk for access to the transformer pad. To ensure that gravel is not tracked onto SE Cramer Lane, the gravel pad should be replaced with either asphalt or concrete.

> Staff recommends a condition of approval that prior to engineering plan approval, the applicant should revise the gravel access to the transformer pad to be either asphalt or concrete in lieu of gravel.

Per CMC 17.19.040.B.10.D.b.iii. Pedestrian connections need to meet the Design Standards Manual for ADA accessibility in accordance with PROWAG AND ADAAG.

> Staff recommends a condition of approval that prior to engineering plan approval, all the new sidewalks should be designed to meet the requirements for ADA accessibility per the PROWAG and ADAAG.

FINDING: Staff finds that the proposed development, as conditioned, can or will meet the requirements of CMC 17.19.040.B and the Camas Design Standards Manual (CDSM) for Roads.

<u>Sanitary Sewer</u>
The proposed project is to meet the requirements of CMC 17.19.040.C.2 sanitary sewers.

There is an existing 10-inch concrete gravity sanitary sewer main and two existing sanitary sewer manholes located in the center of SE Cramer Lane. The first manhole is located approximately 110 feet south of the manhole in E 1st Avenue with a second manhole located approximately 50-feet south of the first manhole. There is an existing 10-inch HDPE gravity sewer main that runs west-to-east through the central portion of the site to serve the residential properties to the west of the Well 13 site.

The preliminary utility plans (Exhibit 8) show the following proposed improvements to the onsite sanitary sewer system:

- A 10-inch PVC sewer line from the media loading/unloading station to the existing sanitary sewer manhole at the end of SE Cramer Lane.
- A 10-inch PVC sewer line from the pump room's waste structure to a new sewer manhole installed over the existing 10-inch main on the west side of the site.

  Staff recommends a condition of approval that prior to engineering plan approval, the applicant should be required to submit final sanitary sewer utility plans for review and approval.

FINDING: Staff finds that the proposed development, as conditioned, can or will meet the requirements of CMC 17.19.040.C.2 and the Camas Design Standards Manual (CDSM) for Sanitary Sewer.

Storm Sewer

The proposed project is to meet the requirements of CMC 14.02 Stormwater Control and Camas Design Standards Manual (CDSM).

The proposed development is located on Parcel No. 90928000 and 91031000, which is the location of the existing City of Camas Well #13 Facility. The proposed improvements will result in approximately 0.46 acres (20,038 sf) of land-disturbing activities, which include construction of a new facility that will include treatment for PFAS at the existing Well 13 site.

A Preliminary Technical Information Report (PTIR) dated February 20, 2025 (Exhibit 13), was prepared by MacKay Sposito and submitted with the application. Section B – Minimum Requirements, (pages 4 and 5) of the PTIR, discusses stormwater requirements in relation to the City of Camas Stormwater Design Standards Manual, Chapter 1 General Requirements, Figure 1.1 and Figure 1.2. However, the city's Stormwater Design Standards Manual is not currently available as the Stormwater Design Standards Manual is under revision. The minimum requirements (MRs) for new developments and redevelopments are to be evaluated per the latest edition of Ecology's S*tormwater Management Manual for Western Washington (2024 SWMMWW).*

Per CMC 14.02.050 Adoption of Manuals, development sites are to be evaluated per the latest edition of Stormwater Maintenance Manual for Western Washington (SWMMWW) and the Camas Design Standards Manual (CDSM). The latest edition of the SWMMWW is Ecology's *2024 Stormwater Management Manual for Western Washington (SWMMWW).*

Per Ecology's *Stormwater Management Manual for Western Washington (SWMMWW)* Figure 1-3.1: Flow Chart for Determining Requirements for Re-development, if the project results in 5,000 SF or greater, of new plus replaced hard surface area, minimum requirements #1-#9 will apply.

Per the PTIR, Site Characteristics table, on page 5 the amount of existing hard surfaces is (0.072 acres), the amount of new hard surfaces is (0.206 acres), and the amount of replaced hard surfaces (0.014 acres), therefore Minimum Requirements (MRs) 1-9 apply. The PTIR addresses MRs 1-9 in relation to the city's Stormwater Manual. The PTIR is to be resubmitting evaluating minimum requirements (MRs) 1-9 per Ecology's 2024 SWMMWW.

Staff recommends a condition of approval that prior to engineering plan approval, the applicant should be required to submit the Final Stormwater Technical Information Report stamped, and signed stating that the report was prepared in accordance with Ecology's *2024 Stormwater Management Manual for Western Washington (SWMMWW),* including evaluating Minimum Requirements (MRs) 1-9 per the *SWMMWW*.

The existing storm sewer system collects runoff from the existing buildings and site area via roof drain connections and area drains and conveys stormwater by pipe to the south end of the site where it is dispersed through a perforated pipe. The runoff eventually drains downhill to the southeast direction to the Washougal River.

The preliminary utility plans (Exhibit 8) submitted March 24, 2025, show a new onsite conveyance system consisting of 6-inch and 8-inch storm mains that convey stormwater runoff to a series of area drains, along the west side of the site. The new conveyance system connects to an existing catch basin and 12-inch conveyance line that discharges to an existing storm sewer flow spreader in the southwest corner of the site.

Per the Camas Design Standards Manual, storm conveyance mains are to be a minimum 12-inch diameter and storm laterals are to be a minimum 10-inch diameter. Onsite storm lines between area drains and/or catch basins should be a minimum of 10-inch diameter for ease of cleaning the line.

Staff recommends a condition of approval that prior to engineering plan approval, the applicant should submit final stormwater plans with the new stormwater mains upsized to a minimum 10-inch diameter conveyance piping between area drains for ease of maintenance.

FINDING: Staff finds that the proposed project, as conditioned, can or will meet the requirements of CMC 14.02 and the Camas Design Standards Manual (CDSM) for Storm Sewer.

Water

The proposed project is to meet the requirements of CMC 17.19.040.C.4 Water System and the Camas Design Standards Manual (CDSM).

There is an existing 12-inch water main in E 1st Avenue and an 18-inch main in SE Cramer Lane with a 1-inch water connection serving the existing facility.

Per the preliminary utility plans (Exhibit 8), submitted March 24, 2025, the applicant is proposing to tap a new 4-inch water main off the existing 8-inch water main in E 1st Avenue and extend the new 4-inch water main south then along the east side of the site to provide a 4-inch water service to media loading and unloading station. The existing 1-inch water service will be tapped from the new 4-inch water main to serve the pump room and chemical room. The new 4-inch main will include the installation of a 4-inch water meter assembly in a concrete vault and a 4-inch double check backflow prevention assembly on the south side of the right-of-way.

There is an existing fire hydrant on E 1st Avenue. The existing fire hydrant pad does not meet the pad dimensions required on the east and west side of the hydrant per Water Detail W11, which requires a minimum 36-inches of concrete from the flange to the edge of concrete.

Staff recommends a condition of approval that prior to engineering plan approval, the applicant should submit final water utility plans, which are to include a hydrant pad per Water Detail W11, for review and approval.

FINDING: Staff finds the proposed project, as conditioned, can and will meet the requirements of CMC 17.19.040.C.4 and the Camas Design Standards Manual (CDSM) for Water.

Erosion Control

Per CMC 14.06 Erosion and Sediment Control and CMC 17.21.030 Land disturbing activities greater than once acre, will be required to meet the provisions for erosion prevention and sediment control as outlined in CMC 17.21.030 Land Disturbing Activities and CMC 14.06 Erosion and Sediment Control.

The proposed development is located on Parcel No. 90928000 and 91031000, which is the location of the existing City of Camas Well #13 Facility. The proposed improvements will result in approximately .460 acres (20,038 sf) of land-disturbing activities, which include construction of a new facility that will include treatment for PFAS at the existing Well 13 site.

Per CMC 17.21.030.A installation of erosion prevention and sediment control measures are required per approved erosion and sediment control plans.

The preliminary grading plan (Exhibit 9), submitted March 24, 2025, shows erosion and sediment control measures around the perimeter of the site.

> Staff recommends a condition of approval that prior to engineering approval, the applicant should submit final grading and erosion control plans per the Camas Design Standards Manual (CDSM).
>
> **FINDING:** Staff finds the proposed development, as conditioned, can or will meet the development standards that are required in the zoning district.

C. The proposed use shall be compatible with the surrounding land uses in terms of traffic and pedestrian circulation, density, building, and site design;

Traffic and Pedestrian Circulation

The proposed development improvement is located at the existing municipal well site that will add a PFAS treatment facility. There is an existing road off E 1st Avenue to SE Cramer Lane, which serves the existing municipal Well 13.

SE Cramer Lane also serves as a secondary access for the Three Rivers Condominiums. The Three Rivers Condominiums primary ingress and egress is via a 20-foot-wide private driveway off E 1st Avenue, approximately 84-feet east of SE Cramer Lane.

Ingress and egress to the Well 13 site will continue to be via SE Cramer Lane, with an additional driveway approach off E 1st Avenue to accommodate a well pump crane truck.

There is not currently a safe pedestrian access, aka a sidewalk, from E 1st Avenue along either side of SE Cramer Lane. The preliminary site plans (Exhibit 11) propose a pedestrian sidewalk along the west side of SE Cramer Lane as part of the proposed improvements for the site. SE Cramer Lane is the existing vehicular access for city staff to and from the site.

The new pedestrian sidewalk will be incorporated along the subject property's east property line within SE Cramer Lane roadway to ensure safe and efficient circulation, connecting the existing well facilities with the public right-of-way along East 1st Avenue and to the existing gravel pathway within the Washougal River Greenway south of the site. The proposed improvements will maintain accessibility for maintenance personnel and emergency responders while minimizing disruptions to the surrounding area.

Traffic Impact Study

A Transportation Impact Analysis/Study (TIA/TIS) is required when a proposed development/use generates 200 vehicles per day (VPD) or more.

The proposed development will generate a minimal number of ADTs at completion of the improvements to Camas PFAS evaluation & Well 13 treatments will result in less than the 200 average daily trips (ADTs) that trigger a TIS, therefore a traffic impact study was not required. ***Staff concurs.***

FINDING: Staff finds the proposed development, as conditioned, is compatible with surrounding land uses in terms of traffic and pedestrian circulation, density, building, and site design.

Density, Building, and Site Design

The site design prioritizes operational efficiency while ensuring compatibility with adjacent land uses. The proposed improvements will be concentrated within the existing utility site to minimize visual and functional impacts on nearby residential properties. The staged approach to development ensures that critical infrastructure upgrades can be implemented systematically without disrupting essential public services.

Architectural and site design elements will be cohesive with the existing well facilities. Building additions for the expanded electrical and chemical rooms, as well as the new well, will utilize materials and colors consistent with the existing structures to maintain visual continuity. The generator and ion exchange treatment areas will be strategically placed to optimize operational performance while preserving site aesthetics.

The proposed landscaping plan incorporates a mix of low-maintenance native and ornamental plant species to complement the surrounding environment. Vegetation will be utilized to provide a buffer between the facility and adjacent properties while maintaining clear sightlines for security and safety. The plan ensures year-round visual interest with a variety of plant textures and colors, contributing to the overall integration of the facility with its natural and built surroundings.

The proposed development has been designed to align with the City of Camas Comprehensive Plan by ensuring the continued provision of safe and reliable public water infrastructure. The project supports public health, environmental sustainability, and essential service delivery while maintaining consistency with applicable land use policies and development standards.

FINDING: Staff finds the proposed development, as conditioned, is compatible with surrounding land uses in terms of traffic and pedestrian circulation, density, building, and site design.

D. Appropriate measures have been taken to minimize the possible adverse impacts that the proposed use may have on the area in which it is located;

Appropriate measures have been taken to minimize the potential adverse impacts of the proposed use on the surrounding area. The project site is an existing public utility facility, and all proposed improvements will be concentrated within its current boundaries to minimize disruptions to adjacent residential and commercial uses.

As the project consists of infrastructure upgrades rather than new high-traffic development, no significant increase in traffic generation is anticipated. The existing driveway approach off East 1st Avenue will continue to serve as the primary access point, and no off-site mitigation measures or additional roadway improvements are required.

To improve pedestrian safety and accessibility, a new sidewalk will be incorporated along the subject property's east property line within SE Cramer Lane. This will enhance circulation by connecting the well facilities with the public right-of-way along East 1st Avenue as well as access to the existing gravel pathway in the Washougal River Greenway south of the site, ensuring safe passage for maintenance personnel, emergency responders, and nearby residents.

The site design prioritizes compatibility with surrounding land uses by maintaining a functional layout that minimizes visual and operational impacts. Architectural and material selections for the proposed building additions will match existing structures to ensure visual continuity. Equipment placement, including the

generator and ion exchange treatment areas, has been strategically planned to optimize efficiency while preserving site aesthetics.

Landscaping enhancements will provide a natural buffer between the facility and adjacent properties. A mix of low-maintenance native and ornamental plant species will be used to soften the site's appearance while maintaining clear sightlines for safety. The landscaping plan ensures year-round visual appeal with diverse plant textures and colors, contributing to the overall aesthetic integration of the facility with its surroundings.

By adhering to these measures, the proposed development aligns with the City of Camas Comprehensive Plan, supporting critical public infrastructure while ensuring minimal impact on neighboring properties and the surrounding community.

FINDING: Staff has proposed conditions of approval to minimize potential adverse project impacts to the area.

E. The proposed use is consistent with the goals and policies expressed in the comprehensive plan;

Based on the identified goals within the comprehensive plan the applicant's project narrative has focused on the Citywide Land Use Goals and Policies most applicable to the proposed project.

Citywide Land Use Goal

LU-1.6: Ensure adequate public facilities (including roads, emergency services, utilities, and schools) exist to serve new development, and mitigate potential impacts to current residents.

RESPONSE: The project is compatible with land use policies promoting essential public services within established urban areas. The site, located in the Multifamily Residential- 18 (MF-18) zoning district, has historically functioned as a public utility site, and the proposed improvements will enhance its operational efficiency while maintaining compatibility with surrounding uses. The staged approach to development ensures that necessary infrastructure will be in place to support both existing and future site functions, in alignment with the City's growth management strategies.

FINDING: As mentioned above, the development is consistent with the goals and policies of the comprehensive plan.

F. Any special conditions and criteria established for the proposed use have been satisfied. In granting a conditional use permit the hearings examiner may stipulate additional requirements to carry out the intent of the Camas Municipal Code and comprehensive plan.

FINDING: The project narrative has effectively demonstrated compliance with the policies and goals outlined in the Camas Comprehensive Plan, which have been designed to align with County-wide planning policies. After conducting a public hearing and deliberating over the evidence, the Hearings Examiner may include any additional conditions or criteria necessary to carry out the intent of the CMC and the Comprehensive Plan.

Shoreline Master Program

SMP Standards for Evaluation

- **Shoreline Conditional Use Permits.** These provisions shall apply only when it can be shown that extraordinary circumstances exist and that the public interest would suffer no substantial detrimental effect. SMP Conditional Use Permits require final approval or disapproval from the Department of Ecology after final local action has been taken.

Master Program Goals and Policies — SMP Chapter 3

At page 3-1 of the SMP, the general goals of the program are to use the full potential of the shorelines in accordance with the surrounding areas, the natural resource values, and the unique aesthetic qualities; and develop an ordered and diversified physical environment that integrates water and shoreline uses while achieving a net gain of ecological function. Primarily, the commercial use supports the following shoreline goals:

SMP, Section 3.2 *Shorelines of Statewide Significance*, "Development should be focused in already pre-developed shoreline areas to reduce adverse environmental impacts and to preserve undeveloped shorelines."

SMP, Section 3.10 *Shoreline Use and Development*, "The goal for shoreline uses and development is to balance the preservation and development of shorelines in a manner that allows for mutually compatible uses. Resulting land use patterns will be compatible with shoreline designations and sensitive to and compatible with ecological systems and other shoreline resources. To help with this balance, shoreline and water areas with unique attributes for specific long term uses such as commercial, residential, industrial, water, wildlife, fisheries, recreational and open space shall be identified and reserved."

> **FINDING:** Staff finds that the project is consistent with the general policies of Chapter 3, given that the proposed location of improvements is within areas that are already developed and mitigated for in the areas that may be impacted and designed to buffer the shoreline area as to not adversely impact shoreline ecological functions.

General Shoreline Use and Development Regulations — SMP Chapter 5

The following general regulations of Chapter 5 Section 5.1 (beginning on page 39) are as follows:

1. **Shoreline uses and developments that are water-dependent shall be given priority.**

   FINDING: The proposed development is not water dependent.

2. **Shoreline uses and developments shall not cause impacts that require remedial action or loss of shoreline functions on other properties.**

   FINDING: The proposed project will not cause impacts that require remedial action or the loss of shoreline functions on other properties.

3. **Shoreline uses, and developments shall be located and designed in a manner such that shoreline stabilization is not necessary at the time of development and will not be necessary in the future for the subject property or other nearby shoreline properties unless it can be demonstrated that stabilization is the only alternative to protecting public safety and existing primary structures.**

   FINDING: Shoreline development will occur approximately 31-feet from the top of the bank. Shoreline stabilization will not be necessary during the development or in the future.

4. **Land shall not be cleared, graded, filled, excavated, or otherwise altered prior to issuance of the necessary permits and approvals for a proposed shoreline use or development to determine if environmental impacts have been avoided, minimized, and mitigated to result in no net loss of ecological functions.**

   FINDING: No work will be done within the shoreline jurisdiction prior to approval of this Shoreline Conditional Permit.

5. **Single family residential development shall be allowed on all shorelines except the Aquatic and Natural shoreline designation, and shall be located, designed, and used in accordance with applicable policies and regulations of this Program.**

FINDING: Single-family residential development is not proposed and therefore this criterion is not applicable.

6. **Unless otherwise stated, no development shall be constructed, located, extended, modified, converted, or altered or land divided without full compliance with CMC Title 17 Land Development and CMC Title 18 Zoning.**

   FINDING: The proposed development requires compliance with the applicable regulations from CMC Title 17 Land Development and CMC Title 18 Zoning.

7. **On navigable waters or their beds, all uses and developments should be located and designed to: (a) minimize interference with surface navigation; (b) consider impacts to public views; and (c) allow for the safe, unobstructed passage of fish and wildlife, particularly species dependent on migration.**

   FINDING: This criterion is not applicable as the proposed project is not on navigable waters or their beds.

8. **Hazardous materials shall be disposed of and other steps be taken to protect the ecological integrity of the shoreline area in accordance with the other policies and regulations of this Program as amended and all other applicable federal, state, and local statutes, codes, and ordinances.**

   FINDING: PFAS are present in the groundwater supply. The new PFAS treatment equipment contains a resin media that will remove the PFAS via absorption until the resin is depleted, after which; the resin will be removed from the site and hauled away for off-site incineration within an approved facility. Once the old resin is removed, new resin will be added. Additionally, the on-site generator will contain fuel in case of a power outage. All hazardous materials will be stored and maintained in safe and leak-proof containers, as local, state, and federal regulations require.

9. **In-water work shall be scheduled to protect biological productivity (including but not limited to fish runs, spawning, and benthic productivity). In-water work shall not occur in areas used for commercial fishing during a fishing season unless specifically addressed and mitigated for in the permit.**

   FINDING: This criterion is not applicable as in-water work is not proposed.

10. **The applicant shall demonstrate all reasonable efforts have been taken to avoid, and where unavoidable, minimize and mitigate impacts such that no net loss of critical area and shoreline function is achieved. Applicants must comply with the provisions of Appendix C with a particular focus on mitigation sequencing per Appendix C, Section 16.51.160 Mitigation Sequencing. Mitigation Plans must comply with the requirements of Appendix C, Section 16.51.170 Mitigation Plan Requirements, to achieve no net loss of ecological functions.**

    FINDING: Existing impervious surfaces (buildings and impermeable asphalt and gravel surfaces) total 0.06 acres within shoreline jurisdiction. With the removal of the Well 4 building, 0.01 acre are proposed to change from impervious to pervious. The proposed facility and infrastructure construction will increase to 0.09 acre of impervious surfaces post-construction, equating to a 0.03-acre net increase within shoreline jurisdiction in an area composed of regularly maintained non-native lawn grass (MSi 2025).

    The applicant's Shoreline Narrative indicates that the plan has been prepared according to Ecology's shoreline no net loss and mitigation guidance (Ecology 2023). The proposed project will not result in the net loss of shoreline ecological functions. All impacts to critical areas and their buffers have been avoided. In addition, the project has been carefully designed to avoid all alteration or removal of native vegetation within shoreline jurisdiction.

While there will be a 0.03-acre increase in impervious surface within shoreline jurisdiction, this increase is necessary to provide the hardened surface infrastructure required to meet the project's purpose of treating the drinking water supply for PFAS. To minimize impacts within shorelines, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the new development will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces. The design provides a sustainable, low-maintenance solution to manage water flow and support local ecosystems.

Construction best management practices (BMPs) to manage stormwater runoff and minimize erosion and sedimentation will be implemented, which include:

- Designate staging and stockpile areas outside critical areas and buffers,
- establish standard construction entrances,
- vividly mark clearing limits, and
- install silt fencing at the edge of the disturbance to prevent sedimentation within remaining critical areas.

The application includes a critical area report for the presence of fish and wildlife habitat conservation areas within shoreline jurisdiction. Further discussion is provided in Section 5.3 below.

11. The effect of proposed in-stream structures on bank margin habitat, channel migration, and floodplain processes should be evaluated during permit review.

FINDING: This criterion is not applicable as no in-stream work is proposed.

12. Within urban growth areas, Ecology may grant relief from use and development regulations in accordance with RCW 90.58.580 and requested with a shoreline permit application.

FINDING: The activity is in city limits and therefore this criterion is not applicable.

Archeological, Cultural, Historical — SMP Section 5.2

When a shoreline use or development is in an area known or likely to contain archaeological artifacts as indicated on the City of Camas Archaeological Probability map, or as recorded at the state or county historical offices, then the applicant shall provide for a site inspection and evaluation by a professional archaeologist. Development permits may not be issued until the inspection and evaluation have been completed and the city has issued approval.

If an item of possible archeological interest is discovered on site, all work shall immediately cease and notification of such a find will be sent to the City, the Office of Archaeology and Historic Preservation and affected Native American tribes. Activities on site may resume only upon receipt of the City's approval.

FINDING: An archaeological investigation has been completed and condition of approval has been added that requires work to immediately cease, and both the State Department of Archaeological and Historic Preservation and the City shall be notified if potential artifacts are discovered during construction.

Critical Areas Review — SMP Section 5.3

Fish and Wildlife Conservation Areas- SMP Appendix C, Chapter 16.61

Critical Areas Regulations are found in Appendix C of the SMP and are specifically at Chapters 16.51 through 16.61. Provisions of the Critical Areas Regulations that are not consistent with the Shoreline Management Act, RCW Chapter 90.58, and supporting Washington Administrative Code chapters shall not apply in shoreline jurisdiction. These regulations are integral and applicable to this Program, except that:

1. *Non-conforming uses and development within the shoreline jurisdiction shall be subject to both this Program and Appendix C, and where there is a conflict, the most protective of environmental functions shall apply;*
2. *The Fish and Wildlife Habitat Conservation Area buffers for Stream Type S in Appendix C, Section 16.61.040 are modified as follows for the following areas:*
    a) *Columbia River, SR-14 to SE Third Avenue2 at twenty-feet (20').*
    b) *Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, twenty-feet (20') from the top of slopes exceeding forty- percent (40%).*
    c) *Lacamas Lake buffers from OHWM shall not extend landward of NE Leadbetter Road.*
    d) *Columbia River, lots fronting on SE 12th Avenue and SE 11th Avenue between SE Polk Street and SE Front Street, shall be twenty-percent (20%) of lot depth as measured from the OHWM.*
3. *CMC Chapter 16.57 Frequently Flooded Areas applies within shoreline jurisdiction but is not incorporated as specific regulations of this SMP.*

FINDING: The standard riparian buffer for a Type S stream is 150 feet (CMC 16.61.040.D); the SMP 5.3.(2)(b) states that the Fish and Wildlife Habitat Critical Areas (FWHCA) buffers for lots fronting on First Avenue between SE Garfield St. and NE Third St., are modified to 20 feet from the top of slopes exceeding 40 percent (the PSA is located between SE Garfield St. and NE Third St. and slopes are approximately 58%). A Critical Areas Report was included with the land use application submittal (MSi 2025). All impacts t critical areas will be avoided.

Public Access — SMP Section 5.5

1. **Provisions for adequate public access shall be incorporated into all shoreline development proposals that involve public funding unless the proponent demonstrates public access is not feasible due to one or more of the provisions of Section 5.5 Regulation 2.a-e.**

   This project will utilize public funding. The public currently accesses the shoreline on this site, and that access will be maintained and upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

2. **Provisions for adequate public access shall be incorporated into all land divisions and other shoreline development proposals unless this requirement is clearly inappropriate to the total proposal. The nexus, proportionality, need, and support for such a connection shall be based on the policies of this Program. Public access will not be required where the proponent demonstrates one or more of the following:**

   Not applicant for this project.

3. **Public access sites shall be connected to a barrier free route of travel and shall include facilities based on criteria within the Americans with Disabilities Act Accessibility Guidelines.**

The existing public access will be upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

4. **Public access shall include provisions for protecting adjacent properties from trespass and other possible adverse impacts to neighboring properties.**
   The site will be fenced off to screen and provide security for the PFAS equipment. However, there will be no changes to the existing public access. The Applicant proposes a 5-foot wide concrete sidewalk along the east side of the site/west side of SE Cramer Ln to provide additional accessibility to the shoreline area.

5. **A sign indicating the public's right of access to shoreline areas shall be installed and maintained in conspicuous locations.**

   A sign indicating the public's right to access the shoreline area will be installed and maintained in a conspicuous location.

6. **Required public access shall be developed at the time of occupancy of the use or activity**

   The sidewalk will be constructed concurrently with the proposed project.

7. **Public access shall consist of a dedication of land or a physical improvement in the form of a walkway, trail, bikeway, corridor, viewpoint, park, deck, observation tower, pier, boat launching ramp, dock or pier area, or other area 43 Camas Shoreline Master Program serving as a means of view and/or physical approach to public waters and may include interpretive centers and displays.**

   A 5-foot wide concrete sidewalk is proposed to be provided along the east side of the site/west side of Cramer Lane to provide additional accessibility to the existing pathway along the greenway. This standard will be met.

8. **Public access easements and permit conditions shall be recorded on the deed of title and/or on the face of a plat or short plat as a condition running contemporaneous with the authorized land use, as a minimum. Said recording with the County Auditor's Office shall occur at the time of permit approval.**

   The subject property is owned by the City of Camas so an easement will not be required.

Site Planning and Development — SMP Section 5.7

The regulations concerning Site Planning and Development at SMP Section 5.7 include the following applicable policies regarding the project proposal:

1. **Land disturbing activities such as grading and cut/fill shall be conducted in such a way as to minimize impacts to soils and native vegetation.**

   FINDING: To ensure minimal disruption to the shoreline, the applicant will submit an Erosion Control plan to the City for approval, implement the approved erosion control measures (BMPs) before grading begins, and limit grading activities within the shoreline jurisdiction to the greatest extent possible.

2. **Impervious surfaces shall be minimized to the extent feasible so as not to jeopardize public safety.**

FINDING: The proposed project will result in 0.07 acres of new impervious surfaces, equating to a 0.06-acre net increase within shoreline jurisdiction. To minimize Impacts within the shoreline, the Well 4 building will be removed, and within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces. This and existing stormwater collection, treatment, and detention systems will protect the facility, neighboring properties, and the shoreline.

3. **When feasible, existing transportation corridors shall be utilized.**

   FINDING: The project site has existing frontage along 1st Ave and access to SE Cramer Lane.

4. **Vehicle and pedestrian circulation systems shall be designed to minimize clearing, grading, alteration of topography and natural features, and designed to accommodate wildlife movement.**

   FINDING: Existing frontage access to the property from 1st Ave and SE Cramer Lane will minimize the amount of grading and vegetation removal required on-site.

5. **Parking, storage, and non-water dependent accessory structures and areas shall be located landward from the OHWM and landward of the water-oriented portions of the principal use.**

   FINDING: Parking and storage will be located within the facility and unavailable for public use. All of these areas will be located landward of the OHWM.

6. **Trails and uses near the shoreline shall be landscaped or screened to provide visual and noise buffering between adjacent dissimilar uses or scenic areas, without blocking visual access to the water.**

   FINDING: The water treatment facility will be fenced/walled with an 8-foot high-security palisade fence to provide security and screening for the PFAS equipment. This application does not propose landscaping or vegetative screening, as there will be no change to the existing use.

7. **Elevated walkways shall be utilized, as appropriate, to cross sensitive areas such as wetlands.**

   FINDING: Not applicable; no elevated walkways are proposed and therefore this criterion is not applicable.

8. **Fencing, walls, hedges, and similar features shall be designed in a manner that does not significantly interfere with wildlife movement.**

   FINDING: An 8-foot high-security palisade fence will be installed around the facility's perimeter, but it will not enclose any natural areas.

9. **Exterior lighting shall be designed, shielded and operated to: a) avoid illuminating nearby properties or public areas; b) prevent glare on adjacent properties, public areas or roadways; c) prevent land and water traffic hazards; and d) reduce night sky effects to avoid impacts to fish and wildlife.**

   FINDING: Proposed lighting will be limited to the street lighting required by the City Code and lighting typical of the existing PFAS treatment facility and associated infrastructure. Lights will be directed away from the shoreline and shielded to prevent light pollution.

10. **Utilities shall be located within roadway and driveway corridors and rights-of-way wherever feasible.**

    FINDING: Utilities will be constructed on-site as necessary for the construction of the PFAS treatment system. A sanitary sewer connection will be made to the existing sanitary sewer manhole in SE Cramer Lane for wastewater disposal, and a connection will be made to the existing sanitary sewer line on the east side of the site for system flushing.

11. A use locating near a legally established aquaculture enterprise, including an authorized experimental project, shall demonstrate that such use would not result in damage to destruction of the aquaculture enterprise, or compromise its monitoring or data collection.

FINDING: Not applicable; aquaculture is not proposed.

Specific Shoreline Use Regulations — SMP Chapter 6

The specific use regulations for Utilities Uses begins at page 69 of the SMP.

SMP Section 6.3.15 Utilities

These provisions apply to services and facilities that produce, convey, store, or process power, gas, wastewater, communications, and similar services and functions. On-site utility features serving a primary use, such as a water, sewer or gas line to a residence or other approved use are "accessory utilities" and shall be considered a part of the primary use.

As the existing use on site is as a municipal water well, the proposed PFAS treatment system is designed to remove PFAS and other substances from public drinking water.

1. **Whenever feasible, all utility facilities shall be located outside shoreline jurisdiction. Where distribution and transmission lines (except electrical transmission lines) must be located in the shoreline jurisdiction, they shall be located underground or within the footprint of an existing, built roadway.**

   FINDING: The existing Well 13 site is currently located partially within the shoreline area. The proposed PFAS treatment system will be installed south of the existing Well 13. In addition, a new well and chemical building are proposed north of the proposed electrical room expansion. All distribution piping associated with the PFAS treatment system will be installed underground except where they daylight to connect to PFAS treatment system components.

2. **Where overhead electrical transmission lines must parallel the shoreline, they shall be no closer than one hundred (100) feet from OHWM unless topography or safety factors would make it unfeasible, then a shoreline conditional use permit shall be required.**

   FINDING: No proposed overhead transmission lines paralleling the shoreline are proposed. This standard does not apply.

3. **Utilities shall be designed, located and installed in such a way as to preserve the natural landscape, minimize impacts to scenic views, and minimize conflicts with present and planned land and shoreline uses.**

   FINDING: The Project will conform to the natural contours and minimize disturbance to soil and native vegetation to the greatest extent practicable. Additionally, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces. There will be no changes to the existing public access, all structures within the development will be less than two stories (PFAS tanks will be 25' tall), and all other utilities will be piped underground. An eight-foot high-security palisade fence around the facility's perimeter will be installed, which will partially screen the PFAS equipment but will not enclose any natural areas.

4. **Transmission, distribution, and conveyance facilities shall be located in existing rights of way and corridors or shall cross shoreline jurisdictional areas by the shortest, most direct route feasible, unless such route would cause significant environmental damage:**

FINDING: Not applicable to this project.

5. **Utility production and processing facilities, such as power plants and wastewater treatment facilities, or parts of those facilities that are nonwater-oriented shall not be allowed in the shoreline jurisdiction unless it can be demonstrated that no other feasible option is available and will be subject to a shoreline conditional use permit.**

   FINDING: The proposal includes constructing a new PFAS treatment facility and associated infrastructure on the existing Well 13 (water treatment) site to address the Environmental Protection Agency's PFAS requirements. Because the existing well is currently operative and native vegetation has been previously removed from the site, the existing location is the most feasible location for accessing groundwater (near Lacamas Creek) without creating additional shoreline impacts.

6. **Stormwater control facilities, limited to detention, retention, treatment ponds, media filtration facilities, and lagoons or infiltration basins, within the shoreline jurisdiction shall only be permitted when the following provisions are met:**
   a. **The stormwater facility is designed to mimic and resemble natural wetlands and meets the standards of CMC 14.02 Stormwater and the discharge water meets state water quality standards;**
   b. **Low impact development approaches have been considered and implemented to the maximum extent feasible.**

   FINDING: A stormwater control facility is not proposed. Currently, surface water drainage flows to an existing stormwater collection system on-site. Drainage patterns will continue to flow into the existing stormwater collection system following the completion of the proposed development.

7. **New and modifications to existing outfalls shall be designed and constructed to avoid impacts to existing native aquatic vegetation attached to or rooted in substrate. Diffusers or discharge points must be located offshore at a distance beyond the nearshore area to avoid impacts to those habitats.**

   FINDING: There are no new or modified outfalls associated with the project. Therefore, this criterion is not applicable.

8. **Water reclamation discharge facilities (e.g. injection wells) are prohibited in the shoreline jurisdiction, unless the discharge water meets State Department of Ecology Class A reclaimed water standards…(excerpt)**

   FINDING: This criterion is not applicable as no water reclamation facilities are proposed.

9. **Where allowed under this program, construction of underwater utilities or those within the wetland perimeter shall be scheduled to avoid major fish migratory runs or use construction methods that do not cause disturbance to the habitat or migration.**

   FINDING: This criterion is not applicable as the construction of underwater utilities or those within the wetland perimeter are not proposed.

10. **All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially detrimental to water quality shall provide automatic shut off valves.**

    FINDING: This criterion is not applicable as no underwater pipelines transporting liquids are proposed.

11. **Upon completion of utility installation/maintenance projects on shorelines, banks shall, at a minimum, be restored to pre-project configuration, replanted and provided with maintenance care**

until the newly planted vegetation is fully established. Plantings at installation shall be at least 2" minimum caliper at breast height if trees, five-gallon size if shrubs, and ground cover shall be planted from flats at 12" spacing, unless other mitigation planting is recommended by a qualified biologist and approved by the Administrator.

FINDING: Impacts to the bank are not proposed as all project work will occur above the top of bank of Lacamas Creek. This criterion is not applicable.

Shoreline Conditional Use **SMP Appendix B Section IX**

Utilities are a conditional use within the Medium Intensity shoreline designation. Pursuant to SMP, Appendix B, "*Conditional use approval may be granted only if the applicant can demonstrate all of the following":*

1. **The proposed use is consistent with the general intent of the Program, and the policies of the Act (RCW 90.58.020).**

   FINDING: The proposed project improvements in the shoreline jurisdiction are designed to minimize impacts by entirely avoiding the riparian buffer and positioning the infrastructure as far north as possible. In addition, the project has been carefully sited to avoid all trees and shrubs within the shoreline jurisdiction. The project is in conformance with the general intent of the SMP.

2. **The proposed use will not interfere with normal public use of public shorelines;**

   FINDING: No interference with the public use of the shoreline will occur. A 5-foot-wide ADA-accessible sidewalk will be constructed to upgrade the existing gravel path public access at the site.

3. **The proposed use of the site and design of the development will be compatible with the surrounding authorized uses, the Program, and the comprehensive plan;**

   FINDING: The proposed project has been designed on the most landward portion of the shoreline jurisdiction, avoids the removal of trees and shrubs within the shoreline jurisdiction, and is compatible with the existing surrounding commercial and residential uses. The proposed development will enhance the public enjoyment of the shoreline by upgrading the existing public access to a 5-foot-wide ADA-accessible sidewalk.

4. **The proposed use will cause no significant adverse effects on the shoreline environment or other uses; and**

   FINDING: No adverse effects are anticipated from the proposed development. The proposed project improvements in the shoreline jurisdiction are designed to minimize ecological impact by excluding impacts from the riparian buffer and positioning the infrastructure as far north on the site as possible. In addition, the project has been carefully sited to avoid all trees and shrubs within the shoreline jurisdiction.

5. **That the public interest would suffer no substantial detrimental effect;**

   FINDING: The public interest would suffer no substantial detrimental effect as the existing public access at the site will be upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

PUBLIC COMMENTS

Public comments from DAHP and Department of Ecology were received during the SEPA comment period and included in the public record. DAHP has requested the applicant to obtain a DAHP permit prior to any

ground disturbance. Department of Ecology is requesting that the applicant review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes", posted at Ecology's website. The recommendations have been included as conditions of approval.

CONCLUSION

Based on the above findings and discussion provided in this staff report, staff concludes that the proposed Conditional Use Permit for updates to the Well 13 Facility (CUP25-1002) should be approved if the applicable standards and all conditions of approval are met.

RECOMMENDATION

Staff recommends APPROVAL of the Conditional Use Permit for updates to the Well 13 Facility (CUP25-1002) subject to the conditions of approval below.

CONDITIONS OF APPROVAL

STANDARD CONDITIONS OF APPROVAL:

1. The applicant is to review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes", posted at Ecology's website.
2. If potential artifacts are discovered during construction, work must immediately cease, and both the State Department of Archaeological and Historic Preservation and the City shall be notified.
3. Engineering site improvement plans shall be prepared in accordance with the City of Camas Design Standards Manual (CDSM) and CMC 17.19.040.
4. The engineering site improvement plans shall be prepared by a licensed civil engineer in Washington State and submitted to the City's Community Development Engineering Department for review and approval.
5. Per CMC 17.19.040.C.1 and 1.a: All utilities designed to serve the development shall be placed underground. Those utilities to be located beneath paved surfaces, including all service connections, shall be installed prior to application of any surface materials.
6. The installation of public improvements shall be in accordance with CMC 17.21 Procedures for Public Improvements.
7. A building permit shall be required prior to commencement of construction of a building structure.
8. Prior to final acceptance, the applicant shall remove all temporary erosion prevention and sediment control measures from the site at completion of all site improvements, which includes stabilization of all disturbed soil.
9. As a component for final acceptance, final as-built construction drawing submittals shall meet the requirements of the Camas Design Standards Manual (CDSM).
    a. The as-built cover sheet is to be the originally approved cover sheet signed by the City Engineer.
    b. As-builts are to be submitted as PDFs.
    c. As-builts are to be submitted in either AutoCad or Carlson formats.
10. Per CMC 18.18.070.B, prior to the issuance of final occupancy permits, all public and private improvements shall be completed in accordance with CMC 17.21.070 Final Acceptance.

SPECIAL CONDITIONS OF APPROVAL:

Prior to Engineering Plan Approval:

Engineering:

[Roads]

11. Prior to engineering plan approval, the applicant shall be required to submit final site plans that include the removal and replacement of all portions of the existing sidewalk that are worn or cracked.
12. Prior to engineering plan approval, the applicant shall be required to submit final site plans that include a commercial driveway approach.

SE Cramer Lane

13. Prior to engineering plan approval, the applicant shall revise the gravel access to the transformer pad to be either asphalt or concrete in lieu of gravel.
14. Prior to engineering plan approval, all the new sidewalks shall be designed to meet the requirements for ADA accessibility per the PROWAG and ADAAG.

[Sanitary Sewer]

15. Prior to engineering plan approval, the applicant shall be required to submit final sanitary sewer utility plans for review and approval.

[Storm Sewer]

16. Prior to engineering plan approval, the applicant shall be required to submit the Final Stormwater Technical Information Report stamped, and signed stating that the report was prepared in accordance with Ecology's *2024 Stormwater Management Manual for Western Washington (SWMMWW),* including evaluating Minimum Requirements (MRs) 1-9 per the *SWMMWW*.
17. Prior to engineering plan approval, the applicant shall submit final stormwater plans with the new stormwater mains upsized to a minimum 10-inch diameter conveyance piping between area drains for ease of maintenance.

[Water]

18. Prior to engineering plan approval, the applicant shall submit final water utility plans, which are to include a hydrant pad per Water Detail W11, for review and approval.

[Erosion Control]

19. Prior to engineering plan approval, the applicant shall be required to submit final grading and erosion control plans per the Camas Design Standards Manual (CDSM).

Prior to Land-disturbing Activities:

20. Prior to any land-disturbing activities an approved set of engineering plans is required.
21. As per comments received by DAHP during the SEPA comment period, the applicant is to obtain a DAHP permit prior to any ground disturbance.
22. As per Department of Ecology, the applicant shall review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes", posted at Ecology's website.

Prior to Final Occupancy:

Planning:

23. This Conditional Use Permit will expire within two (2) years of issuance of the Hearing Examiner's final orders if construction of the site improvements have not commenced.

Pre-Application Meeting Notes
City of Camas PFAS Treatment Facility
Planning Case Number: PA24-1030

Meeting held via Zoom: December 19, 2024
Notes issued via email: January 7, 2025

Applicant:
Mike Odren, MacKay Sposito
18405 SE Mill Plain Boulevard, Suite 100
Vancouver, WA 98683
modren@mackaysposito.com

Representing City of Camas: Yvette Sennewald, Senior Planner
Robert Maul, Planning Manager
Randy Miller, Fire Marshal
Brian Smith, Building Official
Ahmed Yanka, Engineering

Location: 1250 E 1st Avenue

Tax Accounts: 90928000, 91031000 and 91034000

Zoning: Multi-Family Residential (MF-18)

Description: The project includes a proposal for a Conditional Use Permit, Site Plan Review, and Design Review to develop the following:

- Per- and polyfluoroalkyl substances (PFAS) treatment equipment for the existing Well 13;
- New generator;
- Building addition to increase size of the electrical room;
- Building addition for proposed new well; and
- New driveway off East 1st Avenue to facilitate a pump crane truck.

NOTICE: Notwithstanding any representation by City staff at a pre-application conference, staff is not authorized to waive any requirement of the City Code. Any omission or failure by staff to recite to an applicant all relevant applicable code requirements shall not constitute a waiver by the City of any standard or requirement. [CMC 18.55.060 (C)] This pre-application conference shall be valid for a period of 180 days from the date it is held. If no application is filed within 180 days of the conference or meeting, the applicant must schedule and attend another conference before the city will accept a permit application. [CMC 18.55.060 (D)] Any changes to the code or other applicable laws, which take effect between the pre-application conference and submittal of an application, shall be applicable. [CMC 18.55.060 (D)]. **A link**

to the Camas Municipal Code (CMC) can be found on the City of Camas website, http://www.cityofcamas.us/ on the main page under "Business and Development".

STAFF NOTES

PLANNING DIVISION **Yvette Sennewald |817-7269**

Applicable codes for development include Title 16 Environment, and Title 18 Zoning, of the Camas Municipal Code (CMC), which can be found on the city website. Please note it remains the applicant's responsibility to review the CMC and address all applicable provisions. The following pre-application notes are based on application materials and site plan submitted on November 12, 2024.

Type III Conditional Use Permit	Fees (as of 1/1/25)
Conditional Use Permit (Non-residential)	$5,498
Design Review (Minor)	$550
SEPA Review	$1,029
Archeological Review	$174
Critical Area Review (Shoreline/Wetlands)	$985

Application Requirements
Your proposal is required to comply with the general application requirements per CMC Section **18.55.110.**

All permit and plan review operations are now being processed through electronic portal that can be accessed via this link: www.cityofcamas.us/permits

The following items are required to be submitted for consideration of the proposed project:

1. **APPLICATION.** Required materials are listed at CMC18.55.110 and include the following:

   - A completed city application form and required fees,
   - A complete list of the permit approvals sought by the applicant for this project,
   - One set of mailing labels for property owners as noted in CMC Section 18.55.110,
   - A detailed narrative description that describes the proposed development, existing site conditions, existing structures, public facilities and services, and other natural features. The narrative should also include ownership and maintenance of open spaces, stormwater facilities, public trails, and critical areas. It should also address any proposed building conditions or restrictions.
   - All documents and reports must be submitted as separate pdf files.
   - A copy of Preapplication meeting notes,
   - Preliminary Civil plans,
   - A vicinity map showing location of the site,
   - Copy of a full title report, and
   - The applicant must install a 4'x8' sign on the property that provides details about the project, site plan, contact information, and includes space for public hearing information to be filled in when a date is scheduled. Staff can provide a handout if requested.

2. **CONDITIONAL USE PERMIT**. The application should include photos of adjacent properties, and a description of the development patterns of the area. The applicant must include a written narrative that responds to each of the criteria in CMC §18.43.050 Criteria:

   A. The proposed use will not be materially detrimental to the public welfare, or injurious to the property or improvements in the vicinity of the proposed use, or in the district in which the subject property is situated.

   B. The proposed use shall meet or exceed the development standards that are required in the zoning district in which the subject property is situated.

   C. The proposed use shall be compatible with the surrounding land uses in terms of traffic and pedestrian circulation, density, building, and site design.

   D. Appropriate measures have been taken to minimize the possible adverse impacts that the proposed use may have on the area in which it is located.

   E. The proposed use is consistent with the goals and policies expressed in the comprehensive plan.

   F. Any special conditions and criteria established for the proposed use have been satisfied. In granting a conditional use permit the hearings examiner may stipulate additional requirements to carry out the intent of the Camas Municipal Code and comprehensive plan.

3. **DESIGN REVIEW**. An application for design review must include (at a minimum) building elevations, materials, exterior colors, and landscaping plans. Preliminary site plan should show all existing conditions per CMC Section 17.11.030.B.6(a-p).

   Landscaping Regulations. A Landscape, Tree, and Vegetation plan must be submitted pursuant to CMC 18.13.040.A. If trees are proposed for removal, a Tree Survey is required and must be prepared by a certified arborist or professional forester.

4. **CRITICAL AREA REVIEW.** Clark County GIS mapping identifies Shoreline on and/or adjacent to the subject property. As such, per CMC Section 16.51.130, a critical areas report prepared by a qualified professional is required if a proposed development is within or adjacent to a critical area. The general requirements for a critical areas report are found in CMC Section 16.51.140. The City's code contains additional requirements for each type of critical area.

   - The critical areas report requirements for *Wetlands* are found in CMC 16.53.030. The applicant must demonstrate avoidance and minimization of impacts per mitigation sequencing of CMC 16.53.050.D.1

5. **SEPA REVIEW.** The proposed development is not categorically exempt from the requirements of the State Environmental Policy Act (SEPA) per CMC Section 16.07.020.C as the proposal contains environmentally sensitive areas per CMC 16.07.025.C. The current SEPA environmental checklist is on the website.

6. **ARCHEOLOGICAL REVIEW.** The site is in an area of high probability for the presence of archaeological objects. As such, an archaeological predetermination report is required consistent with the requirements of CMC 16.31.070.A. Submit proof of mailing or emailing the tribes per CMC 16.31.160.

BUILDING DIVISION — Brian Smith | 817-1568

1. A Building Permit is required for the following:
    a. Fences taller than 7'.
    b. Ion Exchange tanks will require seismic anchorage calculations and detailing.
    c. Catwalk around treatment tanks
    d. Well Building Addition
2. Submittal documents for building permit review are required to:
    a. Comply with the most current building codes as adopted by The State of Washington.
    b. The structural drawings and calculations shall be prepared and stamped by a Professional Engineer licensed by the State of Washington.

ENGINEERING DIVISION — Ahmed Yanka | 817-7258

General Requirements:

1. Civil site improvement plans shall be prepared in accordance with the Camas Design Standards Manual (CDSM) and CMC 17.19.040, by a Washington State licensed Civil.
2. The applicant will be responsible for the design and submittal of the utility plan showing the locations for underground power and any associated appurtenances.

Traffic/Transportation:

1. Not applicable

Streets:

1. Well 13 is located on the south side of E 1st Avenue and the west side of SE Cramer Lane.
2. E 1st Avenue is a fully improved local roadway with curb and sidewalk on both sides of the road.
    a. Access to the proposed improvements will be via a new driveway approach and paved driveway off E 1st Avenue.
3. SE Cramer Lane is an existing 20-foot-wide paved roadway section with no curb or sidewalk.
    a. There are existing driveway approaches off SE Cramer Lane, which provide access to the existing Well 13 site.
    b. The residents of the Three Rivers condo complex use both E 1st Avenue and SE Cramer Lane for ingress and egress to the condo complex.

Stormwater:

1. The site of the proposed development is approximately 16,553 (0.38 acres) in size.
2. Refer to Ecology's Figure I-3.2 *Flow Chart for Determining Requirements for Re-Development (Vol. I, Chapter 3)* and the Camas Stormwater Design Standards.
   a. All redevelopment projects shall comply with Minimum Requirement (MR) #2 – Submittal of a Stormwater Pollution Prevent Plan (SWPPP). Contact Engineering for Abbreviated Construction SWPPP Form.
   b. If the project results in 2,000 sf, or more, of new plus replaced hard surface area or if the land disturbing activity totals 7,000 sf of greater then Minimum Requirements (MR) #1- #5 will apply.
   c. If the project adds 5,000 sf, or more on few hard surfaces or converts ¾ acres, or more, of vegetation to lawn or landscaped areas, then Minimum Requirements (MR) #1-#9 will apply.

Erosion Control

1. The site of the proposed development is approximately 16,553 (0.38 acres) in size.
2. As proposed improvements do not exceed an acre or more of land-disturbing activities, an *NPDES Construction Stormwater General Permit* will not be required.
3. At time of construction, the applicant will be responsible for all erosion and sediment control measures to ensure that sediment laden water does not leave the site or impact adjacent parcels.
4. Mud tracking onto the road surface is discouraged and any mud tracking is to be cleaned up immediately.

Water & Sewer

1. The site is currently served with water and sewer.

Parks & Trails:

1. Not applicable

Impact Fees & System Development Charges (SDCs):

1. Not applicable

FIRE MARSHAL **Randy Miller | 834-6191**

No building or structure regulated by the building and/or fire code shall be erected, constructed, enlarged, altered, repaired, moved, converted, or demolished unless a separate permit for each building or structure has first been obtained from the CWFMO Camas Municipal Code 15.04.030.D.12.a

Any inadvertent omission or failure to site or include any applicable codes or code language by the Fire Marshals office or the City shall not be considered a waiver by the applicant.

1) As this project develops multiple permits with the Fire Marshals Office may be required.
    a. Emergency Generator Permit.
    b. Life Safety/New Construction Permit
2) Additional Notes
    a. Approved address is required, visible/readable from both directions on the public street.
    b. Temporary and or Approved Permanent Address required at all times during the vertical build.
3) As previously emphasized, please don't hesitate to contact the FMO if you have any questions. 360-834-6191 or FMO@cityofcamas.us

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PROJECT NARRATIVE

PROJECT DESCRIPTION AND REQUESTED REVIEWS

The Applicant, the City of Camas, requests a Type III Conditional Use Permit Review, Shoreline Conditional Use Permit, Site Plan Review, Design Review, SEPA Review, Archaeological Review and Critical Areas Review for updates to the existing Well 13 facility. The proposed improvements include installing per- and polyfluoroalkyl substances (PFAS) treatment equipment for Well 13 (ion exchange tanks and bag filters), adding a new generator, a building addition for a new electrical room, building addition for a new chemical/well room for a proposed new well, and constructing a new driveway off E 1st Avenue to accommodate a well pump crane truck. A detailed description of the project is as follows:
Stage 1 consists of the following:

- Construction of a new electrical room.
- Construction of a new generator pad.
- Construction of a new transformer pad and gravel access.
- Installation of two ion exchange tanks on a concrete pad.
- Installation of a covered bag filter pad and associated bag filters.
- Installation of a new driveway for a crane truck.
- Removal of the Well 4 building.

Stage 2 consists of the following:

- Installation of a new well.
- Construction of a new chemical/well building.
- Installation of four ion exchange tanks on two concrete pads.

Hours of construction activities will be approximately 7:00 am until 7:00 pm, Monday through Friday.

Pre-application Conference (PLZ- PA24-1030) was held via Zoom on December 19, 2024 with the subsequent notes issued via email on January 7, 2025.

PROJECT LOCATION AND EXISTING CONDITIONS

The site is located at 1250 E. 1st Avenue, Camas, Washington, in the Multifamily Residential-18 (MF-18) zoning district. The property is further identified as Tax Lots 49,244, 242 and 245, tax assessor's serial numbers 90928000, 91031000 and 91034000, located in the Northeast ¼ of Section 11 and Northwest ¼ of Section 12, Township 1 North, Range 3 East of the Willamette

Meridian, Clark County. The entire site is 0.56 acres (24,394 square feet) according to Clark County GIS, 0.50 acres (21,975 square feet) according to a survey by MacKay Sposito, Inc. For the purposes of this report, the combined three parcels will hereby be referred to as the "subject property."

Existing zoning and uses adjacent to the project site are as follow:

Direction	Zoning	Use
North	Community Commercial (CC)	Parking Lot
East	Multifamily Residential-18 (MF-18)	Single-family attached townhomes
South	Multifamily Residential-18 (MF-18)	Open Space
West	Multifamily Residential-18 (MF-18)	Single-family detached

It should be noted that Clark County GIS shows parcels 91031000 and 91034000 are part of the Washougal River Greenway. However, as the entire site has been historically used as a municipal well site, it is assumed that the site may continue to be used as a municipal well site with the proposed PFAS treatment.

Frontage improvements along E. 1st Avenue were previously constructed to current city standards. As such, no further road frontage improvements are anticipated except for installation of a new driveway to accommodate a well pump crane truck.

There is an existing driveway approach that serves Cramer Lane located to the east of the site which provides vehicular access to the existing well buildings. This driveway will continue to be used for the project.

Existing vegetation consists of a mix of native and non-native ornamental trees, shrubs and lawn grass.

Environmental constraints consist of a 200-foot shoreline buffer from the Ordinary High-Water Mark for Lacamas Creek located south of the site. The site also borders the Washougal River Greenway to the south.

PUBLIC SERVICES – TITLE 13

Water

The site is currently connected to public water. The existing 1-inch water connection serving the existing facility will be upsized to a 4-inch water line.

Sewer

There is an existing sanitary sewer line that runs along SE Cramer Lane and through the central portion of the site to serve residential properties to the west. A connection to the sanitary sewer

manhole in SE Cramer Lane will be made to dispose of process water for occasional flushing that is required when new ion exchange media is added to the tanks. A connection to the sanitary line on the western portion of the site will be made to dispose of process water during occasional instances of well pump startup.

Refuse Collection and Disposal

As the site is a public water well facility, refuse collection and disposal is not required.

Storm Water Drainage

The proposed project site has an existing storm sewer system that is to remain in place following construction of the proposed improvements. The existing storm sewer system currently picks up runoff from the existing buildings and site area via roof drain connections and area drains and conveys stormwater by pipe to the south end of the site where it is dispersed through a perforated pipe. The runoff ultimately drains downhill in the southeast direction to the Washougal River. All new buildings, concrete slabs, sidewalks, and landscape areas are to drain to this existing stormwater system and ultimately outfall to the Washougal River. The existing road to the east of the site, called SE Cramer Ln., currently drains to the west and south, ultimately flowing downhill to the Washougal River. Refer to the Engineering Plans and the Preliminary Stormwater Report for more information.

STORMWATER PROVISIONS – TITLE 14

14.02 Stormwater Control

The proposed project site has an existing storm sewer system that is to remain in place following construction of the proposed improvements. The existing storm sewer system currently picks up runoff from the existing buildings and site area via roof drain connections and area drains and conveys stormwater by pipe to the south end of the site where it is dispersed through a perforated pipe. The runoff ultimately drains downhill in the southeast direction to the Washougal River. All new buildings, concrete slabs, sidewalks, and landscape areas are to drain to this existing stormwater system and ultimately outfall to the Washougal River. The existing road to the east of the site, called SE Cramer Ln., currently drains to the west and south, ultimately flowing downhill to the Washougal River. Refer to the Engineering Plans and the Preliminary Stormwater Report for more information.

14.42 Illicit Discharges, Dumping and Illicit Connections

The project will not illicitly discharge or dump any material to the stormwater system.

14.06 Erosion and Sediment Control

Erosion and sediment control plans will be developed as part of the final civil engineering plan submittal meeting the provisions of this section.

CATEGORICAL EXEMPTION AND THRESHOLD DETERMINATIONS- (CMC 16.07)

16.07.040 Environmental Checklist

A. A completed environmental checklist (or a copy) in the form provided in WAC 197-11-960, shall be filed at the same time as an application for a permit, license, certificate, or other approval not specifically exempted in this title; except, a checklist is not needed if the city and applicant agree an EIS is required, SEPA compliance has been completed, or SEPA compliance has been initiated by another agency. The city shall use the environmental checklist to determine the lead agency and, if the city is the lead agency, for determining the responsible official and for making the threshold determination.
B. For private proposals, the city will require the applicant to complete the environmental checklist, providing assistance as necessary. For city proposals, the department initiating the proposal shall complete the environmental checklist for that proposal.
C. The city may require that it, and not the private applicant, will complete all or part of the environmental checklist for a private proposal, if either of the following occurs:
1. The city has technical information on a question or questions that is unavailable to the private applicant; or
2. The applicant has provided inaccurate information on previous proposals or on proposals currently under consideration. (Ord. 2517 § 1 (Exh. A (part)), 2008)

RESPONSE: The applicant has provided a SEPA Checklist.

ARCHAEOLOGICAL RESOURCE PRESERVATION- (CMC 16.31)

16.31.060 Applicability
A. The provisions of this chapter shall apply:
1. When any item of archaeological interest is discovered during the course of a permitted ground-disturbing action or activity (Section 16.31.150);
2. When the director determines that reliable information indicates the possible existence of an archaeological site on a parcel for which an application for a permit or approval for a ground-disturbing action or activity has been submitted.

B. The provisions of this chapter shall apply, except as provided in this section and in subsection C of this section, to all ground-disturbing actions or activities for which a permit or approval is required:
1. On all parcels in probability level high;
2. On parcels of at least five acres in probability levels moderate-high and moderate;
3. Regardless of parcel size or probability level, when proposed within one-fourth mile of a known, recorded archaeological site as measured on a horizontal plane extending in all directions. Such an action or activity may be exempted by the director, when appropriate, during the predetermination process due to the effects of a geographic barrier (Section(F)).

C. The following shall not trigger or shall be exempted from the provisions of this chapter:
1. Accessory dwelling units;
2. Land use permits issued under clear and objective standards, such as those for fences, sheds, decks, patios or driveways;
3. Sign permits;
4. Conditional use permits for a change in use only, not involving ground disturbance for structural modification;
5. Zoning variance approvals;

6. Ground-disturbing actions or activities which constitute normal maintenance and repair of existing structures and facilities; or
7. Ground-disturbing actions or activities proposed in areas which the director determines to have been adequately surveyed and documented (as defined in Section 16.31.020) in the past and within which no archaeological resources have been discovered.

D. When more than one probability level traverses a parcel, the entire parcel shall be considered to be within the level with the greatest probability rating. (Ord. 2517 § 1 (Exh. A (part)), 2008)

16.31.070 Predetermination Required
A. A predetermination shall be required for any nonexempt ground-disturbing action or activity for which a permit or approval is required within probability level high.
B. A predetermination shall be required for any nonexempt ground-disturbing action or activity for which a permit or approval is required and which is located on a parcel of at least five acres within probability levels moderate-high and moderate.
C. A predetermination shall be required for all nonexempt ground-disturbing actions or activities for which a permit or approval is required which are proposed within one-fourth mile of a known, recorded archaeological site.
D. A predetermination shall be required when the director determines that reliable information indicates the possible existence of an archaeological site on a parcel for which an application for a permit or approval for a ground-disturbing action or activity has been submitted.
E. A predetermination shall be required when any item of archaeological interest is discovered during the course of a permitted ground-disturbing action or activity.
F. During the predetermination process, the director will determine whether a ground-disturbing action or activity is exempt under(B)(3) or(C)(7) of this chapter. In the event that the director is able to make such a determination of exemption based solely upon background research (Section(C)), the city shall reduce the applicant's total fee obligation for the project by one-half of the predetermination fee.
G. A predetermination shall not be performed when a survey is required under of this chapter.
H. The director may waive the requirement for a predetermination if the applicant chooses to provide a survey in accordance with Sections and of this chapter. (Ord. 2517 § 1 (Exh. A (part)), 2008)

16.31.080 Predetermination Standards
Predeterminations shall include at a minimum the following elements and be carried out according to the following standards:
A. Predeterminations shall be performed by a qualified or professional archaeologist.
B. Predeterminations shall be performed to the high standard of quality which fulfills the purposes of this chapter.
C. Background Research. A thorough review of records, documentation, maps, and other pertinent literature shall be performed.
D. Surface Inspection. A visual inspection of the ground surface shall be completed when conditions yield at least fifty percent visibility.
E. Subsurface Investigation. Subsurface investigation shall be performed when considered necessary by the archaeologist. When necessary, the following standards shall apply:
1. Subsurface probes shall be no less than eight inches/twenty centimeters in diameter (twelve inches/thirty centimeters or more preferred) at the ground surface, and shall delve no less than twenty inches/fifty centimeters deep into natural soil deposits whenever possible.
2. The most appropriate number of and locations for subsurface probes shall be determined by the archaeologist.
3. All material excavated by subsurface probes shall be screened using both one-fourth inch and one-eighth inch hardware mesh cloths. (Ord. 2517 § 1 (Exh. A (part)), 2008)

16.31.090 Predetermination Reports
A report shall be completed for each predetermination to the high standard of quality which fulfills the purposes of this chapter and standardized guidelines furnished by the department. A completed report shall be submitted to DAHP as well as the city. (Ord. 2517 § 1 (Exh. A (part)), 2008)

16.31.150 Discovery Principle
In the event that any item of archaeological interest is uncovered during the course of a permitted ground-disturbing action or activity:
A. All ground-disturbing activity shall immediately cease.
B. The applicant shall notify the department and DAHP.
C. The applicant shall provide for a predetermination and a predetermination report prepared in accordance with the provisions of this chapter. The director shall review the report and issue a determination in accordance with Section 16.31.100 of this chapter in a reasonably diligent manner, taking into account all pertinent factors and conditions (within seven calendar days whenever feasible). Where such determination is that an archaeological site is not likely to exist, construction may continue. Where such determination is that an archaeological site is likely to exist, the applicant shall provide a survey and survey report. The director shall produce a map of the parcel indicating clearly the portion(s) of the parcel, if any, within which construction may continue under the supervision of an archaeologist and monitoring by the director while the required survey is being completed. The provisions of this section shall apply.
D. In the event any archaeological or historic materials are encountered during project activity, work in the immediate area (initially allowing for a one hundred-foot buffer; this number may vary by circumstance) must stop and the following actions taken:
1. Implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering; and
2. Take reasonable steps to ensure the confidentiality of the discovery site; and
3.Take reasonable steps to restrict access to the site of discovery.
The project proponent will notify the concerned tribes and all appropriate city, county, state, and federal agencies, including the Washington State Department of Archaeology and Historical Preservation. The agencies and tribe(s) will discuss possible measures to remove or avoid cultural material, and will reach an agreement with the project proponent regarding action to be taken and disposition of material.
If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If the remains are determined to be native, consultation with the affected tribes will take place in order to mitigate the final disposition of said remains.
(Ord. 2517 § 1 (Exh. A (part)), 2008)(Ord. No. 2612, § I(Exh. A), 2-7-2011)

16.31.160 Notification to Tribes
Whenever a predetermination or survey is required, the applicant shall provide the tribes with a copy of the application and all supporting materials by certified mail, return receipt requested, and shall provide proof of compliance with this requirement to the director. Comments from the tribes shall be accepted by the director until five p.m. on the fourteenth day from the date notification was mailed to the tribes. Should the fourteenth day fall on a nonbusiness day, the comment period shall be extended until five p.m. on the next business day. (Ord. 2517 § 1 (Exh. A (part)), 2008)

RESPONSE: Clark County GIS data indicates that 100% of the site has a high probability of containing archaeological findings. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is

recommended as not eligible for listing in the NRHP and they recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information.

Public View, Open Space Protection - (CMC 16.33)

While views across the subject property will be impacted by the construction of the building additions and ion exchange tanks, there are no direct views of the Washougal River from offsite properties that will be materially impacted by the installation of critical water infrastructural equipment.

HISTORIC PRESERVATION - (CMC 16.35)

There are no known historic sites within the development or adjacent to this project. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is recommended as not eligible for listing in the NRHP and they recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information.

CRITICAL AREAS - (CMC 16.51)

16.51.070 Critical areas—Regulated.

Mapping. The approximate location and extent of critical areas are shown on critical area maps that are provided by interlocal contract by the Clark County Geographic Information Systems (a.k.a. "Maps Online"). These maps are to be used as a guide for the city, project applicants, and/or property owners, and may be continually updated as new critical areas are identified. They are a reference and do not provide a final critical area designation or delineation. If the proposed activity is within, adjacent to (within two hundred feet), or is likely to impact a critical area, the city shall require a critical area report from the applicant that has been prepared by a qualified professional. If the report concludes that there is a critical area present then the city of Camas shall:

A. *Review and evaluate the critical area report;*
B. *Determine whether the development proposal conforms to the purposes and performance standards of these provisions;*
C. *Assess potential impacts to the critical area and determine if they are necessary and unavoidable; and*
D. *Determine if any mitigation proposed by the applicant is sufficient to protect the functions and values of the critical area and public health, safety, and welfare concerns consistent with the goals, purposes, objectives, and requirements of these provisions.*

RESPONSE: Clark County Maps Online (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report and Shoreline Narrative have been prepared by MacKay Sposito Inc., a qualified professional.

WETLANDS- (CMC 16.53)

16.53.030 Critical area report – Additional requirements for wetlands.

A. Prepared by a Qualified Professional. A critical areas report for wetlands shall be prepared by a qualified professional who is a wetland biologist with experience preparing wetland reports.
B. Area Addressed in Critical Area Report. In addition to the requirements of Chapter 16.51, the following areas shall be addressed in a critical area report for wetlands:
1. Within a subject parcel or parcels, the project area of the proposed activity;
2. All wetlands and recommended buffer zones within three hundred feet of the project area within the subject parcel or parcels;
3. All shoreline areas, water features, floodplains, and other critical areas, and related buffers within three hundred feet of the project area within the subject parcel or parcels;
4. The project design and the applicability of the buffers based on the proposed layout and the level of land use intensity; and
5. Written documentation from the qualified professional demonstrating compliance with the requirements of this chapter.
C. Wetland Determination. In conjunction with the submittal of a development permit application, the responsible official shall determine the probable existence of a wetland on the subject parcel. If wetland or wetland buffers are found to be likely to exist on the parcel, wetland delineation is required.
D. Wetland Delineation...

When deemed appropriate, the director may also require the critical area report to include an evaluation by the Department of Ecology or an independent qualified expert regarding the applicant's analysis, and the effectiveness of any proposed mitigating measures or programs, and to include any recommendations as appropriate.
(Ord. 2517 § 1 (Exh. A (part)), 2008)
(, § II, 1-5-2015; , § II(Exh. A), 3-16-2015)

RESPONSE: Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report has been prepared by MacKay Sposito Inc., a qualified professional, dated January 22, 2025. This shoreline critical areas report describes the current conditions and the extent of wetlands and fish and wildlife habitat conservation areas (FWHCA).

Per this report, no wetlands were observed within the project study area.

FISH AND WILDLIFE HABITAT CONSERVATION AREAS - (CMC 16.61)

16.61.020 – Critical area report – Requirements for habitat conservation areas.

A. Prepared by a Qualified Professional. A critical areas report for a habitat conservation area shall be prepared by a qualified professional who is a biologist with experience preparing reports for the relevant type of habitat.

B. Areas Addressed in Critical Area Report. The following areas shall be addressed in a critical area report for habitat conservation areas:

1. *Within a subject parcel or parcels, the project area of the proposed activity;*
2. *All wetlands and recommended buffer zones within three hundred feet of the project area within the subject parcel or parcels;*
3. *All shoreline areas, water features, floodplains, and other critical areas, and related buffers within three hundred feet of the project area of the subject parcel or parcels; and*
4. *The project design and the applicability of the buffers based on the proposed layout and the level of land use intensity.*

C. Habitat Assessment. A habitat assessment is an investigation of the project area to evaluate the presence or absence of a potential critical fish or wildlife species or habitat. A critical area report for a habitat conservation area shall contain an assessment of habitats, including the following site- and proposal-related information at a minimum:

1. *Detailed description of vegetation on and adjacent to the project area;*
2. *Identification of any species of local importance, priority species, or endangered, threatened, sensitive, or candidate species that have a primary association with habitat on or adjacent to the project area, and assessment of potential project impacts to the use of the site by the species;*
3. *A discussion of any federal, state, or local special management recommendations, including Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area;*
4. *A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed land use activity, and to be conducted in accordance with mitigation sequencing (Section 16.51.170); and*
5. *A discussion of ongoing management practices that will protect habitat after the project site has been developed, including proposed monitoring and maintenance programs.*

D. Additional Information May be Required. When appropriate due to the type of habitat or species present or the project area conditions, the city may also require the habitat management plan to include:

1. *An evaluation by the Department of Fish and Wildlife or qualified expert regarding the applicant's analysis and the effectiveness of any proposed mitigating measures or programs, to include any recommendations as appropriate;*
2. *An evaluation by the local Native American Indian Tribe; and*
3. *Detailed surface and subsurface hydrologic features both on and adjacent to the site.*

RESPONSE: Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, A Shoreline Critical Areas Report, prepared by MacKay Sposito Inc. (January 22, 2025), assesses the environmental conditions of the project study area (PSA) in relation to Lacamas Creek, a Shoreline of the State (WDNR Type S) with associated riparian habitat (Clark County MapsOnline, 2024). This report delineates wetlands, fish and wildlife habitat conservation areas (FWHCA), and shoreline management considerations.

Riparian Habitat and Buffers
The Ordinary High-Water Mark (OHWM) was delineated following Ecology's methodology (2016), using indicators such as vegetation transitions, undercut banks, and watermarks. Due to steep slopes in the southeast PSA, field data was supplemented with LiDAR-derived contours (WDNR 2019).

- Lacamas Creek (Type S) is mapped at the southern boundary of the PSA.
- Standard Riparian Buffer: 150 feet per CMC 16.61.040.D.
- Modified Buffer per City of Camas SMP 5.3(2)(b): 20 feet from the top of slopes exceeding 40% (PSA slopes are approximately 58%).
- Shoreline Management Area: Extends 200 feet landward from the OHWM and is under City of Camas SMP (2021) jurisdiction.

Wildlife and Habitat Considerations
A review of the USFWS IPaC database (2024) confirmed:

- No observed terrestrial species listed as threatened or endangered.
- No suitable terrestrial habitat within or near the PSA.
- Table 4 of the report identifies five threatened fish species presumed present in Lacamas Creek.

The Shoreline Critical Areas Report confirms that the proposed development complies with CMC and City of Camas SMP regulations by adhering to modified buffer standards, documenting existing environmental conditions, and ensuring that no significant habitat disruptions occur within the PSA.

USE AUTHORIZATION - (CMC 18.07)

18.07.040 - Table 2—Residential and multifamily land uses

Authorized Uses in Residential and Multifamily Zones

R	*MF*
RESIDENTIAL USES	
Adult family home, residential care facility, supported living arrangement, or housing for the disabled 1	*P*
Apartments	*P 2*
Assisted living 1 , retirement home 1	*C*
Cottage-style homes	*X/P 2*
Designated manufactured homes	*P*
Duplex or two-family dwelling	*C*
Manufactured home	*X*
Manufactured home park	*X*
Nursing, rest, convalescent home 1	*C*
Permanent Supportive Housing	*C/P 2*
Residential attached housing for three or more units (e.g., rowhouses)	*X/P 2*
Residential Treatment Facility 5	*X*

Single-family dwelling (detached)	*P*
Sober Living Homes	*P*
Transitional Housing	*P*
INCIDENTAL USES	
Accessory dwelling unit	*P*
Animal training, kennel, boarding	*X*
Day care center 1	*C*
Day care, family home	*P*
Day care, minicenter 1	*C*
Electric vehicle battery charging station and rapid charging stations	*P*
Gardening and horticulture activities	*P*
Home occupation	*P*
Bed and breakfast 1	*C*
RECREATION/RELIGIOUS/CULTURAL	
Church 1	*C*
Community clubs, private or public 1	*C*
Library 1	*C*
Museum 1	*C*
Open space 1	*P*
Public or semi-public building 1	*C*
Park or playground	*P*
Sports fields 1	*C*
Trails	*P*
Event center 6	*C*
Educational Uses	
Private, public or parochial school 1	*P*
Trade, technical, business college 1	*X*
College/university 1	*X*
COMMUNICATION AND UTILITIES	
Wireless communication facility	*Refer to Chapter 18.35*
Facilities, minor public	*C*
Public utilities, minor	*C*
Pumping station 1	*C*
Railroad tracks and facilities 1	*C*
TEMPORARY USES	
Sales office for a development in a dwelling 1, 4	*T*
Sales office for a development in a trailer 3, 4	*T*

Notes:

1. *See* Chapter 18.19 *"Design Review" for additional regulations.*
2. *Permitted in the LD-NS zone. Permitted in all other R zones as part of a planned development only.*
3. *Site plan review required per CMC Section* 18.18.020*(A)(1).*
4. *Notwithstanding the time limitations of a temporary use, a sales office proposed and approved through a Type III application may be approved with a longer time frame than one hundred eighty days.*
5. *A Residential Treatment Facility shall not be located within one thousand feet of public and private schools, public parks, public libraries, other RTFs, or similar uses.*
6. *Permitted in the LD-NS and HD-NS zones only.*
7. *Cottages are only permitted in the LD-NS zone.*
8. *Cottages are permitted in the HD-NS zone. In other multi-family zones, cottages are permitted with the MF-C overlay only.*

RESPONSE: An application is on file with the City of Camas for review for a Conditional Use Permit and Design Review to install Per- and polyfluoroalkyl substances (PFAS) treatment equipment for the existing Well 13, add a new generator and generator pad, expand the electrical room with a building addition, construct another building addition for the proposed new well, and develop a new driveway off East 1st Avenue to accommodate a pump crane truck.

Staff have not provided the applicable use category from the CMC; however, it is reasonable to conclude that the use can be classified as a "facilities, minor public" as outlined in Table 2—Residential and Multifamily Land Uses. CMC 18.03.030 identifies a "Facility, Public" *as streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, water towers, storm and sanitary sewer systems, parks and recreation facilities, and schools that are open to the general public and owned by or in trust for a government entity*.

The above identified use, "facilities, minor public", is as allowed through a Conditional Use Permit provided the proposal complies with the approval standards of CMC Chapter 18.43-Conditional Use and the design regulations of Chapter 18.19. Compliance with applicable approval standards has been addressed in the corresponding sections of this project narrative.

DENSITY AND DIMENSIONS- (CMC 18.09)

18.09.050 Table 1 - Density and Dimensions – Multifamily Residential Zones

RESPONSE: At the time of the application, the property is zoned MF-18. The subject property encompasses 0.56 acres (24,394 square feet) according to Clark County GIS, 0.50 acres (21,975 square feet) according to a survey by MacKay Sposito, Inc., and is the site of the existing City of Camas' Well #13 along with abandoned Well #4. The subject property includes a primary building featuring a 527 sq. ft. pump room and a 1,182 sq. ft. chemical room. A generator and pad area can be found on the south side of the existing structure while an existing building for Well 4 will be removed.

Submitted plans identify the various improvements respectively; however, overall improvements are summarized as follow:

Stage 1 consists of the following:

- Construction of a new electrical room.
- Construction of a new generator pad.
- Construction of a new transformer pad and gravel access.
- Installation of two ion exchange tanks on a concrete pad.
- Installation of a covered bag filter pad and associated bag filters.
- Installation of a new driveway for a crane truck.
- Removal of the Well 4 building.

Stage 2 consists of the following:

- Installation of a new well.
- Construction of a new chemical/well building.
- Installation of four ion exchange tanks on two concrete pads.

The applicable development standards and corresponding compliance measures are outlined below:

Table 3: Density and Dimensions for Multifamily Residential Zones

	MF-18	**Proposed**
Max. Density (dwelling units per gross acre)	*18*	N/A
Min. Density (dwelling unts per gross acre)	*6.0*	N/A
STANDARD LOTS		
Min. Lot Area (square feet)	*2,100*	21,975 square feet
Min. Lot Width (feet)	*26*	Approx. 108 feet
Min. Lot Depth (feet)	*60*	Approx. 212 feet
Maximum gross floor area (GFA) per dwelling unit (square feet) [4]	*1,000*	N/A
SETBACKS		
Min. front yard/at garage front (feet)	*10/20*	30 feet (N)
Min. side yard[1]	*3*	15 feet (W)
Min. side yard, flanking a street	*15*	18 feet (E)
Min. rear yard	*10*	Approx. 75 feet (S)
LOT COVERAGE		
Max. building lot coverage	*65%*	17 %
BUILDING HEIGHT		
Max. building height[5]	*50'*	20'-4"

18.09.080 - Setback – Exception

RESPONSE: There are no exceptions to setbacks proposed.

PARKING- (CMC 18.11)

RESPONSE: Two existing parking stalls are located on-site next to the Well 13 pump and chemical room, accessible via SE Cramer Lane. This 20-foot-wide paved roadway provides access to the Well 13 site and serves as the ingress and egress for residents of the Three Rivers condo complex. CMC 18.11.020.B prohibits "all commercial and industrial developments and in all residential buildings containing five or more dwelling units" to backout into any street or public right-of-way; however, the proposed use is a "public facility" and the parking stalls are existing. Additionally, SE Cramer Lane is located within an easement and is not dedicated right-of-way. As such, the criteria does not apply.

Two additional parking stalls will be provided in front of the new electrical room building (in tandem) within the new driveway. Please refer to the Site Plan for more information.

Due to the nature of the site's use, it will not be open to the public. To ensure site security and protect public welfare, no pedestrian access will be provided thus supporting the proposed parking design.

LANDSCAPING - (CMC 18.13)

18.13.050 Landscaping Standards

A. The property owner shall be responsible for any future damage to a street, curb, or sidewalk caused by landscaping.

B. Landscaping and trees shall be selected and located to deter sound, filter air contaminants, curtail erosion, minimize stormwater run-off, contribute to living privacy, reduce the visual impacts of large buildings and paved areas, screen, and emphasize or separate outdoor spaces of different uses or character.

C. Landscape, Tree and Vegetation Plan must include a combination of trees, shrubs, and ground cover to achieve the purposes of this chapter.

1. Required landscaping shall be comprised of a minimum of sixty percent native vegetation (or adapted to northwest climate), or drought-tolerant vegetation, and fifty percent evergreen.

2. Deciduous trees shall have straight trunks, be fully branched, have a minimum caliper of two inches, be equivalent to a fifteen-gallon container size, and be adequately staked for planting.

3. Evergreen trees shall be a minimum of five feet in height, fully branched, and adequately staked for planting.

D. Street trees will be required as part of the frontage improvements. Species, size and spacing of the trees must be consistent with the Design Standards Manual. Unless otherwise specified, trees must generally be spaced thirty feet apart. Substitute varieties are subject to approval by the City of Camas.

E. Proposed vegetation cannot be an invasive species as listed within the most current edition of the Clark County Noxious Weed List (e.g. English Ivy cultivars).

F. Shrubs shall be a minimum of five-gallon pot size. Upright shrubs shall have a minimum height at planting of eighteen inches. Spreading shrubs at planting shall have a minimum width of eighteen inches (smaller shrub sizes may be approved where it is more appropriate within a particular landscape plan).

G. Ground Cover, defined as living material and not including bark chips or other mulch, shall be from containers of one gallon or larger. Plants shall be planted and spaced in a triangular pattern which will result in eighty percent cover in three years. Lawn cannot be the primary ground cover within required landscape buffers unless approved for stormwater conveyance. Grass species, if used as ground cover, shall be native or drought-tolerant, and appropriate for the use of the area.

H. Appropriate measures shall be taken, e.g., installation of irrigation system, to assure landscaping success. If plantings fail to survive, it is the responsibility of the property owner to replace them.

I. Required trees, as they grow, shall be pruned in accordance with the International Society of Arboriculture. The pruned tree will provide at least ten feet of clearance above sidewalks and fourteen feet above street roadway surfaces.

J. Existing trees may be used as street trees if there will be no damage from the development which will kill or weaken the tree. Sidewalks of variable width and elevation may be utilized to save existing street trees, subject to approval by the city.

K. Vision clearance hazards shall be prohibited.

L. Street trees and other required landscaping which dies or is removed, must be replaced within one year of death or removal. Replacement street trees may be an alternative species from the city's recommended tree list, and may be in a different location as approved by the city.

RESPONSE: The proposed Landscaping Plan has been prepared to meet the standards of this code section (see Sheet LS1.0) or as adjusted as described below.

As detailed within this project narrative, the subject property is 0.56 acres (24,394 square feet) according to Clark County GIS, 0.50 acres (21,975 square feet) according to a survey by MacKay Sposito, Inc. The proposed landscaping plan includes the removal of small trees located in the northern portion of the site while preserving an existing18-inch walnut tree. The plan incorporates new plantings, including Oregon ash and Paperbark maple trees (meeting the city's street tree standards), along with shrubs like Isanti dogwood, Oregon grape, and salal, spaced strategically to enhance site aesthetics and environmental resilience while meeting landscape buffer requirements. Groundcover will consist of a hydroseeded meadow of native species. The site may feature an automatic drip irrigation system, and all landscaping will comply with City of Camas regulations. The total landscape area will cover approximately 49.6% of the site, exceeding the required 15%. Additionally, the plan meets and exceeds the required tree density, ensuring a well-balanced, sustainable green space.

It should be noted that proposed landscape buffers have been provided as indicated below:

- North (Parking lot use on CC zoned property across E 1st Avenue) – An L2 landscape buffer has been provided with Paperbark maples, salal, Oregon grape and Isanti dogwood designed to screen the site from the adjacent right-of-way.
- South (Open space use on MF-18 zoned property) – Because of the proximity of the south property line to the Washougal River Greenway and existing trees just south of the south property line of the project site (whose canopy encroaches over the south property line), a landscape buffer has not been provided as the southern portion of the project site will be surrounded by an 8-foot-high Pallisades-style fence. The fence is proposed to provide security of the site as a public water source while allowing visibility into the site for safety and security reasons. Adding additional shrubs and trees would impact the locations of the ion exchange treatment pads/tanks.
- West (Single-family residential use on MF-18 zoned property) – An L1 buffer has been provided with Oregon ash trees spaced 30 feet on center. The northern portion of the this buffer also contains Oregon grape to meet the L2 landscape buffer requirement. However, shrubs have not been proposed within the fenced area along the west property line for reasons as indicated above.
- East (Single-family attached use on MF-18 zoned property) – An L1 landscape buffer has been proposed with Oregon ash trees spaced generally 30 feet on center or as allowed to accommodate existing and proposed driveways. As there is a fence that surrounds the townhomes on the east side of SE Cramer Lane, shrubs have not been provided per the L2 buffer standard as there are currently no existing shrubs along this section of the site and any shrubs would not materially increase the screening of the site from off-site properties. Only one tree is proposed within the fenced area as there is insufficient room to accommodate additional trees because of the ion exchange pad/tanks and other underground utilities.

SIGNS - (CMC 18.15)

RESPONSE: There are no signs proposed at this time.

SITE PLAN REVIEW - (CMC 18.18)

18.18.060 Criteria for approval

RESPONSE: Although staff indicated that a site plan review application is not required for this proposal, we are providing the following findings to demonstrate compliance with the Camas Municipal Code and to assist staff in better understanding the project.

The city shall consider approval of the site plans with specific attention to the following:

A. Compatibility with the city's comprehensive plan;

RESPONSE: The proposed development is consistent with the goals and policies outlined in the City of Camas Comprehensive Plan. The project aligns with the City's commitment to ensuring safe and reliable public infrastructure by upgrading critical water treatment facilities to address per- and polyfluoroalkyl substances (PFAS) contamination. This directly supports the Comprehensive Plan's objectives related to public health, environmental protection, and sustainable water resource management.

Furthermore, the project is compatible with land use policies promoting essential public services within established urban areas. The site, located in the Multifamily Residential-18 (MF-18) zoning district, has historically functioned as a public utility site, and the proposed improvements will enhance its operational efficiency while maintaining compatibility with surrounding uses. The staged approach to development ensures that necessary infrastructure will be in place to support both existing and future site functions, in alignment with the City's growth management strategies.

Additionally, environmental considerations have been integrated into the project design, including compliance with shoreline and critical areas regulations. The proposed improvements are designed to minimize environmental impact while maintaining the integrity of adjacent natural resources, such as Lacamas Creek and the Washougal River Greenway.

Overall, the project is consistent with the Comprehensive Plan's emphasis on infrastructure resilience, environmental stewardship, and the provision of essential public services to support the well-being of Camas residents.

B. Compliance with all applicable design and development standards contained in this title and other applicable regulations;

RESPONSE: The proposed development meets the development standards within Title 18, "Zoning" of the CMC. Specifically, the submitted plans and project narrative detail compliance with the Density and Dimensions of CMC 18.09, Parking standards of CMC

18.11 and Landscaping Standards of CMC 18.13. The project narrative also includes analysis for Design Review demonstrating compliance with CMC 18.19.

C. Availability and accessibility of adequate public services such as roads, sanitary and storm sewer, and water to serve the site at the time development is to occur, unless otherwise provided for by the applicable regulations;

RESPONSE: The subject property is adequately served by public infrastructure, ensuring the availability and accessibility of necessary public services. The existing driveway approach serving Cramer Lane will continue to provide vehicular access to the well facility. Additionally, frontage improvements along E. 1st Avenue have already been completed to current City standards, eliminating the need for further road frontage improvements. The City of Camas will operate and maintain the well facility, ensuring proper maintenance and functionality of public utilities, including existing water and sanitary sewer services, in accordance with applicable regulations.

The proposed project site has an existing storm sewer system that is to remain in place following construction of the proposed improvements. The existing storm sewer system currently picks up runoff from the existing buildings and site area via roof drain connections and area drains and conveys stormwater by pipe to the south end of the site where it is dispersed through a perforated pipe. The runoff ultimately drains downhill in the southeast direction to the Washougal River. All new buildings, concrete slabs, sidewalks, and landscape areas are to drain to this existing stormwater system and ultimately outfall to the Washougal River. The existing road to the east of the site, called SE Cramer Ln., currently drains to the west and south, ultimately flowing downhill to the Washougal River.

Due to the existing development of the subject property and proposed improvements of the project area, the applicant confirms there are adequate public services available to serve the site at the time of development. Refer to the plans and reports included in this application for more information.

D. Adequate provisions are made for other public and private services and utilities, parks and trails (e.g., provide copies of private covenant documents);

RESPONSE: Utilities are provided as required for this project. Please refer to the engineering plans, reports, and additional analysis for more information.

While there are no proposed parks or trails associated with this project, a new sidewalk is proposed along the east side of the site to provide ADA compliant access to the existing gravel pathway in the Washougal River Greenway south of the site.

E. Adequate provisions are made for maintenance of public utilities; and

RESPONSE: Adequate provisions have been made for the maintenance of public utilities, as the well facility will be operated and maintained by the City of Camas. The City will ensure the ongoing maintenance and functionality of the public facility in accordance with applicable standards and regulations.

F. All relevant statutory codes, regulations, ordinances and compliance with the same. The review and decision of the city shall be in accordance with the provisions of CMC Chapter 18.55 Administration and Procedures.

RESPONSE: This Application meets the requirements of Administration and Procedures – CMC 18.55 as described elsewhere in this narrative.

(Ord. 2515 § 1 (Exh. A (part)), 2008: Ord. 2481 (Exh. A (part)), 2007: Ord. 2443 § 3 (Exh. A (part)), 2006) (Ord. No. 2612, § I(Exh. A), 2-7-2011)

DESIGN REVIEW - (CMC 18.19) & DESIGN REVIEW MANUAL

18.19.050 Design Principles

CMC 18.19 requires the Applicant to submit for Design Review on projects located within commercial zoning designations. This section of the narrative addresses detailed design information, as well as the overall integration of architectural elements into the Preliminary Site Plan.

The project will meet the design principles of CMC 18.19.050, Design principles, as follows:

1. Landscaping:
The plan incorporates new plantings, including Oregon ash and Paperbark maple trees (meeting the city's street tree standards), along with shrubs like Isanti dogwood, Oregon grape, and salal, spaced strategically to enhance site aesthetics and environmental resilience while meeting landscape buffer requirements. Groundcover will consist of a hydroseeded meadow of native species. The site may feature an automatic drip irrigation system, and all landscaping will comply with City of Camas regulations. The total landscape area will cover approximately 49.6% of the site, exceeding the required 15%. Additionally, the plan meets and exceeds the required tree density, ensuring a well-balanced, sustainable green space.

It should be noted that proposed landscape buffers have been provided as indicated below:

- North (Parking lot use on CC zoned property across E 1st Avenue) – An L2 landscape buffer has been provided with Paperbark maples, salal, Oregon grape and Isanti dogwood designed to screen the site from the adjacent right-of-way.
- South (Open space use on MF-18 zoned property) – Because of the proximity of the south property line to the Washougal River Greenway and existing trees just south of the south property line of the project site (whose canopy encroaches over the south property line), a landscape buffer has not been provided as the southern portion of the project site will be surrounded by an 8-foot-high Pallisades-style fence. The fence is proposed to provide security of the site as a public water source while allowing visibility into the site for safety and security reasons. Adding additional shrubs and trees would impact the locations of the ion exchange treatment pads/tanks.

- West (Single-family residential use on MF-18 zoned property) – An L1 buffer has been provided with Oregon ash trees spaced 30 feet on center. The northern portion of the this buffer also contains Oregon grape to meet the L2 landscape buffer requirement. However, shrubs have not been proposed within the fenced area along the west property line for reasons as indicated above.
- East (Single-family attached use on MF-18 zoned property) – An L1 landscape buffer has been proposed with Oregon ash trees spaced generally 30 feet on center or as allowed to accommodate existing and proposed driveways. As there is a fence that surrounds the townhomes on the east side of SE Cramer Lane, shrubs have not been provided per the L2 buffer standard as there are currently no existing shrubs along this section of the site and any shrubs would not materially increase the screening of the site from off-site properties. Only one tree is proposed within the fenced area as there is insufficient room to accommodate additional trees because of the ion exchange pad/tanks and other underground utilities.

Any landscape lighting utilized will be low voltage, non-glare and indirect. Any street lights utilized will be compatible with nearby lighting if required.

2. Significant natural features:
The proposed redevelopment of the project area does not include the removal of significant trees or impacts any critical areas in the vicinity of the subject property. Specifically, the subject property includes a wetland located approximately 975 feet to the south of the proposed project area. An existing 18-inch walnut tree will be retained in the southern portion of the site. Existing off-site trees will not be impacted by the project.

3. Buildings and materials:
Two additions, in two stages, are planned to be added to the existing 1709 SF Pump and Chemical Building. Each stage will include PFAS filtration vessels located at the rear of the site and smaller bag filter housings for sediment removal. The bag filters include a small canopy overhead and are adjacent to the existing Pump and Chemical building. A new emergency generator will replace the existing generator to provide sufficient backup power for the new well pump that will be replacing the well pump within the existing building. Residential style palisades fencing at the sides and rear yard will provide a secure perimeter around the filtration equipment and emergency generator but be residential in character.

Stage 1 will add an approximately 560 SF, single story, electrical room addition to the north of the existing building. It will also include two PFAS filtration vessels located at the rear of the site and two smaller bag filter filtration housings with an accompanying canopy adjacent to the existing building. The Stage 1 addition will be a direct extension of the existing building with the massing and the roof will be a continuation of the existing.

Stage 2 will add a 1,466 SF Pump and Chemical Room to the north of the Stage 1 addition. It will include four PFAS filtration vessels at the rear of the site and adjacent to the Stage 1 vessels. An additional smaller vessel will be installed under the Stage 1 canopy at the

west of the existing building. The Stage 2 addition will be 3 feet taller than the existing building and provide a gentle transition from the single-story residential building immediately to the west and the two-story apartments to the east across Cramer Lane. With the additions, the building will be closer to the street and continue the residential frontage established by the adjacent properties. The siting of the additions toward 1st Avenue will also provide additional screening to the PFAS vessels at the rear of the site.

Both additions will use the same materials and residential detailing as the existing building to appear as much as a singular, coordinated structure with a "finished" appearance. The additions will have the same textured and muted, mutli-colored masonry block design as the original building, with horizontal architectural banding accents. Faux window detailing will be replicated from the original building to maintain the residential character of the building and articulate the masonry walls. The gable ends will replicate the residential style cement board lap siding above the masonry portions of the building, like the original structure. The roof will be detailed with eave overhangs, brackets at the gable ends and architectural style composite shingling – again matching the original structure and residential character of the adjacent properties.

The PFAS filtration vessels will be painted a hue of green to blend into the natural vegetation at the rear of the site and diminish their presence on the site.

4. Historic and Heritage Preservation:

Clark County GIS data indicates that 100% of the site has a high probability of containing archaeological findings. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is recommended as not eligible for listing in the NRHP and they recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information.

In the event any archaeological or historic materials are encountered during project activity, work in the immediate area must stop and the following actions taken:

1. Implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering; and
2. Take reasonable steps to ensure the confidentiality of the discovery site; and,
3. Take reasonable steps to restrict access to the site of discovery. If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If remains are determined to be Native, consultation with the effected Tribes will take place in order to mitigate the final disposition of said remains.

There are no historic elements associated with the existing facility that would be incorporated into the design.

Compliance with the Camas Design Review Manual

In addition to compliance with the CMC 18.19.050 Design Principles described earlier in this narrative, the following provides a description of how this project meets with the 2002 Camas Design Review Manual ("DRM") Standard Design Principles and Guidelines.

DRM Standard Design Principles

A description of how the project meets the DRM Standard Design Principles is noted earlier in this narrative.

DRM Standard Design Guidelines

Landscaping & Screening

1. **Landscaping & Screening:**
   The plan incorporates new plantings, including Oregon ash and Paperbark maple trees (meeting the city's street tree standards), along with shrubs like Isanti dogwood, Oregon grape, and salal, spaced strategically to enhance site aesthetics and environmental resilience while meeting landscape buffer requirements. Groundcover will consist of a hydroseeded meadow of native species. The site will feature an automatic irrigation system, and all landscaping will comply with City of Camas regulations. The Landscape Plan provides for year-round color and texture and will afford the site a cohesive design with trees and shrubs that are adapted to the climate of the Pacific Northwest and match surrounding environs.

2. **Signage**:
   There is no proposed signage with this Application.

3. **Outdoor Furnishings.**
   As this is a public water facility, there are no proposed outdoor furnishings.

4. **Fencing**:
   Fencing will be provided around the southern portion of the site with an 8-foot-tall palisade-style fence to provide a security perimeter around this critical public water facility and to help screen the PFAS equipment. The fence will be approximately 25% opaque to provide visual access into the site for security purposes.

5. **Significant Trees**:
   There is an existing 18-inch walnut tree located in the southwestern portion of the site that is proposed to be retained. Placement of the ion exchange tanks have been positioned to best protect the critical root zone of this tree.

6. **Lighting**:

Lighting is proposed to meet minimum safety and security requirements. Building lighting will occur at man doors, per code requirements. Site and security lighting near the filtration units and bag filters will be activated only when needed by maintenance personnel. All lighting will be shielded to prevent off-site light intrusion to the extent practicable.

Massing and Setbacks

The buildings are massed to the front (street facing) side of the site to enhance and preserve the residential quality of the neighborhood streetscape. Filtration equipment is located to the greatest extent to the rear of the site, on the SE Cramer Lane side, to screen and reduce their presence to the E 1st Avenue and neighboring properties. The size of the buildings is in scale with the neighboring single-story single-family residence and two-story townhome complex and appropriate to the MF-18 zoning. Pedestrian circulation is provided on the main street frontage via the existing public sidewalk and along the east side of the site/west side of SE Cramer Lane with a new sidewalk connecting to the existing gravel pathway in the Washougal River Greenway south of the site.

Architecture

1. **Finished, Sound, Durable and Permanent Appearance:**
   The additions to the building are designed to be integrated extensions of the existing building design. The existing building is thoughtfully designed with articulated masonry walls and lap siding that embodies the residential feel of the street. The roof uses an architectural grade composite shingle, seen on neighboring buildings, with overhangs and brackets at the gable ends that are distinctly residential in character. The materials are of high quality and durability. The additions will replicate and match these details in order to create a design that looks uniform, finished and as a singular complete design.

2. **Placement of Buildings:**
   There are no significant natural features on the site to be preserved.

3. **Building Walls and Fences Visible from Roadways:**
   The building walls facing the main street frontage in stage 1 and stage 2 are designed with articulation of faux windows, residential style doors, masonry detailing, roof overhangs and brackets to add scale and composition to the facades that matches the residential character of the neighborhood and avoids a “blank” look. The stage 1 composition features the gable end of the building fronting the street. The design uses window and door composition to articulate the façade, masonry detailing to establish a base and detail banding of the building and create a smaller scale to the elevation. Lap siding for the wood framed construction above the masonry is used to break up the top quarter of the wall. The roof is also further articulated with overhangs, brackets, and exposed collar ties to add depth, scale, and interest to the elevation. The Stage 2 design features the eave side of the building for its frontage, but it uses the

same detailing with windows, masonry, and roof overhangs to break up the massing and composition of the elevation and bring a residential fell to the frontage.

4. **Color Scheme:**
   The proposed design for the additions will continue the design of the existing building to create a cohesive look for the building. The color palette features natural, muted tones (not bright), such as greys, pastels, and tans. Bold colors or colors not represented on the original building are not proposed for these additions.

   The PFAS filtration tanks shall be in a muted green tone to blend in with the natural vegetation at the back of the site.

Historic and Heritage Preservation

There are no historic/heritage elements either on-site or in the surrounding area.

Multi-Family Principals & Guidelines

While the project is located in the MF-18 zoning district, the design review principals and guidelines pertaining to multi-family development do not apply. Compliance with other design review principals and guidelines are as indicated above.

CONDITIONAL USE PERMITS- (CMC 18.43)

18.43.010 Purpose.

It is the purpose of this chapter to establish review and permit approval procedures for unusual or unique types of land uses which, due to their nature, require special consideration of the impact on the neighborhood and land uses in the vicinity.

RESPONSE: Staff identified a conditional use permit as a required procedure. The applicant has submitted for conditional use approval and this narrative provides findings addressing the applicable standards and criteria.

18.43.050 Criteria.

The hearings examiner shall be guided by all of the following criteria in granting or denying a conditional use permit:

A. The proposed use will not be materially detrimental to the public welfare, or injurious to the property or improvements in the vicinity of the proposed use, or in the district in which the subject property is situated;

RESPONSE: The proposed development is consistent with the goals and policies outlined in the City of Camas Comprehensive Plan. The project aligns with the City's commitment to ensuring safe and reliable public infrastructure by upgrading critical water treatment facilities to address per- and polyfluoroalkyl substances (PFAS) contamination. This directly supports the Comprehensive Plan's objectives related to public health, environmental protection, and sustainable water resource management.

Furthermore, the project is compatible with land use policies promoting essential public services within established urban areas. The site, located in the Multifamily Residential-18 (MF-18) zoning district, has historically functioned as a public utility site, and the proposed improvements will enhance its operational efficiency while maintaining compatibility with surrounding uses. The staged approach to development ensures that necessary infrastructure will be in place to support both existing and future site functions, in alignment with the City's growth management strategies.

B. *The proposed use shall meet or exceed the development standards that are required in the zoning district in which the subject property is situated;*

RESPONSE: Applicable design and development standards and other applicable regulations will be met or exceeded as described in this narrative, on the plans, and elsewhere in the application package.

C. *The proposed use shall be compatible with the surrounding land uses in terms of traffic and pedestrian circulation, density, building, and site design;*

RESPONSE: Existing zoning and uses adjacent to the project site are as follow:

Direction	Zoning	Use
North	Community Commercial (CC)	Parking Lot
East	Multifamily Residential-18 (MF-18)	Single-family attached townhomes
South	Multifamily Residential-18 (MF-18)	Open Space
West	Multifamily Residential-18 (MF-18)	Single-family detached
Direction	Zoning	Use

The subject property is bound by E 1st Avenue along the north property line which was previously constructed to current city standards. As such, no further road frontage improvements are anticipated. The subject property is bound by SE Cramer Lane along its east property line. SE Cramer Land is a 20-foot-wide paved roadway providing access to the Well 13 site and serves as the ingress and egress for residents of the Three Rivers condo complex.

A pedestrian sidewalk will be incorporated along the subject property's east property line within SE Cramer Lane roadway to ensure safe and efficient circulation, connecting the existing well facilities with the public right-of-way along East 1st Avenue and to the existing gravel pathway within the Washougal River Greenway south of the site. The proposed improvements will maintain accessibility for maintenance personnel and emergency responders while minimizing disruptions to the surrounding area.

Traffic impacts from the proposed development have been evaluated in accordance with the City of Camas transportation plan. Given the project's nature as an upgrade to an existing public utility site, no significant increase in traffic generation is anticipated. The

existing driveway approach off East 1st Avenue, which currently serves the well facilities, will continue to provide vehicular access. No off-site mitigation is required, and no additional roadway improvements are anticipated as the existing frontage along East 1st Avenue was previously constructed to city standards.

The site design prioritizes operational efficiency while ensuring compatibility with adjacent land uses. The proposed improvements will be concentrated within the existing utility site to minimize visual and functional impacts on nearby residential properties. The staged approach to development ensures that critical infrastructure upgrades can be implemented systematically without disrupting essential public services.

Architectural and site design elements will be cohesive with the existing well facilities. Building additions for the expanded electrical and chemical rooms, as well as the new well, will utilize materials and colors consistent with the existing structures to maintain visual continuity. The generator and ion exchange treatment areas will be strategically placed to optimize operational performance while preserving site aesthetics.

The proposed landscaping plan incorporates a mix of low-maintenance native and ornamental plant species to complement the surrounding environment. Vegetation will be utilized to provide a buffer between the facility and adjacent properties while maintaining clear sightlines for security and safety. The plan ensures year-round visual interest with a variety of plant textures and colors, contributing to the overall integration of the facility with its natural and built surroundings.

The proposed development has been designed to align with the City of Camas Comprehensive Plan by ensuring the continued provision of safe and reliable public water infrastructure. The project supports public health, environmental sustainability, and essential service delivery while maintaining consistency with applicable land use policies and development standards.

D. *Appropriate measures have been taken to minimize the possible adverse impacts that the proposed use may have on the area in which it is located;*

RESPONSE: Appropriate measures have been taken to minimize the possible adverse impacts that the proposed use may have on the surrounding area. The project site is an existing public utility facility, and all proposed improvements will be concentrated within its current boundaries to minimize disruptions to adjacent residential and commercial uses.

As the project consists of infrastructure upgrades rather than new high-traffic development, no significant increase in traffic generation is anticipated. The existing driveway approach off East 1st Avenue will continue to serve as the primary access point, and no off-site mitigation measures or additional roadway improvements are required.

To improve pedestrian safety and accessibility, a new sidewalk will be incorporated along the subject property’s east property line within SE Cramer Lane. This will enhance

circulation by connecting the well facilities with the public right-of-way along East 1st Avenue as well as access to the existing gravel pathway in the Washougal River Greenway south of the site, ensuring safe passage for maintenance personnel, emergency responders, and nearby residents.

The site design prioritizes compatibility with surrounding land uses by maintaining a functional layout that minimizes visual and operational impacts. Architectural and material selections for the proposed building additions will match existing structures to ensure visual continuity. Equipment placement, including the generator and ion exchange treatment areas, has been strategically planned to optimize efficiency while preserving site aesthetics.

Landscaping enhancements will provide a natural buffer between the facility and adjacent properties. A mix of low-maintenance native and ornamental plant species will be used to soften the site's appearance while maintaining clear sightlines for safety. The landscaping plan ensures year-round visual appeal with diverse plant textures and colors, contributing to the overall aesthetic integration of the facility with its surroundings.

By adhering to these measures, the proposed development aligns with the City of Camas Comprehensive Plan, supporting critical public infrastructure while ensuring minimal impact on neighboring properties and the surrounding community.

E. The proposed use is consistent with the goals and policies expressed in the comprehensive plan;

RESPONSE: The proposed development is consistent with the goals and policies outlined in the City of Camas Comprehensive Plan. The project aligns with the City's commitment to ensuring safe and reliable public infrastructure by upgrading critical water treatment facilities to address per- and polyfluoroalkyl substances (PFAS) contamination. This directly supports the Comprehensive Plan's objectives related to public health, environmental protection, and sustainable water resource management.

Citywide Land Use Goal
LU-1.6: Ensure adequate public facilities (including roads, emergency services, utilities, and schools) exist to serve new development, and mitigate potential impacts to current residents.

RESPONSE: The project is compatible with land use policies promoting essential public services within established urban areas. The site, located in the Multifamily Residential-18 (MF-18) zoning district, has historically functioned as a public utility site, and the proposed improvements will enhance its operational efficiency while maintaining compatibility with surrounding uses. The staged approach to development ensures that necessary infrastructure will be in place to support both existing and future site functions, in alignment with the City's growth management strategies.

F. Any special conditions and criteria established for the proposed use have been satisfied. In granting a conditional use permit the hearings examiner may stipulate additional requirements to carry out the intent of the Camas Municipal Code and comprehensive plan.

RESPONSE: The project narrative has effectively demonstrated compliance with the policies and goals outlined in the Camas Comprehensive Plan, which have been designed to align with County-wide planning policies. Given this consistency and adherence to established guidelines, the approval of the proposed conditional is respectfully requested.

VARIANCES - (CMC 18.45)

RESPONSE: There are no variances requested.

ADMINISTRATION AND PROCEDURES- (CMC 18.55)

18.55.110 Application – Required Information

Type II or Type III applications include all the materials listed in this subsection. The director may waive the submission of any of these materials if not deemed to be applicable to the specific review sought. Likewise, the director may require additional information beyond that listed in this subsection or elsewhere in the city code, such as a traffic study or other report prepared by an appropriate expert where needed to address relevant approval criteria. In any event, the applicant is responsible for the completeness and accuracy of the application and all of the supporting documentation. Unless specifically waived by the director, the following must be submitted at the time of application:

A. A copy of a completed city application form(s) and required fee(s);
B. A complete list of the permit approvals sought by the applicant;
C. A current (within thirty days prior to application) mailing list and mailing labels of owners of real property within three hundred feet of the subject parcel, certified as based on the records of Clark County assessor;
D. A complete and detailed narrative description that describes the proposed development, existing site conditions, existing buildings, public facilities and services, and other natural features. The narrative shall also explain how the criteria are or can be met, and address any other information indicated by staff at the preapplication conference as being required;
E. Necessary drawings in the quantity specified by the director;
F. Copy of the preapplication meeting notes (Type II and Type III);
G. SEPA checklist, if required;
H. Signage for Type III applications and short subdivisions: Prior to an application being deemed complete and Type III applications are scheduled for public hearing, the applicant shall post one four-foot by eight-foot sign per road frontage. The sign shall be attached to the ground with a minimum of two four-inch by four-inch posts or better. The development sign shall remain posted and in reasonable condition until a final decision of the city is issued, and then shall be removed by the applicant within fourteen days of the notice of decision by the city. The sign shall be clearly visible from adjoining rights-of-way and generally include the following:
    1. Description of proposal,
    2. Types of permit applications on file and being considered by the City of Camas,
    3. Site plan,
    4. Name and phone number of applicant, and City of Camas contact for additional information,
    5. If a Type III application, then a statement that a public hearing is required and scheduled. Adequate space shall be provided for the date and location of the hearing to be added upon scheduling by the city.

(Ord. 2515 § 1 (Exh. A (part)), 2008) (Ord. No. 2612, § I(Exh. A), 2-7-2011)

RESPONSE: This application is subject to a Minor Design Review, SEPA Review, Archeological Review, Critical Areas Review, Type III Conditional Use Permit process.

A Pre-Application Conference was held on December 19, 2024 with subsequent meeting notes issued via email: January 7, 2025.

FIRE PREVENTION

No building or structure regulated by the building and/or fire code shall be erected, constructed, enlarged, altered, repaired, moved, converted, or demolished unless a separate permit for each building or structure has first been obtained from the CWFMO Camas Municipal Code 15.04.030.D.12.a. The project will comply with all fire prevention and Fire Marshal requirements.

***

Order No. **CL27331**

Clark County Title
1400 Washington Street, Ste. 100, Vancouver, WA 98660
Phone: 360-694-4722 Fax: 360-694-4734

Limited Liability Certificate

Order No. CL27331

Attn:

THIS IS A REPORT AS OF **February 21, 2024**, COVERING THE PROPERTY HEREINAFTER DESCRIBED. THE INFORMATION CONTAINED HEREIN IS MADE SOLELY FOR THE PURPOSE OF DETERMINING THE STATUS OF THE PROPERTY DESCRIBED HEREIN, IS RESTRICTED TO THE USE OF THE ADDRESSEE, AND IS NOT TO BE USED AS A BASIS FOR CLOSING ANY TRANSACTION AFFECTING TITLE TO SAID PROPERTY.

VESTED IN:

CITY OF CAMAS, A MUNICIPAL CORPORATION

Clark County Title Company

Mark D. Sr

Authorized Signatory

LEGAL DESCRIPTION

PARCEL090928-000

THAT PORTION OF SECTION 11, TOWNSHIP 1 NORTH, RANGE 3 EAST AND SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN, CLARK COUNTY, WASHINGTON, LYING WITHIN THE H.G. MAXON DONATION LAND CLAIM, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT NORTH 83°30' EAST 215 FEET FROM A POINT SOUTH 37°30' EAST 53 FEET FROM A POINT NORTH 52°30' EAST 559.36 FEET FROM THE SOUTHEAST CORNER OF BLOCK 10 IN THE TOWN OF CAMAS, WASHINGTON, ACCORDING TO THE DULY RECORDED PLAT THEREOF, RECORDED IN VOLUME "B" OF PLATS, PAGE 25, RECORDS OF SAID COUNTY; THENCE SOUTH 6°33' EAST 190.1 FEET, MORE OR LESS, TO THE SOUTH LINE OF THE TRACT CONVEYED TO E. MCDONALD AS DESCRIBED BY DEED RECORDED IN VOLUME 108, PAGE 156, RECORDS OF SAID COUNTY; THENCE NORTH 76° EAST 108.2 FEET, MORE OR LESS, TO THE SOUTHEAST CORNER OF SAID MCDONALD TRACT; THENCE NORTH 6°30' WEST ALONG THE EAST LINE OF SAID TRACT 176.2 FEET, MORE OR LESS, TO THE NORTHEAST CORNER THEREOF; THENCE WESTERLY IN A DIRECT LINE TO THE POINT OF BEGINNING.

EXCEPT THAT PORTION CONVEYED TO THE CITY OF CAMAS BY INSTRUMENT RECORDED IN VOLUME D53, PAGE 43E, UNDER AUDITOR'S FILE NO. G255940, RECORDS OF SAID COUNTY.

ALSO EXCEPT ANY PORTION LYING WITHIN 1ST AVENUE OR CRAMER LANE.

PARCEL 091031-000

THAT PORTION OF THE H.J.G. MAXON DONATION LAND CLAIM, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT NORTH 83°30' EAST 215 FEET FROM A POINT SOUTH 37°30' EAST 53 FEET FROM A POINT NORTH 52°30' EAST 559.36 FEET FROM THE SOUTHEAST CORNER OF BLOCK TEN (10), IN THE TOWN OF CAMAS, WASHINGTON, ACCORDING TO THE DULY RECORDED PLAT THEREOF, RECORDED IN VOLUME "B" OF PLATS, PAGE 25, RECORDS OF SAID COUNTY; THENCE SOUTH 6°33' EAST 139.67 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 6°33' EAST 50.43 FEET TO THE SOUTH LINE OF THE TRACT CONVEYED TO E. MCDONALD AS DESCRIBED BY DEED RECORDED IN VOLUME 108, PAGE 156, OF CLARK COUNTY DEED RECORDS; THENCE NORTH 76° EAST 108.2 FEET, MORE OR LESS, TO THE SOUTHEAST CORNER OF SAID MCDONALD TRACT; THENCE NORTH 6°30' WEST ALONG THE EAST LINE OF SAID TRACT 50.37 FEET; THENCE SOUTH 76° WEST 108.2 FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING.

PARCEL 091034-000

A PARCEL OF LAND SITUATED IN THE H.J.G. MAXON DONATION LAND CLAIM IN SECTION 11, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M., CLARK COUNTY, WASHINGTON, AS INDICATED ON THE MAP MARKED "EXHIBIT A" ATTACHED HERETO, AND BY THIS REFERENCE MADE A PART HEREOF, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF BLOCK TEN (10) IN THE CITY OF CAMAS, IN CLARK COUNTY, WASHINGTON, ACCORDING TO THE DULY RECORDED PLAT THEREOF, RECORDED IN VOLUME "B", PAGE 25 OF THE PLAT RECORDS OF SAID COUNTY; THENCE NORTH 53°30' EAST 559.36 FEET TO A POINT; THENCE SOUTH 36°30' 53.00 TO A POINT; THENCE NORTH 83°30' EAST 215.00 FEET TO A POINT; THENCE SOUTH 6°33' EAST 190.10

FEET TO THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION, BEING A POINT ON THE SOUTH LINE OF A PARCEL OF LAND CONVEYED TO E. MCDONALD AS DESCRIBED IN THE DEED RECORDS OF SAID CLARK COUNTY; THENCE SOUTH 6°33' EAST 25.00 FEET; THENCE NORTH 76°00' EAST 108.20 FEET; THENCE NORTH 6°30' WEST 25.00 FEET TO A POINT ON THE SOUTH LINE OF SAID MCDONALD LAND; THENCE SOUTH 76°00' WEST, TRACING THE SOUTH LINE OF SAID MCDONALD LAND, A DISTANCE OF 108.20 FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING.

Order No. **CL27331**

EXCEPTIONS:

1. **NOTICE OF LIMITATION OF LIABILITY: NO TITLE INSURANCE IS PROVIDED IN CONNECTION WITH THIS LIMITED LIABILITY REPORT. THE COMPANY'S LIABILITY IS STRICTLY LIMITED: THE COMPANY SHALL BE LIABLE (1) ONLY TO THE PARTY WHO ORDERED THE LIMITED LIABILITY REPORT AND (2) ONLY FOR ANY ACTUAL LOSS SUSTAINED BY THAT PARTY IS A DIRECT RESULT OF AN ERROR OR OMISSION IN THE LIMITED LIABILITY REPORT. IN NO EVENT SHALL THE LIABILITY OF THE COMPANY EXCEED THE AMOUNT ACTUALLY PAID BY THE PARTY TO THE COMPANY FOR THE ISSUANCE OF THE LIMITED LIABILITY REPORT. THE COMPANY OFFERS VARIOUS TITLE INSURANCE PRODUCTS THAT OFFER MORE PROTECTION TO THE PARTY IN THE EVENT OF DAMAGE DUE TO ERRORS OR OMISSIONS IN THE LIMITED LIABILITY REPORT. IF THE PARTY WISHES TO HAVE MORE PROTECTION, THE PARTY MUST INFORM THE COMPANY IN WRITING, AND PAY THE PREMIUM FOR SUCH TITLE INSURANCE COVERAGE.**

2. **REAL PROPERTY TAXES - TOTAL DUE MAY INCLUDE FIRE PATROL ASSESSMENT, R.I.D. ASSESSMENT AND/OR CLEAN WATER PROJECT ASSESSMENT, IF ANY, NOT INCLUDING INTEREST AND PENALTY AFTER DELINQUENCY:**

YEAR	AMOUNT	PAID	OWING
2025	$0.00	$0.00	$0.00
TAX PARCEL NO:	090928-000	TAX CODE NO:	117000

REAL PROPERTY TAXES ARE A LIEN JANUARY 1ST, PAYABLE FEBRUARY 15TH, FIRST HALF DELINQUENT MAY 1ST AND SECOND HALF DELINQUENT NOVEMBER 1ST.

JURISDICTION: CAMAS

NOTE: TAX PAYMENTS CAN BE MAILED TO THE FOLLOWING ADDRESS:

CLARK COUNTY TREASURER
CALLER BOX 35150
SEATTLE, WA 98124-5150
PHONE: 564-397-2252

3. **REAL PROPERTY TAXES - TOTAL DUE MAY INCLUDE FIRE PATROL ASSESSMENT, R.I.D. ASSESSMENT AND/OR CLEAN WATER PROJECT ASSESSMENT, IF ANY, NOT INCLUDING INTEREST AND PENALTY AFTER DELINQUENCY:**

YEAR	AMOUNT	PAID	OWING
2025	$0.00	$0.00	$0.00
TAX PARCEL NO:	091031-000	TAX CODE NO:	117000

REAL PROPERTY TAXES ARE A LIEN JANUARY 1ST, PAYABLE FEBRUARY 15TH, FIRST HALF DELINQUENT MAY 1ST AND SECOND HALF DELINQUENT NOVEMBER 1ST.

JURISDICTION: CAMAS

NOTE: TAX PAYMENTS CAN BE MAILED TO THE FOLLOWING ADDRESS:

CLARK COUNTY TREASURER
CALLER BOX 35150
SEATTLE, WA 98124-5150
PHONE: 564-397-2252

4. **REAL PROPERTY TAXES - TOTAL DUE MAY INCLUDE FIRE PATROL ASSESSMENT, R.I.D. ASSESSMENT AND/OR CLEAN WATER PROJECT ASSESSMENT, IF ANY, NOT INCLUDING INTEREST AND PENALTY AFTER DELINQUENCY:**

YEAR	AMOUNT	PAID	OWING
2025	$0.00	$0.00	$0.00

TAX PARCEL NO: 091034-000 TAX CODE NO: 117000

REAL PROPERTY TAXES ARE A LIEN JANUARY 1ST, PAYABLE FEBRUARY 15TH, FIRST HALF DELINQUENT MAY 1ST AND SECOND HALF DELINQUENT NOVEMBER 1ST.

JURISDICTION: CAMAS

NOTE: TAX PAYMENTS CAN BE MAILED TO THE FOLLOWING ADDRESS:

CLARK COUNTY TREASURER
CALLER BOX 35150
SEATTLE, WA 98124-5150
PHONE: 564-397-2252

5. **THE LAND HEREIN DESCRIBED IS CARRIED ON THE TAX ROLLS AS EXEMPT, HOWEVER, IT WILL BECOME TAXABLE FROM THE DATE OF EXECUTION OF A CONVEYANCE TO A TAXABLE ENTITY AND SUBJECT TO THE LIEN OF REAL PROPERTY TAXES FOR THE BALANCE OF THE YEAR 2025.**
TAX ACCOUNT NO.: 090928-000, 091031-000, 091034-000
JURISDICTION: CAMAS

6. **LIABILITY FOR FUTURE ASSESSMENTS FOR IMPROVEMENTS LOCATED ON SAID LAND.**

7. **UNPAID CHARGES AND ASSESSMENTS, IF ANY, LEVIED BY CITY OF CAMAS.**

8. **EASEMENT AND THE TERMS AND CONDITIONS THEREOF:**
GRANTEE: CITY OF CAMAS
PURPOSE: RIGHT OF WAY
AUDITOR'S FILE NO.: G229172
AREA AFFECTED: SAID PREMISES

9. **EASEMENT AND THE TERMS AND CONDITIONS THEREOF:**
GRANTEE: PUBLIC UTILITY DISTRICT NO. 1 OF CLARK COUNTY, INCLUDING JOINT USERS
PURPOSE: ELECTRIC TRANSMISSION AND DISTRIBUTION
AREA AFFECTED: SAID PREMISES
RECORDED: April 01, 2008
AUDITOR'S FILE NO.: 4439764

10. **EASEMENT AND THE TERMS AND CONDITIONS THEREOF:**
PURPOSE: ACCESS ROAD
RECORDED: April 25, 1963
AUDITOR'S FILE NO.: G355939
AREA AFFECTED: SAID PREMISES

11. **RESERVATIONS AND OTHER MATTERS AND THE TERMS AND CONDITIONS THEREOF:**
AUDITOR'S FILE NO.: E54068
RESERVING: RIPARIAN RIGHTS

12. **EASEMENT AND THE TERMS AND CONDITIONS THEREOF:**
    GRANTEE: **CITY OF CAMAS**
    PURPOSE: **SEWER**
    AUDITOR'S FILE NO.: **BOOK D44 PAGE 188**
    AREA AFFECTED: **SAID PREMISES**

13. **MATTERS DISCLOSED BY SURVEY RECORDED March 22, 2006 UNDER FILE NO. BOOK 55 PAGE 149**

14. **UNRECORDED LEASEHOLDS, IF ANY; RIGHTS OF VENDORS AND HOLDERS OF A SECURITY INTEREST ON PERSONAL PROPERTY INSTALLED UPON THE LAND; AND RIGHTS OF TENANTS TO REMOVE TRADE FIXTURES AT THE EXPIRATION OF THE TERM.**

15. **ANY QUESTION THAT MAY ARISE DUE TO SHIFTING OR CHANGE IN THE COURSE OF THE LACAMAS CREEK DUE TO SAID CREEK HAVING CHANGED ITS COURSE.**

16. **ANY PROHIBITION OR LIMITATION ON THE USE, OCCUPANCY OR IMPROVEMENT OF THE LAND RESULTING FROM THE RIGHTS OF THE PUBLIC OR RIPARIAN OWNERS TO USE ANY WATERS WHICH MAY COVER THE LAND OR TO USE ANY PORTION OF THE LAND WHICH IS NOW OR MAY FORMERLY HAVE BEEN COVERED BY WATER.**

17. **RIGHT OF THE STATE OF WASHINGTON IN AND TO THE PORTION OF SAID PREMISES, IF ANY, IN THE BED OF THE LACAMAS CREEK.**

18. **ANY CLAIM OF OWNERSHIP BY THE STATE OF WASHINGTON TO THAT PORTION OF SAID PREMISES, LYING WITHIN THE BED OF THE LACAMAS CREEK IF SAID CREEK IS NAVIGABLE.**

NOTES:

A. LIABILITY IS LIMITED TO THE CHARGE MADE FOR THIS CERTIFICATE.

DEVELOPER'S PACKET

Produced By:

Clark County Geographic Information System (GIS)

For:

MacKay Sposito, Inc.

Subject Property Account Number(s):

90928000
91031000
91034000

PDF # 311277

Printed: June 13, 2024
Expires: June 13, 2025

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General Location

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Location of Subject Property(s)

Printed on: June 13, 2024

Geographic Information System

0 1,000 2,000 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

Property Information Fact Sheet

Mailing Information:

Account No.: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Assessed Parcel Size: 0.56 Ac
Property Type: Multiple Property Types

PARCEL LOCATION FINDINGS:

Quarter Section(s): NE 1/4,S11,T1N,R3E,
NW 1/4,S12,T1N,R3E
Municipal Jurisdiction: Camas
Urban Growth Area: Camas
Zoning: MF-18
Zoning Overlay: No Mapping Indicators
Comprehensive Plan Designation: MFH
Columbia River Gorge NSA: No Mapping Indicators
Late-Comer Area: No Mapping Indicators
Trans. Impact Fee Area: Camas
Park Impact Fee District: No Mapping Indicators

Neighborhood Association: No Mapping Indicators
School District: Camas
Elementary School: Helen Baller
Junior High School: Liberty
Senior High School: Camas
Fire District: City of Camas
Sewer District: Camas
Water District: Camas
Wildfire Danger Area: No Mapping Indicators

ENVIRONMENTAL CONSTRAINTS:

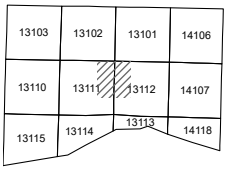
Soil Type(s): Fn, 61.1% of parcel
OmE, 38.9%
Hydric Soils: Non-Hydric, 100.0% of parcel
Flood Zone Designation: Outside Flood Area
CARA: Category 2 Recharge Areas
Forest Moratorium Area: No Mapping Indicators
Liquefaction Susceptibility: Very Low
NEHRP: C
Slope: 0 - 5 percent, 90.9% of parcel
5 - 10 percent, 9.1%
Landslide Hazards: No Mapping Indicators
Slope Stability: No Mapping Indicators
Cultural Resources:
Archeological Predictive: High, 100.0% of parcel
Archeological Site Buffers: Mapping Indicators Found
Historic Sites: No Mapping Indicators

Elevation Contours

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Subject Property(s)
Public Road
Transportation or Major Utility Easement
10' Elevation Contours
2' Elevation Contours



CLARK COUNTY, WASHINGTON
Geographic Information System

N

0 200 400 Feet

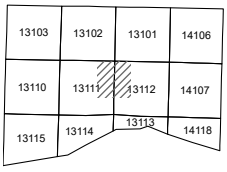
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

2021 Aerial Photography

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Printed on: June 13, 2024

Subject Property(s)

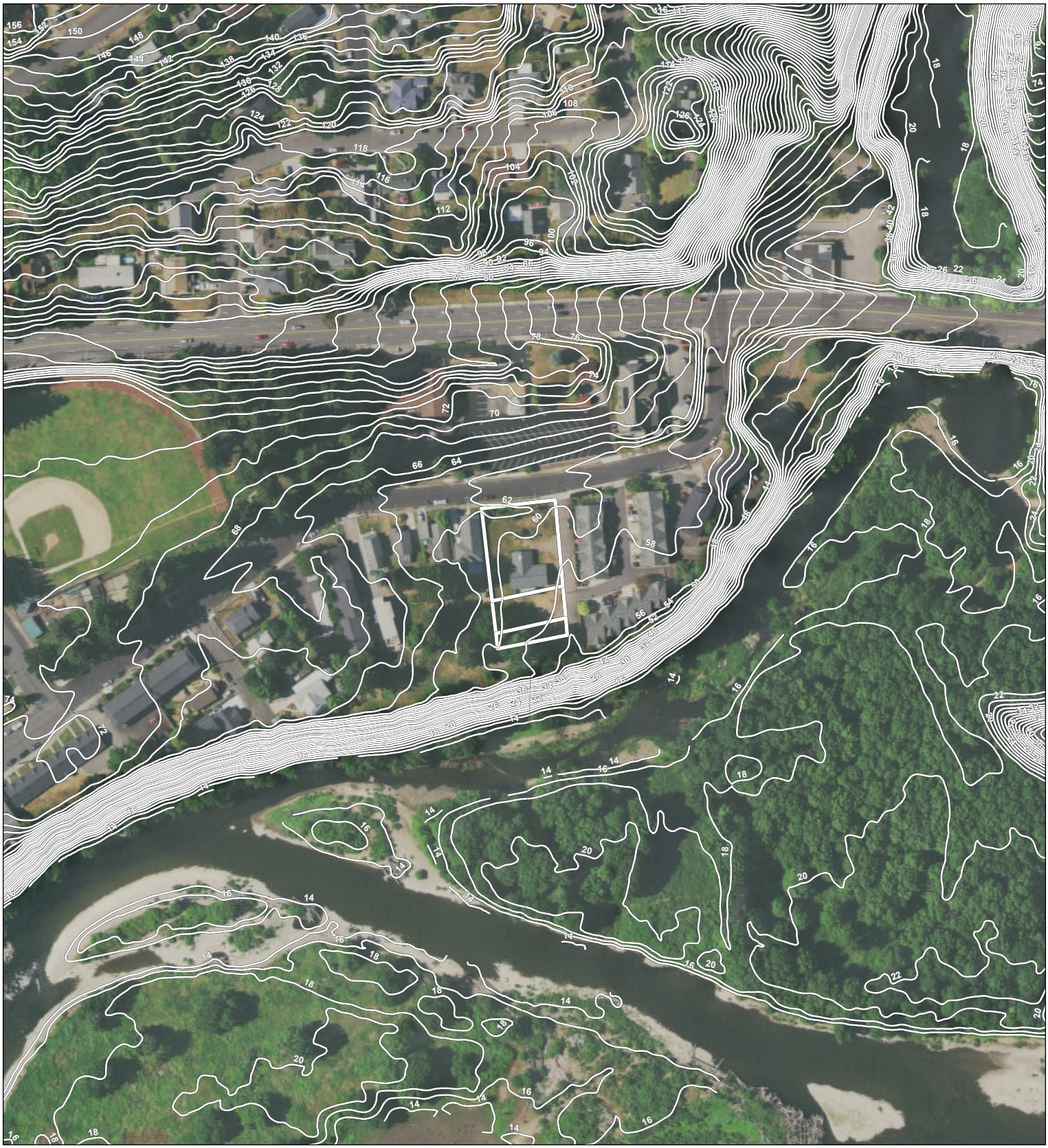


CLARK COUNTY, WASHINGTON
Geographic Information System

N

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



2021 Aerial Photography with Elevation Contours

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

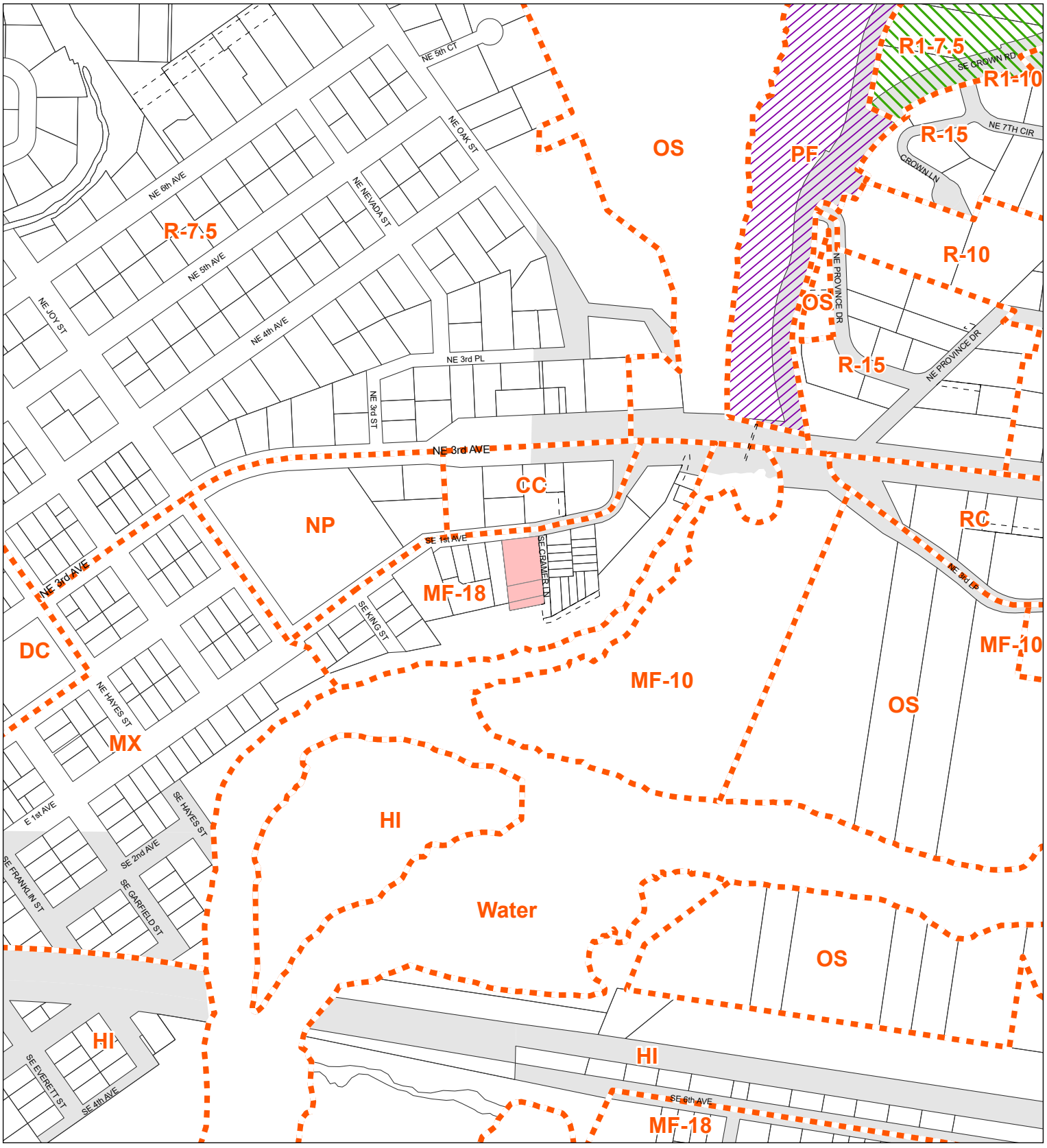
N

0 100 200 Feet

2' Elevation Contours
Subject Property(s)

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



Zoning Designations

Printed on: June 13, 2024

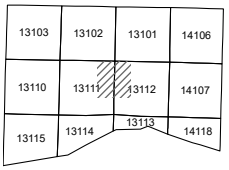
Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

0 200 400 Feet

N

- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- Zoning Boundary
- Urban Holding - 10 (UH-10)
- Urban Holding - 20 (UH-20)
- Urban Holding - 40 (UH-40)
- Surface Mining Overlay District



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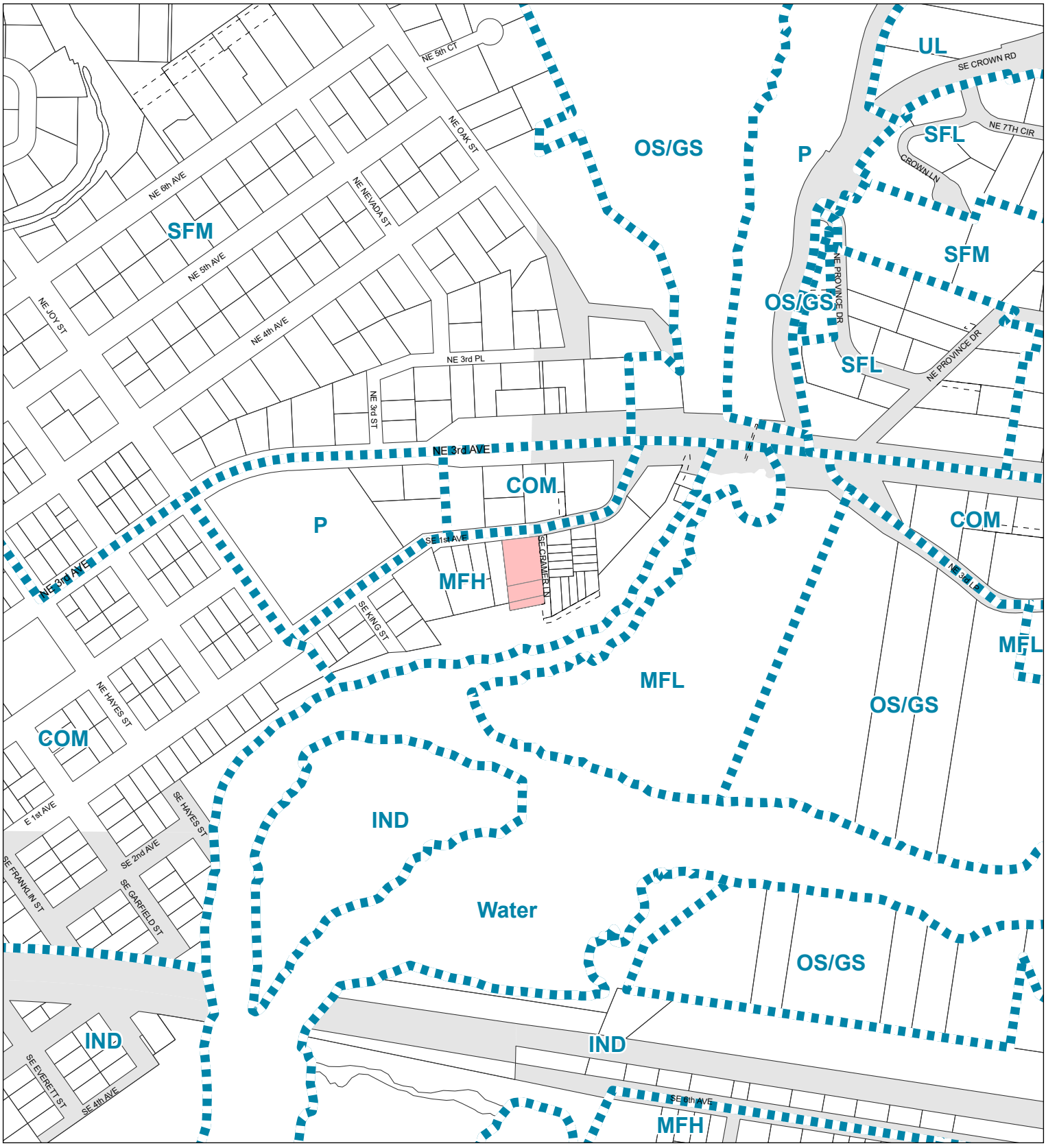


Comprehensive Plan Designations

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

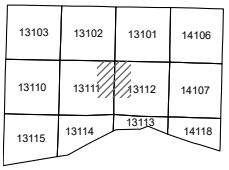
CLARK COUNTY, WASHINGTON
Geographic Information System

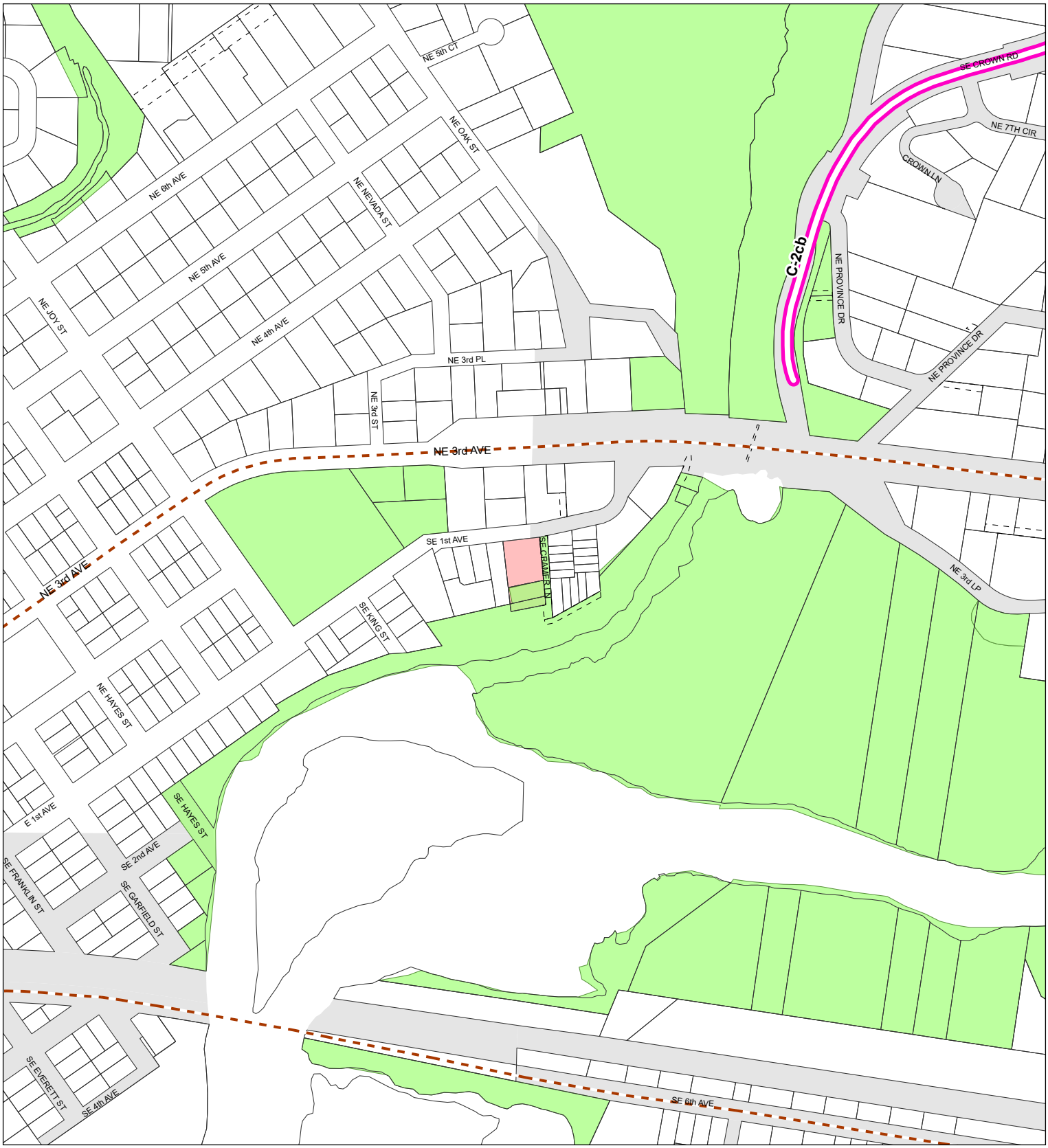
N

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- Comprehensive Plan Boundary
- Urban Reserve
- Industrial Reserve
- Railroad Industrial Reserve
- Mining
- Rural Center Mixed Use
- Columbia River Gorge Scenic Area





Arterials, C-Tran Bus Routes, Parks & Trails

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

0 200 400 Feet

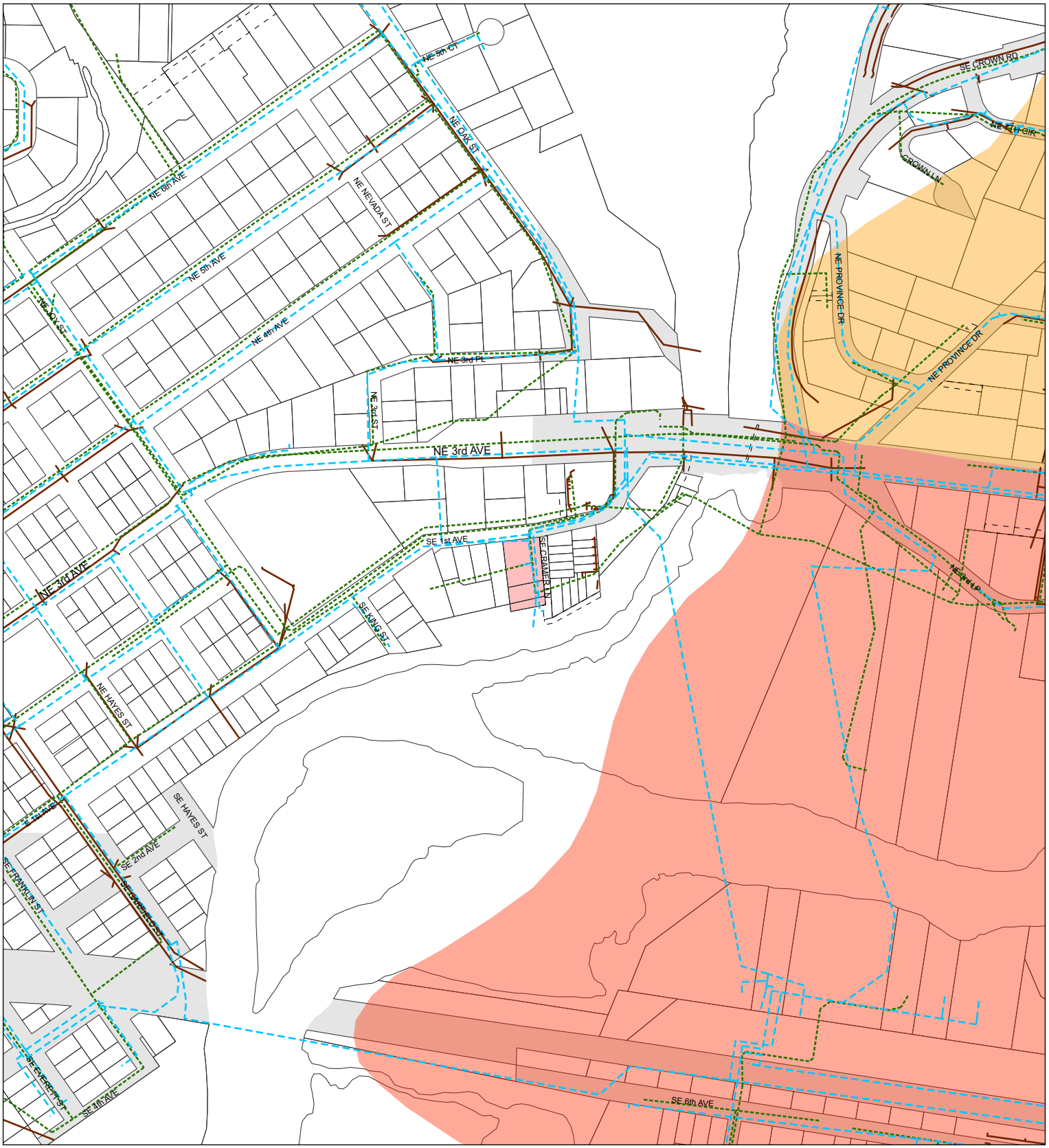
Subject Property(s)
Public Road
Transportation or Major Utility Easement
Parks
Trail

C-Tran Route
Principal Arterial
Minor Arterial
Collector
Rural Major Collector

Rural Minor Collector
State Route
Other
Proposed Arterial
Scenic Highway

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



Water, Sewer, and Storm Systems

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

0 200 400 Feet

N

- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- 1-Year Wellhead ZOC
- 5-Year Wellhead ZOC
- 10-Year Wellhead ZOC
- Water Lines
- Sewer Lines
- Storm Water Lines
- Hydrants

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

Water Systems

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

N

0 200 400 Feet

Subject Parcel
Public Road
Water District Boundary
Unknown Size Water Line
< 10" Water LIne
10-20" Water Line
> 20" Water Line
No Flow Data Hydrant
0 - 499 GPM at 20 PSI
500 - 999 GPM at 20 PSI
> 1000 - 1749 GPM at 20 PSI
> 1750 GPM at 20 PSI
Hydrant > 500' from parcel(s)

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

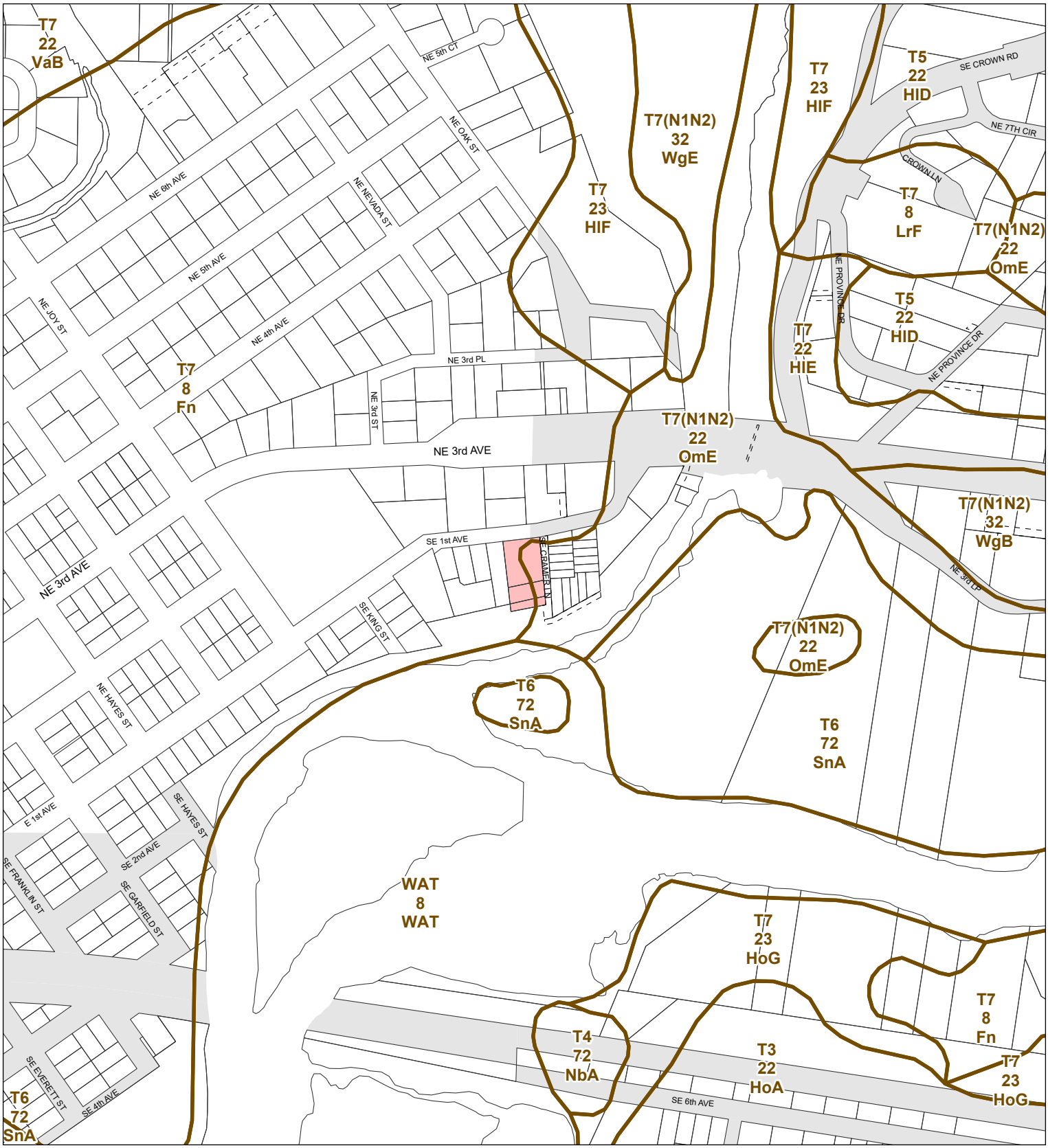
Hydrant Fire Flow Details

Account No.: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Water District(s)	Hydrant Data Update	Project Site Provider
Camas	October 18, 2023	Service Provider

HYDRANT INFORMATION:

No hydrants found.



CLARK COUNTY, WASHINGTON

Geographic Information System

0 200 400 Feet

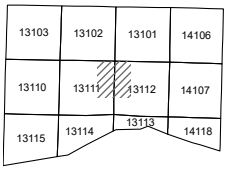
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

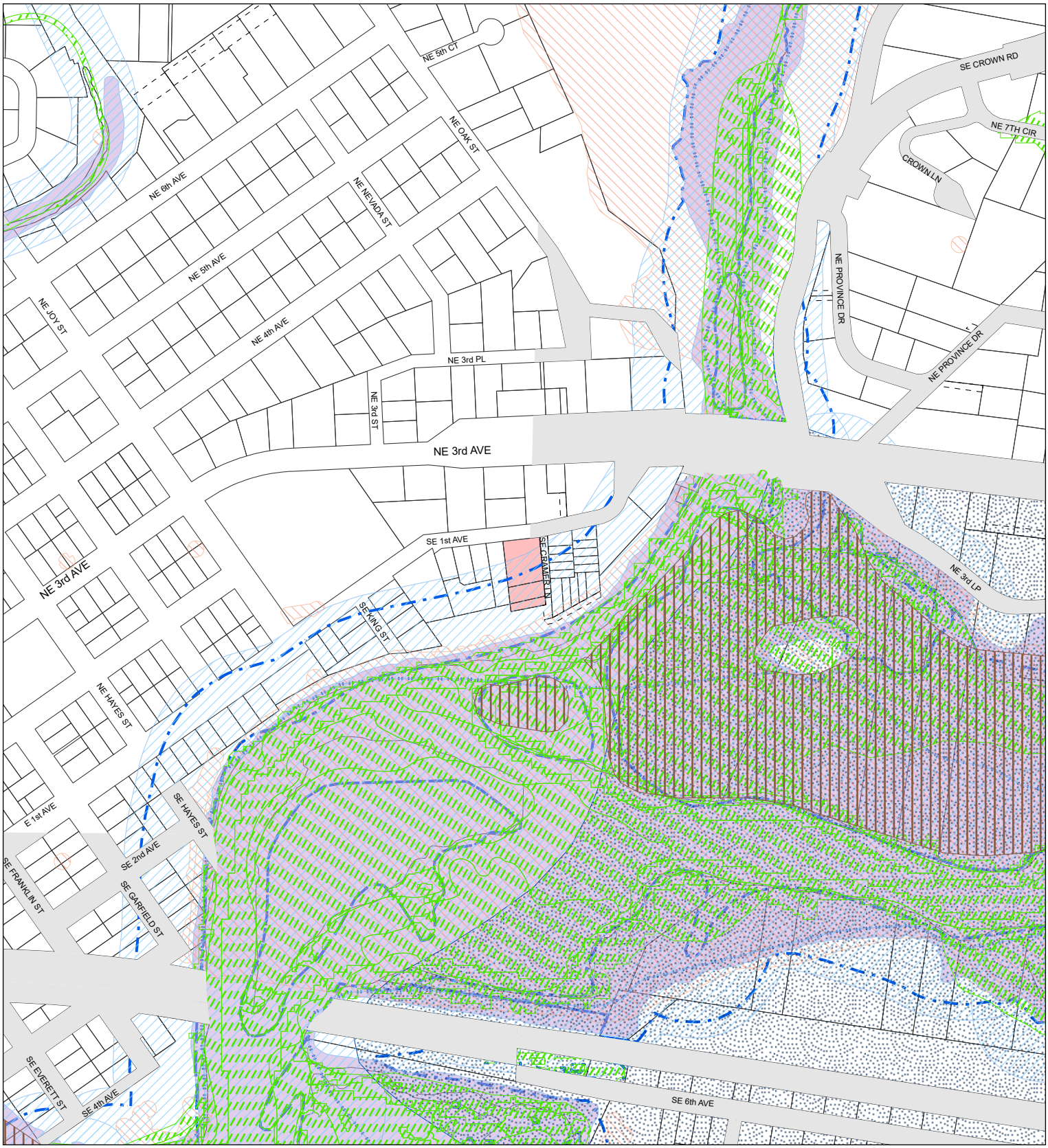
Soil Types

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Subject Property(s)
Public Road
Transportation or Major Utility Easement
Soil Type Boundary

Printed on: June 13, 2024





Environmental Constraints I

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

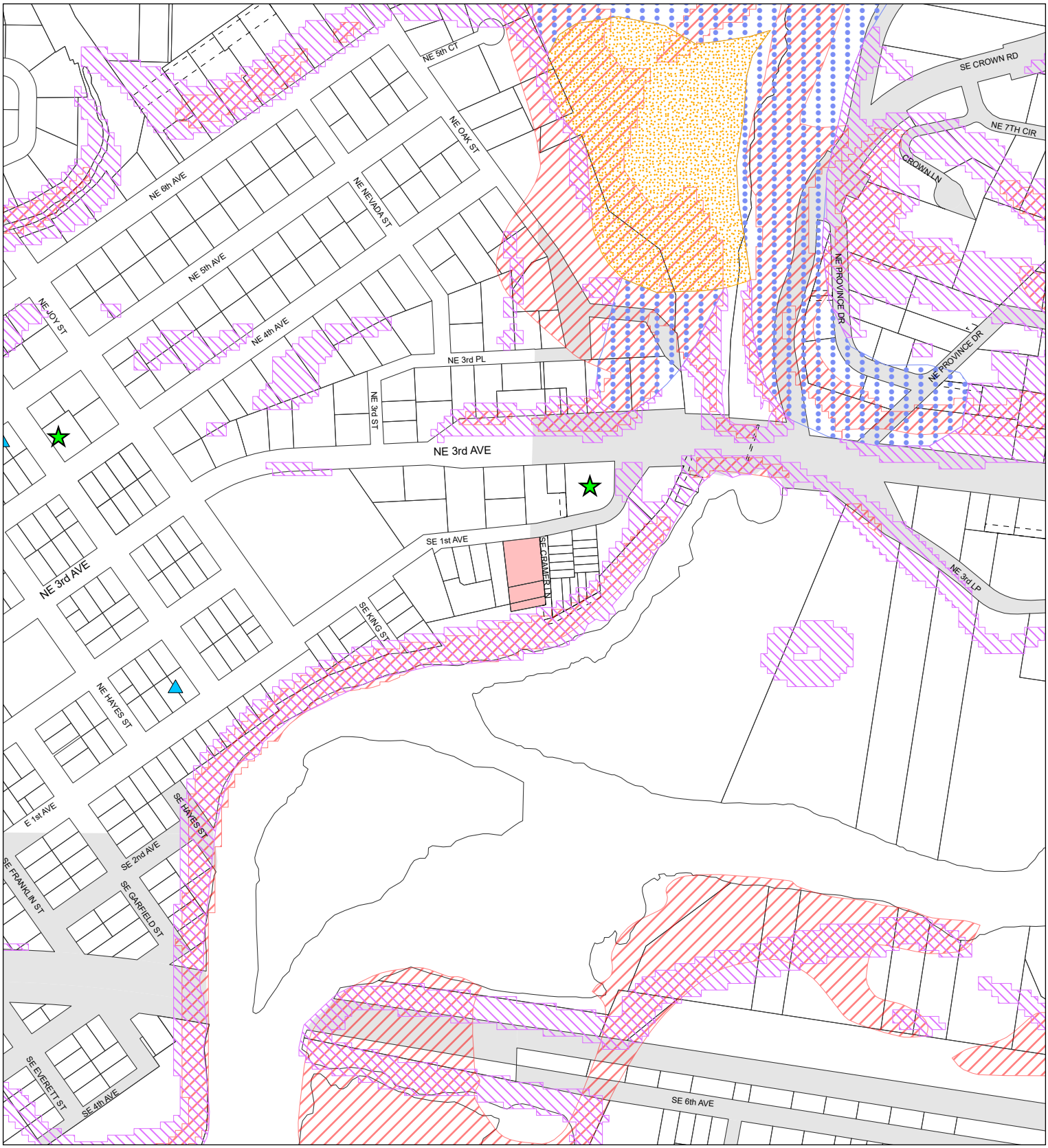
N

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- Hydric Soils
- Wetland Inventory
- CARA Category 1
- Riparian Habitat or Species Area
- Non-Riparian Habitat or Species Area
- 100 year Floodplains
- Floodway
- Shorelines
- Stream

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118



Environmental Constraints II

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

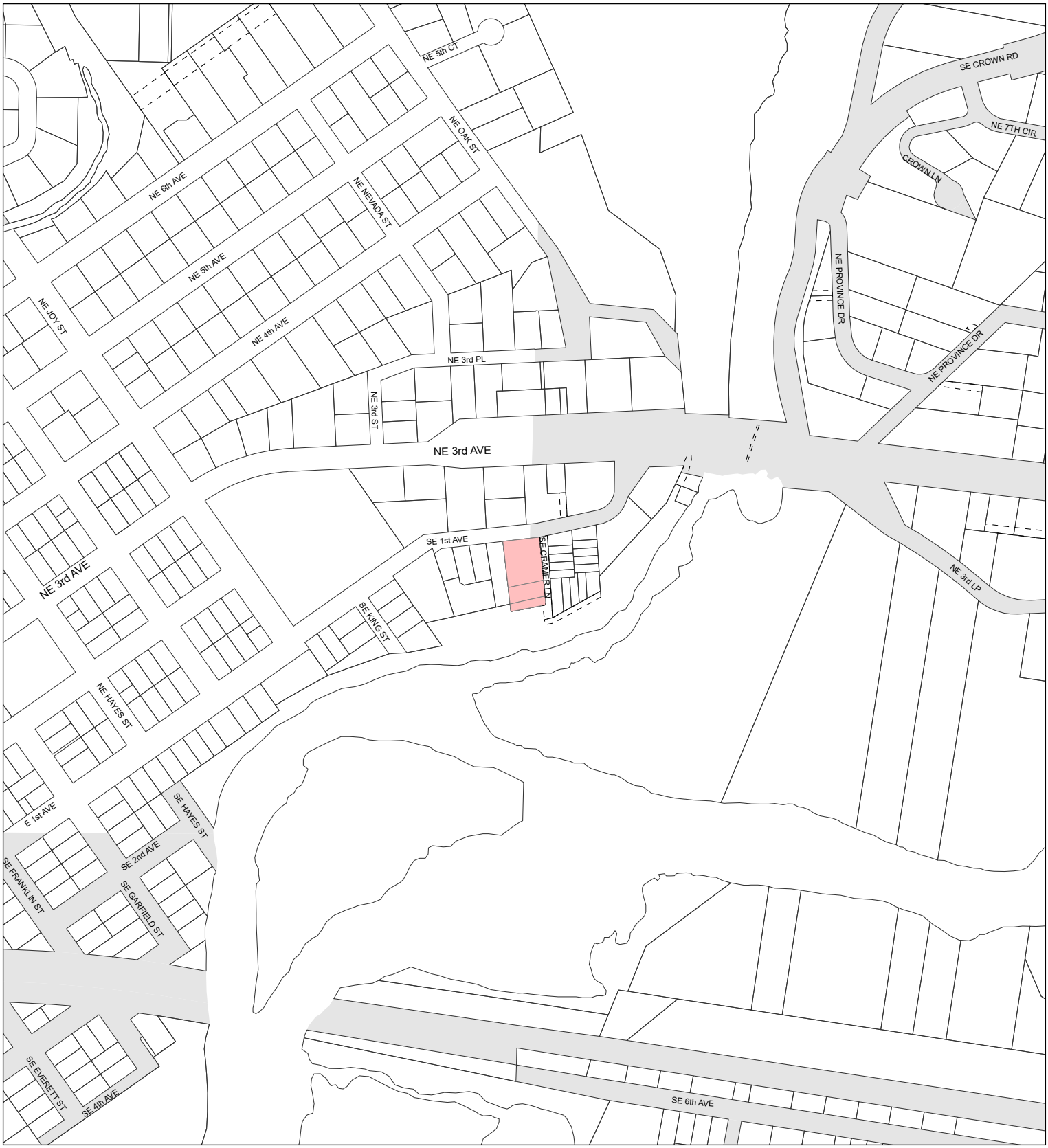
- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- Slopes > 15%
- Potentially Unstable Slope
- Historic or Active Landslide
- Severe Erosion Hazard Area
- Forest Moratorium Area
- CCHR Historic Site
- NRHP Historic Site
- WSHR Historic Site
- WSHR Historic Barn
- INV Historic Site

Geographic Information System

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118



CLARK COUNTY, WASHINGTON

Geographic Information System

0 200 400 Feet

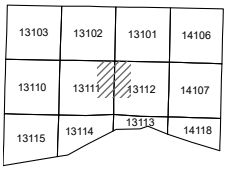
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

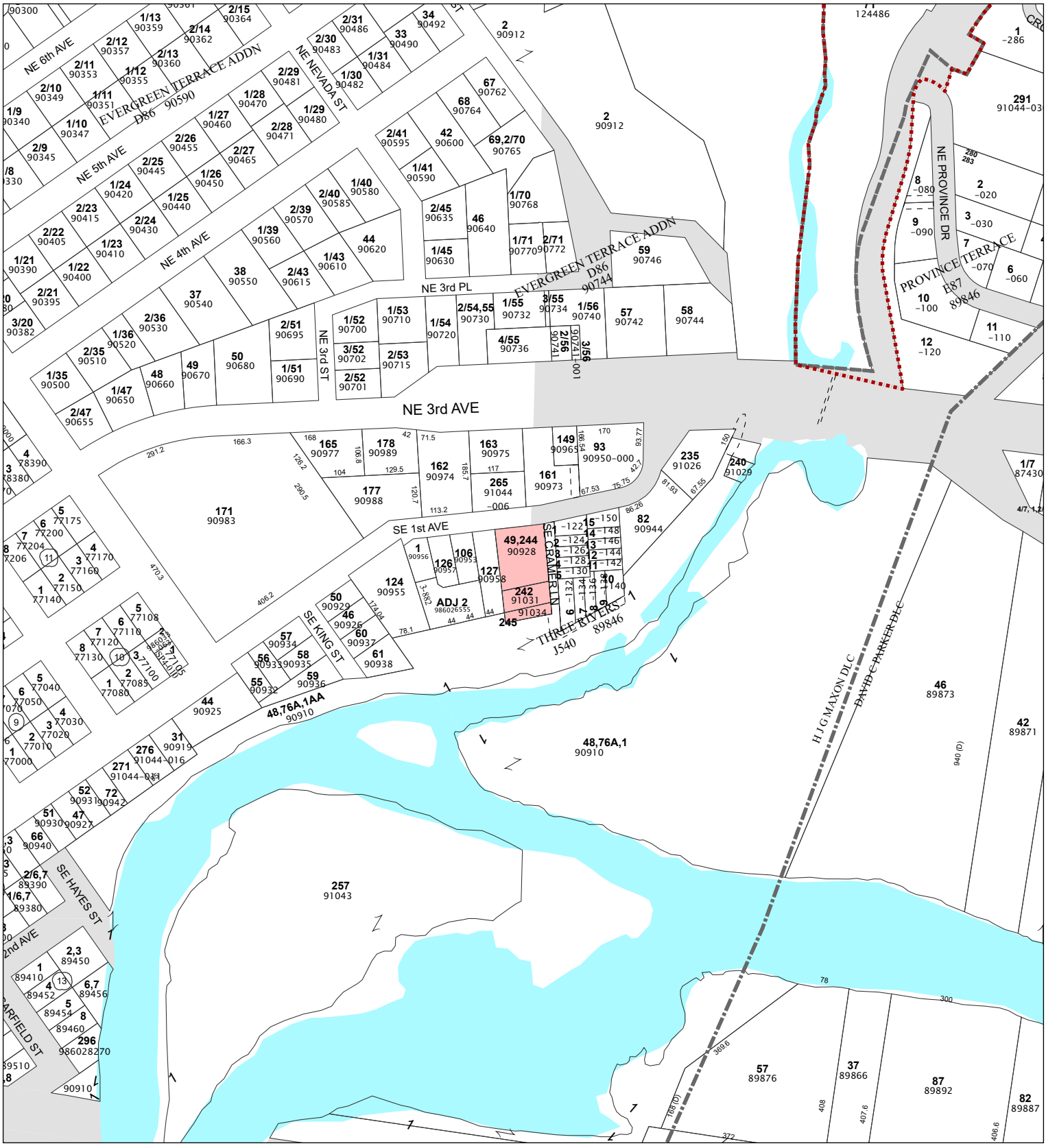
Adjacent Development

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Subject Property(s)
Public Road
Transportation or Major Utility Easement
Adjacent Development

Printed on: June 13, 2024





Quarter Section Parcels

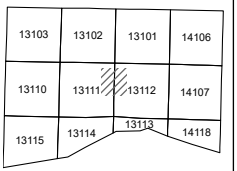
Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Geographic Information System

0 150 300 Feet

Subdivision Lines
Donation Land Claim
Section Quarters
City Boundaries
Subject Property(s)
Road Right of Way - Actual Road May not Exist
Transportation or Major Utility Easement



Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

WDGE2 LED

Architectural Wall Sconce
Precision Refractive Optic

Catalog Number

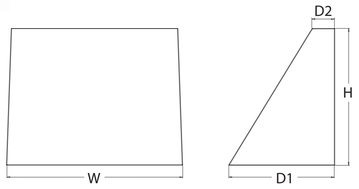
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 7"
Depth (D2): 1.5"
Height: 9"
Width: 11.5"
Weight: (without options) 13.5 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE2 with industry leading precision refractive optics provides great uniform distribution and optical control. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

design select — Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect. *See ordering tree for details

WDGE LED Family Overview

Luminaire	Optics	Standard EM, 0°C	Cold EM, -20°C	Sensor	Approximate Lumens (4000K, 80CRI)						
					P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	10W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE3 LED	Precision Refractive	15W	18W	Standalone / nLight	--	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE2 LED P3 40K 80CRI T3M MVOLT SRM DDBXD

Series
WDGE2 LED

Package
P0[1]
P1[2]
P2[2]
P3[2]
P4[2]

Color Temperature
27K 2700K
30K 3000K
40K 4000K
50K 5000K
AMB[3] Amber

CRI
70CRI[4]
80CRI
LW[3] Limited Wavelength

Distribution
T1S Type I Short
T2M Type II Medium
T3M Type III Medium
T4M Type IV Medium
TFTM Forward Throw Medium

Voltage
MVOLT
347[5]
480[5]

Mounting
Shipped included
SRM Surface mounting bracket
ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only)[6]

Shipped separately
AWS 3/8inch Architectural wall spacer[7]
PBBW Surface-mounted back box (top, left, right conduit entry). Use when there is no junction box available[7]

Options
E10WH Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 5°C min)
E20WC Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C min)
PE Photocell, Button Type[8]
DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)[9]
BCE Bottom conduit entry for back box (PBBW). Total of 4 entry points.
CCE Coastal Construction[7]

Standalone Sensors/Controls
PIR Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.
PIRH Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching
PIR1FC3V Bi-level (100/35%) motion sensor for 8-15' mounting heights with photocell pre-programmed for dusk to dawn operation.
PIRH1FC3V Bi-level (100/35%) motion sensor for 15-30' mounting heights with photocell pre-programmed for dusk to dawn operation.

Networked Sensors/Controls
NLTAIR2 PIR Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights.
NLTAIR2 PIRH Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 15-30' mounting heights.
NLTAIREM2 PIR Embedded wireless controls by nLight with UL924 listed emegency operation, Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights
NLTAIREM2 PIRH Embedded wireless controls by nLight with UL924 listed emegency operation, Passive Infrared Occ sensor and on/off photocell for 15-30' mounting heights.

See page 4 for out of box functionality

Finish
DDBXD Dark bronze
DBLXD Black
DNAXD Natural aluminum
DWHXD White
DSSXD Sandstone
DDBTXD Textured dark bronze
DBLBXD Textured black
DNATXD Textured natural aluminum
DWHGXD Textured white
DSSTXD Textured sandstone

Accessories
Ordered and shipped separately.

WDGEAWS DDBXD U WDGE 3/8inch Architectural Wall Spacer (specify finish)
WDGE2PBBW DDBXD U WDGE2 surface-mounted back box (specify finish)

NOTES
1 P0 option not available with sensors/controls.
2 P1-P4 not available with AMB and LW.
3 AMB and LW always go together.
4 70CRI only available with T3M and T4M.
5 347V and 480V not available with E10WH or E20WC.
6 Not qualified for DLC. Not available with emergency battery backup or sensors/controls.
7 For PBBW and AWS with CCE option, require an RFA.
8 PE not available in 480V or with sensors/controls.
9 DMG option not available with sensors/controls.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	27K (2700K, 80 CRI)					30K (3000K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)					Amber (Limited Wavelength)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P0	7W	T1S	636	92	0	0	0	666	97	0	0	0	699	101	0	0	1	691	100	0	0	1	712	47	0	0	1
		T2M	662	96	0	0	0	693	101	0	0	0	728	106	0	0	0	719	104	0	0	0	741	48	0	0	0
		T3M	662	96	0	0	0	693	101	0	0	0	728	106	0	0	0	719	104	0	0	0	741	48	0	0	0
		T4M	648	94	0	0	0	679	98	0	0	0	712	103	0	0	0	704	102	0	0	0	726	47	0	0	0
		TFTM	652	95	0	0	0	683	99	0	0	0	717	104	0	0	0	708	103	0	0	0	730	48	0	0	1
P1	11W	T1S	1,105	99	0	0	1	1,157	104	0	0	1	1,215	109	0	0	1	1,200	107	0	0	1					
		T2M	1,150	103	0	0	1	1,204	108	0	0	1	1,264	113	0	0	1	1,249	112	0	0	1					
		T3M	1,150	103	0	0	1	1,205	108	0	0	1	1,265	113	0	0	1	1,250	112	0	0	1					
		T4M	1,126	101	0	0	1	1,179	106	0	0	1	1,238	111	0	0	1	1,223	110	0	0	1					
		TFTM	1,133	101	0	0	1	1,186	106	0	0	1	1,245	112	0	0	1	1,230	110	0	0	1					
P2	19W	T1S	1,801	95	1	0	1	1,886	99	1	0	1	1,981	104	1	0	1	1,957	103	1	0	1					
		T2M	1,875	99	1	0	1	1,963	103	1	0	1	2,061	109	1	0	1	2,037	107	1	0	1					
		T3M	1,876	99	1	0	1	1,964	103	1	0	1	2,062	109	1	0	1	2,038	107	1	0	1					
		T4M	1,836	97	1	0	1	1,922	101	1	0	1	2,018	106	1	0	1	1,994	105	1	0	1					
		TFTM	1,847	97	1	0	1	1,934	102	1	0	1	2,030	107	1	0	1	2,006	106	1	0	1					
P3	32W	T1S	2,809	87	1	0	1	2,942	92	1	0	1	3,089	96	1	0	1	3,052	95	1	0	1					
		T2M	2,924	91	1	0	1	3,062	95	1	0	1	3,215	100	1	0	1	3,176	99	1	0	1					
		T3M	2,925	91	1	0	1	3,063	95	1	0	1	3,216	100	1	0	1	3,177	99	1	0	1					
		T4M	2,862	89	1	0	1	2,997	93	1	0	1	3,147	98	1	0	1	3,110	97	1	0	1					
		TFTM	2,880	90	1	0	1	3,015	94	1	0	1	3,166	99	1	0	1	3,128	97	1	0	1					
P4	47W	T1S	3,729	80	1	0	1	3,904	84	1	0	1	4,099	88	1	0	1	4,051	87	1	0	1					
		T2M	3,881	83	1	0	1	4,063	87	1	0	1	4,267	91	1	0	1	4,216	90	1	0	1					
		T3M	3,882	83	1	0	1	4,065	87	1	0	1	4,268	91	1	0	1	4,217	90	1	0	1					
		T4M	3,799	81	1	0	1	3,978	85	1	0	1	4,177	90	1	0	1	4,127	88	1	0	1					
		TFTM	3,822	82	1	0	1	4,002	86	1	0	1	4,202	90	1	0	1	4,152	89	1	0	1					

Performance Package	System Watts	Dist. Type	27K (2700K, 70 CRI)					30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P0	7W	T3M	737	107	0	0	0	763	111	0	0	0	822	119	0	0	0	832	121	0	0	1
		T4M	721	105	0	0	0	746	108	0	0	0	804	117	0	0	1	814	118	0	0	1
P1	11W	T3M	1,280	115	0	0	1	1,325	119	0	0	1	1,427	128	1	0	1	1,445	129	1	0	1
		T4M	1,253	112	0	0	1	1,297	116	0	0	1	1,397	125	0	0	1	1,415	127	0	0	1
P2	19W	T3M	2,087	110	1	0	1	2,160	114	1	0	1	2,327	123	1	0	1	2,357	124	1	0	1
		T4M	2,042	108	1	0	1	2,114	111	1	0	1	2,278	120	1	0	1	2,306	121	1	0	1
P3	32W	T3M	3,254	101	1	0	1	3,369	105	1	0	1	3,629	113	1	0	1	3,675	114	1	0	1
		T4M	3,185	99	1	0	1	3,297	103	1	0	1	3,552	111	1	0	1	3,597	112	1	0	1
P4	47W	T3M	4,319	93	1	0	1	4,471	96	1	0	1	4,817	103	1	0	2	4,878	105	1	0	2
		T4M	4,227	91	1	0	1	4,376	94	1	0	2	4,714	101	1	0	2	4,774	102	1	0	2

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CAMAS PFAS EVALUATION & WELL 13 TREATMENT
LIGHT FIXTURE PRODUCT DATA 1

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Electrical Load

Performance Package	System Watts	Current (A)					
		120Vac	208Vac	240Vac	277Vac	347Vac	480Vac
P0	7.0	0.061	0.042	0.04	0.039	--	--
	9.0	--	--	--	--	0.031	0.021
P1	11.0	0.100	0.064	0.059	0.054	--	--
	14.1	--	--	--	--	0.046	0.031
P2	19.0	0.168	0.106	0.095	0.083	--	--
	22.8	--	--	--	--	0.067	0.050
P3	32.0	0.284	0.163	0.144	0.131	--	--
	37.1	--	--	--	--	0.107	0.079
P4	47.0	0.412	0.234	0.207	0.185	--	--
	53.5	--	--	--	--	0.153	0.112

Lumen Output in Emergency Mode (4000K, 80 CRI, T3M)

Option	Lumens
E10WH	1,358
E20WC	2,230

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.96	>0.93	>0.87

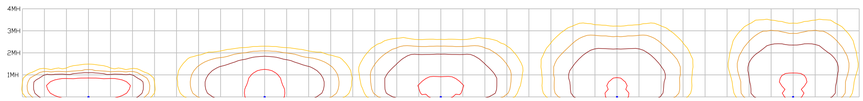
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND

- 0.25 fc
- 0.5 fc
- 1.0 fc
- 3.0 fc

MH = 10ft
Grid = 10ft x 10ft



"P3 40K 80CRI T1S" "P3 40K 80CRI T2M" "P3 40K 80CRI T3M" "P3 40K 80CRI T4M" "P3 40K 80CRI TFTM"

Emergency Egress Options

Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90minutes.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

Control / Sensor Options

Motion/Ambient Sensor (PIR_, PIRH_)

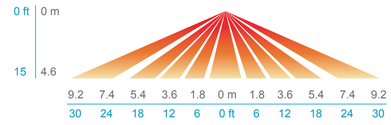
Motion/Ambeint sensor (Sensor Switch MSOD) is integrated into the the luminaire. The sensor provides both Motion and Daylight based dimming of the luminaire. For motion detection, the sensor utilizes 100% Digital Passive Infrared (PIR) technology that is tuned for walking size motion while preventing false tripping from the environment. The integrated photocell enables additional energy savings during daytime periods when there is sufficient daylight. Optimize sensor coverage by either selecting PIR or PIRH option. PIR option comes with a sensor lens that is optimized to provide maximum coverage for mounting heights between 8-15ft, while PIRH is optimized for 15-40ft mounting height.

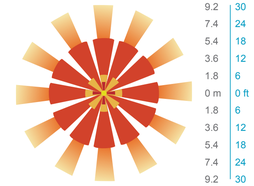
Networked Control (NLTAIR2)

nLight® AIR is a wireless lighting controls platform that allows for seamless integration of both indoor and outdoor luminaires. Five-tier security architecture, 900 MHz wireless communication and app (CLAIRITY™ Pro) based configurability combined together make nLight® AIR a secure, reliable and easy to use platform.

PIR

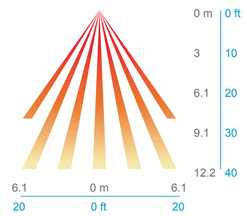
HIGH VIEW



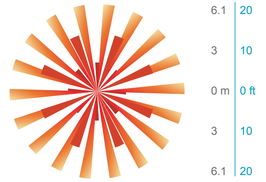


PIRH

SIDE VIEW



TOP VIEW



Option	Dim Level	High Level (when triggered	Photocell Operation	Motion Time Delay	Ramp-down Time	Ramp-up Time
PIR or PIRH	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
PIR1FC3V, PIRH1FC3V	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 1fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
NLTAIR2 PIR, NLTAIR2 PIRH, NLTAIREM2 PIR, NLTAIREM2 PIRH (out of box)	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	7.5 min	5 min	Motion - 3 sec Photocell - 45 sec

UL 924 Response – nLight AIR Devices with EM Option

- NLTAIREM2 devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, NLTAIREM2 devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- The non-emergency devices, NLTAIR2 PIR and NLTAIR2 PIRH, with version 3.4 or later firmware can be used for normal power sensing.

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LIGHT FIXTURE PRODUCT DATA 2

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Mounting, Options & Accessories

Motion/Ambient Sensor

D = 7"
H = 9" (Standalone controls)
11" (nLight AIR controls, 2" antenna will be pointing down behind the sensor)
W = 11.5"

PBBW – Surface-Mounted Back Box
Use when there is no junction box available.

D = 1.75"
H = 9"
W = 11.5"

AWS – 3/8inch Architectural Wall Spacer

D = 0.38"
H = 4.4"
W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE
Common architectural look, with clean rectilinear shape, of the WDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION
The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP66 rating for the luminaire.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Individually formed acrylic lenses are engineered for superior application efficiency which maximizes the light in the areas where it is most needed. The WDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP66 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 2700K and 3000K color temperature only and SRM mounting only.

GOVERNMENT PROCUREMENT
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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COMMERCIAL OUTDOOR

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WDGE2 LED
Rev. 07/08/24

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LIGHT FIXTURE PRODUCT DATA 3

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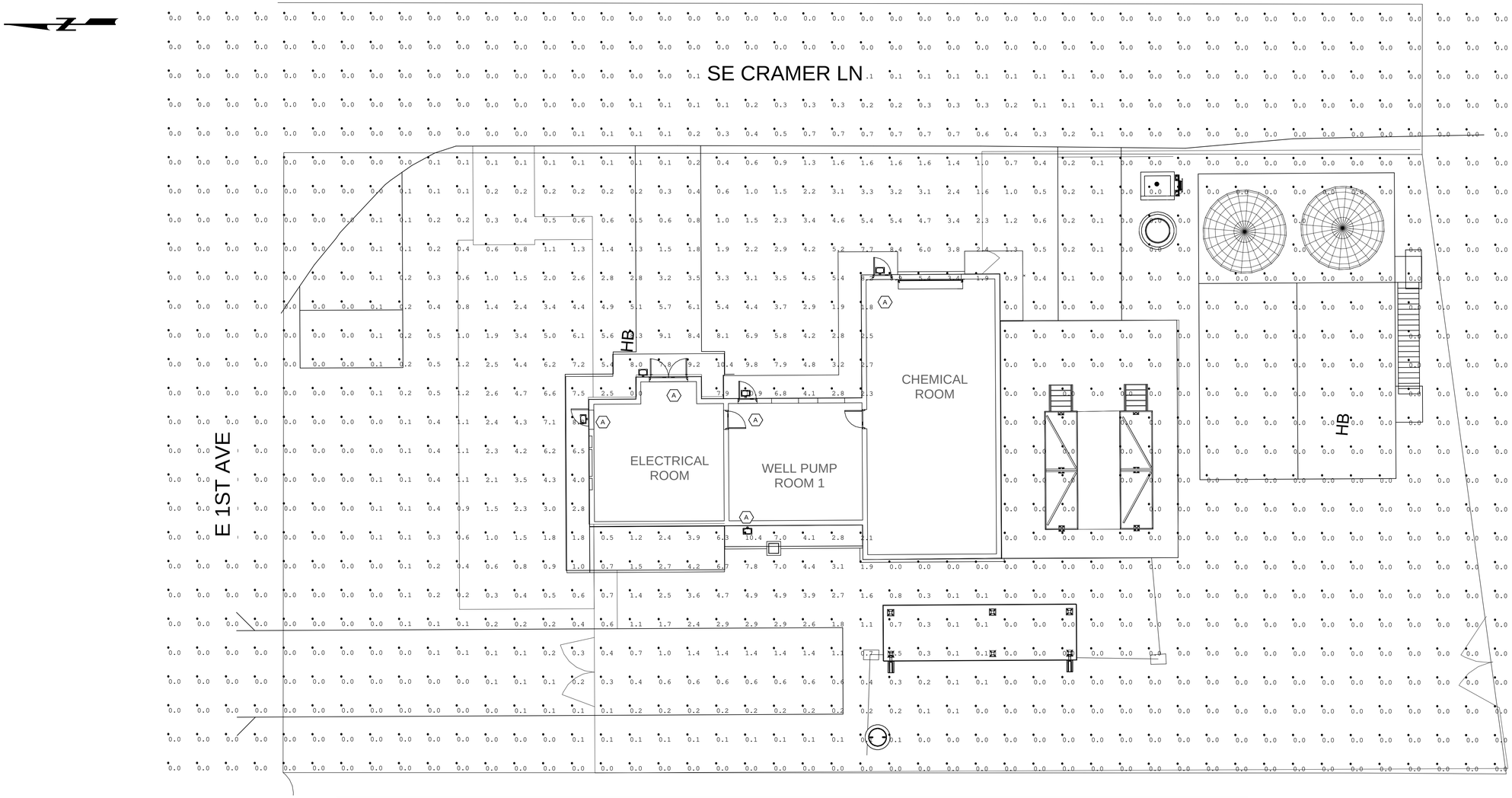

Luminaire Schedule								
Qty	Type	Manufacturer	Description	Arrangement	Mounting Height	Lumens	Watts	Total Watts
5	A	Lithonia	WDGE2_LED_P4_30K_70CRI_T4M	Single (Wall Pack)	8'	4376	46.7	233.3

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Stage 1 - Existing and New Build

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SITE LIGHTING CALCULATIONS - STAGE 1

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SHEET NO. OF XX

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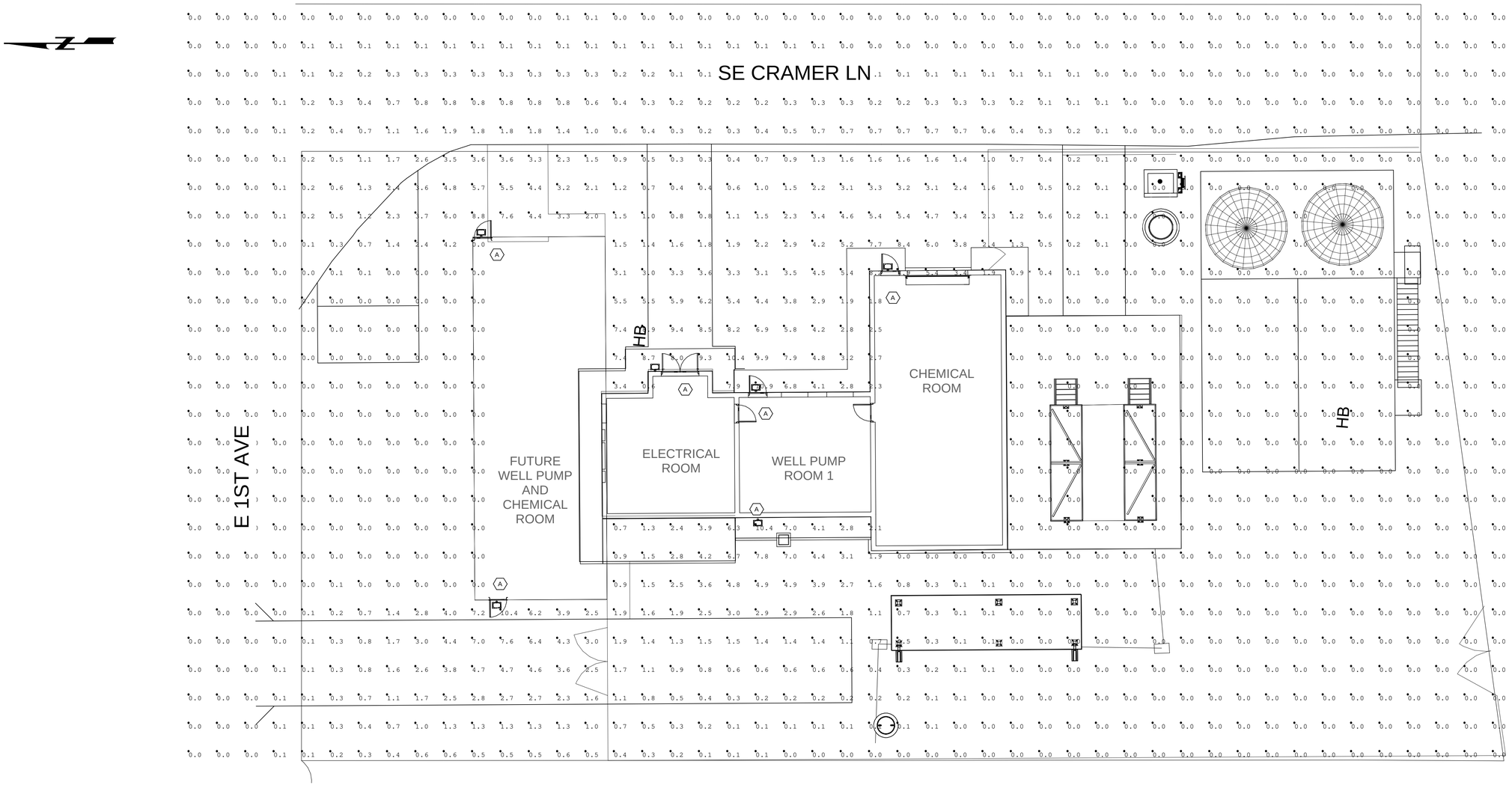

Luminaire Schedule								
Qty	Type	Manufacturer	Description	Arrangement	Mounting Height	Lumens	Watts	Total Watts
6	A	Lithonia	WDGE2_LED_P4_30K_70CRI_T4M	Single (Wall Pack)	8'	4376	46.7	280

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Stage 2 - Existing, New & Future Build

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SITE LIGHTING CALCULATIONS - STAGE 2

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LANDSCAPE LEGEND

SYMBOL	COMMON NAME	SIZE/COND.	SPACING
TREES			
OA	Oregon Ash *Acer rubrum 'Bowhall'*	2" CAL.	30' O.C.
PBM	Paperbark Maple *Acer griseum*	2" CAL.	24' O.C.
SHRUBS			
OG	Oregon Grape Mahonia aquifolium	5 GAL.	4' O.C.
S	Salal Gaultheria shallon	5 GAL.	3' O.C.
GROUNDCOVER			
	Hydroseeded Meadow PT 454 Native Urban Meadow Mix as available from Pro Time Lawn Seed, 1712 SE Ankeny Street, Portland, OR 97214 (503) 239-7518 or accepted substitute.		

NOTES

1. *Installation shall fully comply with all landscape code requirements and any City of Camas conditions of approval.*
2. *Irrigation shall be provided as required to endure establishment and survivability of the landscaping.*
3. *All landscaping shall be installed in a sound workman-like manner, and according to accepted good planting procedures with quality plant materials.*
4. *The owner, or his agent, shall be responsible for the maintenance of all landscaping which shall be maintained in good condition so as to present a healthy, neat, and orderly appearance, and shall be kept free from refuse and debris.*
5. *All existing vegetation shall be removed from areas to receive construction activities. Protect existing trees to remain where indicated.*
6. *There are no berms or retaining walls proposed at this time. Buffers and fences are as shown on the plan.*
7. *There are no active or passive recreational features or open space areas proposed.*
8. *Plants shall be spaced as indicated above unless otherwise shown on the plan. If a discrepancy exists, the plan shall prevail.*
9. *Contractor shall verify species and quantities of all plant material prior to bid.*
10. *Install root control barrier on all trees located within 8' of any paved/concrete surface, curb or wall, 18'-inches deep, .08-inches or 2 mm thick, 10 feet long. Center barrier on trunk of tree. Install adjacent to back of sidewalk, pavement, curb and/or wall as per manufacturer's recommendations and specifications.*
11. *Prior to installation of topsoil in tree and shrub planting areas as indicated on the Landscape Plan, cross-rip at 18 inches on center or rototill subgrade to an 8-inch to 12-inch depth.*
12. *Install minimum 12-inch depth imported topsoil in all tree and shrub planting areas, 6 inches in lawn areas, as indicated on the Landscape Plan. Amend planting area topsoil with 2-inch minimum layer composted yard debris prior to installation of plant material. Imported planting area topsoil shall be a sandy loam topsoil with a combined silt and clay content less than 20% and medium to very fine sand 60%-70% which shall be percentages by weight of those particles passing a 2mm screen. The remaining percentages shall be particles larger than medium to very fine sand (coarse or very coarse sand or gravel sized particles). All particles shall pass a 1/2-inch screen. All topsoil shall be free from subsoil, debris, turf, mushrooms, weeds or any other objectionable material. If subgrade is comprised of rock, rock fill or cement treated soil, remove subsoil from site and deposit topsoil to the following depths: 24-inch minimum depth in all planting areas, 36-inch minimum depth at all tree locations in a 5 foot diameter. Allow no cross contamination of cement treated soil with placed topsoil.*
13. *Install minimum 2-inches bark mulch in all new shrub beds within 2 days of planting.*
14. *Prune/shape, remove dead wood, dangerous, branches, etc. of existing trees to remain. Clean up perimeter of existing trees to remain to ten (10) feet inside perimeter. Remove debris, weeks, undesirable brush, etc.*

LANDSCAPE AREA CALCULATION

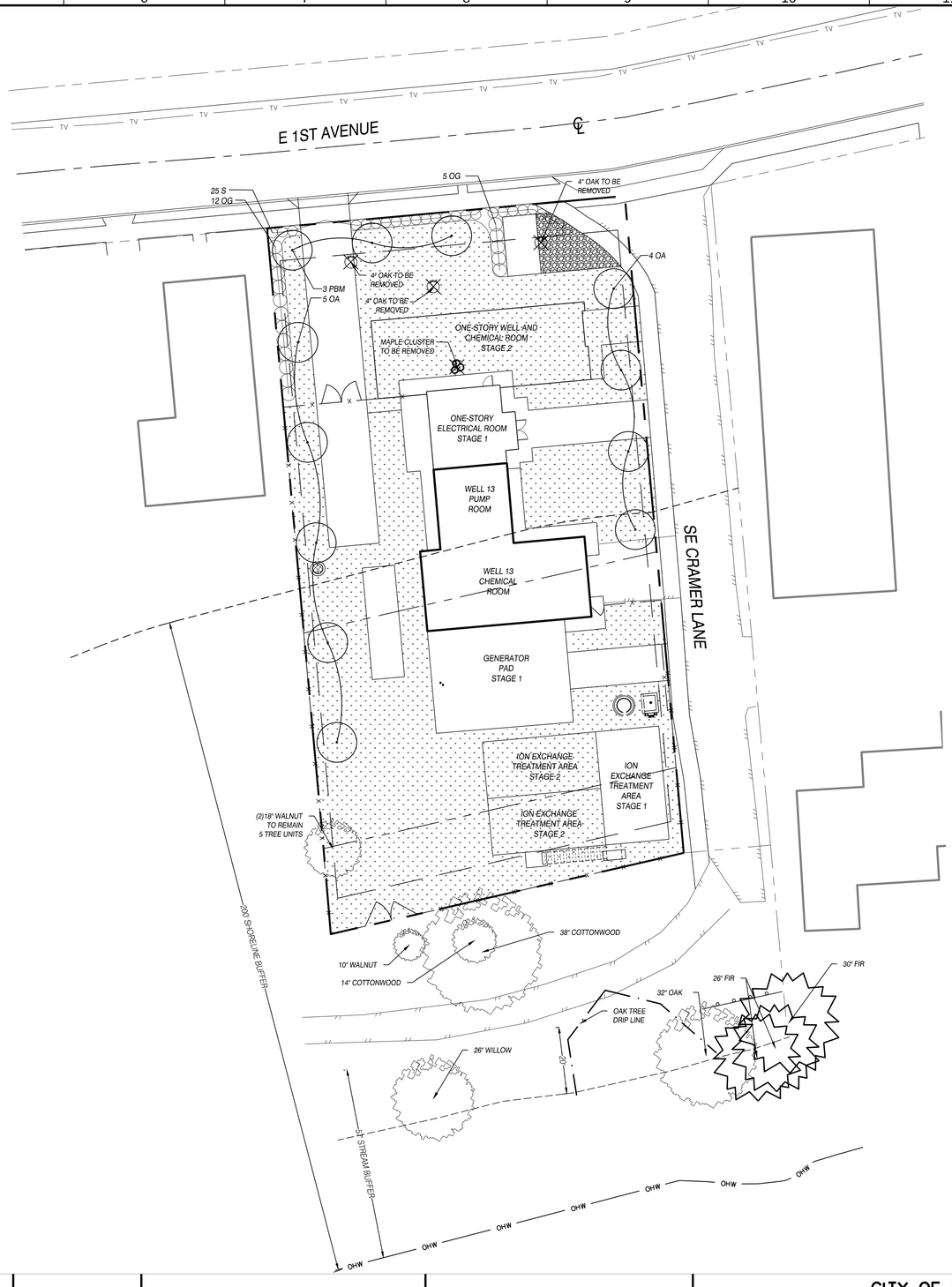
Required Landscape Area	*15% of net site area*
Development Site Area	*21,975 sq. ft.*
Total Landscape Area	*10,550 sq. ft. (48.0% of site area)*

TREE DENSITY CALCULATIONS

0.50 acres x 20 tree units/acre = 10 total tree units required
Tree Unit Credits for Trees = 5 tree units
10 - 5 = 5 tree units required to be added

Proposed Interior Deciduous Trees - 12 trees @ 2" cal. (1 tree unit per) = 12 tree units

Total Tree Units Provided On Site - 12 proposed tree units + 5 existing tree units = 17 total tree units
17 - 10 = 7 tree units exceeded



N

0 20 40
SCALE: 1" = 20'
1' CONTOUR INTERVAL

REV	DATE	BY	DESCRIPTION
			INTERMEDIATE DESIGN SUBMITTAL NOT FOR CONSTRUCTION

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DRAWN MRO
CHECKED MRO
DATE FEBRUARY 2025

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LANDSCAPE PLAN

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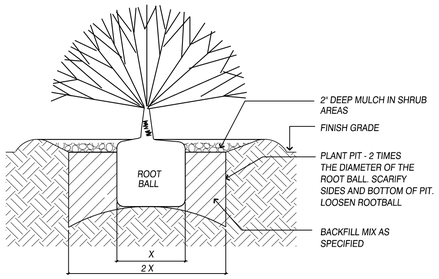
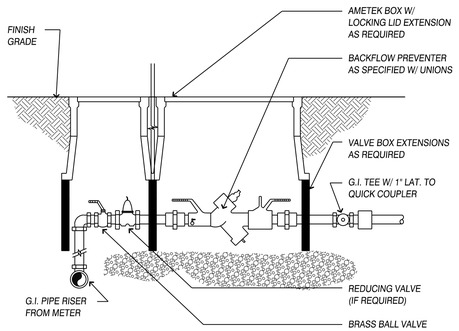
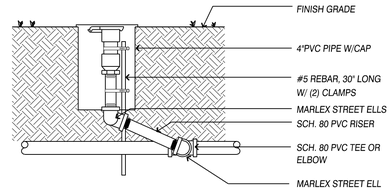


1 SHRUB/GROUNDCOVER PLANTING
SCALE: NTS

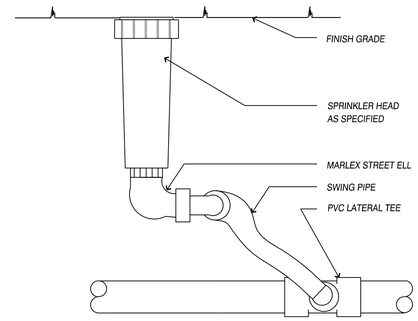


NOTE: THIS INSTALLATION DETAIL MUST COMPLY WITH ALL LOCAL AND STATE CODES. LANDSCAPE CONTRACTOR MUST VERIFY CORRECT INSTALLATION WITH LOCAL WATER JURISDICTION.

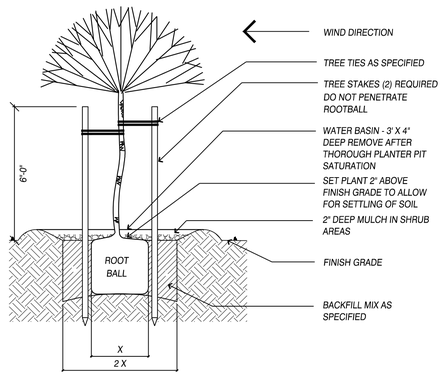
4 BACKFLOW PREVENTION DEVICE
SCALE: NTS



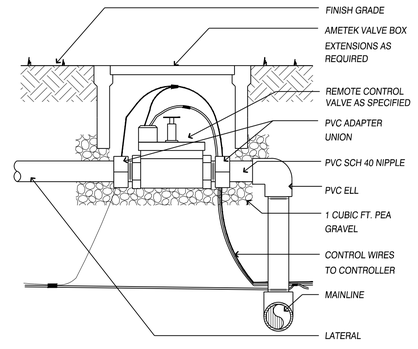
7 QUICK COUPLER
SCALE: NTS



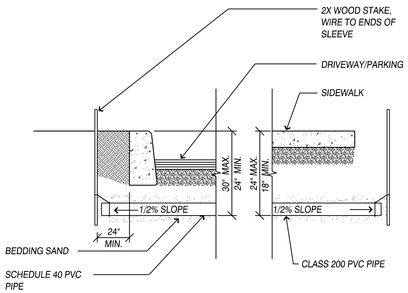
10 POP-UP SPRINKLER
SCALE: NTS



2 DECIDUOUS TREE PLANTING
SCALE: NTS



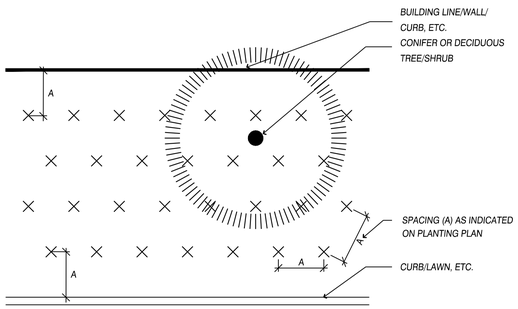
5 ELECTRIC VALVE ASSEMBLY
SCALE: NTS



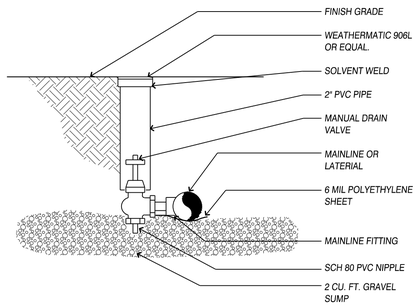
8 SLEEVE
SCALE: NTS

GALLON PER MINUTE		PIPE SIZE & CLASS	
0 - 10	GALLONS	3/4"	CLASS 200
11 - 15	GALLONS	1"	CLASS 200
16 - 25	GALLONS	1 1/4"	CLASS 200
26 - 40	GALLONS	1 1/2"	CLASS 200
41 - 55	GALLONS	2"	CLASS 200
56 - 85	GALLONS	2 1/2"	CLASS 200
86 - 125	GALLONS	3"	CLASS 200

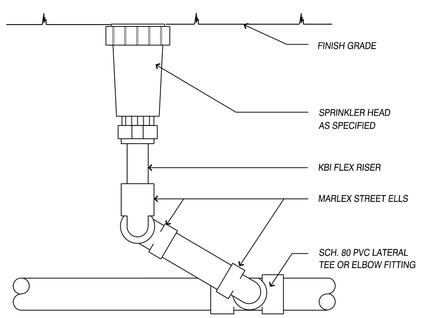
11 PIPE SIZE SCHEDULE - LATERAL LINES
SCALE: NTS



3 GROUNDCOVER PLANTING
SCALE: NTS



6 MANUAL DRAIN VALVE
SCALE: NTS



9 GEAR DRIVEN SPRINKLER
SCALE: NTS

GALLON PER MINUTE		PIPE SIZE & CLASS	
0 - 8	GALLONS	3/4"	SCH. 40
9 - 13	GALLONS	1"	SCH. 40
14 - 20	GALLONS	1 1/4"	SCH. 40
21 - 30	GALLONS	1 1/2"	SCH. 40
31 - 50	GALLONS	2"	SCH. 40
51 - 70	GALLONS	2 1/2"	SCH. 40
71 - 110	GALLONS	3"	SCH. 40

12 PIPE SIZE SCHEDULE - SUPPLY LINES
SCALE: NTS

REV	DATE	BY	DESCRIPTION
			INTERMEDIATE DESIGN SUBMITTAL NOT FOR CONSTRUCTION

DESIGNED MRO
DRAWN MRO
CHECKED MRO
DATE DECEMBER 2024

MacKay Sposito
ENERGY PUBLIC WORKS LAND DEVELOPMENT
www.mackaysposito.com

carollo

City of Camas WASHINGTON

CITY OF CAMAS

CAMAS PFAS EVALUATION & WELL 13 TREATMENT

LANDSCAPE AND IRRIGATION DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
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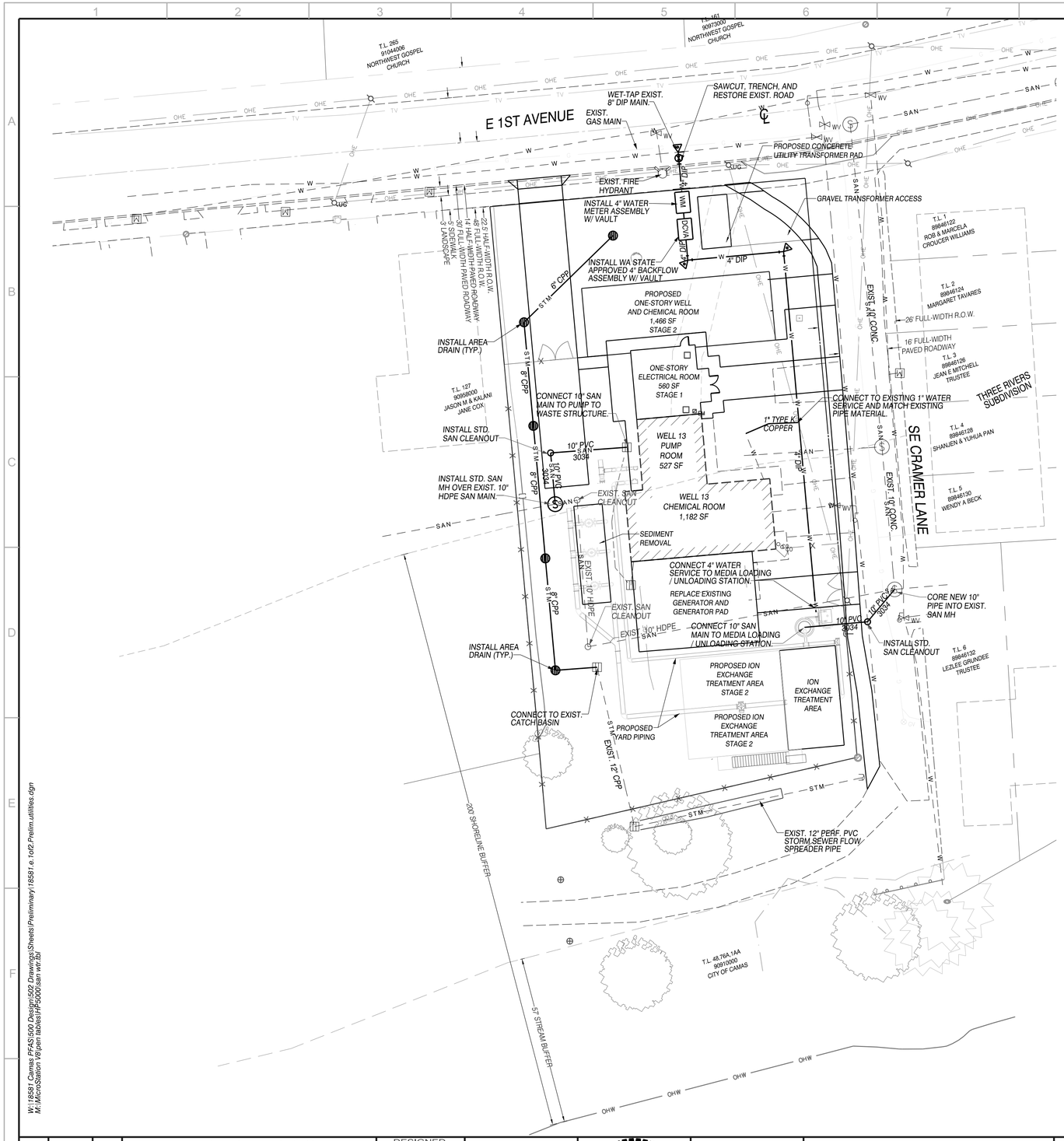
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 203101
DRAWING NO. L02
SHEET NO. OF 15



LEGEND

- PERIMETER OF SITE
- RIGHT-OF-WAY LINE
- CENTERLINE OF ROAD
- FACE OF CURB
- LOT LINE
- EASEMENT LINE
- STM — STORM SEWER LINE
- STM — EXIST STORM SEWER
- SAN — SANITARY SEWER LINE
- SAN — EXIST SANITARY SEWER
- W — WATER SERVICE LINE
- W — EXIST WATER LINE
- 123 — GRADED CONTOUR LINE
- 123 — EXIST CONTOUR LINE
- MANHOLE
- WATER VALVE AND BOX
- FIRE HYDRANT ASSEMBLY
- CLEAN OUT
- CATCH BASIN
- AREA DRAIN
- THRUST BLOCK
- WATER SERVICE METER
- TELEPHONE RISER
- GAS RISER
- ELECTRIC RISER
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- SIGN POST

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DATE
DECEMBER 2024

RICHARD WILLIAM POSS — STATE OF WASHINGTON — 43703 — REGISTERED PROFESSIONAL ENGINEER
02/20/2025

MacKay Sposito

carollo

City of Camas WASHINGTON

CITY OF CAMAS

CAMAS PFAS EVALUATION & WELL 13 TREATMENT

PRELIMINARY UTILITY PLAN

VERIFY SCALES
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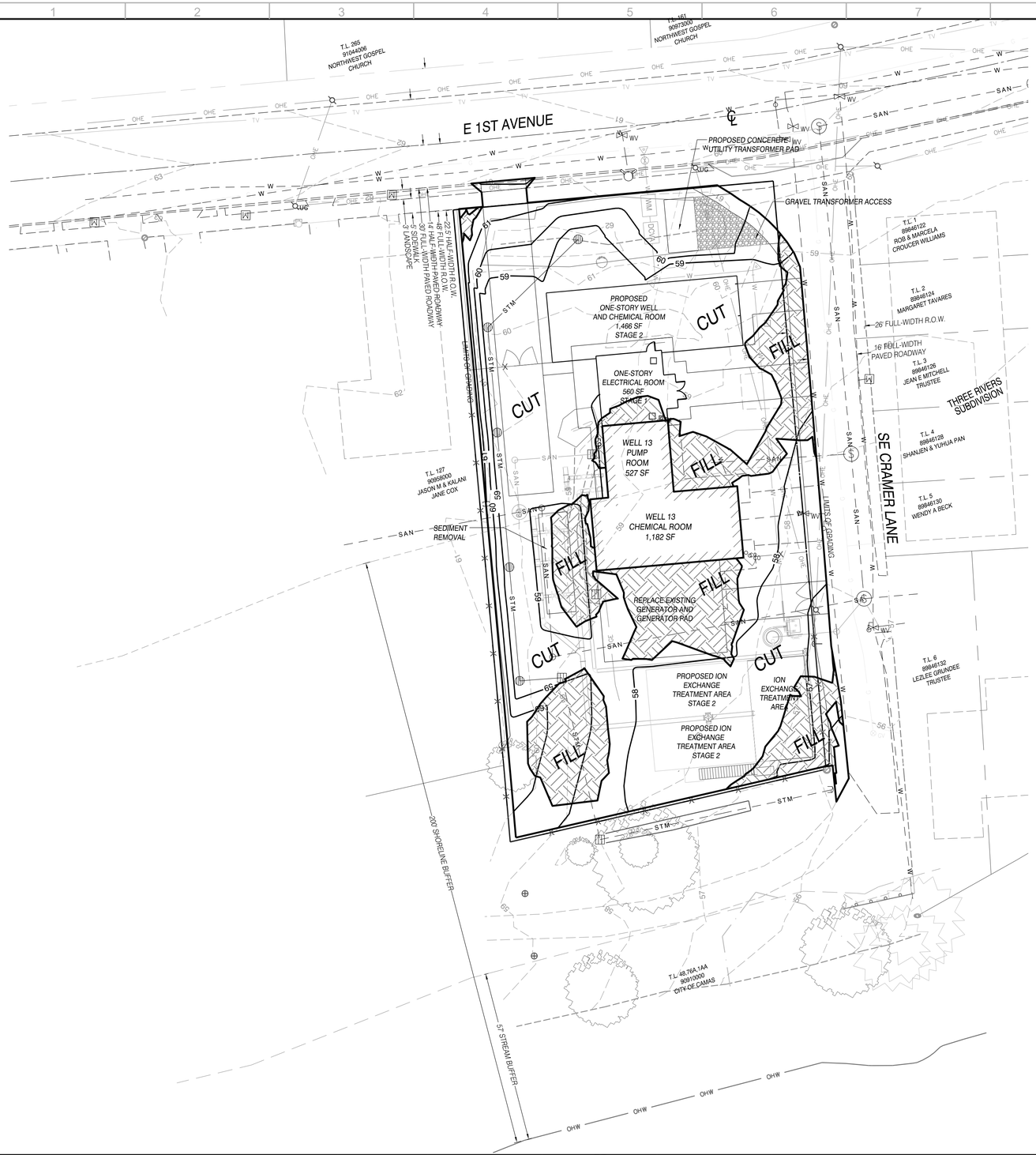

GRADING & EROSION CONTROL LEGEND

- 160 — FINISHED GRADE CONTOUR
- 160 — EXISTING CONTOUR
- CUT/FILL LINE
- CUT AREA
- FILL AREA

APPROXIMATE EARTHWORK VOLUMES

CUT	873 C.Y.
FILL	34 C.Y.

NOTE:
CUT AND FILL AREAS AND VOLUMES ARE CALCULATED FROM EXISTING GROUND TO FINISHED GRADE AND ARE NOT ADJUSTED FOR STRIPPINGS, OVEREXCAVATION OF UNSUITABLE MATERIAL, TRENCH EXCAVATION, STRUCTURAL EXCAVATION OR SHRINK/SWELL. CONTRACTORS ARE SOLELY RESPONSIBLE FOR QUANTITY ESTIMATES FOR BIDDING PURPOSES.

N

0 20 40

SCALE: 1" = 20'

1' CONTOUR INTERVAL

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CHECKED
DATE
DECEMBER 2024

KRISTOPHER WILLIAM RUSH — STATE OF WASHINGTON — 43703 — REGISTERED PROFESSIONAL ENGINEER
02/20/2025

MacKay Sposito

carollo

City of Camas WASHINGTON

CITY OF CAMAS

CAMAS PFAS EVALUATION & WELL 13 TREATMENT

PRELIMINARY GRADING PLAN

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 203101
DRAWING NO.
SHEET NO. 2 OF 2

SHORELINE CRITICAL AREAS REPORT

Camas Well 13 PFAS Treatment Design

January 22, 2025

MacKay Sposito

www.mackaysposito.com

MSi Project No. 18581

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Camas Well 13 PFAS Treatment Design

Shoreline Critical Areas Report

Wetland Scientist Signature

Prepared by:

Signature

Sara Hastings

Printed Name

January 22, 2025

Date

1. Introduction

This report details the results of critical areas investigations conducted for the City of Camas (City) by MacKay Sposito (MSi) to address the Environmental Protection Agency's poly-fluoroalkyl substance (PFAS) requirements by building a new PFAS treatment facility and associated infrastructure on the existing Well 13 site.

This shoreline critical areas report describes the current conditions and the extent of wetlands and fish and wildlife habitat conservation areas (FWHCA) regulated locally by:

- Camas, Washington Municipal Code (CMC) Chapter 16.53 Wetlands and Chapter 16.61 FWHCA
- Camas Shoreline Master Program (SMP 2021)

1.1 Location

Location information for the project study area (PSA) for the Camas PFAS project (Project) is provided in Table 1 and a vicinity map is provided in Appendix A.

Table 1. Location of the PSA

Location	PSA Information
City	Camas
County	Clark
Situs Address	135 SE Cramer Ln, Camas, Washington 98607
PLSS	Township 01N, Range 03E, Section 11, NE ¼ Township 01N, Range 03E, Section 12, NW ¼
PSA Area (acres)	1.40
Tax Lot ID(s)	90928000, 91031000, 91034000

1.2 Project Description

The applicant proposes to construct a new PFAS treatment facility and associated infrastructure on the existing Well 13 site. Project elements include:

Stage 1

- Removal of the existing Well 4 building (Well 4 has been previously decommissioned)
- Replace the existing generator and expand the existing generator pad at the existing Well 13
- Install per- and poly-fluoroalkyl substances (PFAS) treatment equipment for the existing Well 13
- Expand the existing Well 13 electrical room
- Building addition (utility transformer pad) for a proposed new well
- A new driveway off E. 1st Avenue to facilitate a pump crane truck
- Construct a 5-foot wide concrete sidewalk along SE Cramer Lane

Stage 2

- Construction of a new water well and chemical room in the northern portion of the site as an extension of the new electrical room built as part of Stage 1

2. Landscape Setting, Land Use, and Existing Conditions

2.1 Site Description

The PSA includes two buildings, an abandoned well (Well 4) and Well 13. Surrounding land use to the north, east, and west consists of high-density residential development, with Lacamas Creek to the south. The topography gently slopes to the south-southeast but is generally level in the north and central portions. The southern portion of the PSA, waterward of the top of the bank, slopes steeply (58 percent slopes) toward Lacamas Creek. Vegetation in the north and central portion of the PSA consists of landscaped and ornamental native and non-native trees and shrubs, a native balsam poplar (*Populus balsamifera*) and black walnut (*Juglans nigra*). Typical lawn species, mixed with a small percentage of other herbaceous plants, are present and routinely mowed and maintained throughout. Vegetation in the southern portion of the PSA consists of one Oregon white oak (*Quercus garryana*), Douglas fir (*Pseudotsuga menziesii*), cottonwood, and beaked hazelnut (*Corylus cornuta*) within the greenway at the top of the bank and Himalayan blackberry (*Rubus armeniacus*) along the steep slopes. Lacamas Creek, a Type S stream, is a shoreline of state-wide significance and runs along the southern PSA boundary.

2.2 Site Alterations

Elevated roads (E 1st Ave and SE Cramer Ln) are located on the north and east sides of the PSA, respectively. A gravel path bisects the PSA from east to west within the central portion. These roads divert surface water flows from historical paths. Historic gravel fill material is present throughout the PSA, altering hydrology. Development within the PSA and surrounding area has increased stormwater runoff and reduced groundwater recharge.

3. Methods

3.1 Desktop Review

Prior to the May 2, 2024, site visit, MSi conducted a desktop review of potential critical areas within the PSA. Resources reviewed (Appendix A) included:

- Aerial photos (ESRI 2023)
- Clark County GIS MapsOnline (Clarky County 2024)
- Water Quality Atlas (Ecology 2024)

- LiDAR digital terrain model (DTM) and digital surface model (DSM); (WDNR 2019)
- National Oceanic and Atmospheric Administration (NOAA) Fisheries West Coast Region Web Map (NOAA 2024a)
- NOAA Regional Climate Centers (NOAA 2024b)
- USDA Web Soil Survey (NRCS 2024)
- US Army Corps of Engineers (USACE) Antecedent Precipitation Tool (APT)(USACE 2024)
- US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC)(USFWS 2024a)
- USFWS National Wetlands Inventory (NWI)(USFWS 2024b)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS)(WDFW 2024a)
- Statewide Washington Integrated Fish Distribution (SWIFD) Web Map (WDFW 2024b)
- Washington Department of Natural Resources (WDNR) Washington Natural Heritage Program Data Explorer Web Map (WDNR 2024a)

3.2 Wetland Delineation

MSi Wetland Scientists conducted field investigations on May 2, 2024. The Western Mountains, Valleys, and Coasts Regional Supplement (USACE 2010) to the routine method outlined in the USACE's Wetland Delineation Manual (Environmental Laboratory 1987) was utilized to determine if wetlands were present. The USACE National Wetland Plant List (USACE 2022) was used to determine the indicator status of plant species identified within sample plots. The Munsell Soil Color Chart (Munsell Color 2009) was used to determine soil colors. Precipitation analysis was accomplished using the USACE APT for the 2023-2024 water year (USACE 2024a).

The location of the sample plots (Appendix B) was collected using a backpack-mounted Juniper Geode GPS Unit with an estimated accuracy within three feet, but they were not flagged due to their locations within a regularly mowed and maintained lawn. Ground-level photos were taken throughout the PSA to document representative conditions and observed critical areas (Appendix CAppendix C).

MSi wetland scientists met onsite with Meghan Flounlacker from Ecology, Joy Peplinski from WDFW, and Rob Charles from the City of Camas (Pers. Comm. 2024) on August 5, 2024, to discuss site conditions and the future construction of the (PFAS) treatment facility and associated infrastructure.

3.3 Fish and Wildlife Habitat Conservation Areas

3.3.1 Riparian Habitat Areas

Riparian Priority Habitat was identified by delineating the ordinary high-water mark (OHWM) of all legally accessible waterbodies within approximately 150 feet of the PSA (the largest buffer that could be

applied to riparian priority habitat). The location of the OHWM was determined using Ecology's methodology (Ecology 2016). The OHWM was identified using a combination of indicators, including undercut banks, vegetation transitions, breaks in slope, matted vegetation in the direction of flow, and watermarks. The field-delineated OHWM elevations were tied to LiDAR-derived contours (WDNR 2019) to extrapolate the full OHWM in locations where safety concerns prevented access due to steep slopes in the southeast corner of the PSA.

The location of the OHWM was collected using a backpack-mounted Juniper Geode GPS Unit with an estimated accuracy within three feet. Ground-level photos were taken throughout the PSA to document representative conditions and observed critical areas (Appendix C).

3.3.2 Listed Species and Priority Habitats and Species

During the desktop review, listed species, priority habitats, and species potentially present within the PSA were identified. During the site visits on May 2, 2024, suitable habitat for species identified during the desktop review were evaluated on-site during fieldwork using the best available science and professional judgment.

4. Results

4.1 Desktop Review

4.1.1 Precipitation Analysis

Precipitation was average (normal) for the three months preceding the field investigation, with an APT score of 11/18. Table 2 summarizes actual precipitation for the PSA, compared to the 30-year normal, for the May 2, 2024, site visit.

Table 2. Antecedent Precipitation Analysis for May 2, 2024

Date of Site Visit	Precipitation (inches)					
	Day of Site Visit	2 Weeks Prior	3 Months Prior			
			Month	Actual	30-70% of Normal	Within Normal Range
5/2/24	0.28	1.83	March	6.11	2.70-4.74	Wet
			April	3.10	3.46-4.83	Dry
			May	2.86	2.85-4.05	Normal

Sources: USACE 2024, NOAA 2024

4.1.2 Wetlands

The NWI (USFWS 2024b) and Clark County MapsOnline (Clark County 2024) identify potential wetland presence in Lacamas Creek's general location. MSi agrees with the mapping as it relates to the general location of Lacamas Creek (Appendix A, Figure 2).

4.1.3 Fish and Wildlife Habitat Conservation Areas

Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. PHS on the Web identifies salmonids within Lacamas Creek as well as steep slopes and Biodiversity Areas and Corridor associated with Lacamas Creek. MSi staff generally agree with the location of Lacamas Creek and its associated riparian habitat and the mapping of steep slopes. Salmonids are assumed to be present within Lacamas Creek (Appendix A, Figure 2).

4.2 Field Results

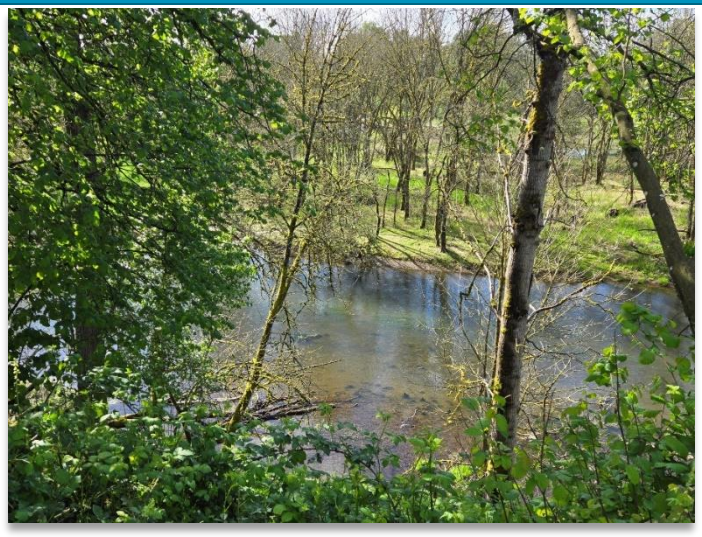
4.2.1 Wetlands

No wetlands were observed within the PSA. Special attention was paid to the microtopography as the north and central portions of the PSA are generally level. Two sample plots were taken within areas that appeared to sit lower in the landscape (not depressions) to document vegetation, soil, and hydrology conditions; these sample plots showed upland conditions (Appendix B).

4.2.2 Fish and Wildlife Habitat Conservation Areas

Lacamas Creek (Type S) is mapped at the southern extent of the PSA. The standard riparian buffer for a Type S stream is 150 feet (CMC 16.61.040.D), however; the City of Camas SMP 5.3.(2)(b) states that the FWHCA buffers lots fronting on First Avenue between SE Garfield St. and NE Third St., are modified to 20 feet from the top of slopes exceeding 40 percent (the PSA is located between SE Garfield St. and NE Third St. and slopes are approximately 58%). Shoreline management areas extend landward 200 feet on a horizontal plane from the OHWM and are under the jurisdiction of the City of Camas SMP (2021).

Table 3. Lacamas Creek FWHCA Summary

Attribute	Description	
Feature ID/Name	Lacamas Creek	
FWHCA Type	Water of the State	
WDNR Stream Type	Type S	
SED	Medium Intensity	
Stream Buffer Width	20 feet	
Substrate	Boulders, cobbles, silt, and sand	
Average Width	Bankfull width approximately 90 feet between north and south OHWMs	
Channel Condition	Steep stable banks (approximately 58 percent slopes)	
Fish Access	Yes	
OHWM Determination	The OHWM was delineated using debris wracking, sediment deposits, surface water, and matted vegetation in the direction of flow.	
Riparian Conditions	Within the PSA, dominant riparian vegetation consists of balsam poplar, black walnut, annual bluegrass (*Poa annua*), common dandelion (*Taraxacum officinale*), common selfheal (*Prunella vulgaris*), creeping buttercup (*Ranunculus repens*), and common daisy (*Bellis perennis*). Himalayan blackberry (*Rubus armeniacus*) dominates the bank slope.	
Figure Location	Appendix A, Figure 2. Existing Conditions	

Sources: CCMC 16.61.010, Clark County 2024, City of Camas SMP 5.3.(2)(b), City of Camas SMP (2021)

4.2.3 Priority Habitat and Species

4.2.3.1 Listed Species

No terrestrial species identified by the USFWS IPaC database as potentially present were observed within the PSA, and no suitable habitats for these species were observed within or near the PSA (USFWS 2024a). Listed threatened fish are mapped within Lacamas Creek (Table 4) and assumed to be present.

Table 4. State and Federally Listed, Threatened, Endangered, and Sensitive Species

Species	Species Run	Scientific Name	State Status	Federal Status
Lacamas Creek River				
Chinook [Lower Columbia River ESU]	*Fall Chinook*	*Oncorhynchus tshawytscha*	--	Threatened
Coho [Lower Columbia River ESU]	*Coho*	*Oncorhynchus kisutch*	--	Threatened
Steelhead [Lower Columbia River ESU]	*Summer Steelhead* *Winter Steelhead*	*Oncorhynchus mykiss*	Candidate	Threatened
Chum [Columbia River ESU]	*Fall Chum*	*Oncorhynchus keta*	--	Threatened
Dolly Varden/ Bull Trout	--	*Salvelinus confluentus*	Candidate	Threatened

Sources: NOAA 2024a, WDFW 2024b, WDFW 2024c, USFWS 2024a

4.2.3.2 Oregon White Oak

Oregon White Oak Woodlands are considered stands of oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25% or where total canopy coverage of the stand is <25%, but oak accounts for at least 50% of the canopy coverage. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands greater than one acre in size. In urban or urbanizing areas, single oaks or stands less than one acre may also be considered a priority when found particularly valuable to fish and wildlife (WDFW 2024).

One oak (Oak 1) measuring approximately 26 inches in diameter at breast height (dbh) was mapped in the southern portion of the PSA. Based on the WDFW functional assessment for individual oak trees, Oak 1 scored Medium Function (Nolan and Azerrad 2024). The functional assessment for Oak 1 is provided in Table 2.

Table 5. Functional Assessment for Individual Oregon White Oak Trees

Oak ID	DBH (inches)	Condition of Crown	Wildlife Value	Score
Oak 1	26	Suppressed/stunted	Leaves, dead branches	8

*High Function = Score 10; Medium Function = Score of 7-9; Low Function = Score 4-6; Minimal Function = Score ≤3

5. Impact Assessment

All permanent and temporary impacts to wetland and fish and wildlife habitat conservation areas will be avoided; no trees, or shrubs will be removed within the stream buffer, biodiversity area, or Oregon white oak dripline (Appendix A, Figure 3). As there are no permanent or temporary impacts to wetland and fish and wildlife habitat conservation area critical areas, no restoration or mitigation for these natural resources is proposed.

6. Disclaimer

The boundaries and classifications shown in this report have been determined using the most appropriate field techniques and the best professional judgment of the environmental scientist. It should be noted that Ecology and/or the City have the final authority to determine the boundaries and categories under their respective jurisdictions. All boundaries and associated buffers should be considered preliminary until they gain concurrence from the appropriate agencies. We recommend submitting this report to the agencies for concurrence prior to purchasing a property, starting any development, or planning activities that would affect regulated critical areas and shorelines on this site.

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Appendix A

Maps

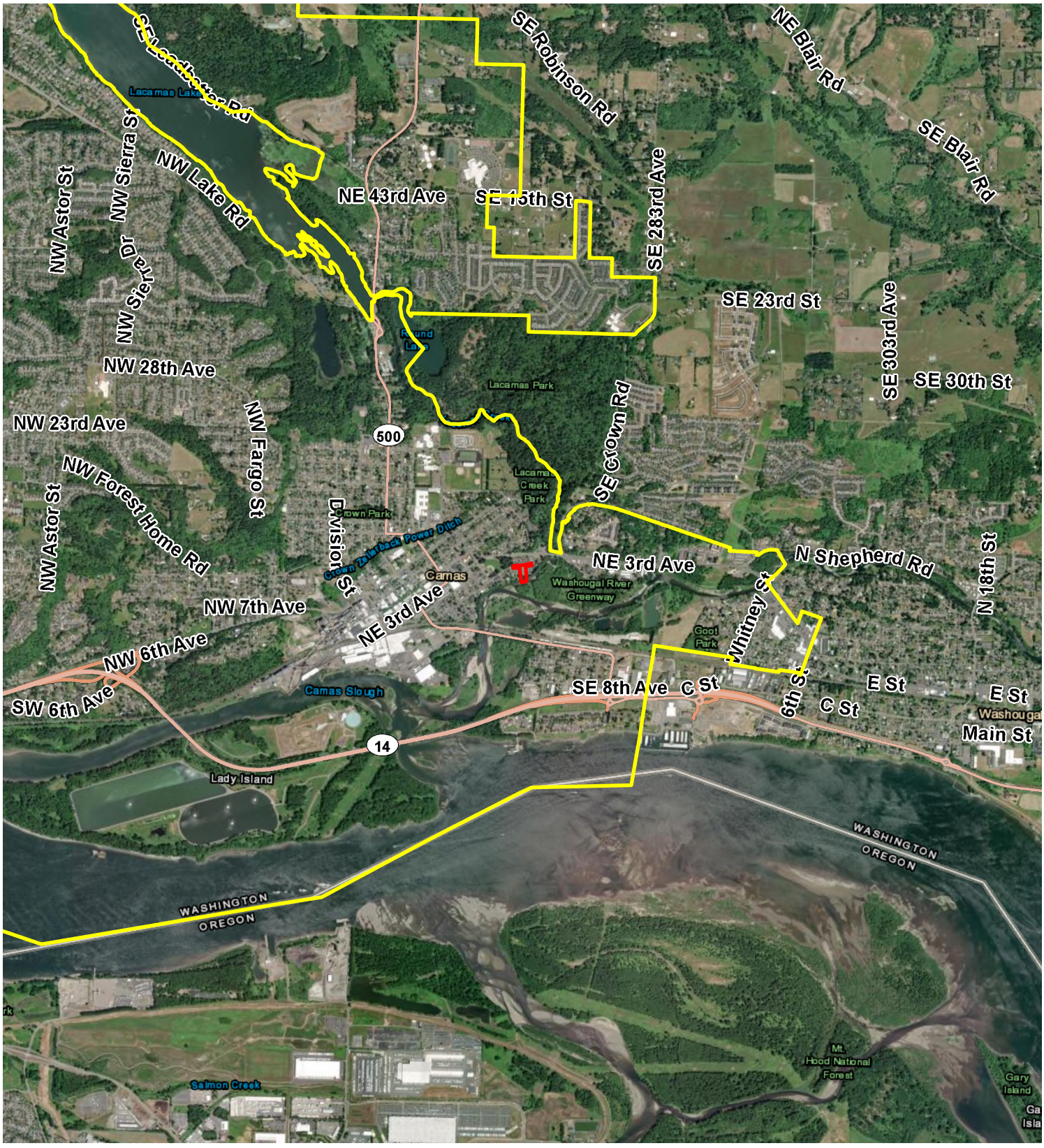
Figure 1. Vicinity Map

Figure 2. Existing Conditions

Figure 3. Proposed Conditions

Figure 4. NWI and LWI

Figure 5. NRCS Soils



Data Sources: Basemap by ESRI. City Limits by Clark County. All other data created by MacKay Sposito. 1/8/2025

Camas City Limits
PSA Boundary (1.40 acres)

PSA Location: 45.6006846, -122.4303372

N

0 ¼ ½ ¾ 1 Miles

Figure 1. Vicinity Map

Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. Contours , Top of Bank, and OHWM derived from WDNR 2013. Notes: FWHCA buffers for Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, are modified to 20 feet from the top of slopes exceeding 40% per Camas SMP 5.3.(2)(b). All other data created by MacKay Sposito. 1/22/2025

- White Oak
- Sample Point
- Contour (2 feet)
- Top of Bank
- OHWM
- Oak Canopy Dripline
- PSA Boundary
- Impervious Surfaces
- Stream Buffer (20 feet from TOB)
- Shoreline Jurisdiction (200 feet)
- Camas Biodiversity Area
- Parcel
- Flow Direction

N

0 25 50 75 100 Feet

Figure 2. Existing Conditions

Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. Contours , Top of Bank, and OHWM derived from WDNR 2013. All other data created by MacKay Sposito. 2/27/2025
Notes: FWHCA buffers for Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, are modified to 20 feet from the top of slopes exceeding 40% per Camas SMP 5.3.(2)(b)

- Proposed Design
- Stage 2 Proposed Design
- Removed Impervious Surfaces
- Existing Impervious Surfaces
- Top of Bank
- OHWM

- White Oak
- Oak Canopy Dripline
- PSA Boundary
- Shoreline Jurisdiction (200 feet)
- Stream Buffer (20 feet from TOB)
- Camas Biodiversity Area
- Contour (2 feet)
- Flow Direction

N

0 25 50 75 100 Feet

Figure 3. Proposed Conditions Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. NWI by USFWS. Wetlands Presence by Clark County. All other data created by MacKay Sposito. 1/8/2025

PSA Boundary
Wetlands Presence
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine

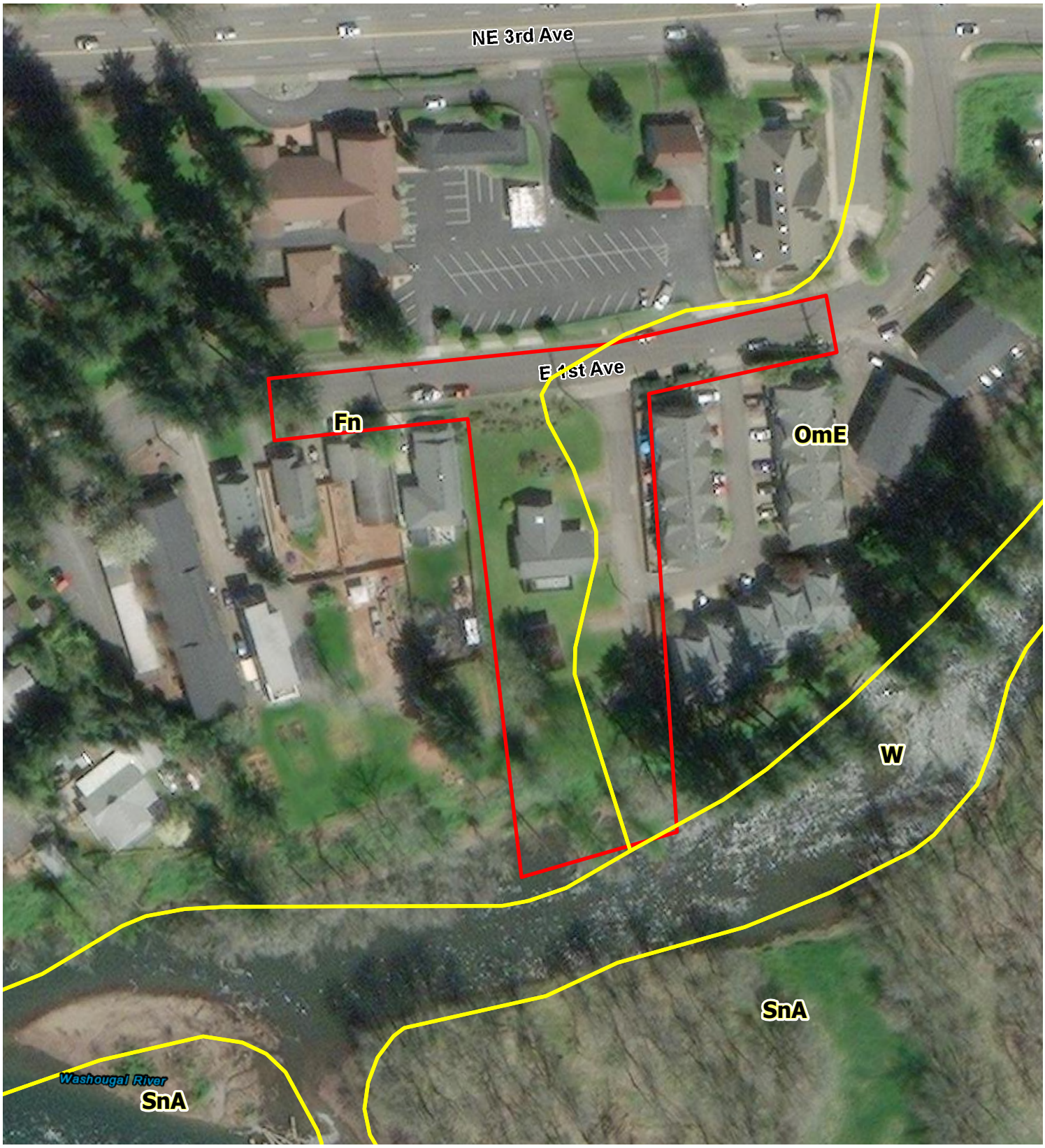
N

0 30 60 90 120 Feet

Figure 4. NWI and LWI

Camas Well 13 PFAS Treatment Design

MacKay Sposito



Data Sources: Basemap by ESRI. Soils by NRCS.
PSA created by MacKay Sposito. 1/8/2025

Figure 5. NRCS Soils

Camas Well 13 PFAS Treatment Design

NRCS Soil Map Units
PSA Boundary

*No hydric soils in the PSA

N

0 40 80 120 160 Feet

MacKay Sposito

Appendix B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Camas PFAS | City/County: Camas, Clark | Sampling Date: 05/02/2024
Applicant/Owner: City of Camas | State: Washington | Sampling Point: 001
Investigator(s): Sara Hastings, Brian Nikolas | Section, Township, Range: S12, T1N, R3E
Landform (hillslope, terrace, etc): Terrace | Local relief (concave, convex, none): convex | Slope (%): <1
Subregion (LRR): A | Lat: 45.587959 | Long: -122.36333 | Datum: WGS 84
Soil Map Unit Name: Fill Land | NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	Yes ____ No X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:
The sample plot location was chosen based on the lowest topographic position (not a depression) within the landscape.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus garryana*	10	Yes	FACU
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5-ft)			
1. *Acer circinatum*	5	Yes	FAC
2. *Vaccinium ovatum*	2	Yes	FACU
3. *Berberis vulgaris*	2	Yes	UPL
4.			
5.			
	9	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Poa annua*	63	Yes	FAC
2. *Bellis perennis*	20	Yes	UPL
3. *Hypochaeris radicata*	10	No	FACU
4. *Taraxacum officinale*	5	No	FACU
5. *Geranium dissectum*	2	No	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		(B)

Prevalence Index = B/A = 0.0

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/4	100		0			Silt Loam	See Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): 6

Hydric Soil Present? Yes ___ No X

Remarks:

Gravel and fill layer below 6 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: Camas PFAS | City/County: Camas, Clark | Sampling Date: 05/02/2024
Applicant/Owner: City of Camas | State: Washington | Sampling Point: 002
Investigator(s): Sara Hastings, Brian Nikolas | Section, Township, Range: S12, T1N, R3E
Landform (hillslope, terrace, etc): Terrace | Local relief (concave, convex, none): convex | Slope (%): <1
Subregion (LRR): A | Lat: 45.587496 | Long: -122.3936 | Datum: WGS 84
Soil Map Unit Name: Fill Land | NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
The sample plot was taken in the lowest topographic position (not a depression) within the landscape.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera ssp. trichocarpa*	40	Yes	FAC
2. *Juglans nigra*	20	Yes	UPL
3.			
4.			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: 5-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Poa annua*	20	Yes	FAC
2. *Prunella vulgaris*	5	No	FACU
3. *Taraxacum officinale*	5	No	FACU
4. *Ranunculus repens*	2	No	FAC
5. *Bellis perennis*	2	No	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	34	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Statum 66

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		(B)

Prevalence Index = B/A = 0.0

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100		0			Silt Loam	Gravel and other small aggregate
10-16	10YR 3/3	99	10YR 5/8	1	C	M	Silt Loam	No gravel/aggregate in this layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Evidence of fill material from 0-10 inches below ground surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Ground Level Color Photographs

Photo 1

The photo was taken during the May 2, 2024, field visit facing west in the northeast corner of the PSA. General vegetation consists of frequently mowed grasses and herbaceous species, while landscaping consists of native and non-native tree and shrub species.

Photo 2

This photo was taken during the May 2, 2024, field visit facing north in the west-central portion of the PSA. Well 13 is pictured at the top right of the photo, with stormwater grates pictured at the bottom of the photo.

Photo 3

This photo was taken during the May 2, 2024, field visit facing south in the southwest portion of the PSA toward the top of the steep bank of Lacamas Creek within the stream buffer. Riparian habitat consists of routinely mowed and maintained lawn and landscaping, creating low ecological function. No impacts within the stream buffer are proposed.

Photo 4

Photo of an Oregon white oak (*Quercus garryana*) taken during the May 2, 2024, field visit in the southern portion of the PSA within the Lacamas Creek stream buffer. The Oregon white oak measured 26 inches in diameter at breast height (dbh) with a suppressed/stunted crown due to the nearby Douglas fir. The Oregon white oak will be entirely avoided by the project.

Photo 5

Photo of the gravel access path at the northern extent of the Lacamas Creek stream buffer taken on May 2, 2024, facing west in the southern portion of the PSA. The steep slope and Lacamas Creek are to the left of the photo.

Photo 6

Photo of abandoned well (Well 4 building), which will be removed by the project, taken on May 2, 2024, facing northwest in the southern portion of the PSA. Well 13 pictured at photo right.

Photo 7

The photo was taken on May 2, 2024, facing north in the southeast portion of the PSA. Well 13 is pictured center-left, and shared driveway access (SE Cramer Lane) is at right.

Photo 8

Photo taken on May 2, 2024, facing west in the south portion of the PSA along Lacamas Creek. Evidence of debris wracking, one of the indicators used to determine the ordinary high water mark, is pictured above the tree in the center of the photo.

Photo 9

Photo taken on May 2, 2024, facing west in the southeastern portion of the PSA along the shoreline of Lacamas Creek. Invasive Himalayan blackberry (*Rubus armeniacus*) dominates the steep slope.

Photo 10

Photo taken on May 2, 2024, facing northeast in the southeastern portion of the PSA along the shoreline of Lacamas Creek. Invasive blackberry brambles cover the steep slopes, and high-density housing is pictured along the top of the slope.

Appendix D

USACE Antecedent Precipitation Tool

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Coordinates	45.587959, -122.393633
Observation Date	2024-05-02
Elevation (ft)	59.644
Drought Index (PDSI)	Moderate drought (2024-04)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-05-02	2.846063	4.049213	2.862205	Normal	2	3	6
2024-04-02	3.458662	4.834252	3.098425	Dry	1	2	2
2024-03-03	2.701575	4.743307	6.110236	Wet	3	1	3
Result							Normal Conditions - 11

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PORTLAND TROUTDALE AP	45.5511, -122.4097	24.934	2.663	34.71	1.291	9198	81
TROUTDALE	45.5533, -122.3886	33.136	1.032	8.202	0.473	1738	1
CAMAS 2.4 E	45.5845, -122.374	58.071	2.882	33.137	1.392	3	8
PORTLAND WFO	45.5608, -122.5383	20.997	6.258	3.937	2.841	315	0
PORTLAND INTL AP	45.5958, -122.6092	21.982	10.131	2.952	4.589	98	0

SHORELINE NARRATIVE

Camas Well 13 PFAS Treatment Design

February 28, 2025

MSi Project No. 18581

MacKay Sposito

www.mackaysposito.com

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2. Appendices

Appendix A – Figures

Appendix B – Site Plan

Camas Well 13 PFAS Treatment Design

Shoreline Narrative

Wetland Scientist Signature

Prepared by:

Signature

Kristen Currens

Printed Name

February 28, 2025

Date

1. Introduction

1.1 Purpose

The following document presents a Shoreline Conditional Use Permit Narrative (Narrative) prepared by MacKay Sposito (MSi) for the City of Camas (Applicant) and the Camas Well 13 PFAS Treatment Design Project (Project). The Narrative discusses the proposed development, current conditions, and how the Project will meet the development regulations codified in the Camas Shoreline Master Program (SMP 2021).

On August 5, 2024, MSi scientists met onsite with Meghan Flounlacker from Ecology, Joy Peplinski from WDFW, and Rob Charles from the City of Camas (Pers. Comm. 2024) to discuss site conditions and the future construction of the PFAS treatment facility and associated infrastructure. This site visit was also held to support Ecology's conditional use review and solicit their input early in the project design.

1.2 Project Description/Background

The Applicant proposes constructing a new per- and poly-fluoroalkyl substances (PFAS) treatment facility and associated infrastructure on the existing Well 13 site. Project activities include:

Stage 1

- Removal of the existing Well 4 building (Well 4 has been previously decommissioned);
- Replace the existing generator and expand the existing generator pad at the existing Well 13;
- Install per- and poly-fluoroalkyl substances (PFAS) treatment equipment for the existing Well 13;
- Expand the existing Well 13 electrical room;
- Building addition for a proposed new well;
- A new driveway off E. 1st Avenue to facilitate a pump crane truck

Stage 2

- Construction of a new water well and chemical room in the northern portion of the site as an extension of the new electrical room built as part of Stage 1.

1.3 Existing Conditions

Existing conditions on-site include two buildings, an abandoned well (Well 4), and an existing well (Well 13). Surrounding land use to the north, east, and west consists of high-density residential development, with Lacamas Creek to the south. The topography gently slopes to the south-southeast but is generally level in the north and central portions of the project site. Waterward from the top of the bank, the southern portion of the project site slopes steeply (58 percent slopes) to the south toward Lacamas Creek.

Vegetation in the north and central portion of the Project consists of landscaped and ornamental native and non-native trees (a native balsam poplar (*Populus balsamifera*) and black walnut (*Juglans nigra*)) and shrubs. Typical lawn species, mixed with a small percentage of other herbaceous plants, are present and routinely mowed and maintained throughout the central and northern portions of the shoreline jurisdiction. Vegetation in the southern portion of the Project consists of one Oregon white oak (*Quercus garryana*) and a mix of Douglas fir (*Pseudotsuga menziesii*), balsam poplar, and beaked hazelnut (*Corylus cornuta*) within the greenway at the top of the bank. Himalayan blackberry (*Rubus armeniacus*) dominates the steep slopes above Lacamas Creek (a Type S stream and shoreline of state-wide significance), which flows from east to west along the southern project site boundary.

1.4 Shoreline Designation and Required Setbacks

The project site is adjacent to Lacamas Creek, with a shoreline environmental designation (SED) of Medium Intensity. Utilities are a conditional use within the Medium Intensity shoreline designation, with a minimum setback of 50 feet from the Right-of-way (ROW) and a maximum structure height of 35 feet. This project is located more than 50 feet from the ordinary high water mark of Lacamas Creek, and its maximum structure height is 25 feet.

Table 1. Shoreline Use, Modification, and Development Standards (SMP Table 6-1)

SED	Use	Use per SED	Right-of-Way Setback (ft)	Maximum structure height (ft)
Medium Intensity	Utility	Conditional	50	35

2. Applicable Shoreline Master Program Regulations

The SMP code responses below assess how this Project meets the goals and policies of the Camas SMP. Excerpts from the SMP are in *italics* below, with responses in regular blue font. Only regulations that apply to the Project are addressed.

2.1 Chapter 5 General Shoreline Use and Development Regulations

All uses and development activities in shorelines shall be subject to the following general regulations in addition to the applicable use-specific regulations in Chapter 6.

2.1.1 5.1 General Shoreline Use and Development Regulations

1. *Shoreline uses and developments that are water-dependent shall be given priority.*

   Water-dependent development is not proposed with this project.

2. *Shoreline uses and developments shall not cause impacts that require remedial action or loss of shoreline functions on other properties.*

   This Project will not cause impacts that require remedial action or the loss of shoreline functions on other properties.

3. *Shoreline uses and developments shall be located and designed in a manner such that shoreline stabilization is not necessary at the time of development and will not be necessary in the future for the subject property or other nearby shoreline properties unless it can be demonstrated that stabilization is the only alternative that protects public safety and existing primary structures.*

   Shoreline development will occur approximately 31 feet from the top of the bank. Shoreline stabilization will not be necessary during the development or in the future.

4. *Land shall not be cleared, graded, filled, excavated or otherwise altered prior to issuance of the necessary permits and approvals for a proposed shoreline use or development to determine if environmental impacts have been avoided, minimized and mitigated to result in no net loss of ecological functions.*

   No work will be done within the shoreline jurisdiction prior to approval of this Shoreline Conditional Permit.

5. *Unless otherwise stated, no development shall be constructed, located, extended, modified, converted, or altered or land divided without full compliance with CMC Title 17 Land Development and CMC Title 18 Zoning.*

   Development will not occur until the City reviews and approves that the proposed application meets the requirements of CMC Title 17 Land Development and CMC Title 18 Zoning.

6. *Hazardous materials shall be disposed of and other steps be taken to protect the ecological integrity of the shoreline area in accordance with the other policies and regulations of this Program as amended and all other applicable federal, state, and local statutes, codes, and ordinances.*

   PFAS are present in the groundwater supply. The new PFAS treatment equipment contains a resin media that will remove the PFAS via absorption until the resin is depleted, after which; the resin will be removed from the site and hauled away for off-site incineration within an approved facility. Once the old resin is removed, new resin will be added.

   Additionally, the on-site generator will contain fuel in case of a power outage.

   All hazardous materials will be stored and maintained in safe and leak-proof containers, as local, state, and federal regulations require.

7. *The Applicant shall demonstrate all reasonable efforts have been taken to avoid, and where unavoidable, minimize and mitigate impacts such that no net loss of critical area and shoreline function is achieved. Applicants must comply with the provisions of Appendix C with a focus on mitigation sequencing per Appendix C, Section 16.51.160 Mitigation Sequencing. Mitigation Plans must comply with the requirements of Appendix C, Section 16.51.170 Mitigation Plan Requirements, to achieve no net loss of ecological functions.*

   Existing impervious surfaces (buildings and impermeable asphalt and gravel surfaces) total 0.06 acres within shoreline jurisdiction. With the removal of the Well 4 building, 0.01 acre are proposed to change from impervious to pervious. The proposed facility and infrastructure construction will increase to 0.09 acre of impervious surfaces post-construction, equating to a 0.03-acre net increase within shoreline jurisdiction in an area composed of regularly maintained non-native lawn grass (MSi 2025). Table 2 summarizes impacts within shoreline jurisdiction.

Table 2. Summary of Impacts within Shoreline Jurisdiction

Existing Impervious	Proposed Increase in Pervious	Proposed Increase in Impervious	Net Increase Impervious	Proposed Total Impervious
0.06 acres	0.01 acres	0.04 acres	0.03 acres	0.09 acres

   This plan has been prepared according to Ecology's shoreline no net loss and mitigation guidance (Ecology 2023). The Project will not result in the net loss of shoreline ecological functions. All impacts to critical areas and their buffers have been avoided. In addition, the project has been carefully designed to avoid all alteration or removal of native vegetation within shoreline jurisdiction.

   While there will be a 0.03-acre increase in impervious surface within shoreline jurisdiction, this increase is necessary to provide the hardened surface infrastructure required to meet the project's purpose of treating the drinking water supply for PFAS. To minimize impacts within shorelines, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the new development will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces. The design provides a sustainable, low-maintenance solution to manage water flow and support local ecosystems.

   Construction best management practices (BMPs) to manage stormwater runoff and minimize erosion and sedimentation will be implemented, which include:

   Designate staging and stockpile areas outside critical areas and buffers, establish standard construction entrances, vividly mark clearing limits, and install silt fencing at the edge of the disturbance to prevent sedimentation within remaining critical areas.

8. *Within urban growth areas, Ecology may grant relief from use and development regulations in accordance with RCW 90.58.580, and requested with a shoreline permit application.*

No relief from development regulations is requested with this application.

2.2 5.2 Archaeological, Cultural, and Historic Resources

When a shoreline use or development is in an area known or likely to contain archaeological artifacts as indicated on the City of Camas Archaeological Probability map, or as recorded at the state or county historical offices, then the applicant shall provide for a site inspection and evaluation by a professional archaeologist. Development permits may not be issued until the inspection and evaluation have been completed and the city has issued approval.

If an item of possible archeological interest is discovered on site, all work shall immediately cease and notification of such a find will be sent to the City, the Office of Archaeology and Historic Preservation and affected Native American tribes. Activities on site may resume only upon receipt of the City's approval.

An archaeological investigation has been completed and will be provided.

2.3 5.3 Critical Areas Protection

Critical Areas Regulations are found in Appendix C of this program and are specifically at Chapters 16.51 through 16.61. Provisions of the Critical Areas Regulations that are not consistent with the Shoreline Management Act, RCW Chapter 90.58, and supporting Washington Administrative Code chapters shall not apply in shoreline jurisdiction. These regulations are integral and applicable to this Program, except that:

1. *Non-conforming uses and development within the shoreline jurisdiction shall be subject to both this Program and Appendix C, and where there is a conflict, the most protective of environmental functions shall apply;*
2. *The Fish and Wildlife Habitat Conservation Area buffers for Stream Type S in Appendix C, Section 16.61.040 are modified as follows for the following areas:*
    a) *Columbia River, SR-14 to SE Third Avenue2 at twenty-feet (20').*
    b) *Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, twenty-feet (20') from the top of slopes exceeding forty- percent (40%).*
    c) *Lacamas Lake buffers from OHWM shall not extend landward of NE Leadbetter Road.*
    d) *Columbia River, lots fronting on SE 12th Avenue and SE 11th Avenue between SE Polk Street and SE Front Street, shall be twenty-percent (20%) of lot depth as measured from the OHWM.*
3. *CMC Chapter 16.57 Frequently Flooded Areas applies within shoreline jurisdiction but is not incorporated as specific regulations of this SMP.*

The standard riparian buffer for a Type S stream is 150 feet (CMC 16.61.040.D); the City of Camas SMP 5.3.(2)(b) states that the Fish and Wildlife Habitat Critical Areas (FWHCA) buffers for lots fronting on First Avenue between SE Garfield St. and NE Third St., are modified to 20 feet from the top of slopes exceeding 40 percent (the PSA is located between SE Garfield St. and NE Third St. and slopes are approximately 58%). A Critical Areas Report is included with the City Land Use Application submittal for review and approval by the City (MSi 2025).

2.3.1.1 5.3.1 Applicable Critical Areas

For purposes of this Program, the following critical areas, as defined in Appendix C will be protected under this Program: Wetlands; Critical Aquifer Recharge Areas; Frequently Flooded Areas; Geologically Hazardous Areas; and Fish and Wildlife Habitat Conservation Areas.

All impacts to critical areas will be avoided.

2.4 5.5 Public Access

1. *Provisions for adequate public access shall be incorporated into all shoreline development proposals that involve public funding unless the proponent demonstrates public access is not feasible due to one or more of the provisions of Section 5.5 Regulation 2.a-e.*

   This project will utilize public funding. The public currently accesses the shoreline on this site, and that access will be maintained and upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

2. *Provisions for adequate public access shall be incorporated into all land divisions and other shoreline development proposals unless this requirement is clearly inappropriate to the total proposal. The nexus, proportionality, need, and support for such a connection shall be based on the policies of this Program. Public access will not be required where the proponent demonstrates one or more of the following:*

   Not applicable

3. *Public access sites shall be connected to a barrier free route of travel and shall include facilities based on criteria within the Americans with Disabilities Act Accessibility Guidelines.*

   The existing public access will be upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

4. *Public access shall include provisions for protecting adjacent properties from trespass and other possible adverse impacts to neighboring properties.*

   The site will be fenced off to screen and provide security for the PFAS equipment. However, there will be no changes to the existing public access. The Applicant proposes a 5-foot wide concrete sidewalk along the east side of the site/west side of SE Cramer Ln to provide additional accessibility to the shoreline area.

5. *A sign indicating the public's right of access to shoreline areas shall be installed and maintained in conspicuous locations.*

   A sign indicating the public's right to access the shoreline area will be installed and maintained in a conspicuous location.

6. *Required public access shall be developed at the time of occupancy of the use or activity.*

   The sidewalk will be constructed concurrently with the proposed project.

7. *Public access shall consist of a dedication of land or a physical improvement in the form of a walkway, trail, bikeway, corridor, viewpoint, park, deck, observation tower, pier, boat launching ramp, dock or pier area, or other area 43 Camas Shoreline Master Program serving as a means of view and/or physical approach to public waters and may include interpretive centers and displays.*

   The Applicant proposes a 5-foot wide concrete sidewalk along the east side of the site/west side of Cramer Lane to provide additional accessibility to the existing pathway along the greenway. This standard will be met.

8. *Public access easements and permit conditions shall be recorded on the deed of title and/or on the face of a plat or short plat as a condition running contemporaneous with the authorized land use, as a minimum. Said recording with the County Auditor's Office shall occur at the time of permit approval.*

   The City of Camas owns the property, so an easement will not be required.

2.5 5.6 Restoration

The Project will not impact the existing shoreline or critical areas, so no restoration is proposed.

2.6 5.7 Site Planning and Development

2.6.1 5.7.1 General

1. *Land disturbing activities such as grading and cut/fill shall be conducted in such a way as to minimize impacts to soils and native vegetation.*

   To ensure minimal disruption to the shoreline, the Applicant will submit an Erosion Control plan to the City for approval, implement the approved erosion control measures (BMPs) before grading begins, and limit grading activities within the shoreline jurisdiction to the greatest extent possible.

2. *Impervious surfaces shall be minimized to the extent feasible so as not to jeopardize public safety.*

   Impervious surfaces created by the development will include:

   - Removal of the existing Well 4 building (Well 4 has been previously decommissioned);
   - Replace the existing generator and expand the existing generator pad at the existing Well 13;

- Install per- and poly-fluoroalkyl substances (PFAS) treatment equipment for the existing Well 13;
- Expand the existing Well 13 electrical room;
- Building addition for a proposed new well;
- A new driveway off E. 1st Avenue to facilitate a pump crane truck;
- Construction of a new water well and chemical room in the site's northern portion as an extension of the new electrical room built as part of Stage 1.

The Project will result in 0.07 acres of new impervious surfaces, equating to a 0.06-acre net increase within shoreline jurisdiction. To minimize Impacts within the shoreline, the Well 4 building will be removed, and within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces. This and existing stormwater collection, treatment, and detention systems will protect the facility, neighboring properties, and the shoreline.

3. *When feasible, existing transportation corridors shall be utilized.*

   The Project has existing frontage along 1st Ave and access to SE Cramer Ln.

4. *Vehicle and pedestrian circulation systems shall be designed to minimize clearing, grading, alteration of topography and natural features, and designed to accommodate wildlife movement.*

   Existing frontage access to the property from 1st Ave and SE Cramer Ln. will minimize the amount of grading and vegetation removal required on-site. For more information, see the Preliminary Plans included with the City Land Use (Appendix B – Site Plan).

5. *Parking, storage, and non-water dependent accessory structures and areas shall be located landward from the OHWM and landward of the water-oriented portions of the principal use.*

   Parking and storage will be located within the facility and unavailable for public use. All of these areas will be located landward of the OHWM.

6. *Trails and uses near the shoreline shall be landscaped or screened to provide visual and noise buffering between adjacent dissimilar uses or scenic areas, without blocking visual access to the water.*

   The water treatment facility will be fenced/walled with an 8-foot high-security palisade fence to provide security and screening for the PFAS equipment. This application does not propose landscaping or vegetative screening, as there will be no change to the existing use.

7. *Elevated walkways shall be utilized, as appropriate, to cross sensitive areas such as wetlands.*

   Not applicable; no elevated walkways are proposed.

8. *Fencing, walls, hedges, and similar features shall be designed in a manner that does not significantly interfere with wildlife movement.*

   An 8-foot high-security palisade fence will be installed around the facility's perimeter, but it will not enclose any natural areas.

9. *Exterior lighting shall be designed, shielded and operated to: a) avoid illuminating nearby properties or public areas; b) prevent glare on adjacent properties, public areas or roadways; c) prevent land and water traffic hazards; and d) reduce night sky effects to avoid impacts to fish and wildlife.*

   Proposed lighting will be limited to the street lighting required by the City Code and lighting typical of the existing PFAS treatment facility and associated infrastructure. Lights will be directed away from the shoreline and shielded to prevent light pollution.

10. *Utilities shall be located within roadway and driveway corridors and rights-of-way wherever feasible.*

    Utilities will be constructed on-site as necessary for the construction of the PFAS treatment system. A sanitary sewer connection will be made to the existing sanitary sewer manhole in SE Cramer Lane for wastewater disposal, and a connection will be made to the existing sanitary sewer line on the east side of the site for system flushing.

11. *A use locating near a legally established aquaculture enterprise, including an authorized experimental project, shall demonstrate that such use would not result in damage to or destruction of the aquaculture enterprise, or compromise its monitoring or data collection.*

    Not applicable; aquaculture is not proposed.

2.6.2 5.7.2 Clearing, Grading, Fill and Excavation

1. Clearing and grading shall be scheduled to minimize adverse impacts, including but not limited to, damage to water quality and aquatic life.

   The Project will provide appropriate erosion control. BMPs will be installed prior to site grading, which will only occur during the dry season.

2. Clearing and grading shall not result in substantial changes to surface water drainage patterns off the project site and onto adjacent properties.

   Currently, surface water drainage flows to an existing stormwater collection system on-site. Drainage patterns will continue to flow into the existing stormwater collection system following the completion of the proposed development. Additionally, to minimize Impacts within the shoreline, the Well 4 building will be removed, and within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces.

3. *Developments shall include provisions to control erosion during construction and to ensure preservation of native vegetation for bank stability.*

   The Applicant will submit an Erosion Control Plan for approval by the City and install approved erosion control BMPs before beginning site grading. The BMPs will remain in place until site construction is complete.

4. *Grading and grubbed areas shall be planted with a cover crop of native grasses until construction activities are completed.*

   All vegetation and ground disturbance that will not be replaced with impervious surfaces will be planted with a native grass seed mix until the construction activities are completed. There are currently no native grasses or other native vegetation within the impacted portion of the shoreline jurisdiction.

5. *Clearing, filling, or excavation shall not be conducted where shoreline stabilization will be necessary to protect materials placed or removed. Disturbed areas shall be stabilized immediately and revegetated with native vegetation.*

   No grading will occur in a location where shoreline stabilization will be necessary.

6. *Fills shall be permitted only in conjunction with a permitted use and shall be of the minimum size necessary to support that use. Speculative fills are prohibited.*

   No speculative fills are proposed. This standard does not apply.

7. *Soil, gravel or another substrate transported to the site for fill shall be screened and documented that it is uncontaminated. Use of polluted dredge material or materials normally disposed of at a solid waste facility is prohibited.*

   Noted.

8. *Fills shall be designed and placed to allow surface water penetration into groundwater supplies where such conditions existed prior to filling.*

   Noted.

9. *Fills must protect shoreline ecological functions, including channel migration processes.*

   Within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces. The proposed project is not located within a channel migration zone.

10. *Fill waterward of OHWM shall only be allowed as a conditional use (except for beach nourishment or enhancement projects) and then only when necessary for the following activities: to support a water-dependent or public access use; cleanup and disposal of contaminated sediments as part of an interagency environmental clean-up plan; expansion or alteration of transportation facilities of statewide significance under specific circumstances; mitigation action; and environmental restoration*.

Fill waterward of the OHWM is not proposed.

11. *Fills for beach nourishment or enhancement projects are subject to a substantial development permit. In the Columbia River, fills shall be prohibited between the OHWM and minus fifteen (-15) feet CRD, unless shallow water habitat will be created as mitigation.*

    Fills for beach nourishment or enhancement are not proposed.

12. *Excavation below the OHWM is considered dredging and subject to provisions under that section in Chapter 6.*

    No excavation will occur below the OHWM.

13. *Upon completion of construction, remaining cleared areas shall be replanted with native species as approved by the city. Replanted areas shall be maintained such that within three (3) years' time the vegetation is fully re-established.*

    Within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces.

14. *For the purposes of this Program, preparatory work associated with the conversion of land to non-forestry uses and/or developments shall not be considered a forest practice and shall be reviewed in accordance with the provisions for the proposed non-forestry use, the general provisions of this Program, and shall be limited to the minimum necessary to accommodate an approved use.*

    This site was not previously converted from foresty land.

2.6.3 5.7.3 Building Design

1. *Structures shall be designed to conform to natural contours and minimize disturbance to soils and native vegetation*

   The Project will conform to the natural contours and minimize disturbance to soil and native vegetation to the greatest extent practicable. Additionally, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the impact footprint will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces.

2. *Non-single-family structures shall incorporate architectural features that provide compatibility with adjacent properties, enhance views of the landscape from the water, and reduce scale to the extent possible.*

   The Project proposes to update the current water treatment facility to include a new PFAS treatment system and supporting infrastructure to address the Environmental Protection Agency's (EPA) PFAS requirements.

3. *Building surfaces on or adjacent to the water shall employ materials that minimize reflected light.*

No buildings are proposed on or adjacent to the water. Large native trees screen the proposed development from the water, meeting this standard.

4. *Façade treatments, mechanical equipment and windows in structures taller than two (2) stories, shall be designed and arranged to prevent bird collisions using the best available technology. Single-family residential structures shall be exempt from this provision.*

   While the proposed ion exchange tanks will be approximately 25 feet tall, no two-story buildings exist or are proposed on-site, so this standard does not apply.

2.7 5.8 Vegetation Conservation

1. *Removal of native vegetation shall be avoided. Where removal of native vegetation cannot be avoided, it shall be minimized to protect ecological functions.*

   No native vegetation will be removed by the project.

2. *If native vegetation removal cannot be avoided it shall be minimized and mitigated as recommended by a qualified biologist within a Critical Area Report and shall result in no net loss of shoreline functions. Lost functions may be replaced by enhancing other functions provided that no net loss in overall functions is demonstrated and habitat connectivity is maintained. Mitigation shall be provided consistent with an approved mitigation plan per Appendix C.*

   No native vegetation will be removed by the project.

3. *Clearing by hand-held equipment of invasive or non-native shoreline vegetation or plants listed on the State Noxious Weed List is permitted in shoreline locations if native vegetation is promptly re-established in the disturbed area.*

   Not applicable

4. *If non-native vegetation is to be removed, then it shall be replaced with native vegetation within the shoreline jurisdiction.*

   The project will not remove native shrubs or trees, only non-native lawn grasses. The newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces.

5. *Pruning of trees is allowed in compliance with the National Arborist Association pruning standards. Pruning must meet the following criteria:*
   a. *Removal of no more than twenty (20) percent of the limbs of any single tree may be removed; and*
   b. *No more than twenty (20) percent of canopy in a single stand of trees may be removed in a given five (5) year period without a shoreline permit.*

   No tree topping or pruning is proposed for this project.

6. *Topping trees is prohibited.*

   No tree topping or pruning is proposed for this project.

7. *If the city determines that a tree is hazardous as verified by an arborist report, then only the hazardous portion shall be removed. Complete removal should be avoided to the extent possible. The remainder of the tree shall remain to provide habitat functions and slope stability. Mitigation may be required to compensate for reduced tree surface area coverage.*

   No hazard trees have been identified on-site.

8. *Natural features such as snags, stumps, logs or uprooted trees, which do not intrude on the navigational channel or threaten or public safety, and existing structures and facilities, shall be left undisturbed.*

   Natural features within shoreline jurisdiction or critical areas will not be removed.

9. *Natural in-stream features such as snags, uprooted trees, or stumps should be left in place unless it can be demonstrated that they are not enhancing shoreline function or are a threat to public safety.*

   No features within the Lacamas Creek Shoreline will be removed.

10. *Aquatic weed control shall only occur to protect native plant communities and associated habitats or where an existing water-dependent use is restricted by the presence of weeds. Aquatic weed control shall occur in compliance with all other applicable laws and standards and shall be done by a qualified professional.*

    No aquatic weed control is proposed. This standard does not apply.

2.8 5.9 Visual Access

Visual access shall be maintained, enhanced, and preserved as appropriate on shoreline street-ends, public utility rights-of-way above and below the ordinary high water mark. Any new or expanded building or structure over thirty-five (35) feet in height above average grade level that obstructs the shoreline view of a substantial number of residences that are adjoining shorelines shall not be allowed in accordance with RCW 90.58.320.

No new buildings or additions exceeding 35 feet in height are proposed. Visual access will be maintained at the terminus of the easement for SE Cramer Lane, and access will be enhanced by the construction of a sidewalk along the west side of SE Cramer Lane to provide ADA access to an existing gravel pathway. Construction of the proposed PFAS equipment will not affect the shoreline view of residents in the general vicinity. There will be no changes to the existing public access.

2.9 5.10 Water Quality and Quantity

1. *The location, design, construction, and management of all shoreline uses and activities shall protect the quality and quantity of surface and ground water adjacent to the site.*
2. *All shoreline development shall comply with the applicable requirements of CMC Chapter 14.02 Stormwater Control.*

3. *Best management practices (BMPs) for control of erosion and sedimentation shall be implemented for all shoreline development in substantial compliance with CMC Chapter 14.06 Erosion and Sediment Control.*

   Surface and groundwater quality and quantity will be maintained by meeting the requirements of the City of Camas Stormwater Ordinance. Required stormwater plans and reports have been submitted meeting the requirements of CMC Chapter 14.02 Stormwater Control. Erosion and sedimentation control best management practices have been proposed, meeting the requirements of CMC Chapter 14.06 Erosion and Sediment Control. Please refer to the plans submitted with this application for more information regarding compliance with this section.

4. *Potentially harmful materials, including but not limited to oil, chemicals, tires, or hazardous materials, shall not be allowed to enter any body of water or wetland or to be discharged onto the land except in accordance with CMC Chapter 14.04 Illicit Discharges, dumping and Illicit Connections. Potentially harmful materials shall be maintained in a safe and leak-proof condition*

   No potentially harmful materials will enter any water body as a result of this project.

5. *Herbicides, fungicides, fertilizers, and pesticides shall not be applied within twenty-five (25) feet of a waterbody, except by a qualified professional in accordance with state and federal laws. Further, pesticides subject to the final ruling in Washington Toxics Coalition, et al., v. EPA shall not be applied within sixty (60) feet for ground applications or within three hundred (300) feet for aerial applications of the subject water bodies and shall be applied by a qualified professional in accordance with state and federal law.*

   This application does not propose the application of herbicides, pesticides, fungicides, or fertilizers within 25 feet of water.

6. *Any structure or feature in the Aquatic shoreline designation shall be constructed and/or maintained with materials that will not adversely affect water quality or aquatic plants or animals. Materials used for decking or other structural components shall be approved by applicable state agencies for contact with water to avoid discharge of pollutants.*

   No structure or feature is proposed in the Aquatic shoreline.

7. *Conveyance of any substance not composed entirely of surface and stormwater directly to water resources shall be by CMC Chapter 14.02.*

   No substance that is not composed entirely of surface and stormwater will be directly conveyed to water resources.

8. *Septic systems should be located as far landward of the shoreline and floodway as possible. Where permitted, new on-site septic systems shall be located, designed, operated, and maintained to meet all applicable water quality, utility, and health standards.*

   No septic systems are proposed. This standard does not apply.

2.10 6.3.15 Utilities Uses

These provisions apply to services and facilities that produce, convey, store, or process power, gas, wastewater, communications, and similar services and functions. On-site utility features serving a primary use, such as a water, sewer or gas line to a residence or other approved use are "accessory utilities" and shall be considered a part of the primary use.

As the existing use on site is as a municipal water well, the proposed PFAS treatment system is designed to remove PFAS and other substances from public drinking water.

1. *Whenever feasible, all utility facilities shall be located outside shoreline jurisdiction. Where distribution and transmission lines (except electrical transmission lines) must be located in the shoreline jurisdiction, they shall be located underground or within the footprint of an existing, built roadway.*

   The existing Well 13 site is currently located partially within the shoreline area. The proposed PFAS treatment system will be installed south of the existing Well 13 well and chemical building in the shoreline area. In addition, a new well and chemical building are proposed north of the proposed electrical room expansion. All distribution piping associated with the PFAS treatment system will be installed underground except where they daylight to connect to PFAS treatment system components.

2. *Where overhead electrical transmission lines must parallel the shoreline, they shall be no closer than one hundred (100) feet from OHWM unless topography or safety factors would make it unfeasible, then a shoreline conditional use permit shall be required.*

   No proposed overhead transmission lines paralleling the shoreline are proposed. This standard does not apply.

3. *Utilities shall be designed, located and installed in such a way as to preserve the natural landscape, minimize impacts to scenic views, and minimize conflicts with present and planned land and shoreline uses.*

   The Project will conform to the natural contours and minimize disturbance to soil and native vegetation to the greatest extent practicable. Additionally, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces. There will be no changes to the existing public access, all structures within the development will be less than two stories (PFAS tanks will be 25' tall), and all other utilities will be piped underground. An eight-foot high-security palisade fence around the facility's perimeter will be installed, which will partially screen the PFAS equipment but will not enclose any natural areas.

4. *Transmission, distribution, and conveyance facilities shall be located in existing rights of way and corridors or shall cross shoreline jurisdictional areas by the shortest, most direct route feasible, unless such route would cause significant environmental damage.*

   Not applicable.

5. *Utility production and processing facilities, such as power plants and wastewater treatment facilities, or parts of those facilities that are nonwater-oriented shall not be allowed in the shoreline jurisdiction unless it can be demonstrated that no other feasible option is available and will be subject to a shoreline conditional use permit.*

   The Applicant proposes constructing a new PFAS treatment facility and associated infrastructure on the existing Well 13 (water treatment) site to address the Environmental Protection Agency's PFAS requirements. Because the existing well is currently operative and native vegetation has been previously removed from the site, the existing location is the most feasible location for accessing groundwater (near Lacamas Creek) without creating additional shoreline impacts. The Project will be subject to the conditions of a Shoreline Conditional Use Permit from the City.

6. *Stormwater control facilities, limited to detention, retention, treatment ponds, media filtration facilities, and lagoons or infiltration basins, within the shoreline jurisdiction shall only be permitted when the following provisions are met: a. The stormwater facility is designed to mimic and resemble natural wetlands and meets the standards of CMC 14.02 Stormwater and the discharge water meets state water quality standards; b. Low impact development approaches have been considered and implemented to the maximum extent feasible.*

   A stormwater control facility is not proposed. Currently, surface water drainage flows to an existing stormwater collection system on-site. Drainage patterns will continue to flow into the existing stormwater collection system following the completion of the proposed development.

7. *New and modifications to existing outfalls shall be designed and constructed to avoid impacts to existing native aquatic vegetation attached to or rooted in substrate. Diffusers or discharge points must be located offshore at a distance beyond the nearshore area to avoid impacts to those habitats.*

   There are no new or modified outfalls associated with the project.

8. *Water reclamation discharge facilities (e.g. injection wells) are prohibited in the shoreline jurisdiction, unless the discharge water meets State Department of Ecology Class A reclaimed water standards. Proponents for discharge of Class A reclaimed water in the shoreline jurisdiction shall demonstrate habitat benefits of such discharge.*

   Water reclamation is not proposed.

9. *Where allowed under this program, construction of underwater utilities or those within the wetland perimeter shall be scheduled to avoid major fish migratory runs or use construction methods that do not cause disturbance to the habitat or migration.*

   There is no proposed construction of underwater utilities.

10. *All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially detrimental to water quality shall provide automatic shut off valves.*

    No underwater pipelines are proposed.

11. *Upon completion of utility installation/maintenance projects on shorelines, banks shall, at a minimum, be restored to pre-project configuration, replanted and provided with maintenance care until the newly planted vegetation is fully established. Plantings at installation shall be at least 2" minimum caliper at breast height if trees, five-gallon size if shrubs, and ground cover shall be planted from flats at 12" spacing, unless other mitigation planting is recommended by a qualified biologist and approved by the Administrator.*

    Impacts to the bank are not proposed. All project work will occur above the top of bank of Lacamas Creek.

3. References

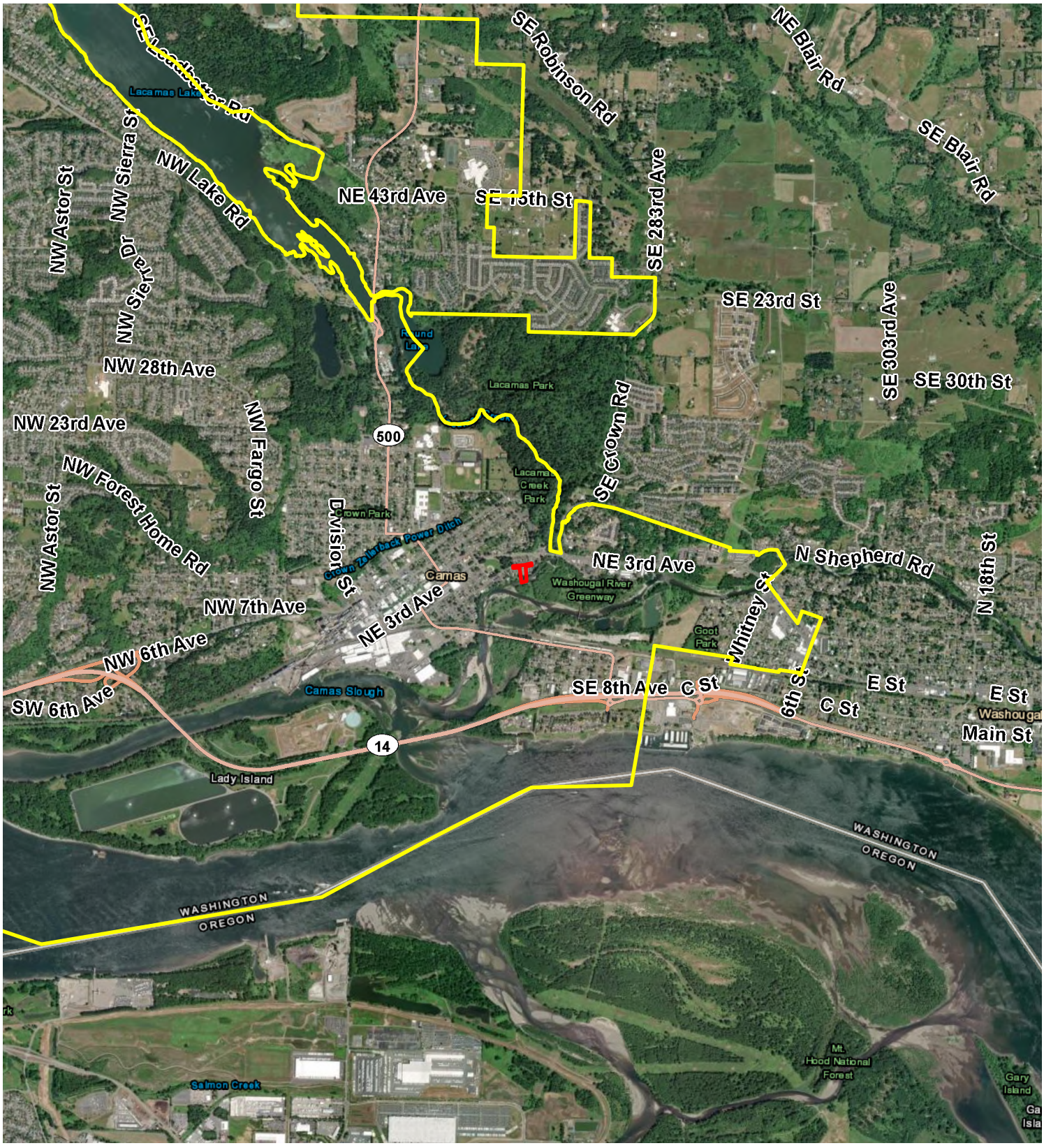
City of Camas Washington. 2024. Camas, Washington Municipal Code, Title 16 – Environment. https://library.municode.com/wa/camas/codes/code_of_ordinances?nodeId=TIT16EN.

City of Camas. 2021. Camas Shoreline Master Program. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cityofcamas.us/sites/default/files/fileattachments/community_development/page/6071/smp_2021_final.pdf.

Flounlacker, Meghan, Joy Peplinski, and Rob Charles. August 5, 2024. Meeting with Kristen Currens, Environmental Manager, and Sara Hastings, Environmental Scientist; MacKay Sposito, Meghan Tait, Wetland/Shoreland Specialist, Washington Department of Ecology; Joy Peplinski, Habitat Biologist, Washington Department of Fish and Wildlife, and Rob Charles, Utilities Manager, City of Camas.

MacKay Sposito. 2025. Shoreline Critical Areas Report. January 22, 2025.

Appendix A – Figures



Data Sources: Basemap by ESRI. City Limits by Clark County. All other data created by MacKay Sposito. 1/8/2025

Camas City Limits
PSA Boundary (1.40 acres)

PSA Location: 45.6006846, -122.4303372

N

0 ¼ ½ ¾ 1 Miles

Figure 1. Vicinity Map

Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. Contours , Top of Bank, and OHWM derived from WDNR 2013. Notes: FWHCA buffers for Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, are modified to 20 feet from the top of slopes exceeding 40% per Camas SMP 5.3.(2)(b). All other data created by MacKay Sposito. 1/22/2025

- White Oak
- Sample Point
- Contour (2 feet)
- Top of Bank
- OHWM
- Oak Canopy Dripline
- PSA Boundary
- Impervious Surfaces
- Stream Buffer (20 feet from TOB)
- Shoreline Jurisdiction (200 feet)
- Camas Biodiversity Area
- Parcel
- Flow Direction

N

0 25 50 75 100 Feet

Figure 2. Existing Conditions

Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. Contours , Top of Bank, and OHWM derived from WDNR 2013. All other data created by MacKay Sposito. 2/27/2025
Notes: FWHCA buffers for Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, are modified to 20 feet from the top of slopes exceeding 40% per Camas SMP 5.3.(2)(b)

- Proposed Design
- Stage 2 Proposed Design
- Removed Impervious Surfaces
- Existing Impervious Surfaces
- Top of Bank
- OHWM
- White Oak
- Oak Canopy Dripline
- PSA Boundary
- Shoreline Jurisdiction (200 feet)
- Stream Buffer (20 feet from TOB)
- Camas Biodiversity Area
- Contour (2 feet)
- Flow Direction

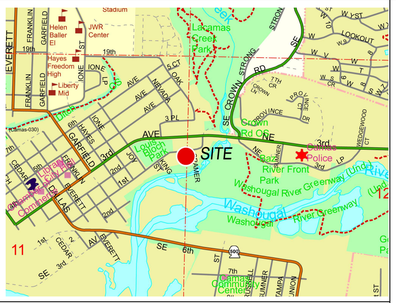
N

0 25 50 75 100 Feet

Figure 3. Proposed Conditions Camas Well 13 PFAS Treatment Design

MacKay Sposito

Appendix B – Site Plan



VICINITY MAP SEC. 11 & 12 T1N R3E W.M.
NTS

SITE PLAN NOTES

EXISTING SITE DATA

PRESENT USE:	CAMAS WELL #13
ADDRESS:	1250 E. 2ST AVENUE, CAMAS, WA 98607
EXISTING ZONING:	MULTIFAMILY RESIDENTIAL-18 (R-18)
GROSS SITE AREA:	PARCEL 90928000 IS 0.38 ACRES (16,553 SF) ACCORDING TO CLARK COUNTY GIS, 0.28 ACRES (12,269 SF) ACORDING TO SURVEY BY MACKAY SPOSITO, INC.
	PARCEL 91031000 IS 0.12 ACRES (5,227 SF) ACCORDING TO CLARK COUNTY GIS, 0.16 ACRES (6,951 SF) ACORDING TO SURVEY BY MACKAY SPOSITO, INC.
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EAST: SINGLE-FAMILY ATTACHED (TOWNHOME) RESIDENTIAL USES ON MULTIFAMILY RESIDENTIAL-18 PROPERTY.
WEST: SINGLE-FAMILY DETACHED RESIDENTIAL USES ON MULTIFAMILY RESIDENTIAL-18 ZONED PROPERTY.

PROPOSED SITE DATA:

PROPOSED USE:	PFAS TREATMENT FOR WELL #13 AND NEW WELL
WETLAND, STREAM, STEEP BANK BUFFER AREAS/PROTECTED AREAS, AND PLANNED ENHANCEMENT AREAS:	STREAM AND SHORELINE BUFFERS AS SHOWN
PROPOSED PRIVATE ROADS:	NONE PROPOSED
PROPOSED EASEMENTS:	TO BE SHOWN ON FUTURE PLANS AS REQUIRED
PROPOSED ON-SITE ROAD RIGHTS-OF-WAY:	NONE PROPOSED
PROPOSED PEDESTRIAN AND BICYCLE FACILITIES:	NONE PROPOSED
PROPOSED VEHICLE PARKING:	AS SHOWN/EXISTING TO REMAIN
PROPOSED BICYCLE PARKING:	NONE PROPOSED
PROPOSED LOADING ZONES:	NONE PROPOSED
PROPOSED SEPTIC SYSTEMS:	NONE PROPOSED
PROPOSED OPEN SPACE/PARK/RECREATIONAL FEATURES:	NONE PROPOSED
PROPOSED TRANSIT FACILITIES:	NONE PROPOSED
ROAD SEGMENTS IN EXCESS OF 15% ON-SITE OR WITHIN 500' OF THE SITE:	NONE KNOWN
PROPOSED SIGNS:	NONE PROPOSED AT THIS TIME
PROPOSED LIGHTING:	TO BE SHOWN ON LIGHTING PLAN
PROPOSED LOTS, TRACTS, ETC:	NONE PROPOSED
EXISTING BUILDINGS TO REMAIN:	EXISTING WELL BUILDING AS SHOWN
PROPOSED LANDSCAPING (LANDSCAPE PLAN):	TO BE SHOWN ON THE LANDSCAPE PLAN
PROPOSED BUILDINGS:	AS SHOWN
ABOVE-GROUND UTILITIES:	REFER TO CIVIL ENGINEERING PLANS
PROPOSED FENCES:	AS SHOWN

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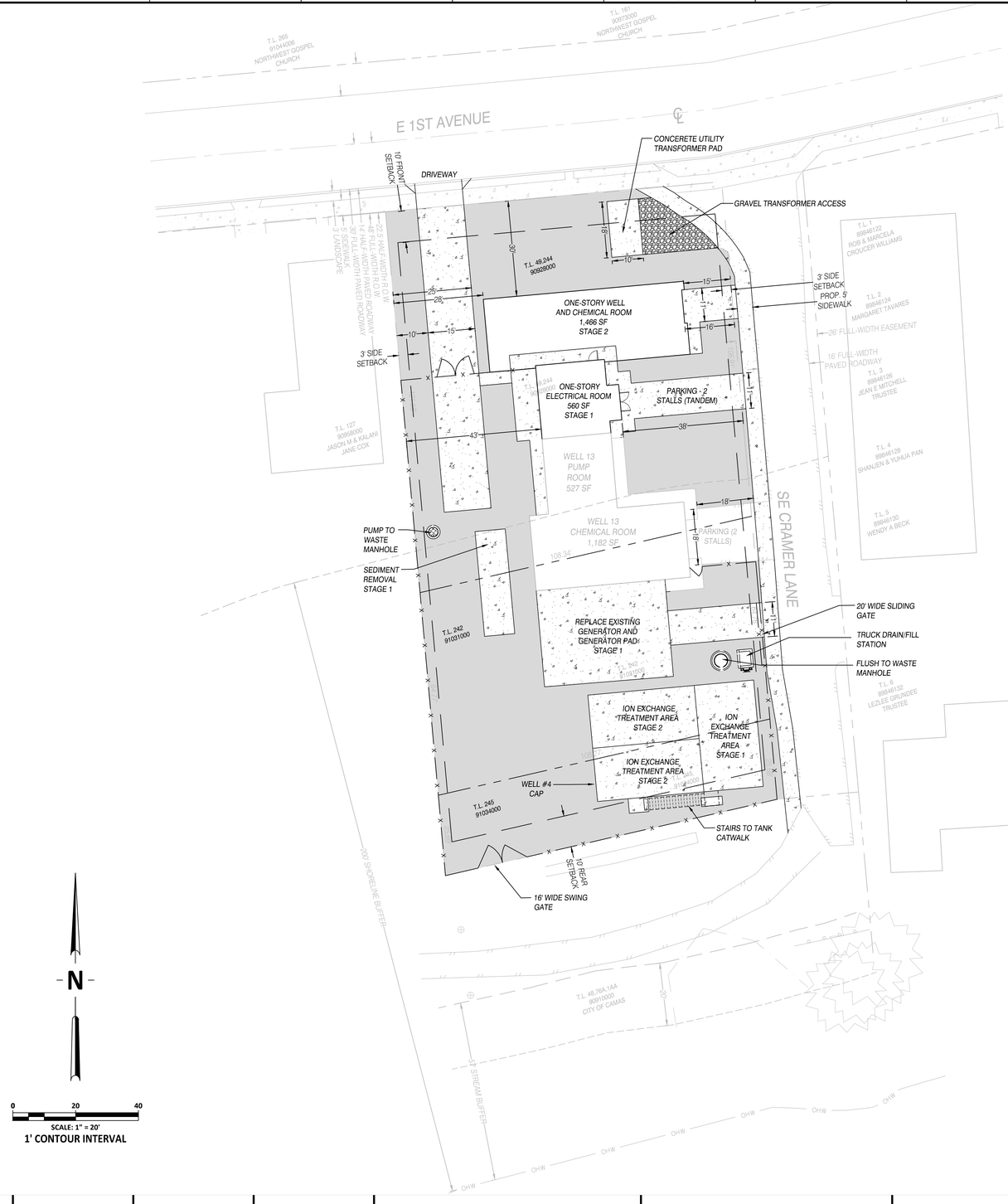
SITE PLAN CALCULATIONS

TOTAL SITE AREA	21,975 SF
BUILDING AREA (INCLUDES ALL STAGES)	3,735 SF (17.0%)
LANDSCAPE AREA	10,550 SF (48.0%)
PAVED AREA (INCLUDES ALL STAGES)	7,690 SF (35.0%)

PARKING CALCULATIONS

PARKING REQUIRED	3,735 SF PUBLIC OR PRIVATE UTILITY BUILDING 1 STALL 1,000 SF GROSS FLOOR AREA 3,735 / 1,000 = 4 STALLS
PARKING PROVIDED	4 STANDARD STALLS (2 EXISTING AND 2 PROPOSED)



N

0 20 40
SCALE: 1" = 20'
1' CONTOUR INTERVAL

LEGEND

- EX. CATCH BASIN SQUARE
- EX. STORM CULVERT
- EX. STORM CLEANOUT (CO)
- EX. SANITARY MANHOLE (S)
- EX. WATER VALVE (WV)
- EX. WATER METER (WM)
- EX. BLOWOFF
- EX. FIRE HYDRANT
- EX. HOSE BIB (HB)
- EX. GAS VALVE (GV)
- EX. UTILITY POLE
- EX. UTILITY POLE WITH DOWN WIRE (UG)
- EX. GUY ANCHOR
- EX. ELECTRIC BOX (E,I,S)
- EX. ELECTRIC METER (EM)
- EX. ELECTRIC TRANSFORMER (TRANS)
- EX. FENCE POST (NO WIRE)
- EX. SIGN
- EX. BOLLARD (B)
- EX. TREE-CONIFER
- EX. TREE-DECIDUOUS
- EX. TREE-CLUMP
- EX. CONCRETE SURFACE
- EX. GRAVEL SURFACE
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- EX. FENCE-WIRE
- EX. FENCE-WOOD
- EX. OREGON WHITE OAK DRIPLINE
- EX. ORDINARY HIGH WATER MARK (OHWM)
- EX. 150' STREAM BUFFER
- EX. 200' SHORELINE BUFFER
- EX. LANDSCAPE
- EX. ASPHALT
- EX. SIDEWALK
- EX. GRAVEL
- EX. GUARDRAIL
- EX. SANITARY SEWER (SS)
- EX. STORM SEWER (SD)
- EX. WATER (W)
- EX. ELECTRICAL (OHE)
- EX. ELECTRICAL (UGE)
- EX. GAS (G)
- EX. COMMUNICATIONS (MISC...) (CM)
- EX. COMMUNICATIONS (TV)

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			INTERMEDIATE DESIGN SUBMITTAL NOT FOR CONSTRUCTION

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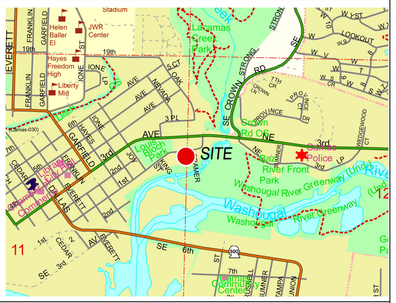

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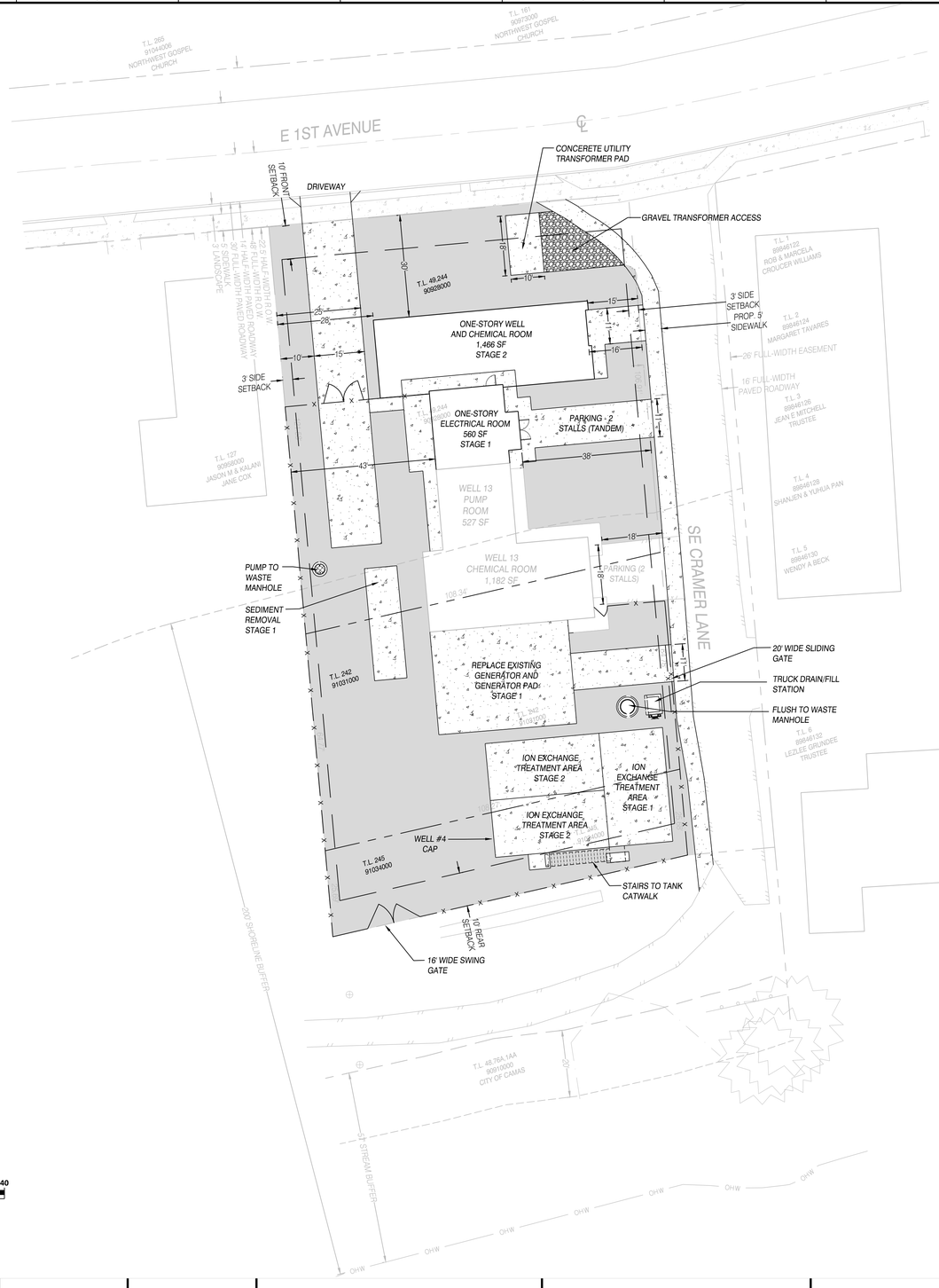

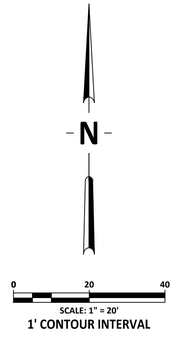

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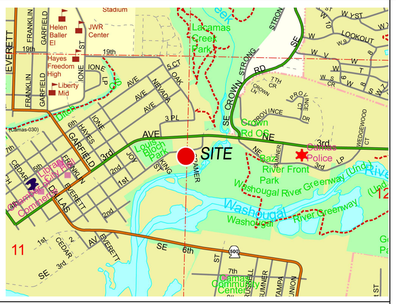

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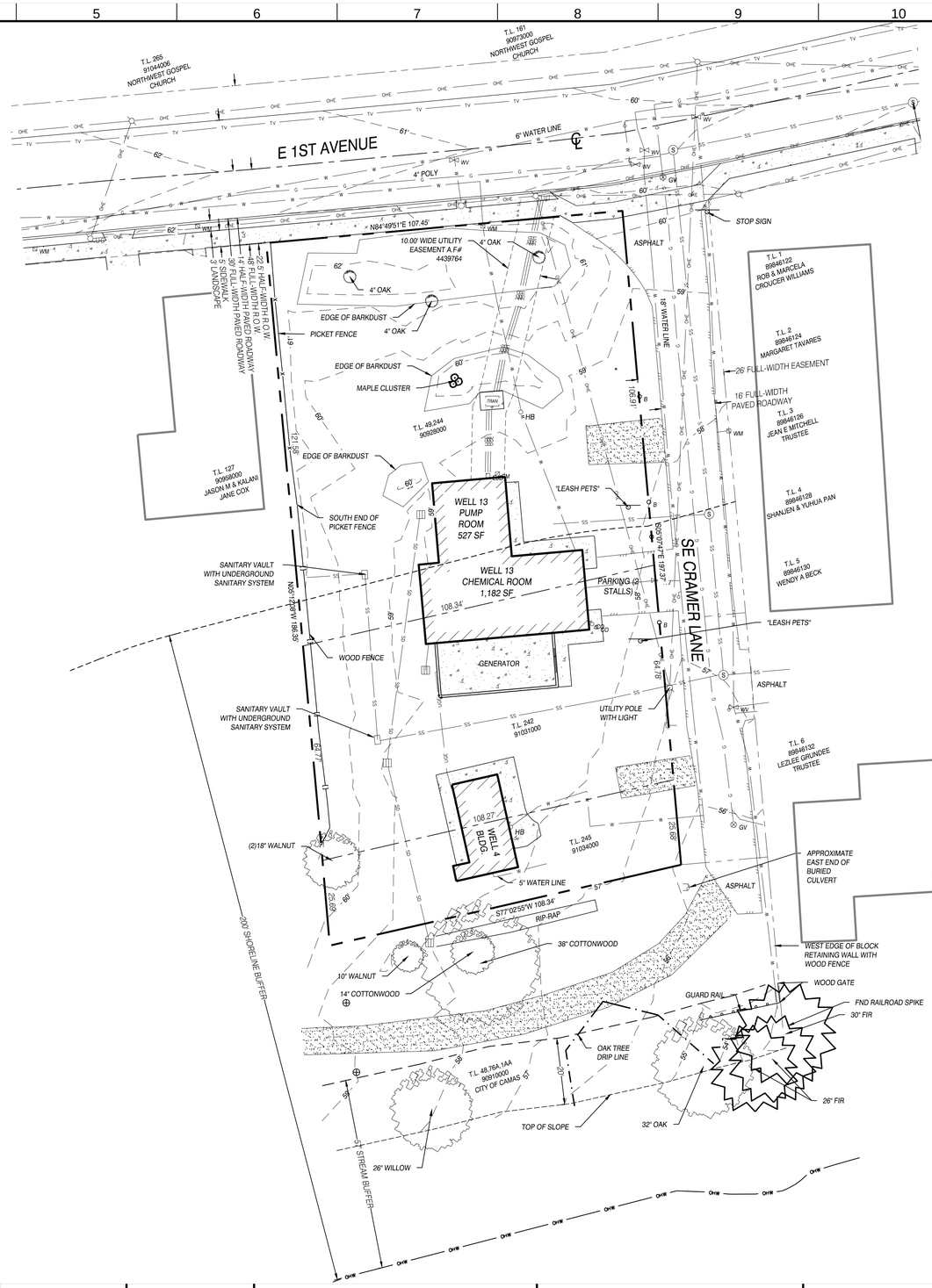
	THE ENTIRE SITE IS 0.50 ACRES (21,975 SF).

EXISTING IMPROVEMENTS NOTES

EXISTING STRUCTURES:	AS SHOWN
EXISTING DRIVEWAYS:	AS SHOWN ONTO SE CRAMER LANE
EXISTING PARKING:	AS SHOWN
EXISTING LOADING:	NONE
EXISTING PEDESTRIAN AND BICYCLE PATHS:	SIDEWALK ALONG E. 1ST AVENUE AS SHOWN
EXISTING PASSIVE OR ACTIVE RECREATIONAL FACILITIES OR OPEN SPACE:	NONE
EXISTING UTILITIES:	AS SHOWN
EXISTING EASEMENTS:	AS SHOWN
EXISTING WELLS:	WELL #13 IN EXISTING BUILDING
EXISTING SEPTIC SYSTEMS:	NONE KNOWN

ENVIRONMENTAL & SIGNIFICANT NATURAL CONDITIONS NOTES

TOPOGRAPHY:	AS SHOWN
WATERCOURSES AND DRAINAGE PATTERNS:	NO MAPPING INDICATORS
100 YEAR FLOODPLAIN:	NO MAPPING INDICATORS
DESIGNATED SHORELINES AREAS:	AS SHOWN
HIGH SEASONABLE WATER TABLE OR IMPERMEABLE SOILS:	NO MAPPING INDICATORS
WATER BODIES AND KNOWN WETLANDS:	NO MAPPING INDICATORS
WETLAND DELINEATION:	NO MAPPING INDICATORS
UNSTABLE GROUND, LANDSLIDE HAZARD AREAS & AREAS HAVING SEVERE EROSION POTENTIAL:	NO MAPPING INDICATORS
AREAS HAVING WEAK FOUNDATIONAL SOILS:	NO MAPPING INDICATORS
SLOPES EXCEEDING 15%:	NONE
SIGNIFICANT VEGETATION OR WILDLIFE HABITAT:	AS SHOWN
SIGNIFICANT HISTORIC, CULTURAL OR ARCHAEOLOGICAL RESOURCES:	NONE KNOWN
ROCK OUTCROPPINGS:	NONE KNOWN



LEGEND

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- CO STORM CLEANOUT
- (S) SANITARY MANHOLE
- WV WATER VALVE
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SHEET NO. OF 15

Preliminary

02/20/2025

Technical Information Report

Camas PFAS Evaluation & Well 13 Treatment

February 20, 2025

PREPARED FOR:
City of Camas

CLIENT:
Carollo Engineers

Jurisdiction Project Number:
TBD

MacKay Sposito
Project Number: 18581.01.01

Prepared by:
Richard Prouse

MacKay Sposito

Vancouver Office
18405 SE Mill Plain Blvd, Suite 100 • Vancouver, WA 98683
360.695.3411 • info@mackaysposito.com

PRELIMINARY STORMWATER PLAN

TECHNICAL INFORMATION REPORT

Camas PFAS Evaluation & Well 13 Treatment

PROJECT NO. 18581.01.01

February 20, 2025

Designed by: Richard Prouse, P.E.

Reviewed by: Peter Tuck, P.E.

Mackay Sposito, Inc.
18405 SE Mill Plain Blvd., Suite 100
Vancouver, WA 98683
(360) 558-3971

REVISION	BY	DATE	COMMENTS

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Environmental Constraints II
Quarter Section Parcels

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Figure 1.2: New Development Minimum Requirements Flow Chart

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General Location

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Location of Subject Property(s)

Printed on: June 13, 2024

Geographic Information System

0 1,000 2,000 Feet

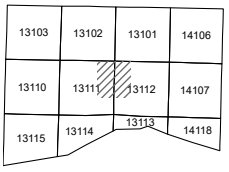
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

Elevation Contours

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Subject Property(s)
Public Road
Transportation or Major Utility Easement
10' Elevation Contours
2' Elevation Contours



CLARK COUNTY, WASHINGTON
Geographic Information System

N

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

CLARK COUNTY, WASHINGTON
Geographic Information System

0 200 400 Feet

N

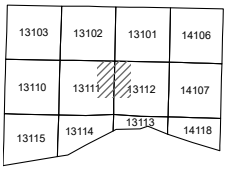
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

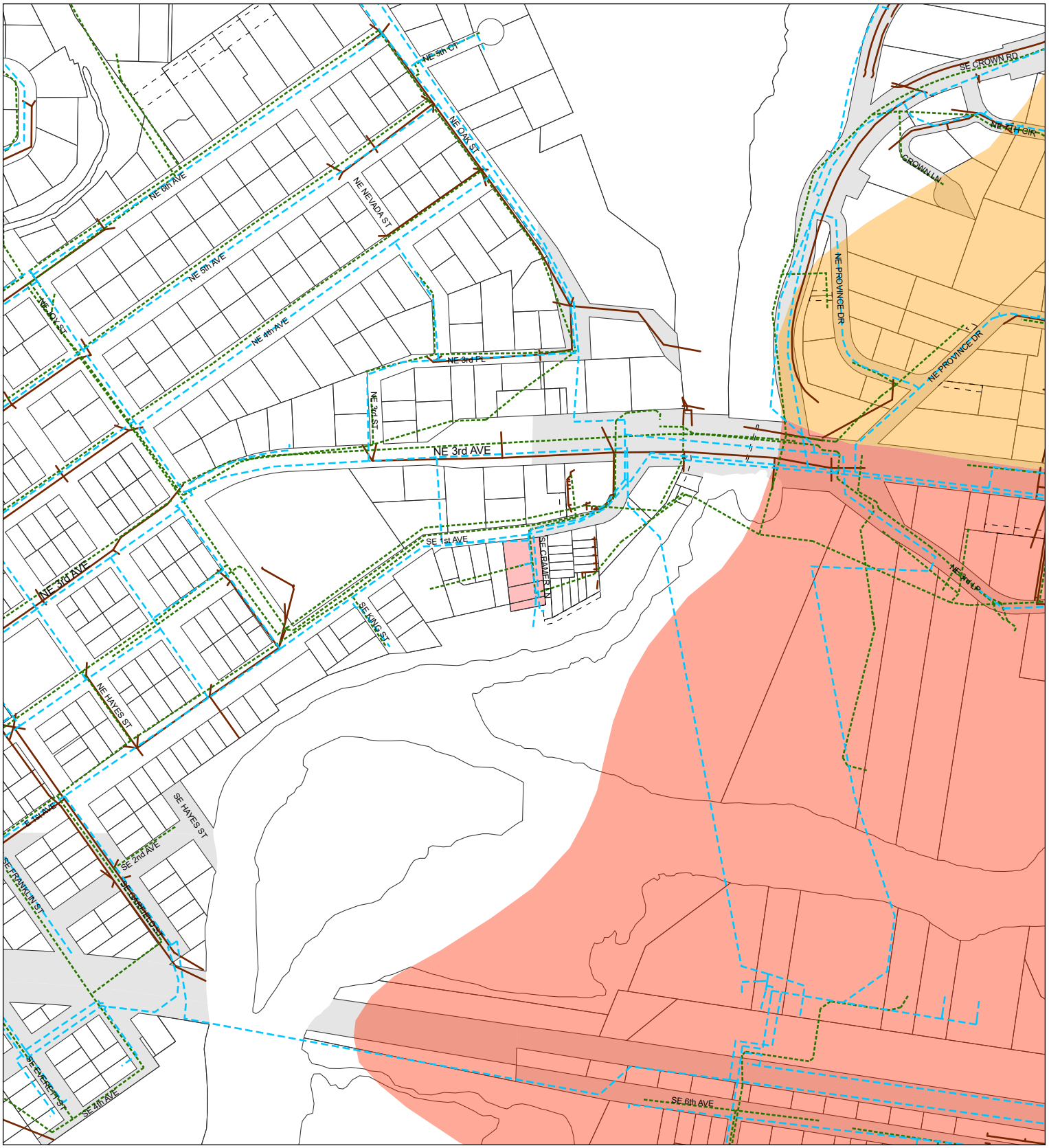
2021 Aerial Photography

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Subject Property(s)

Printed on: June 13, 2024





CLARK COUNTY, WASHINGTON

Geographic Information System

0 200 400 Feet

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Water, Sewer, and Storm Systems

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- 1-Year Wellhead ZOC
- 5-Year Wellhead ZOC
- 10-Year Wellhead ZOC
- Water Lines
- Sewer Lines
- Storm Water Lines
- Hydrants

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118

Water Systems

Printed on: June 13, 2024

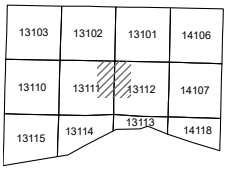
Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

CLARK COUNTY, WASHINGTON
Geographic Information System

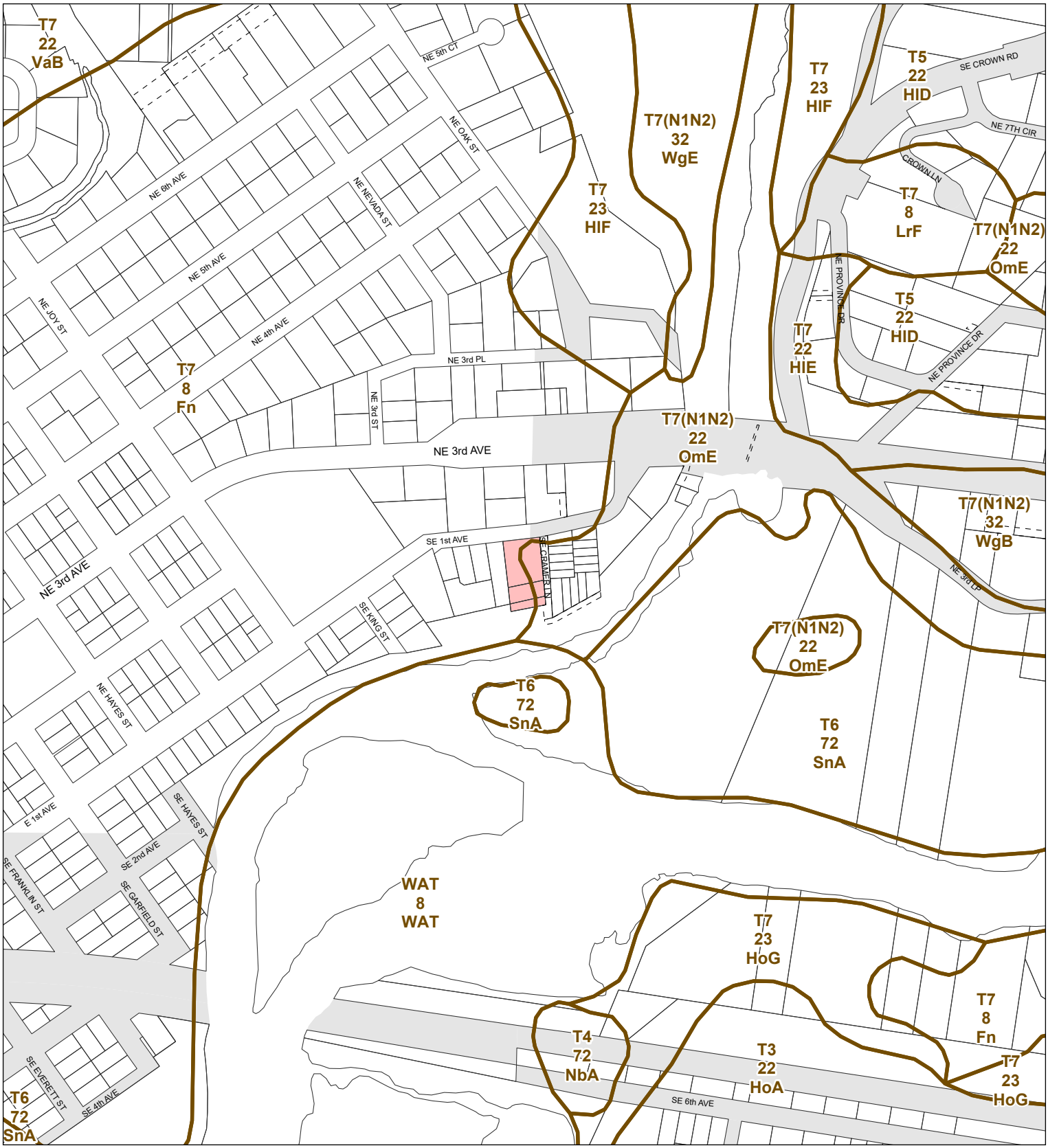
N

0 200 400 Feet

Subject Parcel
Public Road
Water District Boundary
Unknown Size Water Line
< 10" Water LIne
10-20" Water Line
> 20" Water Line
No Flow Data Hydrant
0 - 499 GPM at 20 PSI
500 - 999 GPM at 20 PSI
> 1000 - 1749 GPM at 20 PSI
> 1750 GPM at 20 PSI
Hydrant > 500' from parcel(s)



Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



CLARK COUNTY, WASHINGTON

Geographic Information System

0 200 400 Feet

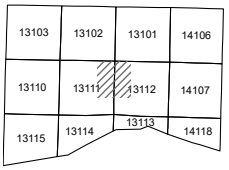
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

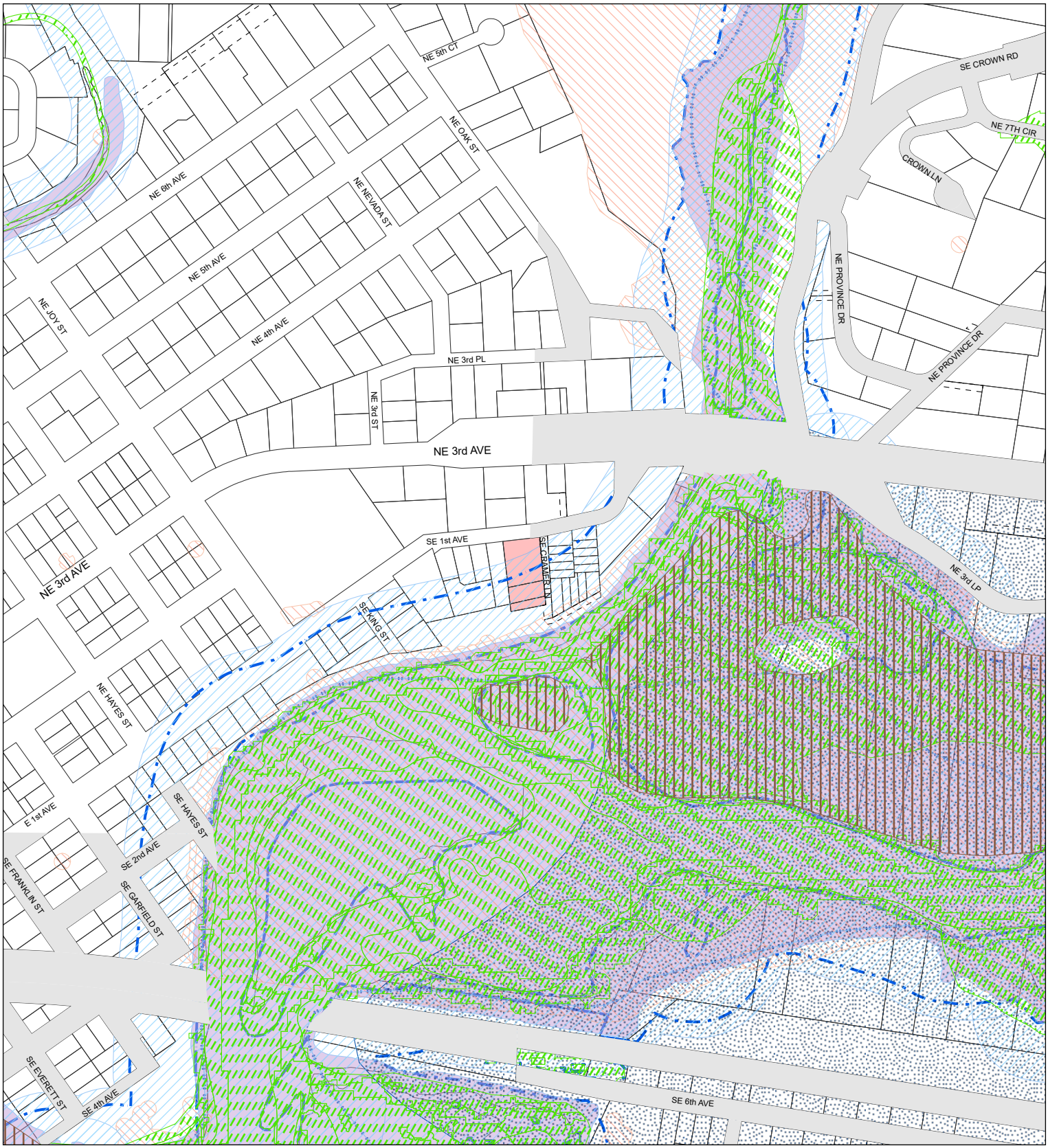
Soil Types

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Subject Property(s)
Public Road
Transportation or Major Utility Easement
Soil Type Boundary

Printed on: June 13, 2024





Environmental Constraints I

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

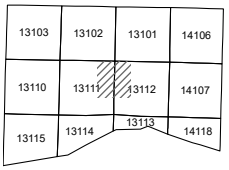
CLARK COUNTY, WASHINGTON
Geographic Information System

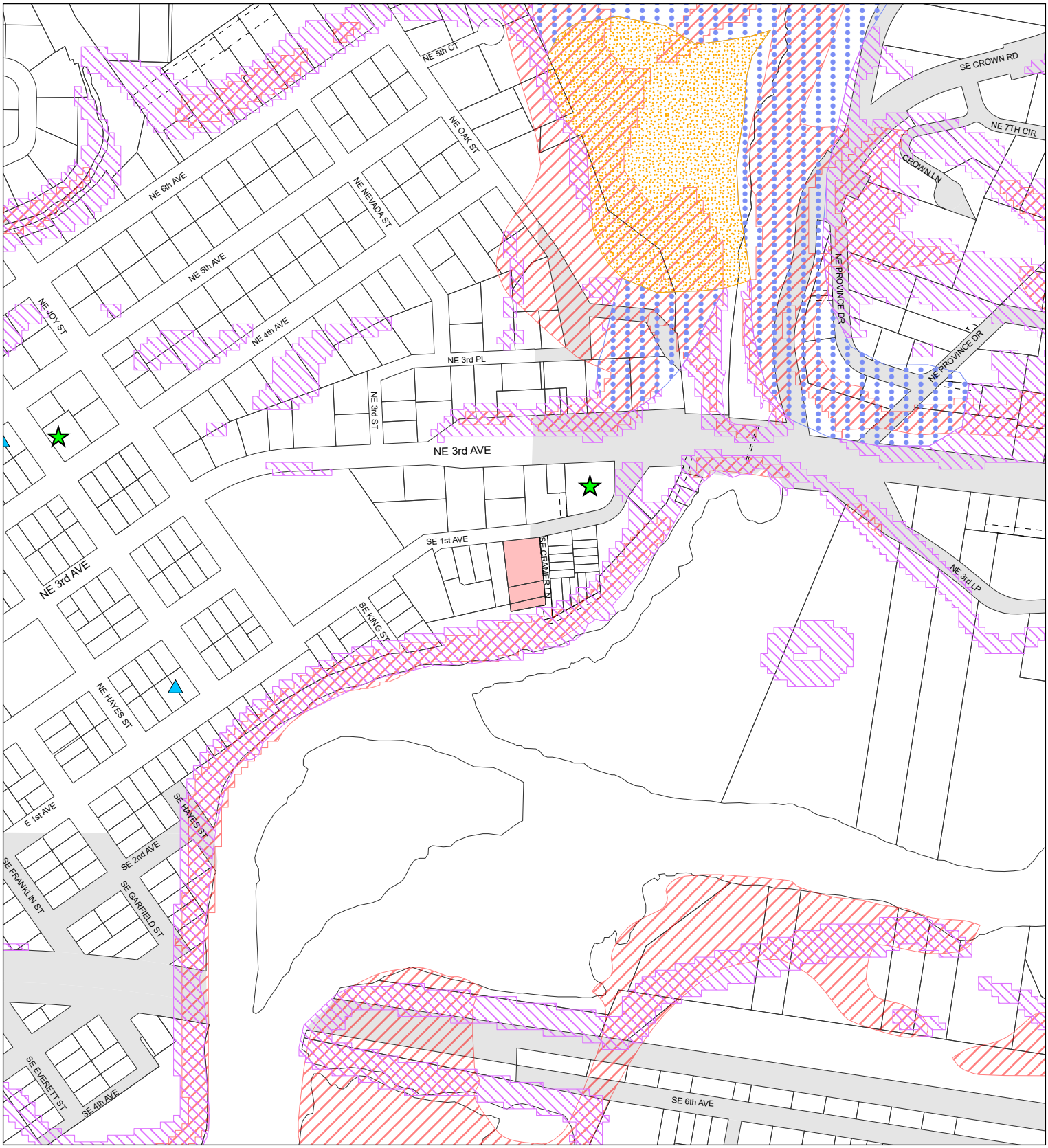
N

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- Hydric Soils
- Wetland Inventory
- CARA Category 1
- Riparian Habitat or Species Area
- Non-Riparian Habitat or Species Area
- 100 year Floodplains
- Floodway
- Shorelines
- Stream





Environmental Constraints II

Printed on: June 13, 2024

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

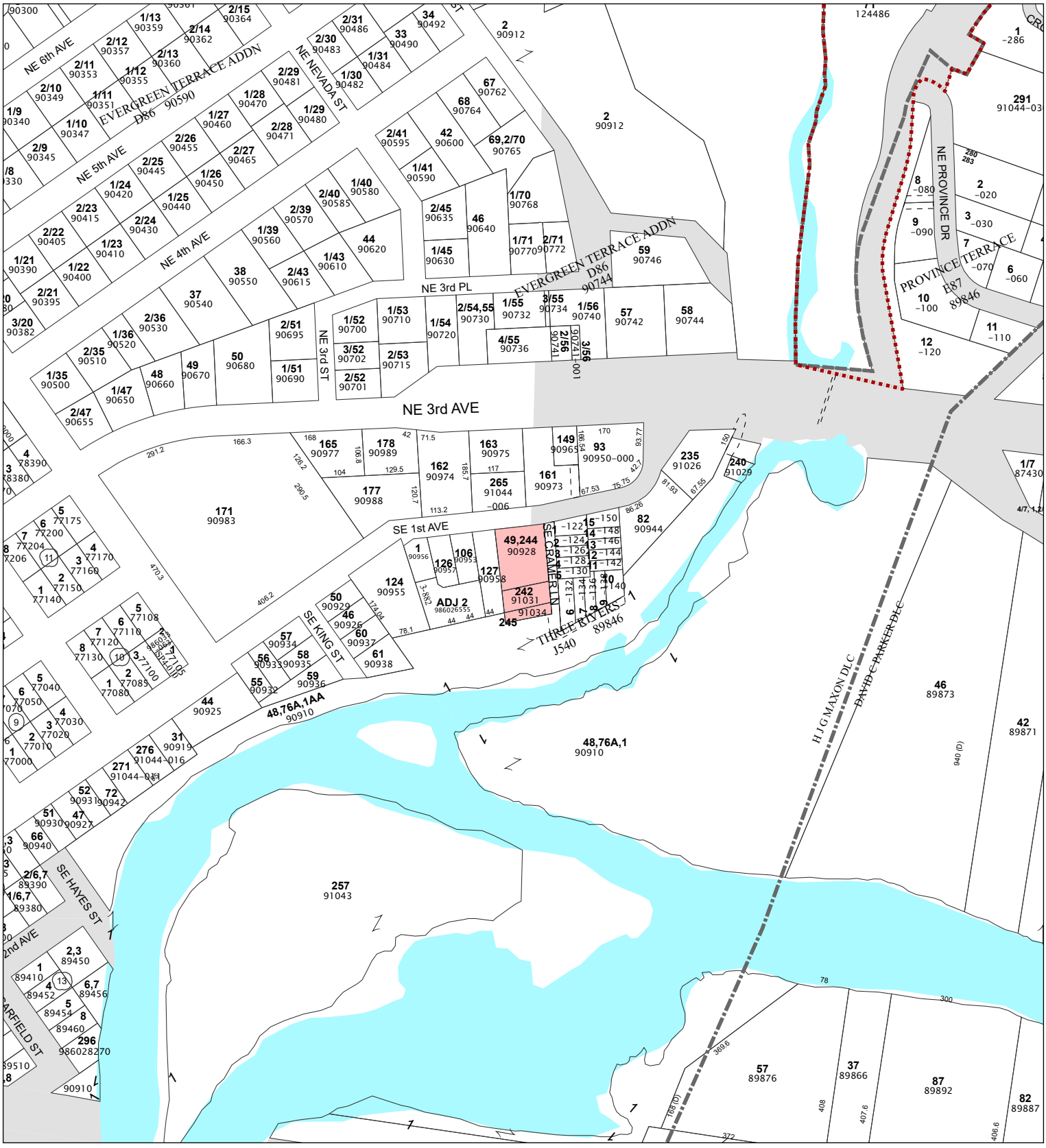
- Subject Property(s)
- Public Road
- Transportation or Major Utility Easement
- Slopes > 15%
- Potentially Unstable Slope
- Historic or Active Landslide
- Severe Erosion Hazard Area
- Forest Moratorium Area
- CCHR Historic Site
- NRHP Historic Site
- WSHR Historic Site
- WSHR Historic Barn
- INV Historic Site

13103	13102	13101	14106
13110	13111	13112	14107
13115	13114	13113	14118

CLARK COUNTY, WASHINGTON
Geographic Information System

0 200 400 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.



Quarter Section Parcels

Account: 90928000, 91031000, 91034000
Owner: CITY OF CAMAS
Address: 616 NE 4TH AVE
C/S/Z: CAMAS, WA 98607

Printed on: June 13, 2024

Subdivision Lines
Donation Land Claim
Section Quarters
City Boundaries
Subject Property(s)
Road Right of Way - Actual Road May not Exist
Transportation or Major Utility Easement

Geographic Information System

0 150 300 Feet

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

13103 | 13102 | 13101 | 14106
13110 | 13111 | 13112 | 14107
13115 | 13114 | 13113 | 14118

Section A – Project Overview

1. Describe the site location.

The City of Camas Well 13 PFAS Treatment Facility development site is approximately 0.5 acres in size and located at 1250 E. 1st Ave. Camas, Washington, which is southwest of the intersection of East 1st Avenue and East Cramer Lane. The property can be further described as tax lots #90928-000 and #91031-000 and is zoned Multi-family Residential (MF-18).

2. Describe the topography, natural drainage patterns, vegetative ground cover, and presence of critical areas (CMC Title 16). Critical areas that receive runoff from the site shall be described to a minimum of ¼ mile away from the site boundary.

The project site slopes generally from northwest to southeast and varies in elevation between 62 ft. and 56 ft. The site is comprised of the existing City of Camas Well #13 Facility with associated buildings, sidewalks, driveways, generator slab, and landscape areas. There are two existing one-story CMU buildings, which are 1,730 square feet and 400 square feet in size, and the landscaping is mainly comprised of a grass surface with shrubs and bushes adjacent to E. 1st Ave.

3. Identify and discuss existing onsite stormwater systems and their functions

Stormwater runoff from the site is captured in existing area drains and conveyed by pipe to a perforated pipe flow spreader outfall at the south end of the site. Runoff from the existing facility ultimately drains to the southern extent of Lacamas Creek and its confluence with the Washougal River, which is located south of the project site.

4. Identify and discuss site parameters that influence stormwater system design.

Delve Underground has completed a Geotechnical Engineering Report for this development (see Appendix D). One soil boring (B-1) was completed on site to a depth of 51.5 feet below ground surface and one shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration. Groundwater was not encountered during the shallow boring but is estimated to be near an elevation of 67.6 feet below ground surface based on nearby Water Well Reports maintained by the Washington State Department of Ecology. This is described in greater detail in Section C “Soils Evaluation” of this report.

5. Describe drainage to and from adjacent properties.

All runoff from within the site drains generally in the southeast direction toward E. Cramer Lane located east of the site and ultimately to the southern extent of Lacamas Creek and its confluence with the Washougal River located south of the project site. The surrounding properties are developed and there does not appear to be runoff contributed to site from offsite sources.

6. Describe adjacent areas, including streams, lakes, wetland areas, residential areas, and roads that might be affected by the construction project.

The City of Camas Well 13 PFAS Treatment Facility is bordered on the north by E. 1st Ave., on the west by a one-story single-family home, on the east by E. Cramer Lane and a two-story apartment building, and on the south by the southern extent of Lacamas Creek and its confluence with the Washougal River.

7. Generally describe proposed site construction, size of improvements, and proposed methods of mitigating stormwater runoff quantity and quality impacts.

The City of Camas is proposing construction of a new facility that will include treatment for PFAS at the existing Well 13 site. The new treatment facility and associated improvements at the site are expected to include installing PFAS treatment equipment (ion exchange tanks and bag filters), adding a new generator, a building addition for a new electrical room, a building addition for a new chemical/well room for a proposed new well, and constructing a new driveway off E. 1st Ave. to accommodate a well pump crane truck. The construction is to be completed in two stages, with Stage 1 specifically consisting of construction of a new electrical room, a new generator pad, a new transformer pad with gravel access, two ion exchange tanks on a concrete pad, a covered bag filter pad and associated bag filters, a new driveway for a crane truck, and removal of the Well 4 building. Stage 2 is to specifically consist of installation of a new well, a new chemical/well building, and installation of four ion exchange tanks on two concrete pads.

- The site is 21,969.8 square feet (0.504 acres) in size and the proposed site areas can be summarized as follows:
- Existing Building to Remain = 1,710.6 square feet = 0.039 acres
- New Building (Stage 1) = 560.4 square feet = 0.013 acres
- New Building (Stage 2) = 1,475.0 square feet = 0.034 acres

- Asphalt Pavement to Remain = 478.4 square feet = 0.011 acres

- Concrete Slab to be Replaced = 593.0 square feet = 0.014 acres
- New Concrete Driveway (Stage 1) = 2,193.7 square feet = 0.050 acres
- New Concrete Slab (Stage 1) = 1,722.6 square feet = 0.040 acres
- New Concrete Driveway (Stage 2) = 131.0 square feet = 0.003 acres
- New Concrete Slab (Stage 2) = 1,190.0 square feet = 0.027 acres

- Sidewalk to Remain = 359.1 square feet = 0.008 acres
- New Sidewalk (Stage 1) = 328.4 square feet = 0.008 acres
- New Sidewalk (Stage 2) = 82.7 square feet = 0.002 acres
- New Sidewalk (Frontage) = 922.0 square feet = 0.021 acres

- New Gravel (Stage 1) = 389.0 square feet = 0.009 acres

- Landscape = 10,855.6 square feet = 0.249 acres

There is an existing storm sewer system that is comprised of area drains and storm sewer pipes that serve to convey stormwater from the site to an existing 50 foot long perforated pipe flow spreader outfall at the south end of the site. The existing storm sewer system is to remain in place and function as originally designed. Additional area drains and roof downspout connections may be added, but no further modifications to this system are proposed since the improvements associated with the project do not meet the thresholds required for treatment or flow control. This will be detailed in later sections of the report.

Section B – Minimum Requirements

1. **Describe the land-disturbing activity and document the applicable minimum requirements for the project site. Include the following information in table form: a) amount of existing impervious surface, b) new impervious surface, c) replaced impervious surface, d) native vegetation converted to lawn or landscaping, e) native vegetation converted to pasture, and f) total amount of land-disturbing activity in table format.**

   The entire site lies within the same Threshold Discharge Area (TDA1) and ultimately discharges to the southern extent of Lacamas Creek and its confluence with the Washougal River located south of the project site. New onsite land-disturbing activity will ultimately be approximately 0.46 acres.

   The 0.50 acre site is comprised of the existing City of Camas Well #13 Facility with associated existing buildings, sidewalks, driveways, generator slab, and landscape areas. There are two existing one-story CMU buildings, which are 1,730 square feet (0.040 acres) and 400 square feet (0.009 acres) in size, 478.5 square feet (0.011 acres) of existing pavement, 593.0 square feet (0.014 acres) of existing concrete slab, 359.1 square feet (0.008 acres) of existing sidewalk, and 18,828.6 square feet (0.432 acres) of landscape, which is mainly comprised of grass surface with shrubs and bushes adjacent to E. 1st Ave.

   The new treatment facility and associated improvements at the site are expected to include installing PFAS treatment equipment (ion exchange tanks and bag filters), adding a new generator, a building addition for a new electrical room, a building addition for a new chemical/well room for a proposed new well, and constructing a new driveway off E. 1st Ave. to accommodate a well pump crane truck. The construction is to be completed in two stages, with Stage 1 specifically consisting of construction of a new electrical room, a new generator pad, a new transformer pad with gravel access, two ion exchange tanks on a concrete pad, a covered bag filter pad and associated bag filters, a new driveway for a crane truck, and removal of the Well 4 building. Stage 2 is to specifically consist of installation of a new well, a new chemical/well building, and installation of four ion exchange tanks on two concrete pads. The proposed improvements include 1,710.6 square feet (0.039 acres) of existing building to remain in place, 560.4 square feet (0.013 acres) of new Stage 1 building, 1,475.0 square feet (0.034 acres) of new Stage 2 building, 478.5 square feet (0.011 acres of asphalt pavement to remain in place, 593.0 square feet (0.014 acres) concrete slab to be replaced, 2,193.7 square feet (0.050 acres) of new Stage 1 concrete driveway, 1,722.6 square feet (0.040 acres) of new Stage 1 concrete slab, 131 square feet (0.003 acres) of new Stage 2 concrete driveway, 1,190.0 square feet (0.027 acres) of new Stage 2 concrete slab, 359.1 square feet (0.008 acres) existing sidewalk to remain, 328.4 square feet (0.008 acres) new Stage 1 sidewalk, 82.7 square feet (0.002 acres) of new Stage 2 sidewalk, 922.0 square feet (0.021 acres) new offsite sidewalk along E. Cramer Lane, 389.0 square feet (0.009 acres) new Stage 1 gravel access, and 10,855.6 square feet (0.249 acres) of new landscape.

   Stages 1 and 2 of the development include an estimated 2,548.2 square feet (0.058 acres) of existing roof, pavement, and sidewalk that is to remain and be classified as “Existing Impervious Surface to Remain”. There is 593.0 square feet (0.014 acres) of existing concrete slab to be replaced that is classified “Replaced Impervious Surface”. There is 8,994.8 square feet (0.206 acres) of new roof, asphalt pavement, concrete driveway, concrete slab, gravel, and sidewalks that are all classified as “New Impervious Surface”. The proposed development

also includes 10,855.6 square feet (0.249 acres) of new landscaping that is replacing existing landscaping.

Per Figure 1.1 “Flow Chart for Determining Stormwater Requirements” from the City of Camas Stormwater Design Standards Manual, the development needs to apply the Minimum Requirements as outlined in Figure 1.2. This was determined because the project site will discharge stormwater directly into a Municipal Separate Storm Sewer System owned and operated by the City of Camas and there will be less than 1 acre of disturbance. Per Figure 1.2, since the site has less than 35% of existing impervious surface and the development will add more than 5,000 SF of new impervious surface, Minimum Requirements #1 through #9 will apply to the new impervious surfaces and the converted pervious surfaces.

- Refer to Fig. 1.1 and 1.2, included in Appendix B.

The following table summarizes the proposed site changes:

	TDA 1
Existing Impervious Surface (Acres)	0.072
New Impervious Surface (Acres)	0.206
Replaced Impervious Surface (Acres)	0.014
Existing Impervious Surface to Remain (Acres)	0.058
Existing landscaping converted to new landscaping (Acres)	0.249
Native vegetation converted to lawn or landscaping (Acres)	0.000
Native vegetation converted to pasture (Acres)	0.000
Total land-disturbing activity (Acres)	0.460

Table B1: Site Improvement Summary

2. **Provide a statement that confirms the minimum requirements that will apply to the development activity. For land-disturbing activities where minimum requirements 1 through 10 must be met include the following: a) Provide the amount of effective impervious area in each TDA, and document through an approved continuous runoff simulation model the increase in the 100-year flood frequency from pre-developed to developed conditions for each TDA, b) list the TDAs that must meet the runoff control requirements listed in Minimum Requirement 6, c) list the TDAs that must meet the flow control requirements listed in Minimum Requirement 7, and d) list the TDAs that must meet the wetlands protection requirements listed in Minimum Requirement 8.**

   There is one TDA for both stages of this development and, as shown above, there is a total of 8,994.8 square feet (0.206 acres) of New Impervious Surface and 593.0 square feet

(0.014 acres) of Replaced Impervious Surface. As a result, the total New and Replaced Impervious Surface is 9,587.8 square feet (0.220 acres).

The 2,324.7 square feet (0.053 acres) of new concrete driveway is classified as Effective Pollution Generating Impervious Surface (PGIS).

Per Section I-3.4.6 “MR6: Runoff Treatment” of the Stormwater Management Manual for Western Washington, if a TDA meets any of the following thresholds, Runoff Treatment BMPs are required.

- TDAs that have a total of 5,000 square feet or more of Pollution Generating Impervious Surface (PGIS), or
- TDAs that have a total of 3/4 of an acre or more of Pollution Generating Pervious Surfaces (PGPS) – not including permeable pavements, and from which there will be a surface discharge in a natural or man-made conveyance system from the site.

The Effective Pollution Generating Impervious Surface (PGIS) in TDA 1 is 2,324.7 square feet, which is less than 5,000 square feet. The Pollution Generating Pervious Surface (PGPS) is 10,855.6 square feet (0.249 acres), which is less than 3/4 of an acre. From the information above, it is demonstrated that none of these treatment thresholds have been met and, therefore, Runoff Treatment BMPs are not required.

Per Section I-3.4.7 “MR7: Flow Control” of the Stormwater Management Manual for Western Washington, if a TDA meets any of the following thresholds, Flow Control BMPs are required.

- TDAs that have a total of 10,000 square feet or more of effective impervious surfaces, or
- TDAs that convert 3/4 acres or more of native vegetation, pasture, scrub/shrub, or unmaintained non-native vegetation to lawn or landscape, or convert 2.5 acres or more of native vegetation to pasture, and from which there is a surface discharge in a natural or man-made conveyance system from the TDA, or
- TDAs that through a combination of effective hard surfaces and converted vegetation areas cause a 0.15 cubic feet per second (cfs) or greater increase in the 100-year flow frequency as estimated using an approved continuous simulation model and 15-minute time steps.

The effective impervious surface in TDA 1 is 9,587.8 square feet, which is less than 10,000 square feet. TDA 1 converts 10,855.6 square feet (0.249 acres) existing landscape area to new landscape area, which is less than all of the landscape thresholds shown above. TDA 1 causes less than 0.15 cfs increase in the 100-year flow frequency as estimated using WWHM2012. The pre-developed and developed flows were calculated in WWHM2012 as follows:

Pre-developed 100 year flow (cfs) = 0.593691 cfs

Developed 100 year flow (cfs) = 0.615259 cfs

Developed flow – Pre-developed flow = 0.615259 cfs – 0.593691 cfs = 0.021568 cfs

0.021568 cfs < 0.15 cfs, therefore does not meet 100-year flow threshold.

From the information above, it is demonstrated that none of these flow control thresholds have been met and, therefore, Flow Control BMPs are not required.

- Refer to the WWHM2012 report for 100 year pre-developed and developed flows for TDA 1, included in Appendix C.

The following table summarizes the additional characteristics that determine compliance with Minimum Requirements 6, 7, and 8:

	TDA 1
Effective Pollution Generating Impervious Surface (PGIS) (Acres)	0.053
Effective Pollution Generating Pervious Surface (PGPS) (Acres)	0.249
Does the Large Water Body Exemption apply to this project?	No
Does the 100-year runoff increase by more than 0.15 cfs?	No
Does the project discharge directly or indirectly (through a conveyance system) into a wetland?	No

Table B2: Additional Compliance Characteristics

As a result of these surface cover characteristics, the following Minimum Requirements are triggered for this project per the City of Camas Stormwater Design Standards Manual:

	TDA1
Minimum Requirement 2 (Construction Stormwater Pollution Prevention)	Yes
Minimum Requirements 1, 3, 4, and 5 (Stormwater Site Plans, Source Control, Preservation of Natural Drainage Systems & Outfalls, Onsite Stormwater Management)	Yes
Minimum Requirement 6 (Runoff Treatment)	No
Minimum Requirement 7 (Flow Control)	No
Minimum Requirement 8 (Wetlands Protection)	No

Table B3: Applicable Minimum Requirements

Section C – Soils Evaluation

1. **Describe the site's suitability for stormwater infiltration for flow control, runoff treatment, and low impact development (LID) measures.**

   Delve Underground has completed a Geotechnical Engineering Report for this development (see Appendix D). One soil boring (B-1) was completed on site to a depth of 51.5 feet below ground surface and one shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration. As a result, LID measures are not proposed for this development.

2. **Identify water table elevations, flow directions (where available), and data on seasonal water table fluctuations with minimum and maximum water table elevations where these may affect stormwater facilities.**

   Per the geotechnical report by Delve Underground, groundwater was not encountered during the shallow boring but is estimated to be near an elevation of 67.6 feet below ground surface based on nearby Water Well Reports. Water Well Reports maintained by the Washington State Department of Ecology cite a groundwater surface located 67.6 feet bgs at Louis Block Park in February 2006. Louis Block Park is located about 650 feet west of the Well 13 property and has a ground surface elevation approximately 10 feet higher than the subject property. Several Resource Protection Well Reports at a site located at NE 3rd Ave. and NE 3rd Place, about 500 feet northwest of the Well 13 property, did not indicate groundwater was encountered during hollow stem auger soil borings drilled between 15 and 20 feet below the ground surface in December 2013.

3. **Identify and describe soil parameters and design methods for use in hydrologic and hydraulic design of proposed facilities.**

   The Soil Survey of Clark County by the Soil Conservation Service shows the soil onsite is primarily Fill Land (Fn) with a relatively small area of Olympic Stony Clay Loam (OmE) along the east side of the site. (see Vicinity Maps section and Appendix A of this report). The soil properties are as follows:

   Fill Land (Fn)

   Classification: Hydrologic Group (In-situ) / SG4

   Permeability: (In-situ)

Curve Numbers:	Meadow/Pasture	CN=89
	Grass/Landscape:	CN=90
	Pavement/Sidewalk:	CN=98
	Roof:	CN=98

Olympic Stony Clay Loam (OmE)

Classification: Hydrologic Group B / SG3

Permeability: 0-44 in. depth, 0.2 to 0.63 in/hr
44-59 in. depth, 0.2 to 063 in/hr

Curve Numbers:		
	Meadow/Pasture	CN=78
	Grass/Landscape:	CN=80
	Pavement/Sidewalk:	CN=98
	Roof:	CN=98

A detailed list of the runoff curve numbers used in conveyance design is included in Appendix A. Conveyance design for the development is to be completed at time of final design. Runoff for conveyance design is to be estimated using the Santa Barbara Urban Hydrograph (SBUH) methodology. The following design storms are to be used in the hydrologic analysis:

2-year, 24-hour storm	2.8 inches of rainfall
10-year, 24-hour storm	3.9 inches of rainfall
100-year, 24-hour storm	5.2 inches of rainfall

- Isopluvial maps for the 2-year, 10-year, and 100-year storms are included in Appendix A.

4. Report findings of testing and analysis used to determine the infiltration rate.

One shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration. As a result, LID measures are not proposed for this development.

5. Where unstable or complex soil conditions exist that may significantly affect the design of stormwater facilities, the responsible official may require a preliminary soils report that addresses stormwater design considerations arising from soil conditions. The preliminary soils report shall be prepared by a registered professional engineer proficient in geotechnical investigation and engineering or a registered soil scientist. The preliminary soils report shall include a soils map developed using the criteria set in the *NRCS National Soil Survey Handbook* (NRCS 2007) and the *SCS Soil Survey Manual* (SCS 1993), at a minimum scale of 1:5,000 (12.7 inch/mile).

Delve Underground has completed a Geotechnical Engineering Report for this development (see Appendix D). Additional information will be provided, if required.

Section D – Source Control

1. **If the development activity includes any of the activities listed in Section 2.2 of Volume IV of the *Stormwater Management Manual for Western Washington* (SMMWW), identify the source control BMPs to be used with the land-disturbing activity.**

The following Source Control BMPs apply to this project:

- BMPs for Landscaping and Lawn/Vegetation Management
    - Install engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
    - Do not dispose of collected vegetation into waterways or storm drainage systems.

- BMPs for Maintenance of Stormwater Drainage and Treatment Systems
    - Inspect and clean conveyance system and catch basins as needed, and determine whether improvements in O & M are needed.
    - Promptly repair any deterioration threatening the structural integrity of the facilities. These include replacement of clean-out gates, catch basin lids, and rock in dispersion trench.
    - Ensure that storm sewer capacities are not exceeded and that heavy sediment discharges to the sewer system are prevented.
    - Regularly remove debris and sludge from BMPs used for peak-rate control, treatment, etc. and discharge to sanitary sewer if approved by the sewer authority, or truck to a local or state government approved disposal site.
    - Clean catch basins when the depth of deposits reaches 60 percent of the sump depth as measured from the bottom of basin to invert of lowest pipe into or out of the basin. However, in no case should there be less than six inches clearance from the debris surface to the invert of the lowest pipe.
    - Clean woody debris in catch basins as frequently as needed to ensure proper operation of the catch basin.
    - Post warning signs; “Dump No Waste – Drains to Ground Water,” “Streams,” “Lakes,” or emboss on or adjacent to all storm drain inlets where practical.
    - Disposal of sediments and liquids must comply with “Recommendations for Management of Street Wastes” described in Appendix IV-G of Volume IV of the Stormwater Manual.

- BMPs for Urban Streets
    - For maximum Stormwater pollutant reductions on curbed streets and high volume parking lots use efficient vacuum sweepers.
    - For moderate stormwater pollutant reductions on curbed streets use regenerative air sweepers or tandem sweeping operations.
    - For minimal stormwater pollutant reductions on curbed streets use mechanical sweepers.
    - Conduct sweeping at optimal frequencies. Optimal frequencies are those scheduled sweeping intervals that produce the most cost-effective annual reduction of pollutants normally found in stormwater and can vary depending on land use, traffic volume and rainfall patterns.

- Disposal of street sweeping solids must comply with “Recommendations for Management of Street Wastes” described in Appendix IV-G of Volume IV of the Stormwater Manual.
- Inform citizens about eliminating yard debris, oil and other wastes in street gutters to reduce street pollutant sources.

Additional recommended BMPs can be found in Section 2.2 of Volume IV of the Stormwater Manual.

Section E – Onsite Stormwater Management BMPs

1. **On the preliminary development plan or other maps, show the site areas where on-site stormwater management BMPs will be effectively implemented. The plan must show the areas of retained native vegetation and required flow lengths and vegetated flow paths, as required for proper implementation of each onsite stormwater BMP. Arrows must show the stormwater flow path to each BMP.**

   There is an existing storm sewer system that is comprised of area drains and storm sewer pipes that serve to convey stormwater from the site to an existing 50 foot long perforated pipe flow spreader outfall at the south end of the site. The existing storm sewer system is to remain in place and function as originally designed. Additional area drains and roof downspout connections may be added, but no further modifications to this system are proposed since the improvements associated with the project do not meet the thresholds required for treatment or flow control (Refer to Section B of this report). As a result, no treatment or flow control BMPs are proposed as part of this development.

   - Refer to the Developed Catchment Plan in Appendix E.

2. **Identify and describe geotechnical studies or other information used to complete the analysis and design of each on-site stormwater BMP.**

   Delve Underground has completed a Geotechnical Engineering Report for this development (see Appendix D). One soil boring (B-1) was completed on site to a depth of 51.5 feet below ground surface and one shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration. Groundwater was not encountered during the shallow boring but is estimated to be near an elevation of 67.6 feet below ground surface based on nearby Water Well Reports maintained by the Washington State Department of Ecology. This is described in greater detail in Section C “Soils Evaluation” of this report.

3. **Identify the criteria (and their source) used to complete analyses for each on-site stormwater BMP.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment or flow control. As a result, no treatment or flow control BMPs are proposed as part of this development.

4. **Describe how design criteria will be met for each proposed on-site stormwater management BMP.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment or flow control. As a result, no treatment or flow control BMPs are proposed as part of this development.

5. Describe any on-site application of LID measures planned for the project. Provide a plan that shows the proposed location and approximate size of each LID facility.

Due to the low infiltration rate and poor soil conditions, infiltration LID measures are not applicable to this project.

6. Identify and describe any assumptions used to complete the analysis.

As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment or flow control. As a result, no treatment or flow control BMPs are proposed as part of this development.

7. Describe site suitability, including hydrologic soil groups, slopes, areas of native vegetation, and adequate location of each BMP.

As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment or flow control. As a result, no treatment or flow control BMPs are proposed as part of this development.

Section F – Runoff Treatment Analysis and Design

1. **Document the level of treatment required (basic, enhanced, phosphorus, oil/water separation) based on procedures in Vol. V, Chapter 2 of the SMMWW.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment. As a result, no treatment BMPs are proposed as part of this development.

2. **Provide background and description to support the selection of the treatment BMP being proposed. Include an analysis of initial implementation costs and long-term maitenance costs.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment. As a result, no treatment BMPs are proposed as part of this development.

3. **Identify geotechnical or soils studies or other information used to complete the analysis and design.**

   Delve Underground has completed a Geotechnical Engineering Report for this development (see Appendix D). One soil boring (B-1) was completed on site to a depth of 51.5 feet below ground surface and one shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration. Groundwater was not encountered during the shallow boring but is estimated to be near an elevation of 67.6 feet below ground surface based on nearby Water Well Reports maintained by the Washington State Department of Ecology. This is described in greater detail in Section C “Soils Evaluation” of this report.

4. **Identify the BMPs used in the design, and their sources.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment. As a result, no treatment BMPs are proposed as part of this development.

5. **Summarize the results of the runoff treatment design, and describe how the proposed design meets the requirements of CMC Chapter 14.02 and the Stormwater Manual.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for treatment. As a result, no treatment BMPs are proposed as part of this development.

6. Provide a table that lists the amount of Pollution-Generating Pervious Surfaces (PGPS) and Pollution-Generating Impervious Surfaces (PGIS) for each Threshold Discharge Area (TDA).

The following table lists the areas of Pollution-Generating Pervious Surfaces (PGPS) and Pollution-Generating Impervious Surfaces (PGIS) for each Threshold Discharge Area (TDA):

	TDA 1
Effective Pollution Generating Impervious Surface (PGIS) (Acres)	0.053
Effective Pollution Generating Pervious Surface (PGPS) (Acres)	0.249

Table F1: Effective Pollution Generating Surface Summary

Section G – Flow Control Analysis and Design

1. **Identify the site's suitability for stormwater infiltration for flow control, including tested infiltration rates, logs of soil borings, and other information.**

   One shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration.

2. **Identify and describe geotechnical or other studies used to complete the analysis and design.**

   Delve Underground has completed a Geotechnical Engineering Report for this development (see Appendix D). One soil boring (B-1) was completed on site to a depth of 51.5 feet below ground surface and one shallow boring to 6.5 feet depth was completed for purposes of infiltration testing. The tested infiltration rate in the shallow boring was determined to be very low, at 1.0 inches per hour. The onsite soil has been identified as Fill Land (Fn) and Olympic Stony Clay Loam (OmE). These soils are generally moist with low to non-existent infiltration capacity and are therefore not suitable for infiltration. Groundwater was not encountered during the shallow boring but is estimated to be near an elevation of 67.6 feet below ground surface based on nearby Water Well Reports maintained by the Washington State Department of Ecology. This is described in greater detail in Section C "Soils Evaluation" of this report.

3. **If infiltration cannot be utilized for flow control, provide the following additional information:**

   a. **Identify areas where flow control credits can be obtained for dispersion, LID, or other measures, per the requirements in the Stormwater Manual.**

      Due to the low infiltration rate and poor soil conditions, infiltration LID measures are not applicable to this project.

   b. **Provide the approximate sizing and location of flow control facilities for each TDA, per Volume III of the Stormwater Manual.**

      As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for flow control. As a result, no flow control BMPs are proposed as part of this development.

   c. **Identify the criteria (and their sources) used to complete the analysis, including pre-developed and post-developed land use characteristics.**

      As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for flow control. As a result, no flow control BMPs are proposed as part of this development. In order to demonstrate that the developed stormwater flows do not meet the 0.15 cfs threshold for the 100-year storm, the stormwater flows have been modeled based on the continuous storm in

accordance with the requirements of the City of Camas Stormwater Design Standards Manual Section 4.02 and Volume III of the SMMWW. WWHM has been used for the continuous simulation model for this development.

A summary of the pre-developed and developed TDA 1 land use areas are shown in the tables below:

Pre-developed TDA 1:

Land Use	Description	Area (ac)
Pervious	SG4, Lawn, Flat	0.407
Impervious	Roof Tops / Flat	0.049
	Driveways / Flat	0.032
	Sidewalks / Flat	0.016

Table G1: Land Use Areas for Pre-developed TDA 1

Developed TDA 1:

Land Use	Description	Area (ac)
Pervious	SG4, Lawn, Flat	0.255
Impervious	Roof Tops / Flat	0.086
	Driveways / Flat	0.145
	Sidewalks / Flat	0.018

Table G2: Land Use Areas for Developed TDA 1

4. **For sites considered to be historical prairie, submit a project site report prepared by a wetland scientist or horticulturist experienced in identifying soils, plans, and other evidence associated with historic prairies to demonstrate the existence of historic prairie on the project site. Areas within Camas that were historically prairie include Fern and Lacamas prairies. Contact City staff for a map showing potential prairie locations.**

   This section does not apply.

5. **Complete a hydrologic analysis for existing and developed site conditions, in accordance with the requirements of Chapter 4 of this manual and Chapter 2, Volume III of the Stormwater Manual, using an approved continuous runoff simulation model. Compute existing and developed flow duration for all subbasins. Provide an output table from the continuous flow model.**

   As demonstrated in Section B of this report, the improvements associated with the project do not meet the thresholds required for flow control. As a result, no flow control BMPs are proposed as part of this development. Refer to Appendix C for a detailed WWHM hydraulic analysis of the pre-developed and developed site during the 2-, 10-, 50-, and 100-yr. continuous storm events.

6. **Include and reference all hydrologic computations, equations, graphs, and any other aids necessary to clearly show the methodology and results.**

   Refer to Appendix C for a detailed WWHM hydraulic analysis of the pre-developed and developed site during the 2-, 10-, 50-, and 100-yr. continuous storm events.

7. Include all maps, exhibits, graphics, and references used to determine existing and developed site hydrology.

Refer to the Catchment Plans in Appendix E for catchment area locations and the specific locations of the stormwater facilities.

Refer to the Maps section of this report.

Section H – Wetlands Protection

This section does not apply.

Technical Appendix

Appendix A

Hydrologic Soil Groups in Clark County
Table A-3: Runoff Curve Numbers
Table 7: Estimated Physical and Chemical Properties of Soils
Isopluvial Maps from City of Camas Stormwater Design Manual

Appendix B

Figure 1.1: Flow Chart for Determining Stormwater Requirements
Figure 1.2: New Development Minimum Requirements Flow Chart

Appendix C

WWHM2012 Modeling

Appendix D

Geotechnical Engineering Report by Delve Underground dated June 2025.

Appendix E

Pre-developed Catchment Plan, Sheet 1 of 2
Developed Catchment Plan, Sheet 2 of 2

Hydrologic Soil Groups for Soils in Clark County

U.S. Department of Agriculture

Soil Conservation Service

WATER FEATURES

Survey Area: CLARK COUNTY, WASHINGTON

Map Symbol	Soil Name	Hydrologic Group	Clark County WWHM Soils Group
BpB	BEAR PRARIE	B	2
BpC	BEAR PRARIE	B	2
CnB	CINEBAR	B	2
CnD	CINEBAR	B	2
CnE	CINEBAR	B	2
CnG	CINEBAR	B	2
CrE	CINEBAR	B	2
CrG	CINEBAR	B	2
CsF	CISPUS	B	2
CtA	CLOQUATO	B	2
CvA	COVE	D	4
CwA	COVE	D	4
DoB	DOLLAR	C	3
Fn	FILL LAND	In-situ	N/A
GeB	GEE	C	4

Map Symbol	Soil Name	Hydrologic Group	Clark County WWHM Soils Group
NbA	NEWBERG	B	2
NbB	NEWBERG	B	2
OdB	ODNE	D	4
OeD	OLEQUA	B	3
OeE	OLEQUA	B	3
OeF	OLEQUA	B	3
OhD	OLEQUA VARIANT	C	4
OhF	OLEQUA VARIANT	C	4
OIB	OLYMPIC	B	3
OID	OLYMPIC	B	3
OIE	OLYMPIC	B	3
OIF	OLYMPIC	B	3
OmE	OLYMPIC	B	3
OmF	OLYMPIC	B	3
OpC	OLYMPIC VARIANT	C	3
OpE	OLYMPIC VARIANT	C	3
OpG	OLYMPIC VARIANT	C	3
OrC	OLYMPIC VARIANT	C	3
PhB	PILCHUCK	C	2
PoB	POWELL	C	3
PoD	POWELL	C	3
PoE	POWELL	C	3
PuA	PUYALLUP	B	2
Ra	RIVERWASH	D	N/A

Table A-3: Runoff Curve Numbers

LAND USE DESCRIPTION		CURVE NUMBERS BY HYDROLOGIC SOIL GROUP			
		A	B	C	D
Cultivated land (1):	winter condition	86	91	94	95
Mountain open areas: grasslands	low growing brush and	74	82	89	92
Meadow or pastures:		65	78	85	89
Wood or forest land:	undisturbed	42	64	76	81
Wood or forest land:	young second growth or brush	55	72	81	86
Orchard:	with cover crop	81	88	92	94
Open spaces, lawns, parks, golf courses, cemeteries, landscaping:					
Good condition:	grass cover on over 75% of the area	68	80	86	90
Fair condition:	grass cover on 50-75% of the area	77	85	90	92
Gravel roads & parking lots:		76	85	89	91
Dirt roads & parking lots:		72	82	87	89
Impervious surfaces, pavement, roofs etc.		98	98	98	98
Open water bodies:		100	100	100	100
Single family residential (2):					
Dwelling Unit/Gross Acre	% Impervious (3)				
1.0 DU/GA	15				
1.5 DU/GA	20				
2.0 DU/GA	25				
2.5 DU/GA	30				
3.0 DU/GA	34				
3.5 DU/GA	38				
4.0 DU/GA	42				
4.5 DU/GA	46				
5.0 DU/GA	48				
5.5 DU/GA	50				
6.0 DU/GA	52				
6.5 DU/GA	54				
7.0 DU/GA	56				
PUD's, condos, apartments, commercial businesses & industrial areas	% impervious must be computed				
		Separate curve number shall be selected for pervious & impervious portions of the site or basin			

TABLE 7.—*Estimated physical and chemical properties of the soils*

Soil series and map symbols	Depth from surface	Classification			Percentage passing sieve—			Permeability	Available water capacity	Reaction
		Dominant USDA texture	Unified	AASHO	No. 4 (4.76 mm.) [1]	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
	Inches							*Inches per hour*	*Inches per inch of soil*	*pH*
Bear Prairie: BpB, BpC.	0–51	Silt loam	CL	A–6	90–100	85–95	75–85	0. 63–2. 0	0. 19–0. 21	4. 6–5. 5
	51–75	Gravelly loam	ML	A–4	70–80	65–75	50–60	0. 63–2. 0	0. 14–0. 16	5. 1–6. 0
Cinebar: CnB, CnD, CnE, CnG.	0–65	Silt loam and loam.	ML	A–4	90–100	85–95	60–70	0. 63–2. 0	0. 19–0. 21	5. 1–6. 5
CrE, CrG.	0–60	Silt loam	CL	A–4	70–80	60–80	50–70	0. 63–2. 0	0. 12–0. 14	5. 1–6. 5
Cispus: CsF.	0–24	Gravelly sandy loam.	SM	A–2	70–80	65–75	20–30	2. 0–6. 3	0. 08–0. 10	5. 6–6. 5
	24–53	Very cobbly sand	SM	A–1	35–50	30–50	5–10	>20. 0	0. 03–0. 05	5. 6–6. 5
Cloquato: CtA.	0–40	Silt loam	ML	A–4		100	70–80	0. 63–0. 20	0. 19–0. 21	5. 6–7. 3
	40–72	Sandy loam and sand.	SM	A–2	100	95–100	15–30	>6. 3	0. 08–0. 10	5. 6–7. 3
Cove: CvA.	0–36	Clay	CH	A–7		100	70–80	<0. 06	0. 14–0. 16	5. 6–7. 3
	36–54	Gravelly silty clay loam.	CL	A–7	65–75	60–70	50–60	0. 06–0. 20	0. 15–0. 17	5. 6–7. 3
Cove, thin solum: CwA.	0–14	Silty clay loam	CL	A–7		100	85–95	0. 06–0. 20	0. 19–0. 21	4. 5–6. 0
	14–21	Clay	CH	A–7		100	70–80	<0. 06	0. 14–0. 16	5. 6–7. 3
	21–60	Silt loam	ML or CL	A–4 or A–6.		100	65–75	0. 06–0. 20	0. 19–0. 21	6. 6–7. 3
Dollar: DoB.	0–32	Loam	ML	A–4	100	90–95	60–70	0. 63–2. 0	0. 16–0. 18	4. 5–6. 0
	32–60	Loam (fragipan)	ML or CL	A–4	100	95–100	60–70	<0. 06	0. 06–0. 08	6. 0
Fill land: Fn.	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Gee: GeB, GeD, GeE, GeF.	0–22	Silt loam	ML or CL	A–6		100	70–85	0. 63–2. 0	0. 19–0. 21	5. 1–6. 0
	22–72	Silty clay loam	CL	A–6		100	70–80	<0. 06	0. 06–0. 08	5. 1–6. 0
Gumboot: GuB.	0–12	Silt loam	OL	A–7	90–95	85–95	75–85	0. 63–2. 0	0. 19–0. 21	4. 5–7. 3
	12–50	Gravelly silty clay loam, clay loam.	CL	A–6	90–100	85–95	65–75	0. 06–0. 2	0. 19–0. 21	6. 1–7. 3
	50–60	Very gravelly silty clay.	GC	A–7	40–50	35–50	25–35	<0. 06	0. 06–0. 08	6. 1–7. 3
Hesson: HcB, HcD, HcE, HcF.	0–22	Clay loam	CL	A–7	85–95	85–95	65–75	0. 63–2. 0	0. 19–0. 21	4. 5–6. 0
	22–91	Clay	CH	A–7	85–90	85–90	75–85	0. 2–0. 63	0. 14–0. 16	4. 5–6. 0
HgB, HgD, HhE.	0–22	Gravelly clay loam.	SC	A–6	75–85	70–80	40–50	0. 63–2. 0	0. 14–0. 16	4. 5–6. 0
	22–91	Gravelly clay	CH	A–7	75–85	70–80	60–70	0. 2–0. 63	0. 11–0. 13	4. 5–6. 0
Hillsboro: HlA, HlB, HlC, HlD, HlE, HlF.	0–36	Loam	ML	A–4		100	55–65	0. 63–2. 0	0. 16–0. 18	5. 1–6. 5
	36–62	Sandy loam and sand.	SM	A–1	95–100	95–100	15–25	2. 0–6. 3	0. 10–0. 12	5. 6–7. 3
HoA, HoB, HoC, HoD, HoE, HoG, HsB.	0–86	Silt loam (boulders on surface of HsB).	ML	A–4		100	80–90	0. 63–2. 0	0. 19–0. 21	5. 0–6. 0

See footnotes at end of table.

TABLE 7.—*Estimated physical and chemical properties of the soils*—Continued

Soil series and map symbols	Depth from surface	Classification			Percentage passing sieve—			Permeability	Available water capacity	Reaction
		Dominant USDA texture	Unified	AASHO	No. 4 (4.76 mm.) [1]	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
	Inches							*Inches per hour*	*Inches per inch of soil*	*pH*
Hockinson: HtA, HuB, HvA. For properties of the Dollar part of HvA, see Dollar series.	0–23	Loam	ML or CL	A–4		100	55–65	0. 63–2. 0	0. 16–0. 18	5. 1–6. 0
	23–51	Fine sandy loam and loam.	SC or CL	A–4		100	45–55	0. 06–0. 2	0. 14–0. 16	5. 6–6. 5
	51–74	Silt loam	ML	A–4		100	60–70	0. 2–0. 63	0. 19–0. 21	5. 6–6. 5
Kinney: KeC, KeE, KeF, KnF.	0–60	Gravelly silt loam, gravelly silty clay loam, and gravelly clay loam.	ML	A–7	70–100	65–95	55–75	0. 63–2. 0	0. 14–0. 16	5. 1–6. 0
	60	Weathered igneous rock.								
Larchmount: LaE, LaG.	0–62	Cobbly silt loam and clay loam.	ML	A–4	[3] 55–75	50–70	35–50	0. 63–2. 0	0. 12–0. 14	4. 5–6. 5
	62	Fractured bedrock.								
LcG.	0–62	Silt loam and clay loam.	ML	A–4	[4] 30–55	25–50	15–35	0. 63–2. 0	0. 08–0. 10	4. 5–6. 5
	62	Fractured bedrock.								
LgB, LgD, LgF, LlB.	0–33	Very gravelly loam.	GM	A–2	40–50	35–50	20–35	0. 63–2. 0	0. 08–0. 10	5. 6–7. 3
	33–70	Very gravelly coarse sandy loam.	GM	A–1	40–50	35–50	5–15	6. 3–20. 0	0. 06–0. 08	6. 1–7. 3
	70	Very gravelly loamy coarse sand.								
LrC, LrF.	0–14	Gravelly loam and gravelly clay loam.	SM	A–4	55–75	50–70	35–50	0. 63–2. 0	0. 12–0. 14	6. 1–7. 3
	14–35	Very gravelly clay loam (weakly cemented).	GC	A–2 or A–4	35–50	30–55	20–40	0. 63–2. 0	0. 10–0. 12	6. 1–7. 3
	35–60	Very gravelly clay loam.	GC	A–2	25–45	20–40	15–30	<0. 06	0. 04–0. 06	6. 1–7. 3
McBee: McB, MeA.	0–65	Silty clay loam, clay.	CL	A–6		100	80–90	0. 63–2. 0	0. 19–0. 21	5. 6–6. 0
MlA.	0–19	Silt loam and loam.	ML	A–4	90–95	85–95	50–60	0. 63–2. 0	0. 17–0. 19	6. 1–7. 3
	19–44	Gravelly fine sandy loam.	SM	A–4	75–90	70–85	35–50	0. 63–2. 0	0. 10–0. 12	6. 1–7. 3
	44–62	Very gravelly loamy sand.	GM	A–1	35–50	30–50	5–15	>20. 0	0. 04–0. 06	6. 1–7. 3

See footnotes at end of table.

414–134—72——6

TABLE 7.—*Estimated physical and chemical properties of the soils*—Continued

Soil series and map symbols	Depth from surface	Classification			Percentage passing sieve—			Permeability	Available water capacity	Reaction
		Dominant USDA texture	Unified	AASHO	No. 4 (4.76 mm.) [1]	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
	Inches							*Inches per hour*	*Inches per inch of soil*	*pH*
Minniece:										
MnA, MnD.	0–48	Silty clay and clay	CH	A–7	90–95	85–95	65–75	<0.06	0.06–0.08	6.1–7.8
	48	Basalt bedrock.								
MoA.	0–12	Silt loam	ML	A–4	100	95–100	65–75	0.63–2.0	0.19–0.21	6.1–6.5
	12–22	Silty clay	CH	A–7	95–100	95–100	80–90	0.06–0.2	0.12–0.14	6.1–6.5
	22–60	Very gravelly clay loam (weakly cemented).	GC	A–2	35–50	30–50	20–35	<0.06	0.03–0.05	5.6–6.5
Mossyrock: MsB.	0–23	Silt loam	OL or OH	A–5	95–100	95–100	50–60	0.63–2.0	0.19–0.21	6.1–6.5
	23–60	Silt loam	ML	A–5	100	95–100	55–65	0.63–2.0	0.19–0.21	6.6–7.3
	60–74	Loam	ML	A–4	100	95–100	70–80	0.63–2.0	0.16–0.18	6.1–7.3
Newberg: NbA, NbB.	0–7	Silt loam	ML	A–4		100	70–80	0.63–2.0	0.19–0.21	5.6–6.5
	7–52	Fine sandy loam and sandy loam.	SM or ML	A–4		100	40–55	2.0–6.3	0.13–0.15	6.1–7.3
	52–72	Sand	SM	A–1		100	5–15	0.63–20.0	0.05–0.07	6.6–7.3
Odne: OdB.	0–50	Silt loam, silty clay loam, clay loam, and loam.	CL	A–4 or A–6		100	75–85	<0.06	0.10–0.12	5.0–6.5
Olequa:										
OeD, OeE, OeF.	0–17	Silt loam	ML	A–7		100	75–85	0.63–2.0	0.19–0.21	6.1–6.5
	17–90	Heavy silt loam and silty clay loam.	CL	A–7		100	80–90	0.2–0.63	0.19–0.21	4.5–6.5
OhD, OhF.	0–32	Silty clay loam	CL	A–7	95–100	90–95	85–95	0.2–0.63	0.19–0.21	6.1–6.0
	32–82	Silty clay and clay	CH	A–7	95–100	90–95	85–95	<0.06	0.06–0.08	6.1–6.5
Olympic:										
OlB, OlD, OlE, OlF, OmE, OmF.	0–44	Clay loam and silty clay loam.	ML or CL	A–7	90–100	90–100	75–85	0.2–0.63	0.19–0.21	5.1–6.0
	44–59	Gravelly clay loam.	GC	A–4	75–90	70–85	35–50	0.2–0.63	0.10–0.12	4.5–5.5
	59	Fractured basalt.								
OpC, OpE, OpG, OrC.	0–30	Heavy clay loam and heavy silty clay loam.	ML or CL	A–7	90–95	90–95	75–85	0.2–0.63	0.19–0.21	5.1–6.0
	30	Fractured basalt.								
Pilchuck: PhB.	0–60	Fine sand	SM	A–3	95–100	90–100	5–10	6.3–20.0	0.05–0.07	6.1–7.3
Powell: PoB, PoD, PoE.	0–23	Silt loam	ML	A–4		100	80–90	0.63–0.20	0.18–0.20	5.1–6.0
	23–63	Silt loam (fragipan).	ML	A–4		100	80–90	0.06–0.20	0.06–0.08	5.1–6.0
Puyallup: PuA.	0–27	Stratified fine sandy loam, loam, and loamy sand.	SM	A–4	100	95–100	35–50	2.0–6.3	0.10–0.12	5.6–6.5
	27–60	Gravelly sand	SP or SW	A–1	70–90	65–85	0–5	6.3–20.0	0.04–0.06	6.6–7.3
Riverwash, sandy: Ra.	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Riverwash, cobbly: Rc.	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Rock land: Rk.	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Rough broken land: Ro.	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)

See footnotes at end of table.

TABLE 7.—*Estimated physical and chemical properties of the soils*—Continued

Soil series and map symbols	Depth from surface	Classification			Percentage passing sieve—			Permeability	Available water capacity	Reaction
		Dominant USDA texture	Unified	AASHO	No. 4 (4.76 mm.) [1]	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
	Inches							*Inches per hour*	*Inches per inch of soil*	*pH*
Salkum: SaC.	0–8	Silty clay loam	CL	A–6		100	80–90	0.2–0.63	0.19–0.21	4.5–6.5
	8–31	Heavy silty clay loam.	CH	A–7		100	80–90	0.2–0.63	0.18–0.20	4.5–5.5
	31–55	Heavy silty clay loam.	CH	A–7	95–100	95–100	90–95	0.06–0.20	0.18–0.20	4.5–5.0
Sara: SiB, SiD, SlF.	0–10	Silt loam	CL	A–4	100	90–95	85–95	0.63–2.0	0.19–0.21	5.6–6.0
	10–70	Heavy silty clay loam and silty clay.	CL	A–6	100	95–100	85–95	<0.06	0.06–0.08	4.0–5.0
Sauvie: SmA, SmB, SpB.	0–63	Silty clay loam and silt loam.	CL	A–6 or A–7		100	75–85	0.2–0.63	0.19–0.21	6.1–7.3
SnA.	0–36	Silty clay loam	CL	A–7		100	75–85	0.2–0.63	0.19–0.21	S
	36–63	Fine sandy loam.	SM	A–4		100	35–50	2.0–6.3	0.13–0.15	6.1–6.5 6.1–7.3
Semiahmoo: Sr.	0–40	Muck	Pt	(5)	(5)	(5)	(5)	0.63–2.0	>0.20	4.5–5.5
	40–120	Peat	Pt	(5)	(5)	(5)	(5)	0.63–2.0	>0.20	5.6–7.3
Su.	0–30	Muck	Pt	(5)	(5)	(5)	(5)	0.63–2.0	>0.20	4.5–5.5
	30–60	Stratified sand, silt, and clay.	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Sif: SvA.	0–16	Gravelly loam	SM or GM	A–2	60–80	55–75	35–50	2.0–6.3	0.12–0.14	4.5–6.0
	16–60	Very gravelly loamy coarse sand and very gravelly coarse sand.	GP	A–1	40–60	15–30	0–5	>20.0	0.03–0.05	6.1–6.5
Tisch: ThA.	0–31	Silt loam	OL	A–7		100	50–60	0.2–0.63	0.19–0.21	5.6–6.5
	31–45	Muck	Pt	(5)	(5)	(5)	(5)	0.63–2.0	>0.20	5.1–5.5
	45–53	Peat	Pt	(5)	(5)	(5)	(5)	0.63–2.0	>0.20	4.5–5.5
Vader: VaB, VaC.	0–30	Silt loam and loam.	ML	A–4	95–100	95–100	50–60	2.0–6.3	0.16–0.18	5.6–6.5
	30	Sandstone bedrock.								
Washougal: WaA, WgB, WgE, WhF.	0–22	Gravelly loam	SM	A–4	55–90	50–85	35–50	0.63–2.0	0.12–0.14	4.5–5.5
	22–36	Very gravelly loam and very gravelly coarse sandy loam.	GM or SM	A–1	35–45	20–40	10–20	0.63–2.0	0.06–0.08	5.1–5.5
	36–60	Sand, gravel, and stones.	GP	A–1	25–35	20–30	0–5	>20.0	0.03–0.05	5.1–5.5
Wind River: WnB, WnD, WnG, WrB, WrF.	0–24	Coarse sandy loam.	SM	A–2	95–100	90–100	25–35	2.0–6.3	0.10–0.12	6.1–7.3
	24–62	Loamy coarse sand and coarse sand.	SM	A–2	95–100	95–100	15–35	6.3–20.0	0.06–0.08	6.6–7.3
Yacolt: YaA, YaC, YcB.	0–39	Gravelly loam	ML, SM	A–4	55–75	50–70	35–60	0.63–2.0	0.12–0.14	5.6–6.0
	39–61	Cobbly loam	SM, ML	A–4	55–75	50–70	35–55	0.63–2.0	0.12–0.14	5.6–6.0

[1] Includes material more than 3 inches in diameter.
[2] Soil material is too variable for reliable evaluation.
[3] 25 to 45 percent of the profile is cobblestones and stones by weighted average. This material was excluded from the classification.
[4] 45 to 70 percent of the profile is cobblestones and stones by weighted average. This material was excluded from the classification.
[5] Not applicable.
[6] 25 to 45 percent of this horizon is cobblestones and stones by weighted average. This material was excluded from the classification.

Figure A-2: 2-Year, 24-Hour Clark County Isopluvial Map

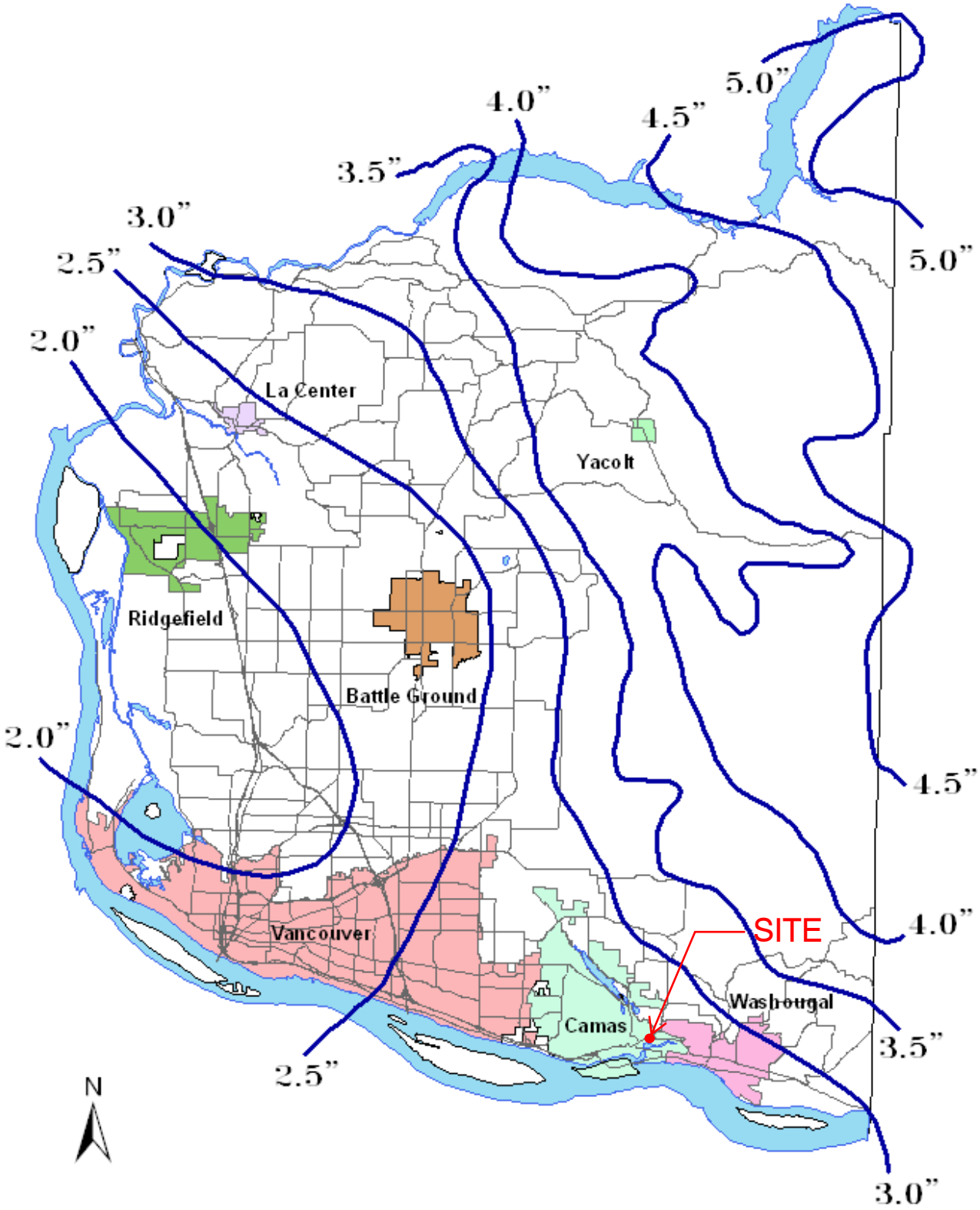


Figure A-3: 10-Year, 24-Hour Clark County Isopluvial Map

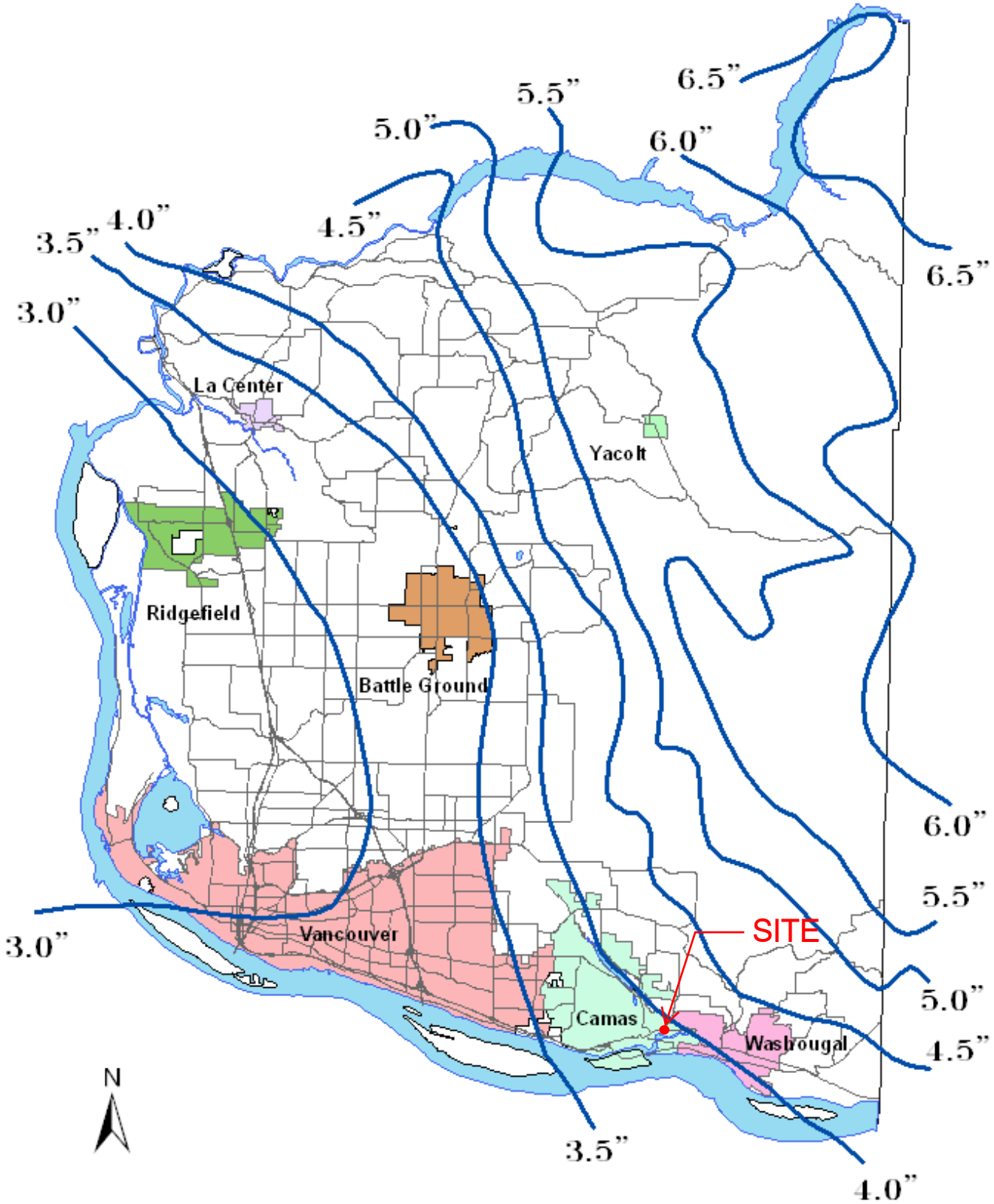
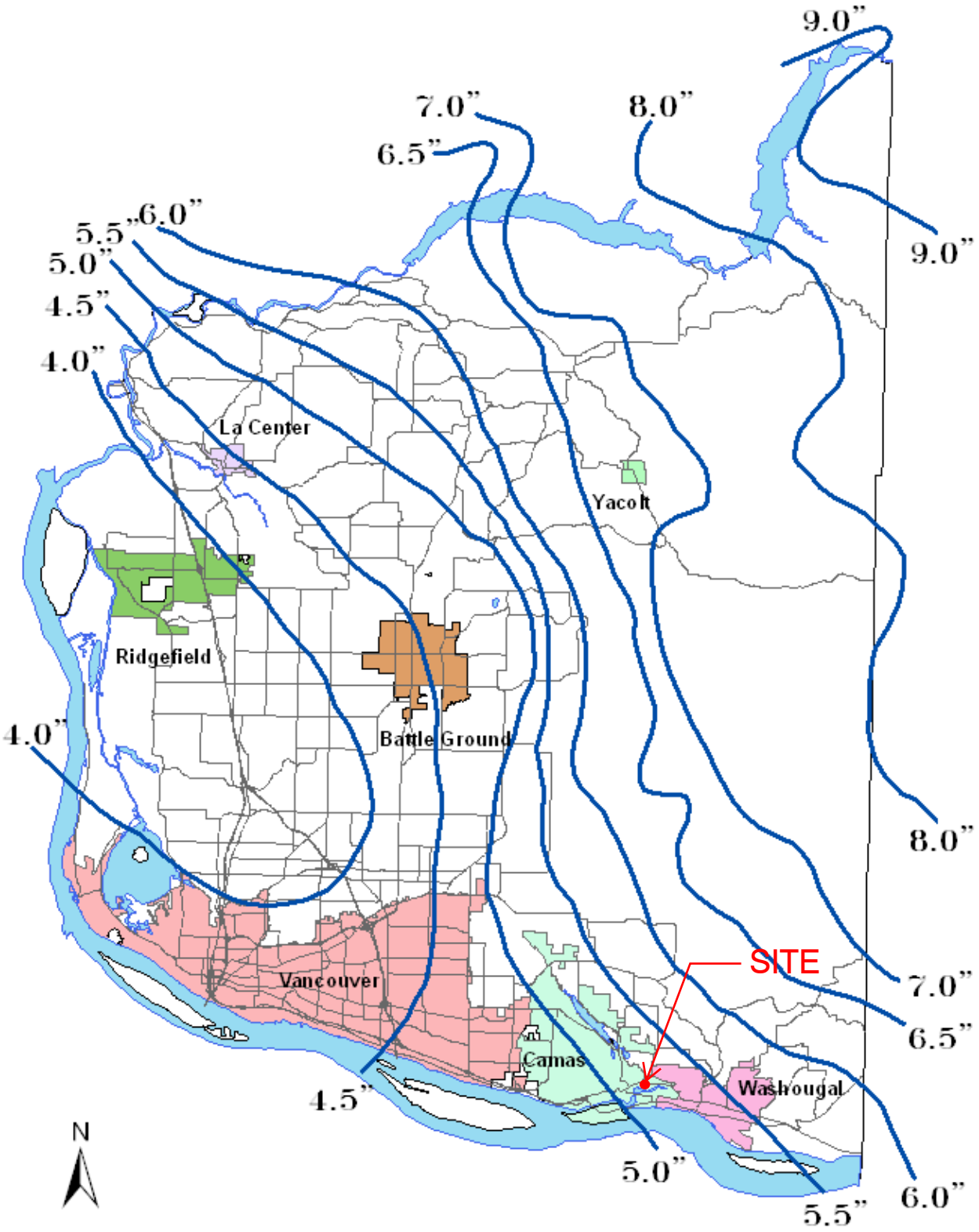
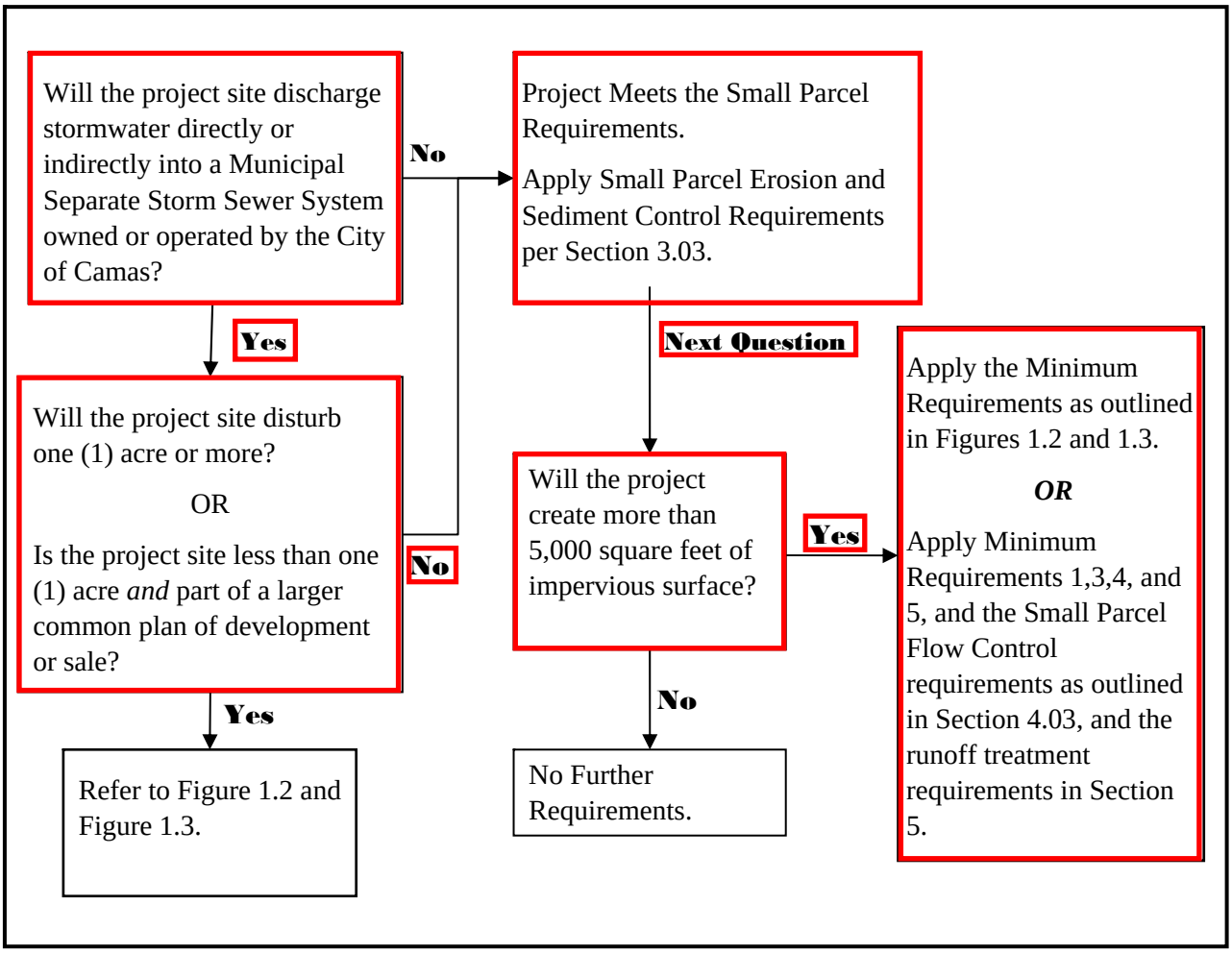


Figure A-5: 100-Year, 24-Hour Clark County Isopluvial Map



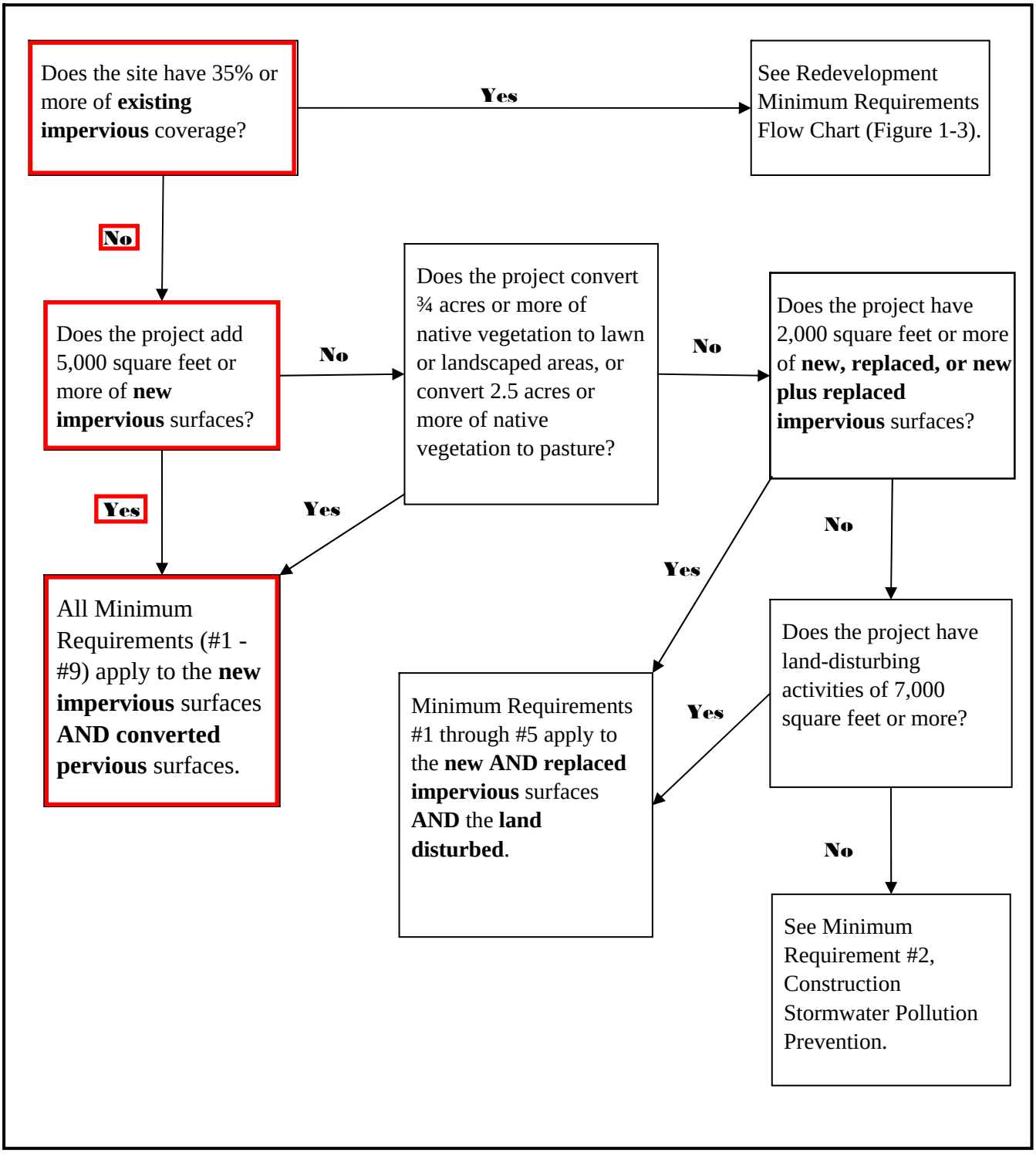
Chapter 1: General Requirements
Continued

Figure 1.1: Flow Chart for Determining Stormwater Requirements



Chapter 1: General Requirements
Continued

Figure 1.2: New Development Minimum Requirements Flow Chart



WWHM2012

PROJECT REPORT

General Model Information

WWHM2012 Project Name: 18581.e.Project Preliminary

Site Name:	Camas PFAS
Site Address:	1250 E 1st Ave.
City:	Camas
Report Date:	2/13/2025
Gage:	Troutdale
Data Start:	1948/10/01
Data End:	2008/09/30
Timestep:	15 Minute
Precip Scale:	1.370
Version Date:	2023/01/27
Version:	4.2.19

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
SG4, Lawn, Flat	0.407
Pervious Total	0.407

Impervious Land Use	acre
ROOF TOPS FLAT	0.049
DRIVEWAYS FLAT	0.032
SIDEWALKS FLAT	0.016
Impervious Total	0.097
Basin Total	0.504

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
SG4, Lawn, Flat	0.255
Pervious Total	0.255

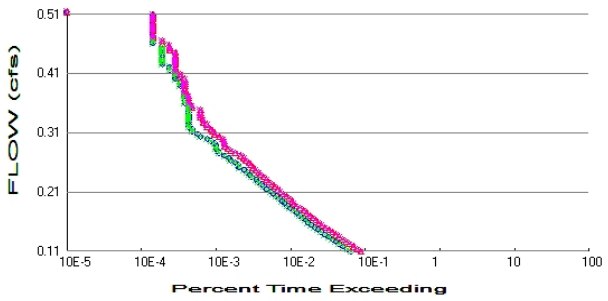
Impervious Land Use	acre
ROOF TOPS FLAT	0.086
DRIVEWAYS FLAT	0.145
SIDEWALKS FLAT	0.018
Impervious Total	0.249
Basin Total	0.504

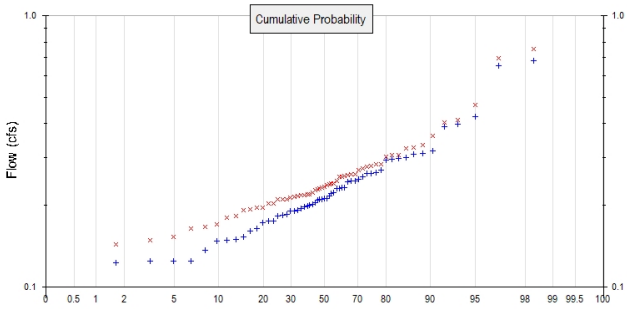
Routing Elements
Predeveloped Routing

Mitigated Routing

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.407
Total Impervious Area: 0.097

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.255
Total Impervious Area: 0.249

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.211428
5 year	0.292664
10 year	0.354376
25 year	0.441931
50 year	0.514498
100 year	0.593691

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.234874
5 year	0.316021
10 year	0.377541
25 year	0.464647
50 year	0.536713
100 year	0.615259

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	0.175	0.223
1950	0.186	0.196
1951	0.201	0.210
1952	0.317	0.333
1953	0.205	0.218
1954	0.211	0.269
1955	0.153	0.164
1956	0.270	0.280
1957	0.191	0.196
1958	0.246	0.258

1959	0.125	0.144
1960	0.202	0.231
1961	0.211	0.219
1962	0.197	0.210
1963	0.216	0.237
1964	0.192	0.215
1965	0.209	0.219
1966	0.232	0.240
1967	0.199	0.217
1968	0.424	0.470
1969	0.293	0.360
1970	0.685	0.698
1971	0.147	0.214
1972	0.136	0.170
1973	0.221	0.228
1974	0.246	0.255
1975	0.210	0.220
1976	0.300	0.307
1977	0.124	0.153
1978	0.255	0.277
1979	0.263	0.283
1980	0.182	0.194
1981	0.232	0.241
1982	0.262	0.273
1983	0.298	0.302
1984	0.250	0.260
1985	0.184	0.229
1986	0.223	0.256
1987	0.175	0.191
1988	0.149	0.241
1989	0.231	0.255
1990	0.149	0.180
1991	0.244	0.260
1992	0.194	0.202
1993	0.399	0.412
1994	0.160	0.166
1995	0.212	0.234
1996	0.390	0.404
1997	0.309	0.325
1998	0.312	0.326
1999	0.164	0.182
2000	0.112	0.121
2001	0.124	0.148
2002	0.296	0.306
2003	0.231	0.245
2004	0.123	0.210
2005	0.173	0.233
2006	0.264	0.283
2007	0.190	0.204
2008	0.656	0.752

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.6848	0.7516
2	0.6565	0.6983
3	0.4236	0.4698
4	0.3991	0.4122

5	0.3899	0.4042
6	0.3172	0.3605
7	0.3117	0.3329
8	0.3085	0.3260
9	0.2996	0.3253
10	0.2982	0.3066
11	0.2958	0.3061
12	0.2930	0.3024
13	0.2703	0.2833
14	0.2636	0.2831
15	0.2625	0.2802
16	0.2619	0.2773
17	0.2552	0.2728
18	0.2502	0.2692
19	0.2461	0.2602
20	0.2461	0.2601
21	0.2437	0.2581
22	0.2320	0.2561
23	0.2316	0.2550
24	0.2310	0.2547
25	0.2307	0.2454
26	0.2230	0.2413
27	0.2209	0.2411
28	0.2164	0.2397
29	0.2123	0.2369
30	0.2111	0.2335
31	0.2106	0.2329
32	0.2098	0.2311
33	0.2091	0.2287
34	0.2051	0.2282
35	0.2016	0.2227
36	0.2008	0.2195
37	0.1990	0.2193
38	0.1970	0.2186
39	0.1940	0.2178
40	0.1918	0.2165
41	0.1905	0.2147
42	0.1903	0.2137
43	0.1857	0.2103
44	0.1844	0.2103
45	0.1822	0.2097
46	0.1753	0.2036
47	0.1747	0.2025
48	0.1726	0.1964
49	0.1638	0.1958
50	0.1604	0.1937
51	0.1531	0.1914
52	0.1494	0.1819
53	0.1491	0.1798
54	0.1472	0.1701
55	0.1361	0.1661
56	0.1248	0.1639
57	0.1244	0.1529
58	0.1241	0.1483
59	0.1227	0.1437
60	0.1117	0.1210

Duration Flows

The Duration Matching Failed

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1057	1336	1842	137	Fail
0.1098	1206	1628	134	Fail
0.1140	1065	1463	137	Fail
0.1181	933	1276	136	Fail
0.1222	849	1159	136	Fail
0.1264	760	1037	136	Fail
0.1305	678	937	138	Fail
0.1346	597	846	141	Fail
0.1387	536	758	141	Fail
0.1429	488	682	139	Fail
0.1470	442	604	136	Fail
0.1511	396	544	137	Fail
0.1553	356	494	138	Fail
0.1594	332	451	135	Fail
0.1635	304	414	136	Fail
0.1677	278	380	136	Fail
0.1718	257	340	132	Fail
0.1759	230	315	136	Fail
0.1800	205	279	136	Fail
0.1842	188	245	130	Fail
0.1883	177	231	130	Fail
0.1924	162	217	133	Fail
0.1966	148	199	134	Fail
0.2007	132	183	138	Fail
0.2048	123	166	134	Fail
0.2089	112	152	135	Fail
0.2131	100	140	140	Fail
0.2172	91	128	140	Fail
0.2213	86	118	137	Fail
0.2255	77	107	138	Fail
0.2296	73	99	135	Fail
0.2337	63	91	144	Fail
0.2378	59	82	138	Fail
0.2420	54	78	144	Fail
0.2461	50	71	142	Fail
0.2502	43	65	151	Fail
0.2544	41	61	148	Fail
0.2585	38	58	152	Fail
0.2626	33	52	157	Fail
0.2668	31	50	161	Fail
0.2709	27	45	166	Fail
0.2750	23	38	165	Fail
0.2791	22	33	150	Fail
0.2833	21	30	142	Fail
0.2874	21	27	128	Fail
0.2915	20	27	135	Fail
0.2957	18	27	150	Fail
0.2998	16	26	162	Fail
0.3039	13	23	176	Fail
0.3080	12	20	166	Fail
0.3122	10	19	190	Fail
0.3163	10	18	180	Fail
0.3204	9	16	177	Fail
0.3246	9	16	177	Fail

0.3287	9	14	155	Fail
0.3328	9	14	155	Fail
0.3369	9	13	144	Fail
0.3411	9	13	144	Fail
0.3452	9	13	144	Fail
0.3493	9	13	144	Fail
0.3535	9	10	111	Fail
0.3576	9	10	111	Fail
0.3617	8	9	112	Fail
0.3658	8	9	112	Fail
0.3700	8	9	112	Fail
0.3741	8	9	112	Fail
0.3782	8	8	100	Pass
0.3824	8	8	100	Pass
0.3865	8	8	100	Pass
0.3906	7	8	114	Fail
0.3948	7	8	114	Fail
0.3989	7	8	114	Fail
0.4030	6	8	133	Fail
0.4071	6	7	116	Fail
0.4113	6	7	116	Fail
0.4154	6	6	100	Pass
0.4195	5	6	120	Fail
0.4237	5	6	120	Fail
0.4278	4	6	150	Fail
0.4319	4	6	150	Fail
0.4360	4	6	150	Fail
0.4402	4	6	150	Fail
0.4443	4	6	150	Fail
0.4484	4	6	150	Fail
0.4526	4	5	125	Fail
0.4567	4	5	125	Fail
0.4608	4	5	125	Fail
0.4649	3	4	133	Fail
0.4691	3	4	133	Fail
0.4732	3	3	100	Pass
0.4773	3	3	100	Pass
0.4815	3	3	100	Pass
0.4856	3	3	100	Pass
0.4897	3	3	100	Pass
0.4939	3	3	100	Pass
0.4980	3	3	100	Pass
0.5021	3	3	100	Pass
0.5062	3	3	100	Pass
0.5104	3	3	100	Pass
0.5145	3	3	100	Pass

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

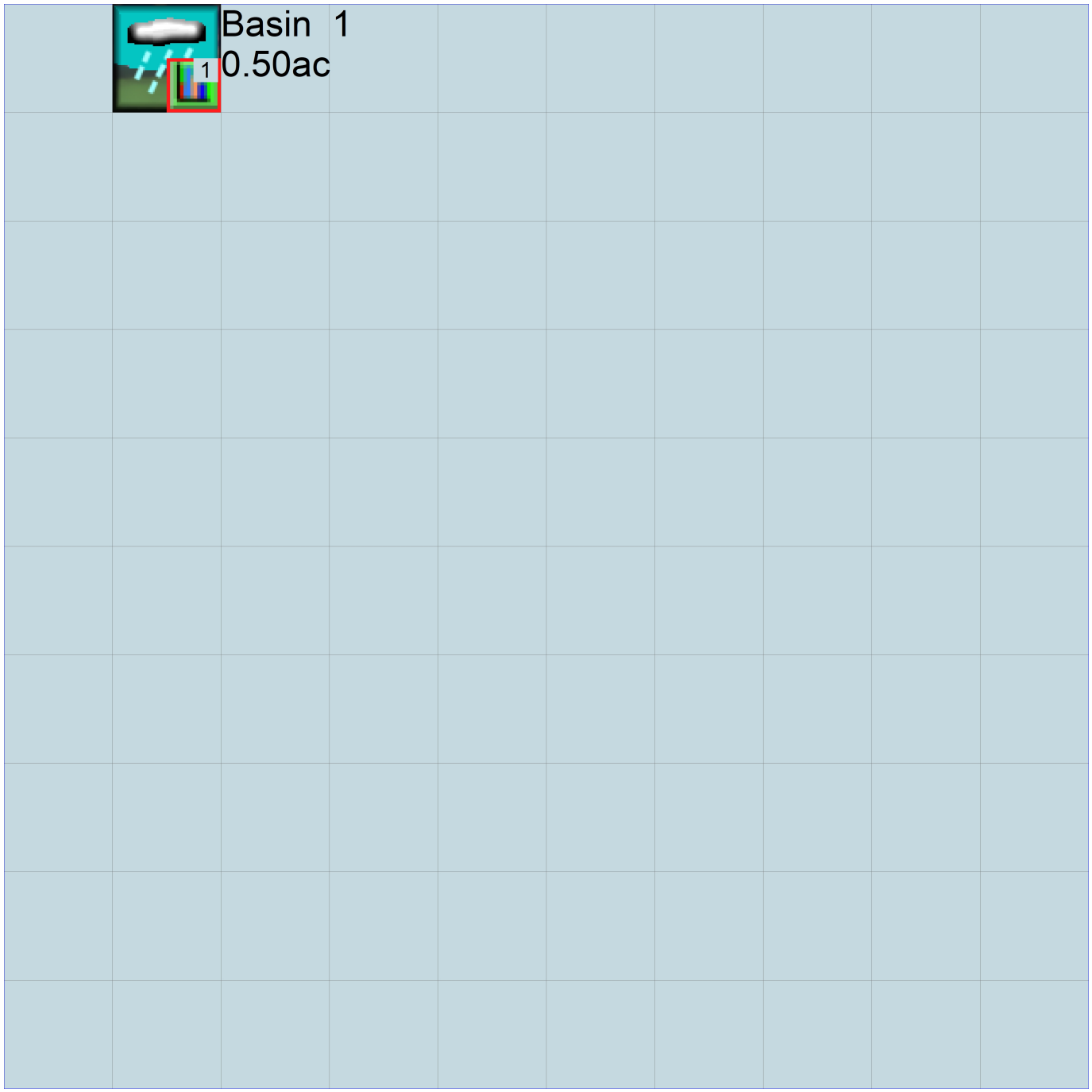
No PERLND changes have been made.

IMPLND Changes

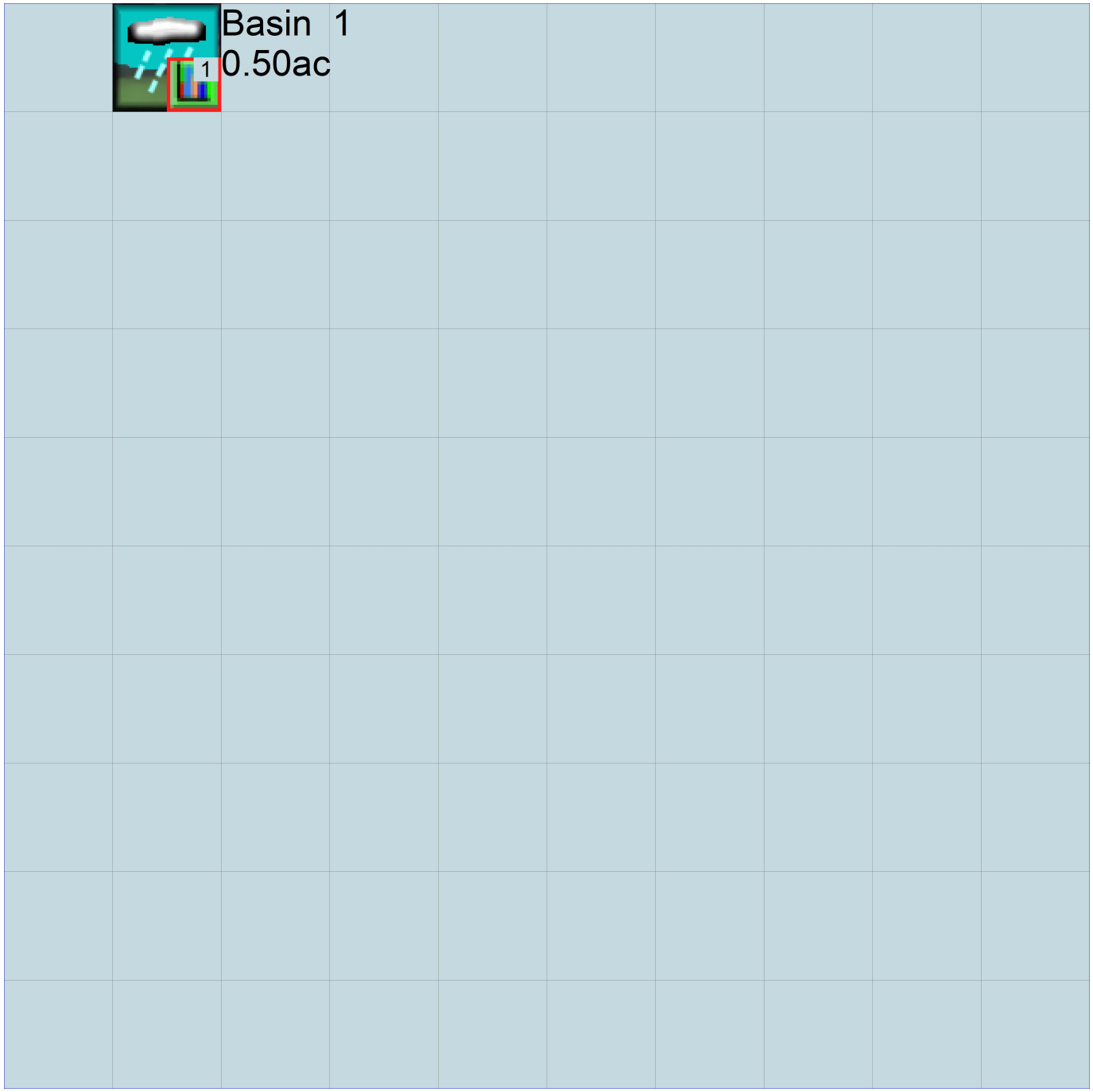
No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2008 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   18581.e.Project Preliminary.wdm
MESSU       25   Pre18581.e.Project Preliminary.MES
            27   Pre18581.e.Project Preliminary.L61
            28   Pre18581.e.Project Preliminary.L62
            30   POC18581.e.Project Preliminary1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:15
      PERLND      34
      IMPLND       4
      IMPLND       5
      IMPLND       8
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   34     SG4, Lawn, Flat         1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   34         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
```

```
   34         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   34         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   34              0         6      0.02       400      0.05         0      0.96
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   34              0         0         3         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   34           0.1       0.2      0.25         2       0.4      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   34              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/FLAT         1    1    1   27    0
    8      SIDEWALKS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    4         0    0    1    0    0    0
    5         0    0    1    0    0    0
    8         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    4         0    0    4    0    0    4    1    9
    5         0    0    4    0    0    0    1    9
    8         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    4         0    0    0    0    0
    5         0    0    0    0    0
    8         0    0    0    0    0
  END IWAT-PARM1
```

```
  IWAT-PARM2
    <PLS >       IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    4            400      0.01       0.1       0.1
    5            400      0.01       0.1       0.1
    8            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >       IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    4              0         0
    5              0         0
    8              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    4              0         0
    5              0         0
    8              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  34                       0.407     COPY   501     12
PERLND  34                       0.407     COPY   501     13
IMPLND   4                       0.049     COPY   501     15
IMPLND   5                       0.032     COPY   501     15
IMPLND   8                       0.016     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
```

```
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                          ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.37           PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.37           IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.8            PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.8            IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2008 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   18581.e.Project Preliminary.wdm
MESSU       25   Mit18581.e.Project Preliminary.MES
            27   Mit18581.e.Project Preliminary.L61
            28   Mit18581.e.Project Preliminary.L62
            30   POC18581.e.Project Preliminary1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:15
      PERLND      34
      IMPLND       4
      IMPLND       5
      IMPLND       8
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                      in  out           ***
   34     SG4, Lawn, Flat         1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   34         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
```

```
   34         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   34         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   34              0         6      0.02       400      0.05         0      0.96
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   34              0         0         3         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   34           0.1       0.2      0.25         2       0.4      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   34              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/FLAT         1    1    1   27    0
    8      SIDEWALKS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    4         0    0    1    0    0    0
    5         0    0    1    0    0    0
    8         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    4         0    0    4    0    0    4    1    9
    5         0    0    4    0    0    0    1    9
    8         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    4         0    0    0    0    0
    5         0    0    0    0    0
    8         0    0    0    0    0
  END IWAT-PARM1
```

```
  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    4            400      0.01       0.1       0.1
    5            400      0.01       0.1       0.1
    8            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    4              0         0
    5              0         0
    8              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    4              0         0
    5              0         0
    8              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  34                       0.255     COPY   501     12
PERLND  34                       0.255     COPY   501     13
IMPLND   4                       0.086     COPY   501     15
IMPLND   5                       0.145     COPY   501     15
IMPLND   8                       0.018     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
```

```
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
             FG FG FG FG  possible  exit  *** possible  exit     possible  exit
              *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                          ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.37           PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.37           IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.8            PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.8            IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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Camas Water System Well 13 PFAS Treatment Design

Geotechnical Engineering Report

March 2025

Final

Prepared for:

DELVE underground

carollo

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Document QA/QC Check Form

Project Number and Name:		6571.0				
Document Title:		Geotechnical Engineering Report				
Rev. No.	**Document Date**	**Description / Design Phase:**	**Geotechnical Engineering Report**			
0	6/4/2024	**Draft Submittal**	**Prepared by**	**Checked by**	**Technical Editor Review by**	**Approved by**
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0	3/7/2025	**Final Submittal**	**Prepared by**	**Checked by**	**Technical Editor Review by**	**Approved by**
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		Date	3/4/2025	3/5/2025	3/7/2025	3/7/2025

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Distribution

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1.0 Introduction

1.1 Background

The City of Camas (City) is developing a strategy to address the public health concerns associated with per- and polyfluoroakyl substances (PFAS) in its drinking water. PFAS has been detected in groundwater at the City's Lower Washougal Wellfield (LWWF) and impacts the quality and quantity of its primary supply source. PFAS levels from LWWF Well 13 exceeds Washington State Action Levels (SAL), and other LWWF wells have yielded results that exceed the United States Environmental Protection Agency's (USEPA) proposed maximum contaminant levels (MCL).

The City developed a Water System Plan Addendum to advance the PFAS mitigation strategy. With this project, the City intends to 'fast track' the planning and implementation of wellfield development, treatment, funding, and an outreach approach that addresses the near-term water quality and quantity needs while establishing a sustainable and equitable approach for long-term PFAS mitigation.

1.2 Project Description

Carollo Engineers, Inc. (Carollo) has been contracted by the City for the Design, Planning, and Bidding efforts of the Project. Based on our communications with the City and Carollo, preliminary plans for the PFAS mitigation will include construction of a new facility that will include treatment for PFAS at the existing Well 13 site located at 1250 East 1st Avenue, Camas, Washington. Figures 1 and 2 show the general site location.

The new treatment facility and associated improvements at the site are expected to include new tanks, piping, increased supply capacities, and electrical upgrades at the site. A specific layout of the site improvements, including volume capacities, tank dimensions and elevations, and a hydraulic profile have not been developed during this preliminary design phase. As the project design phases continue, we should be provided an opportunity to review and possibly revise recommendations included in this report.

1.3 Purpose and Scope of Work

Carollo retained Delve Underground to evaluate the subsurface conditions and to provide preliminary geotechnical engineering design and construction recommendations for subsequent use by the design team in support of the Project. Specifically, our scope of work includes the following:

- *Geotechnical Visual Reconnaissance and Background Information Review*: Visit the site to evaluate existing and surrounding conditions and identify geologic hazards, if present.

Review available geologic publications to assess the subsurface conditions and potential geologic hazards.

- *Geotechnical Investigation*: Complete a geotechnical investigation at the Well 13 site consisting of one soil boring extending to a depth of 50 feet below ground surface. Our investigation included laboratory testing for the purpose of further defining the subsurface soils and for use in our geotechnical analyses. Infiltration testing was also performed at the site.
- *Geotechnical Analyses*:
  - Evaluate the Well 13 site for liquefaction potential, and liquefaction-induced effects such as seismic-induced settlements, lateral spreading, and potential reduction in bearing capacities.
  - Assess soil seismic profile (site classification) and site response parameters in accordance with the 2021 Washington State Building Code and the 2021 International Building Code. If the site is potentially liquefiable, the seismic profile will include those facilities with seismic periods less than 0.5 seconds.
  - Evaluate and provide recommendations for static and seismic soil bearing capacity, subgrade modulus, and total and differential settlement for potential foundations.
  - Recommendations and preliminary design criteria for the preferred foundation type, or preliminary ground improvement recommendations to mitigate potential site hazards or conditions.
  - Recommendations for shoring and dewatering of excavations.
  - Recommendations for site preparation, grading, drainage, and wet weather earthwork procedures.
  - Recommendations for engineered fill and compaction criteria for foundations, or ground improvement if deemed necessary.
- *Summarize the Above in this Geotechnical Engineering Report.*

2.0 Geotechnical Investigation

2.1 Exploratory Boring

The subsurface exploration was completed in the presence of a Delve Staff Engineer who directed the drilling operations, collected samples, and provided continuous observation and logging of the explorations. Soil materials were classified in the field in accordance with ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedures). Sample depths, stratigraphy, groundwater occurrence, and soil characteristics were also recorded. The stratigraphic contacts indicated in the boring logs represent the approximate

boundaries between soil types; actual transitions between soil units may be more gradual than shown. A log of the exploration is included in Appendix A.

To evaluate the subsurface conditions at the site, we completed one exploratory boring, B-1, advanced by Western States Soil Conservation (WSSC) of Hubbard, Oregon using a truck mounted CME 75 drill rig. The boring was advanced to a depth of 50 feet below ground surface (bgs) using mud rotary techniques. The approximate location of B-1 is shown in Figure 3.

Disturbed soil samples were obtained in our investigation. Split spoon samples were obtained in general accordance with ASTM D1586, "Standard Test Method for Standard Penetration Test (SPT) and Split Barrel Sampling of Soils." This procedure uses a 140-lb hammer dropped from a height of 30 inches to advance a 2-inch diameter split barrel sampler 18 inches. The number of hammer-blows for each 6 inches of penetration was recorded. The standard penetration resistance (designated as the "N-value") of the soil is the sum of the number of blows required for the final 12 inches of sampler penetration. The N-value is an indication of the relative density of granular soils and the relative consistency of cohesive soils. SPT N-values of 50 or more blows per 6 inches or less of penetration is defined as "refusal." Uncorrected, field-recorded N-values are presented in the boring log in Appendix A. An automatic hammer was used in our exploration. WSSC provided a Report of SPT hammer efficiencies (Shannon and Wilson 2023) which cite an energy transfer ratio (efficiency) of 90.6 and a Correction Factor of 1.51 for the automatic hammer used in our investigation.

Disturbed samples were also obtained using a 3-inch diameter, "Modified California" sampler. Blow counts to drive the sampler with the 140-lb hammer three 6-inch increments were recorded. The total number blows to drive the 3-inch sampler the final 12 inches were correlated to an N-value that would be obtained from the SPT method previously described using the Caltrans Geotechnical Manual Soil Correlations section (March 2021).

2.2 Laboratory Testing

Soil samples obtained from the exploration borings were re-examined and classified independently of field boring log descriptions to provide a quality control check of the field classifications. Representative soil samples were selected for laboratory testing. The laboratory testing program included the following tests:

- Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216);
- Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing Amount of Material Finer than U.S. No. 200 Sieve (ASTM D1140);
- Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318);

- Standard Test Method for Particle-Size Analysis of Soils (ASTM D422, Mechanical Analysis Only).

Laboratory testing was performed by Breccia Geotechnical of Tigard, Oregon. Laboratory test results were used to characterize soil properties and refine soil classifications. The boring log in Appendix A includes the results for the laboratory index tests. The report provided by the testing laboratory is included in Appendix B.

2.3 Infiltration Testing

We performed infiltration testing at the Well 13 site. The testing was performed by a Delve Underground Staff Engineer in accordance with Section 6.6 of the Clark County Stormwater Manual (November 2009). The testing was done inside a 4.5-inch inside diameter (ID) hollow stem auger at an approximate depth of 6.25 feet bgs. The soil surface in contact with the hollow stem auger at the test depth were fine grained Missoula Flood Deposits.

Prior to testing, the soil was soaked for a four-hour period. Water levels inside the auger were observed in 15 and 30-minute intervals following the presoaking period. These observations continued over a period of 2 hours when consistent rates were observed. Our infiltration testing results are reported in Section 3.5.

After testing was complete, the auger was removed using the drill rig and the bored hole was backfilled with bentonite chips and the previously excavated soils.

3.0 Site Conditions

3.1 Surface Conditions

The address for the Well 13 property is 1250 East 1st Avenue in Camas, Washington. The property is rectangular, about 0.4 acres and located southwest of the intersection of East 1st Avenue and East Cramer Lane. The property is amongst a mostly residential community with a one-story single-family home located at the west and a two-story apartment building located at the east.

The property includes two existing structures, each is an above ground, one-story building constructed using Cement Masonry Units (CMUs). The structures were built in 1965 and 2007 and roughly have footprints of 400 and 1730 square feet, respectively, according to Clark County Property Maps (Clark County 2024).

The Well 13 property is mostly level and includes an asphalt paved driveway accessing the larger structure from East Cramer Lane. The asphalt paved East Cramer Lane transitions to a gravel surface lane which crosses the adjacent property at the south. Otherwise, the ground surface surrounding each of the Well 13 facilities is grass-surfaced. The property is landscaped with shrubs and bushes adjacent to East 1st Avenue.

The southern extent of Lacamas Creek and its confluence with the Washougal River is about 100 feet south of the Well 13 site. Although not located on the subject property, there are steep banks trending down to Lacamas Creek on the order of 1 Horizontal : 1 Vertical (H:V). This ground slope is currently wooded with young and mature trees and thick underbrush. The ground surface elevation at the property is about 60 feet and slopes down to about 14 feet, the approximate water surface of Lacamas Creek.

3.2 Local Geology

The Well 13 site is located within the Portland Basin at the mouth of the Columbia River Gorge. A recently published geologic map of the Camas Quadrangle at a scale of 1:24,000 shows the Well 13 site is underlain by the gravel facies of cataclysmic floods referred to as the Missoula floods (Evarts and O'Connor, 2008). During the glacial periods of the late Pleistocene, several lakes developed behind ice dams at the margins of the continental glaciers in northeastern Washington, Idaho, and western Montana—the largest of which was Glacial Lake Missoula. Periodic failure of these ice dams caused a series of flood episodes on the Columbia River system. These massive floods scoured the Columbia River Gorge before spreading into the Portland Basin and through to the Willamette Valley. As the flood waters repeatedly entered the basin they cut flood channels, scoured the bedrock in areas, such as nearby Lacamas Lake, and left behind massive sediment deposits such as the gravel deposit near the mouth of the Washougal River in Camas (Burns and Coe, 2012). When the flood waters stopped, the water would flow from the Willamette Valley and other tributary valleys back into the Portland Basin

leaving temporary lakes, where fine-grained sediments would settle, and the water would eventually drain to the ocean. The Missoula floods are believed to have occurred during a 2,000 to 3,000-year period between approximately 15,500 and 13,000 years before present (Waitt, et al., 2009; Allen, et al., 2009).

The Missoula-flood deposits-gravel facies (Qfg) are described by Evarts and O'Conner (2008) as "unconsolidated, gray, stratified, bouldery to cobbly gravel and sand." The gravel is texturally and compositionally variable. The unit includes local sand deposits that were likely deposited by smaller late-episode floods. The thickness of the unit at the Well 13 site is not known but a similar deposit to the west of the Camas Slough is estimated on the map cross-section to be around 100 feet thick. The bedrock adjacent to the site is mapped as Basaltic Andesite of Elkhorn Mountain.

Recent fine-grained alluvium derived from the Washougal River overbank deposits mantles the site.

3.3 Subsurface Conditions

The subsurface conditions at the Project site were explored with one geotechnical boring to 51.5 feet (B-1) in depth and one shallow boring to 6.5 feet (I-1) in depth for use with infiltration testing. We grouped the subsurface materials encountered into three based on their engineering properties, geologic origins, and their distribution in the subsurface: Fill, Recent Alluvium, and Coarse-Grained Catastrophic Flood Deposits. Variations in subsurface conditions may exist across the footprint of the Project. Contacts between the geotechnical units are approximate and may be more gradational than shown on the exploration log in Appendix A.

The following sections provide a discussion of soil unit characteristics, including a summary of soil index testing results and soil density/consistency for each unit based on data from the recent geotechnical exploration.

3.3.1 Fill

Fill was encountered from the surface in B-1 and I-1. At the surface, the soils were a clayey silt with fine to coarse sand, fine to coarse gravel, and rootlets from the surficial grasses, and was approximately 2 inches thick. Low plasticity silt (ML) with trace fine to coarse sand was present beneath this surficial layer. Although no particular manmade materials were observed in the auger cuttings (IT-1) or SPT samples (B-1), based on the general level site topography and inconsistent texture of the material, it is very likely that the fill soils at the site extend to about 18 inches below ground surface.

3.3.2 Recent Alluvium

Beneath the fill at about 18 inches bgs, we encountered similar fine-grained alluvial deposits comprised of silt (ML) with varying amounts of sand. The fine-grained alluvial deposits extended to about 5 feet bgs in B-1 and 6.5 feet bgs in I-1. Three SPT samples were obtained within this unit resulted in N-values of 1, 2, and 6 blows per foot, indicating very soft to medium stiff consistency.

Laboratory moisture content tests completed on the two samples within this unit resulted in 23 and 30 and 51 percent moisture. One fines content (ASTM D1140) was completed and resulted in 67% passing the No. 200 sieve, indicating a sandy silt (ML) soil classification per the Unified Soil Classification System (USCS, ASTM D2487).

3.3.3 Coarse Grained Catastrophic Flood Deposits

Gravel was encountered beneath the native fine-grained unit at a depth of approximately 5 feet bgs and extended to a depth of 50 feet bgs. The unit generally consisted of clayey gravel (GC), well graded gravel (GW), and poorly graded gravel (GP), each with varying amounts of sand. At the terminal depth of Boring B-1, 50 feet bgs, we encountered very dense, micaceous poorly graded sand (SP).

This consistency of this unit ranged from medium dense to very dense conditions and primarily gray to gray-brown in color.

A composite of the samples in boring B-1 at 10 and 12.5 feet bgs was tested for particle size analysis. A plot of the testing results is included in Appendix B. The results of this testing are summarized below:

- Coarse Gravel – 5 percent
- Fine Grave – 40 percent
- Coarse Sand – 26 percent
- Medium Sand – 13 percent
- Fine Sand – 5 percent
- Fines – 11 percent

3.4 Groundwater

Mud rotary drilling was used to drill soil boring B-1 for this project. The mud rotary method involves the circulation of drilling fluids; therefore, the presence or absence of groundwater could not be confidently determined. Groundwater was not encountered while advancing the infiltration test boring I-1 to about 6.5 feet bgs using hollow stem auger methods.

Water Well Reports maintained by the Washington State Department of Ecology cite a groundwater surface located 67.6 feet bgs at Louis Block Park in February 2006. Louis Block Park is located about 650 feet west of the Well 13 property and has a ground surface elevation approximately 10 feet higher than the subject property.

Several Resource Protection Well Reports at a site located at NE 3rd Avenue and NE 3rd Place, about 500 feet northwest of the Well 13 property, did not indicate groundwater was encountered during hollow stem auger soil borings drilled between 15 and 20 feet below the ground surface in December 2013.

The Water Well Reports referenced in this report section are provided in Appendix C.

Groundwater levels vary with precipitation, the time of year, and other factors. Generally, groundwater highs occur near the end of the wet season in late spring or early summer and groundwater lows occur near the end of the dry season in the early fall.

3.5 Infiltration Testing Results

We completed infiltration testing at one location at the site, shown as I-1 in Figure 2. The testing was performed inside a 4.25-inch (inside) diameter hollow stem auger at a depth of approximately 6.25 feet bgs. After presoaking for 4 hours, the testing was performed for a 2-hour period when consistent results were observed. The infiltration rate was 1.0 inch per hour. Per the Clark County Stormwater Manual (2006), the coefficient of permeability, k, was 0.0162 inches per hour for the auger borehole method.

4.0 Seismic and Geologic Hazards Evaluation

We performed a seismic hazards evaluation in general accordance with the 2021 Washington State Building Code (WSBC) which references the 2021 International Building Code (IBC) and ASCE's Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2017 Edition (ASCE/SEI 7-16). We evaluated the seismic hazards for the Maximum Considered Earthquake (MCE) having a 2 percent probability of exceedance in a 50-year period (2,475 year return period).

4.1 Seismic Setting

4.1.1 Regional Seismicity

The Pacific Northwest is a seismically active region. Earthquakes in the Pacific Northwest occur in response to active convergence of the Juan de Fuca oceanic plate and the North America continental plate. Stress builds within the colliding plates, resisted by friction at the contact between the plates. Periodically, the stress exceeds the friction and fault rupture occurs. Faulting can occur both between the plates (interplate) and within the plates (intraplate). In northwest Oregon, earthquakes can be generated from three primary sources:

- The Cascadia Subduction Zone (CSZ), which represents the interface between the subducting Juan de Fuca Plate and the overriding North American Plate;
- The CSZ intraslab within the deep subducted portion of the Juan de Fuca Plate; and
- Shallow intraplate crustal faults that form in the continental crust and accretionary wedge of sediments that accumulate along continental shelf and slope.

Background earthquakes not associated with known geologic structures, or on faults that do not exhibit surface expression or are not identified, are accounted for as grid sources in the seismic hazard analysis. Grid sources are used to account for seismic activity occurring in uncharacterized and unrecognized faults or seismic structures, and to include the effect of what has been described as a "floating earthquake."

The three primary sources above and the grid sources are included in the development of design ground motion parameters discussed in Section 4.3.

4.1.2 Cascadia Subduction Zone Seismic Sources

The CSZ extends from Vancouver Island to Northern California (about 754 km [469 mi]) and forms the boundary between the overriding North American plate and the subducting Juan de Fuca Plate. The interface and slab sources are associated with the CSZ and are described below:

- *Subduction Zone Megathrust Interface Source*: Large subduction zone (megathrust) earthquakes occur within the upper approximately 30 kilometers (18.6 mi) of the

contact between the two plates (Pacific Northwest Seismic Network [PNSN], 2020). As the Juan de Fuca Plate subducts beneath the North American Plate through this zone, the plates are locked together by friction (PNSN, 2020). Stress slowly builds as the plates converge until the frictional resistance is exceeded and the plates rapidly slip past each other, resulting in a megathrust earthquake. The subduction zone dips between 9 and 11 degrees eastward and has a slip rate of less than 5 mm/year (Personius and Nelson, 2006). Geologic evidence indicates a recurrence interval for major subduction zone earthquakes of 250 to 650 years, with the last major event occurring in 1700 (Atwater et. al., 1995). The interface source generates earthquakes that range from 8 to 9.3 M on the interface between the Juan de Fuca and North American Plates. The 2021 WSBC

- *Subduction Zone Intraplate Source*: Below depths of approximately 30 kilometers, the plate interface does not appear to be locked by friction and the plates slowly slide past each other. The curvature of the subducted plate increases as the advancing edge moves east, creating extensional forces within the plate. Normal faulting occurs in response to these extensional forces. This region of maximum curvature and faulting of the subducting plate is where large intraplate (intraslab) earthquakes are expected and is located at approximate depths ranging from 30 to 60 kilometers (18.6–37.3 mi) (Geomatrix Consultants 1993, 1995; and Kirby et al., 2002). Intraplate earthquakes generally originate below depths of 30 kilometers and are typically less than M7.5 (Cascadia Region Earthquake Workshop, 2008).

4.1.3 Shallow Crustal Source

Crustal sources typically occur at depths ranging from approximately 14 to 40 kilometers (8.7–24.9 mi) below ground surface (Geomatrix Consultants, 1995). The US Geologic Survey (USGS) uses four class definitions to classify Quaternary-age faults (e.g., faults that have generated tectonic movement within the past 2.6 million years). These classes are defined as follows (Crone and Wheeler 2000):

- *Class A* – Geologic evidence demonstrates the existence of a Quaternary fault of tectonic origin, whether the fault is exposed for mapping or inferred from liquefaction or other deformational features.
- *Class B* – Geologic evidence demonstrates existence of a fault or suggests Quaternary deformation, but the fault may not extend deep enough to be a potential source of significant earthquakes, or the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.
- *Class C* – Geologic evidence is insufficient to demonstrate (1) the existence of a tectonic fault or (2) a Quaternary slip or deformation associated with the feature.
- *Class D* – Geologic evidence demonstrates that the feature is not a tectonic fault or feature; this category includes features such as demonstrated joints or joint zones, landslides, erosional or fluvial scarps, or landforms resembling fault scarps, but of demonstrable non-tectonic origin.

The USGS online Interactive Quaternary Faults database (USGS, 2024) catalogs known, Class A crustal seismic sources. The Class A faults within 20 km of the site are presented in Table 4-1.

Table 4-1. USGS Class A Faults Within 20 km (12.5 miles) of the Project Site

USGS Fault ID.	Fault Name	Type of Fault	Slip Rate (mm/year)	Distance & Direction from Site
878	Grant Butte Fault	Normal	>0.2	11.0 km Southwest
879	Damascus-Tickle Creek Fault Zone	Right Lateral, Left Lateral, Reverse	>0.2	10.4 km South
880	Lacamas Lake Fault	Right Lateral, Normal	>0.2	0.6 km Northeast

Although not included in the USGS Fault and Fold Database, the northeast trending Prune Hill Fault and the northwest trending Blue Lake Fault about 4 km northwest and 4 km southwest of the site, respectively according to Evarts and O'Connor (2008).

The Washington State Department of Natural Resources (WSDNR) Division of Geology and Earth Resources (2024) identifies frequent seismic activity within the Saint Helens Fault Zone which southern extent is about 54 miles north of the site. The WSDNR Division of Geology and Earth Resources (2024) also archives historic seismic activity southwest of the Lacamas Lake Fault, about 0.5 km west of the Project site, with 6 noted events with Magnitude (M) 2.0 to 3.0 and two events between M 3.0 and 6.8.

The Pacific Northwest Seismic Network (PNSN) catalogs historic seismic events throughout the northwest. Within 5 km of the Project site the PNSN identifies more than 90 events between May 1988 and August 2022, with most occurring northwest of the site. The strongest event, M 2.8, occurred on September 7, 1996. These mapped locations of the events are bound by the Prune Hill Fault, Lacamas Lake Fault, and Blue Lake Fault previously described.

4.2 Site Classification

We assigned a seismic site class for the Project site following code-based procedures in Section 1613.2.2 of the Internation Building Code, which references the ASCE/SEI 7-16, Chapter 20 (2017). Site class is used to categorize common subsurface conditions into broad classes to which ground motion attenuation and amplification effects are assigned. Site classification is based on the weighted average of the shear wave velocity or Standard Penetration Test (SPT)

blow counts (N-value) in the upper 100 feet of subsurface profile. Based on the SPT N-values in boring B-1, a Site Class D is appropriate for design purposes.

4.3 Seismic Design Parameters

The 2021 WSBC with its two amendments (WSBC 2023 and WSBC 2024) requires that spectral response accelerations be developed based on the ASCE 7-16 procedures. To develop spectral response accelerations, we used the online ASCE 7 Hazard Tool, which follows ASCE 7-16 and is based on the USGS 2014 National Seismic Hazard Mapping Project (NSHMP) developed for the Maximum Considered Earthquake (MCE) (Peterson et. al., 2014). The MCE consists of ground motions (accelerations) with a 2-percent probability of exceedance in 50 years (return period of 2,475 years). The mean earthquake magnitude and the mean site-to-source distance for the zero-second period of vibration (e.g., PGA) are 7.39 and 60.89 km, respectively, for the MCE. The recommended spectral acceleration parameters for use in structural design are provided in Table 4-2.

Table 4-2. MCE Spectral Acceleration Parameters for Site Class D

Parameter	0.2-Second Period	1-Second Period
Mapped MCE_R (Rock site)	S_S = 0.807g	S_1 = 0.350g
Site Coefficients	F_a = 1.177	F_v = 1.95
Site-Adjusted MCE_R	S_{MS} = 0.950g	S_{M1} = 0.682
Design MCE_R	S_{DS} = 0.633g	S_{D1} = 0.455
Mapped MCE PGA (Rock Site)	0.363g	
Site Coefficient F_{PGA}	1.237	
Site-adjusted MCE PGA_M	0.449g	

It is important to note that Section 11.4.8 of ASCE 7-16 requires a site-specific ground motion hazard analysis be performed on structures on Site Class D sites with a 1-second spectral response acceleration parameter (S_1) greater than 0.2g. However, Exception No. 2 in Section 11.4.8 states that a site-specific ground motion hazard analysis is not required at Site Class D site if the structure's fundamental period of vibration T is less than $1.5T_s$ and the seismic response coefficient C_s is used for design. We assume structures for the Project will be single story or below grade. Therefore, we anticipate the fundamental period of vibration T will be less than 0.5-second.

4.4 Seismic Sources and Hazard Deaggregation

We used the online USGS Unified Hazard Tool (USGS 2024b) to perform a deaggregation of the Uniform Hazard Spectrum at the site. Table 4-3 summarizes the results of the MCE hazard deaggregation for the zero-second period of vibration (e.g., PGA). The deaggregation data identify the earthquake sources, magnitudes, and site-to-source distances that contribute to the mean source event acceleration parameters summarized in Table 4-3 below.

Table 4-3. Deaggregation Results for 2,475-year Mean Source Event (MCE), PGA Period

Source	Moment Magnitude, M_W[1]	Site-to-Source Distance[2] (km)	% Contribution to Hazard
CSZ Interface	8.99	116.64	40.2
CSZ Intraslab	7.01	77.35	11.2
Crustal Faults[3]	6.04 to 6.33	7.81 to 12.94	48.6

Notes:
1. M_W values represent the mean value from each type of earthquake source.
2. Site-to-Source distances represent the mean value from each type of earthquake source.
3. Crustal faults source include gridded seismic sources that represent earthquakes that do not occur on known, mapped faults.

4.5 Liquefaction and Lateral Spreading

Liquefaction is the phenomenon whereby saturated cohesionless soils (e.g., sands, gravels, and non-plastic to low-plasticity silts) undergo significant strength loss and stiffness when subjected to vibration or large cyclic ground motions produced by earthquakes. Saturated granular and low-plasticity soils (i.e., gravels, sands, and silts) are most susceptible to liquefaction.

Because of the very dense gravelly conditions encountered, we conclude that the risk of liquefaction is very low at the site. This concurs with hazards maps provided by Washington State Department of Natural Resources Division of Geology and Earth Resources (Palmer et. al, 2004).

Lateral spreading is a liquefaction-related phenomenon that results in ground displacement during an earthquake and occurs in sloping ground or flat ground with free face (i.e., a creek bank or channel). Although these are steep creek banks to the south trending toward the south extent of Lacamas Creek, we consider the risk of lateral spreading low due to the lack of liquefiable soils encountered and the distance between the slope and the planned site improvements (which is more than 200 feet from the top of the nearest site slope).

4.6 Slope Stability

The Washington Geologic Information Portal (Washington DNR 2024) does not show any known landslides at the Project site. The nearest mapped landslide mass is about 1,200 feet north of the site along the banks of Lacamas Creek. This movement is reported to have occurred within the last 150 years and has a failure depth of 43 feet and a headscarp height of 50 feet. We confirmed these features by available LIDAR imagery.

A large slide mass is mapped about 1,800 feet west of the site along the steep slopes of Northwest 6th Avenue. This feature is reported to be fan material from a deep-seated slide mass with a failure depth of have a failure depth of 87 feet. This feature is located along the south slopes of Prune Hill bound at the north by Forest Home Road and is approximately 320 acres in size (Washington Geologic Portal, 2024).

The Well 13 site is relatively level. However, there are steep banks trending down to the confluence of Lacamas Creek and the Washougal River. These slopes are generally 1H:1V and wooded. During our site reconnaissance in April 2024, we did not observe clearly indicative signs of instability along this slope face, such as pistol butted tree trunks, surficial cracking, or soil raveling. Our review of available Lidar imagery (Washington Geologic Information Portal) confirms our observations. Although we do not interpret previous soil movement from Lidar imagery provided by WS DNR (Washington Geologic Information Portal 2024), the imagery could be interpreted to include erosional characteristics along the slope near the south terminus of East Cramer Lane.

In general, we anticipate that the risk of the creek bank failure and landslide affecting the proposed improvements is low.

4.7 Flood Hazard

The Federal Emergency Management Agency (FEMA) shows the site adjacent to Zone AE (Floodway) near the south banks to the Lacamas Creek (FEMA 2018). A flood water surface elevation is reported to be 35 feet at the site. The ground surface of the site is approximately between 50 and 60 feet.

4.8 Other Hazards

Other geologic and seismic hazards, including debris flows, fault rupture, and tsunamis/seiches are not considered risks to the project.

5.0 Conclusions

Based on the results of our geotechnical investigation, laboratory testing, seismic hazards evaluation, new site structures associated with the Project can be supported on shallow foundations, provided the recommendations in Section 6 are incorporated.

The layout, size, and elevations for new structures/facilities have not been established at this stage of the Project. At this preliminary stage of the Project, we assume the location of the site improvements will be in the north, undeveloped section of the property near East 1st Avenue.

There are two primary geotechnical-related considerations at the project site:

- *Soft Surficial Soils:* We encountered a 5- to 6.5-foot-thick mantle of very soft to soft fine-grained soils at the site that overlie dense gravely soil. Foundations bearing on the soft soils are highly likely to settle over time. Bearing surfaces of new foundations should be within the gravel stratum underlying these soft soils. Therefore, we recommend the foundation subgrade, if founded within the upper 5 feet, be overexcavated and replaced with structural fill.

- *Slope Setback*: The slopes down to the confluence of Lacamas Creek and the Washougal River are up to 1H:1V. Based on the dense gravelly subsurface conditions encountered, we do not expect new structures/facilities over 200 feet from the top of these slopes to be impacted from the potential slope erosion and instability conditions. However, we recommend a setback of at least 50 feet from the top of the slopes for any other possible project improvements. Stormwater generated by site improvements should be managed so that there is no discharge or open channel flow down these existing slopes and all stormwater management facilities should be setback the minimal distance recommended.

6.0 Design Recommendations

We are providing geotechnical design recommendations for the planning and layout of the site improvements that provide PFAS treatment at the site. We understand the new structure(s) will house and support tanks needed for the treatment processes. At this phase of the project, the layout, elevations, size, and of the new tanks and other equipment have not been established and our recommendations should be considered preliminary.

6.1 Slab-on-Grade Foundations

We recommend a modulus of subgrade reaction of 250 pounds per cubic inch (pci) for the design of concrete slab-on-grade foundations which will be supported on structural fills placed on native gravelly subgrade soils which should be prepared as recommended in Section 6.1.1

below. The recommended modulus of subgrade reaction represents the anticipated value, which would be obtained in a standard in situ plate test with a 1-foot square plate. Use of this subgrade modulus for design should include appropriate modifications based on dimensions as necessary.

We anticipate concrete slabs-on-grade will have a total static settlement up to ½ inch when designed in accordance with our recommendations. Differential settlement is expected to be one-half of this amount, or up to ¼-inch. We recommend allowing for an additional ½-inch total settlement and ¼-inch differential settlement under seismic conditions.

6.1.1 Subgrade Preparation

Subgrade soils supporting concrete slab foundations should consist of the native gravelly soils encountered beneath the surficial soft fine-grained soils about 5 to 6.5 feet bgs in our investigation. The subgrade should be excavated using a smooth bucket. After excavating to the proposed subgrade level, the subgrade surface should be observed by Delve Underground or their representative. Due to the soft surficial conditions at the site, we recommend assessing subgrade suitability by subgrade probing rather than proof rolling with a fully-loaded dump truck or equivalent. Soils that are observed to be unsuitable should be overexcavated and replaced with structural fill (see Section 7.2.1) at the direction of the Delve Underground Geotechnical Engineer, or their representative.

The exposed subgrade should be mechanically compacted to unyielding conditions and should be overlayed by a layer of separation geotextile (see section 7.3) prior to the placement of structural fill.

The structural fill should be capped by a 6-inch thick leveling coarse on which the slab-on-grade and footing foundations can be placed. The prepared subgrade, geotextile, and structural fill should extend a minimum of 2 feet outside the perimeter of the concrete slab.

6.2 Continuous, Strip, and Spread Footings

Although locations and depths of new structures are not shown at this phase of the design, those structures can be supported by shallow foundations, such as conventional strip, continuous, or spread footings bearing on the native gravelly soils. Preliminary recommendations for the design of shallow foundations are provided in Table 6-1.

Table 6-1. Foundation Design Recommendations

Parameter	Value
Net Allowable Bearing Pressure (psf)	2,500
Friction Coefficient, Pre-Cast Concrete Foundations	0.30
Friction Coefficient, Cast-in-Place Concrete Foundations	0.45
Passive Pressure (psf)	200D[1]

Note:

1. D: embedment depth; passive pressure value includes a factor of safety of 2.

The net allowable bearing pressure applies to the total of dead and long-term loads and may be increased by one-third when considering seismic loads. We recommend disregarding the effects of the upper 12 inches of soil in calculating passive resistance due to the likelihood of soil disturbance in this area.

Based on our analysis, the total static settlement is anticipated to be less than 1/2 inch. We estimate minimal total dynamic settlement, which will be about 0.1-inch. We estimate differential settlement to be up to one-half the total settlement under each condition.

6.2.1 Subgrade Preparation

The design parameters provided in Table 6-1 assume the foundations are bearing on prepared subgrade, as recommended in Section 6.1.1.

6.3 Lateral Earth Pressures on Embedded Walls

Below grade structures at the site can be designed to resist the lateral earth pressures provided in Figure 4.

7.0 Construction Recommendations

The following are preliminary recommendations intended for use during the construction phase. Once the Project design phase progresses, we can provide additional or revised recommendations based on the new information.

7.1 Site Preparation

All existing utilities should be identified prior to excavation. If applicable, demolition of any existing structures should include complete removal of all structural elements, including foundations, and concrete slabs. Abandoned buried utilities should similarly be removed or fully grouted.

7.2 Backfill Materials and Compaction Criteria

7.2.1 Structural Fill

Structural fill should be used under foundations and slabs. Structural fill should consist of imported, crushed rock conforming to Washington State Department of Transportation (WSDOT) 2025 Standard Specifications, M 41-10 (WSDOT 2025) Class B Gravel Backfill for Foundations, Section 9-03.12(1)B. Unless otherwise noted, structural fill below structures should be compacted to a minimum 95% of the maximum dry density determined by ASTM D698.

Structural fill placed within 5 feet around embedded walls should be compacted to no more than 95% of dry density determined by ASTM D698. The structural fill should be placed in maximum lifts of 8 inches of loose material. Each lift of structural fill should be tested prior to placement of subsequent lifts.

7.2.2 Embedded Wall Backfill

The walls of fully-embedded structures should be backfilled with free-draining granular materials the requirements of WSDOT 2025 Standard Specification, M 41-10 Section 9.03.12(2) for Gravel Backfill for Walls. The backfill placed within 3 feet of the wall for the structure should be compacted to not more than 92 percent of the maximum dry density per ASTM D698.

Large and heavy equipment, particularly compaction equipment, should not be allowed to operate near the walls during construction. The compaction equipment used within 3 feet of the wall should be hand compaction equipment, walk-behind, or self-propelled rollers with a limit static weight of less than 1,000 pounds. Loose lift thickness may need to be reduced where hand compaction equipment is used.

7.3 Separation Geotextiles

Separation geotextile placed on foundation subgrade should be installed over the prepared subgrade to prevent fines migration of the imported structural fill material into the prepared native gravel subgrade. The separation geotextile should be installed per the manufacturer's instructions. Separation geotextiles should meet the requirements for Separation Geotextile in Table 3 of WSDOT Standard Specification, M 41-10, Section 9-33.2(1).

7.4 Temporary Shoring

At this stage the locations, size and depths of the new Project structure are not known.

Selection of shoring systems and the safety of temporary excavation and cut slopes is solely the responsibility of the Contractor. The Contractor must submit an excavation and shoring plan to the Engineer prior to construction. The plan should show the design of the shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground for excavations over 4 feet in depth. The Contractor should be aware of, and familiar with, applicable local, state, and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. The shoring plan must be prepared and stamped by a Professional Engineer in the State of Washington.

7.5 Groundwater Control

Static groundwater is not expected to be encountered within anticipated excavation depths (up to 10 feet). Therefore, we anticipate that any groundwater inflow to the excavation can be controlled using sumps.

7.6 Temporary Cuts

If cut slopes are required, maximum cut slope inclinations must be made in accordance with OSHA regulations. Based on the subsurface conditions encountered at the project site, an OSHA Type C soil type should be used in the upper 5 feet for temporary excavation layout. Below 5 feet, Type B soils can be used for the underlying gravelly conditions. For excavations up to 20 feet, ground cuts should not exceed 1H:1V in the site gravels and not exceed 1.5H:1V in the upper fine-grained silt soils.

Temporary slope recommendations do not consider site constraints such as groundwater, surcharge, or nearby structures. Temporary slopes should be evaluated on a case-by-case basis and incorporate groundwater conditions, soil classification, and site constraints. Cut slopes should be inspected and maintained as required by OSHA.

With time, the presence of seepage, and precipitation, temporary cut slope stability can be compromised. Therefore, temporary slopes kept open during construction should be protected

from erosion by installing a surface water diversion ditch or berm at the top of the slope and covering the cut face with well-anchored plastic sheets. In addition, the Contractor should monitor the stability of the temporary cut slopes and adjust the construction schedule and slope inclination accordingly. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor and all excavations must comply with current federal, state, and local requirements.

7.7 Wet Weather Construction

Soil conditions should be evaluated in the field by the geotechnical engineer or their representative at the initial stage of site preparation to determine whether the recommendations within this section should be incorporated into construction. If earthwork is performed during extended periods of wet weather or in wet conditions, we recommend the following:

- Excavations should be protected from surface water runoff by placing sandbags or by other means to direct runoff of precipitation away from work areas and to prevent ponding of water in excavations.
- Plastic covers, sloping, ditching, sumps, dewatering, and other measures should be employed in work areas as necessary to permit timely completion of work. Bales of straw and/or geotextile silt fences should be used to control surface soil movement and erosion.
- Excavation or the removal of unsuitable soil should be followed promptly by placement and compaction of structural fill.

8.0 Closure

This report has been prepared for the exclusive use for Carollo Engineers for the PFAS Evaluation and Well 13 Treatment Design for the City of Camas, Washington. The data presented in this report is based on the subsurface conditions encountered during our site explorations and is intended to support the design of the proposed improvements. Delve Underground is not responsible for the interpretation of the data contained in this report by anyone; as such interpretations are dependent on each person's subjectivity.

In the performance of geotechnical work, specific information is obtained at specific locations at specific times, and geologic conditions can change over time. It should be acknowledged that variations in soil conditions may exist between exploration and exposed locations and this report does not necessarily reflect variations between different explorations. The nature and extent of variation may not become evident until construction. If, during construction, conditions observed or encountered differ from those disclosed by this report, Delve Underground should be advised at once so we can observe and review these conditions and reconsider our recommendations where necessary.

The geotechnical engineering evaluations and interpretations are completed within the limitations of Delve Underground's approved scope of work, schedule and budget. The services rendered by Delve Underground have been performed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same area. The construction recommendations are considered preliminary and provided for planning purposes only. Delve Underground is not responsible for the use of this report in connection with anything other than the project at the location described above.

Delve Underground

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Senior Engineer

Jeremy Fissel, PE
Associate Engineer

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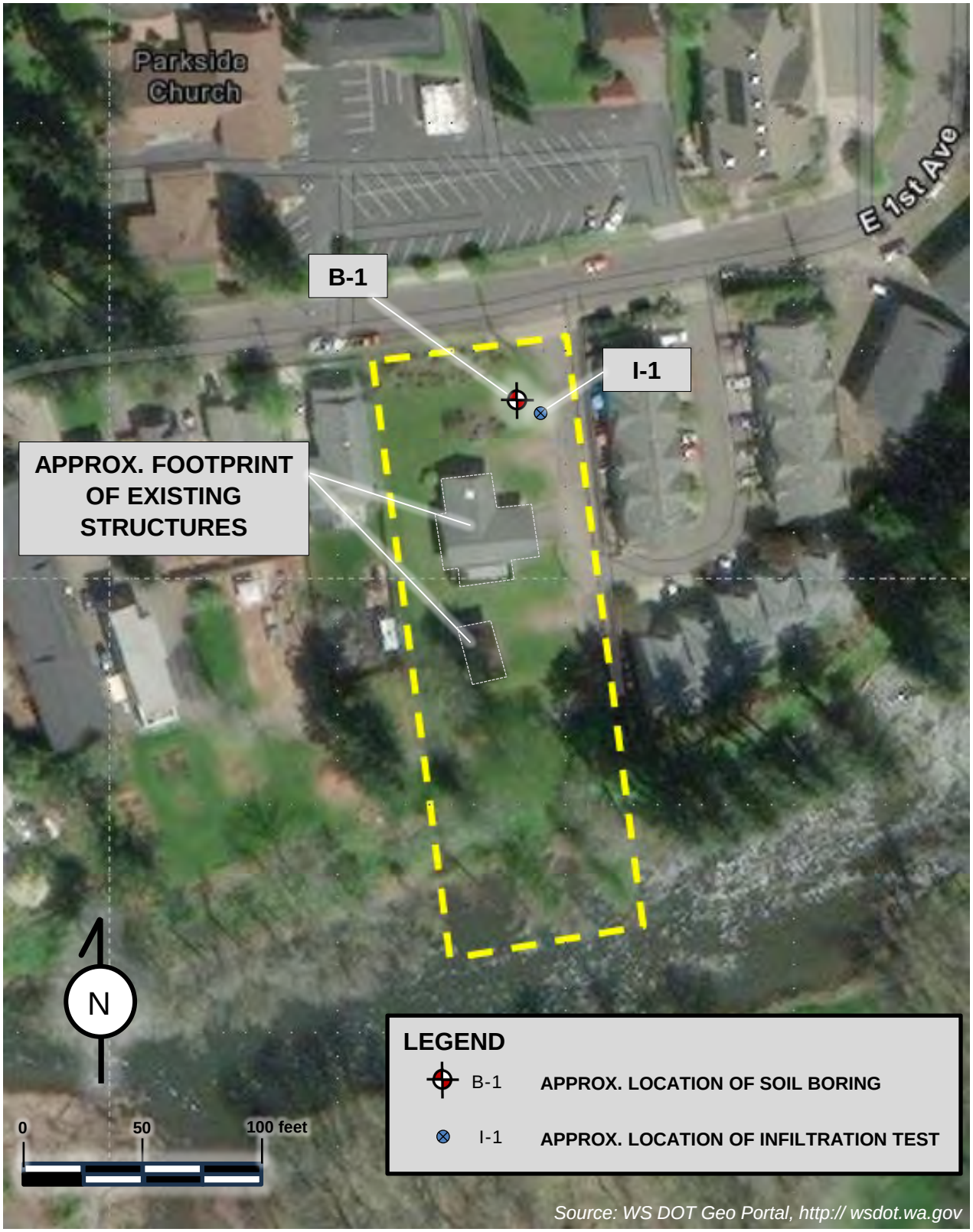
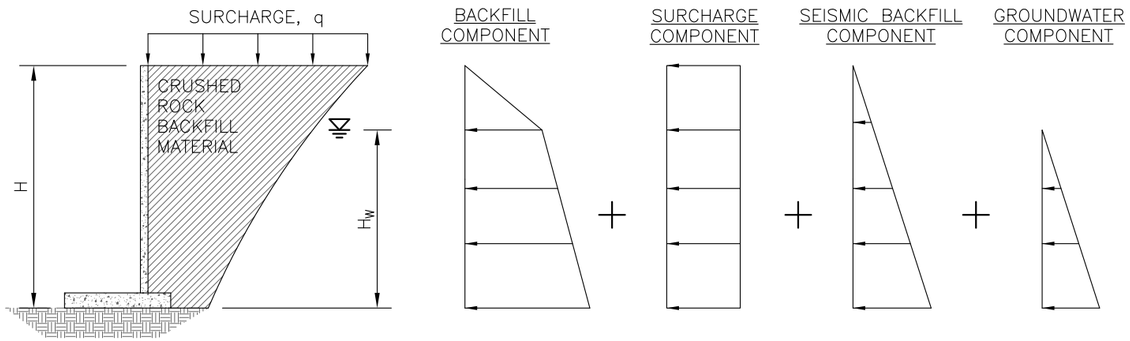
DELVE underground	CAMAS WATER SYSTEM WELL 13 PFAS TREATMENT DESIGN	FIG 1
	SITE VICINITY PLAN	MA 2025

DELVE underground	CAMAS WATER SYSTEM WELL 13 PFAS TREATMENT DESIGN	FIG 2
	SITE LOCATION PLAN	MA 2025



DELVE underground	CAMAS WATER SYSTEM WELL 13 PFAS TREATMENT DESIGN	FIG 3
	SITE EXPLORATION PLAN	MARC 2025

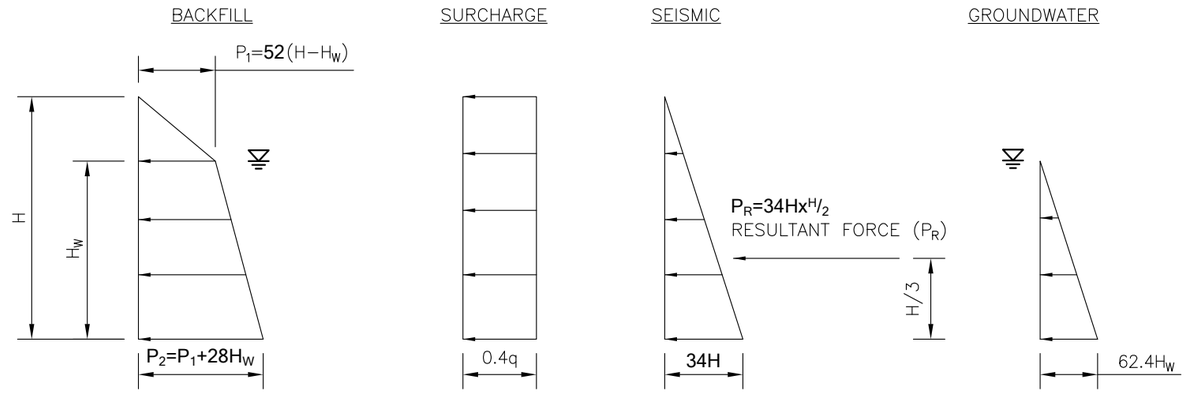
LATERAL EARTH PRESSURES ON EMBEDDED WALLS & STRUCTURES



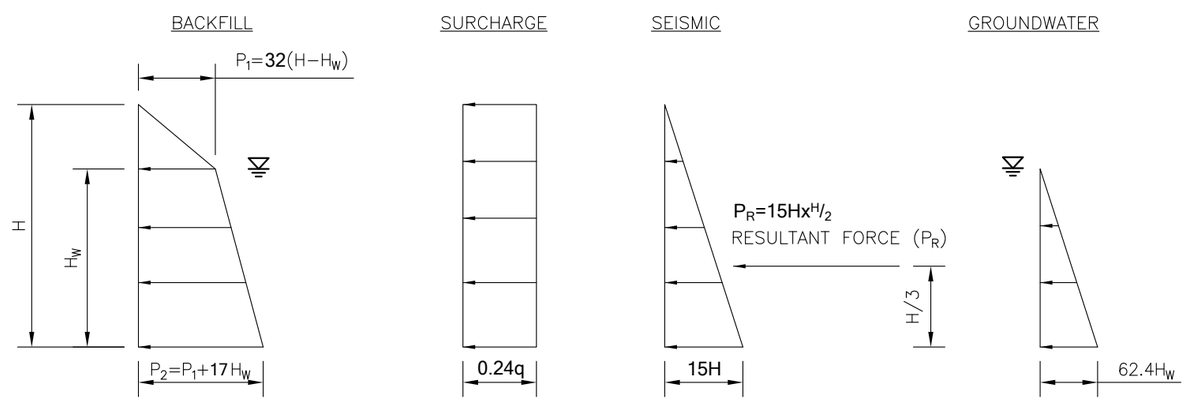
NOTES:

1. UNITS ARE POUNDS PER SQUARE FOOT (PSF).
2. PRESSURES BASED ON WALL BACKFILL PER WSDOT 2024 STANDARD SPECIFICATIONS M41-10 SECTION 9.03.12(2)

RESTRAINED (NON–YIELDING) EMBEDDED WALLS & STRUCTURES



NON-RESTRAINED (YIELDING) EMBEDDED WALLS & STRUCTURES



DELVE underground

CITY OF CAMAS

WELL 13 PFAS TREATMENT DESIGN

GEOTECHNICAL ENGINEERING REPORT
LATERAL EARTH PRESSURES FOR EMBEDDED WALLS

FIG.4

MARCH 2

Appendix A Soil Boring Logs

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Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

B-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	51.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	Mud Rotary CME 75
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	4.78 in
Location	45 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT)	WATER LEVEL	DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
									ML	Soft, moist, brown, SILT (ML); trace fine to coarse sand, low plasticity. **FILL**		
		2							ML	Very soft, moist, brown (SILT (ML); trace fine to coarse sand, trace mica. **RECENT ALLUVIUM**		
		4		67	0-0-1 (N=1)	S-01	■					
55		6		6	4-3-26 (N=29)	S-02	■		GW-GC	Medium dense, moist, brown fines, gray gravel, Well Graded GRAVEL with Clay (GW-GC); fine to coarse gravel, fine to coarse sand. **COARSE GRAINED CATASTROPHIC FLOOD DEPOSITS**		
		8		0	50/1" (Refusal)	S-00	■			*(7.5 ft. bgs) Refusal, no recovery at S-00*		
50		10		61	9-12-13 (N=25)	S-03	■		GC	Medium dense, moist, brown to gray, CLAYEY GRAVEL (GC); mostly coarse subrounded to subangular gravel, fine to coarse sand, medium plasticity fines.		
		12		56	18-27-27	S-04			GC	Dense, wet, brown fines and sand, gray gravel, red and red-brown clasts, CLAYEY GRAVEL (GC); fine to coarse gravel, fine to coarse sand, coarse sand/fine gravel red clasts, occassional charcoal, subrounded to angular gravel.	Modified California sampler for S-4., and S-6 through S-13. Hammer blow counts are as observed and uncorrected.	
45		14										
		16		45	14-16-14 (N=30)	S-05	■		GP	Medium dense, gray, wet, well Poorly Graded GRAVEL (GP); fine to coarse sand, fine to coarse gravel, angular to subangular gravel.	(~17 ft. bgs) Drill rig chatter.	
		18		56	13-16-17	S-06				*(17.5 ft bgs) Encountered red, coarse gravel-sized weak clasts.*		

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring B-1

Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

B-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	51.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	Mud Rotary CME 75
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	4.78 in
Location	45 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT)	WATER LEVEL	DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
		22		67	19-37-49	S-07				Very dense, wet, gray with light brown gravel fragments, Well Graded GRAVEL with Sand (GW); fine to coarse sand, fine to coarse gravel, angular (recently fractured) to subangular gravel, trace green-gray gravel. *(20 ft. bgs) Becomes very dense. Fine gravel clasts present.*		
		24										
35				100	75/5"	S-08			GW			
		26										
		28										
30		30		100	75/6"	S-09				Very dense, moist, gray and gray brown with red clasts, Poorly Graded GRAVEL with Sand (GP); mostly fine subrounded to angular gravel, fine to coarse sand.		
		32							GP			
		34										
25				100	29-75/1"	S-10				Very dense, moist, gray, Well Graded GRAVEL (GW); fine to coarse sand, fine to coarse gravel, subrounded to angular gravel, recently broken subrounded gravels present.		
		36							GW			
		38										

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring B-1

Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

B-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	51.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	Mud Rotary CME 75
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	4.78 in
Location	45 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT)	WATER LEVEL	DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
				67	40-75/12 "	S-11			GP	Very dense, wet, gray to brown, Poorly Graded GRAVEL (GP); fine to coarse sand, fine gravel, occasional coarse gravel.		
		42										
		44								Very dense, moist-gray-brown, dark red, red-orange, and light gray, Poorly Graded GRAVEL with Sand (GP); mostly fine gravel, fine to coarse sand.		
15				67	43-75/12 "	S-12			GP			
		46										
		48										
10		50		100	45-62-65	S-13			SP	Very dense, moist, gray and gray-brown, Poorly Graded SAND (SP); red, brown and light brown sand visible, micacous.		
		52									Borehole completed at 51.5 feet below ground surface (bgs).	
		54										
5												
		56										
		58										

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring B-1

Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

I-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	6.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	4.25" HSA CME 55
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	6.00 in
Location	~35 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT) / WATER LEVEL / DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
0							ML	Moist, brown SILT (ML), trace fine to coarse sand, low plasticity. **FILL**		
2								Moist, brown SANDY SILT (ML); trace fine sand, low plasticity. **RECENT ALLUVIUM**		
4		67	1-1-1 (N=2)	S-01	■		ML			
55										
6		67	2-2-4 (N=6)	S-02	■		ML	Moist, brown SILT with SAND (ML); fine to coarse sand, low plasticity, coarse gravel fragment in shoe of split spoon *Perform infiltration test. Pre-soak for 4 hours. Take two hours of measurements, adding additional water at each interval.*	Borehole completed at 6.5 feet below ground surface (bgs).	
8										
50 10										
12										
14										
45										
16										
18										

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring I-1

Sheet 1 of 1

Appendix B Laboratory Testing Results

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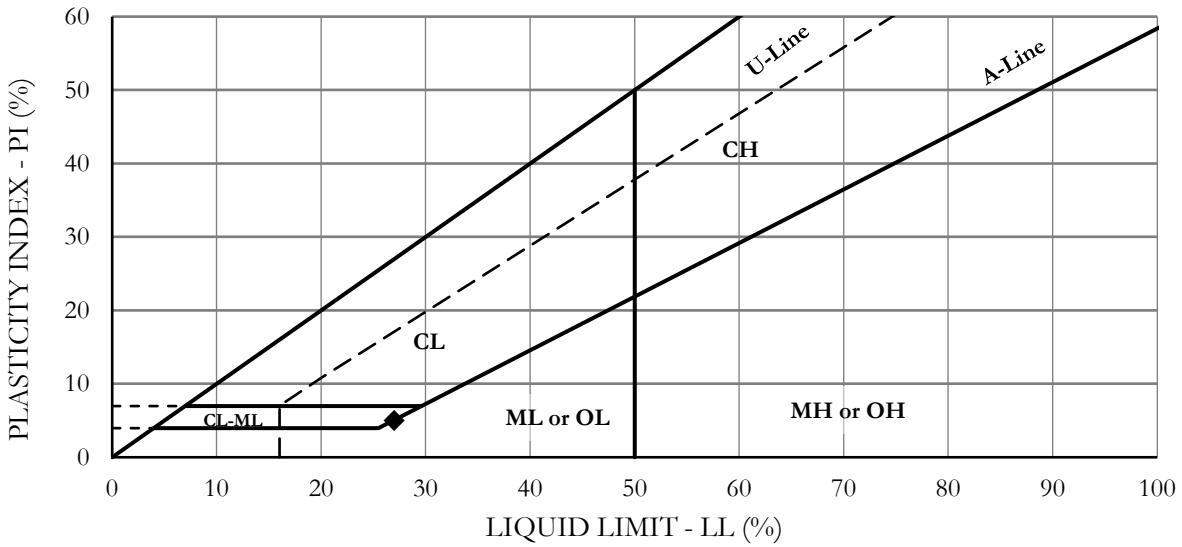
Breccia Geotechnical Testing, LLC.		Percent Fines (ASTM D1140)	
Client:	Delve Underground	By:	FS
Project Name:	Camas Water System PFAS Evaluation	Date:	5/24/2024
Project Number:	6571.0		

Exploration ID	I-1					
Samples ID	S-2					
Samples Depth (ft.)	5					
Moisture Content (%)	30.3					
Percent Fines (%)	66.6					

ATTERBERG LIMITS TEST RESULTS (ASTM D4318)



	Boring ID	Sample ID	Depth (feet)	Moisture Content (%)	Atterberg Limits			%Pass #200	USCS
					LL	PL	PI		
◆	I-1	S-1	2.5	22.6	27	22	5	--	ML

Remarks

Project: Camas Water System PFAS Evaluation
Project No.: 6571.0
Location: Camas, WA

Breccia Geotechnical Testing, LLC.
Brecciageolab@gmail.com
Tel: 971-246-1324

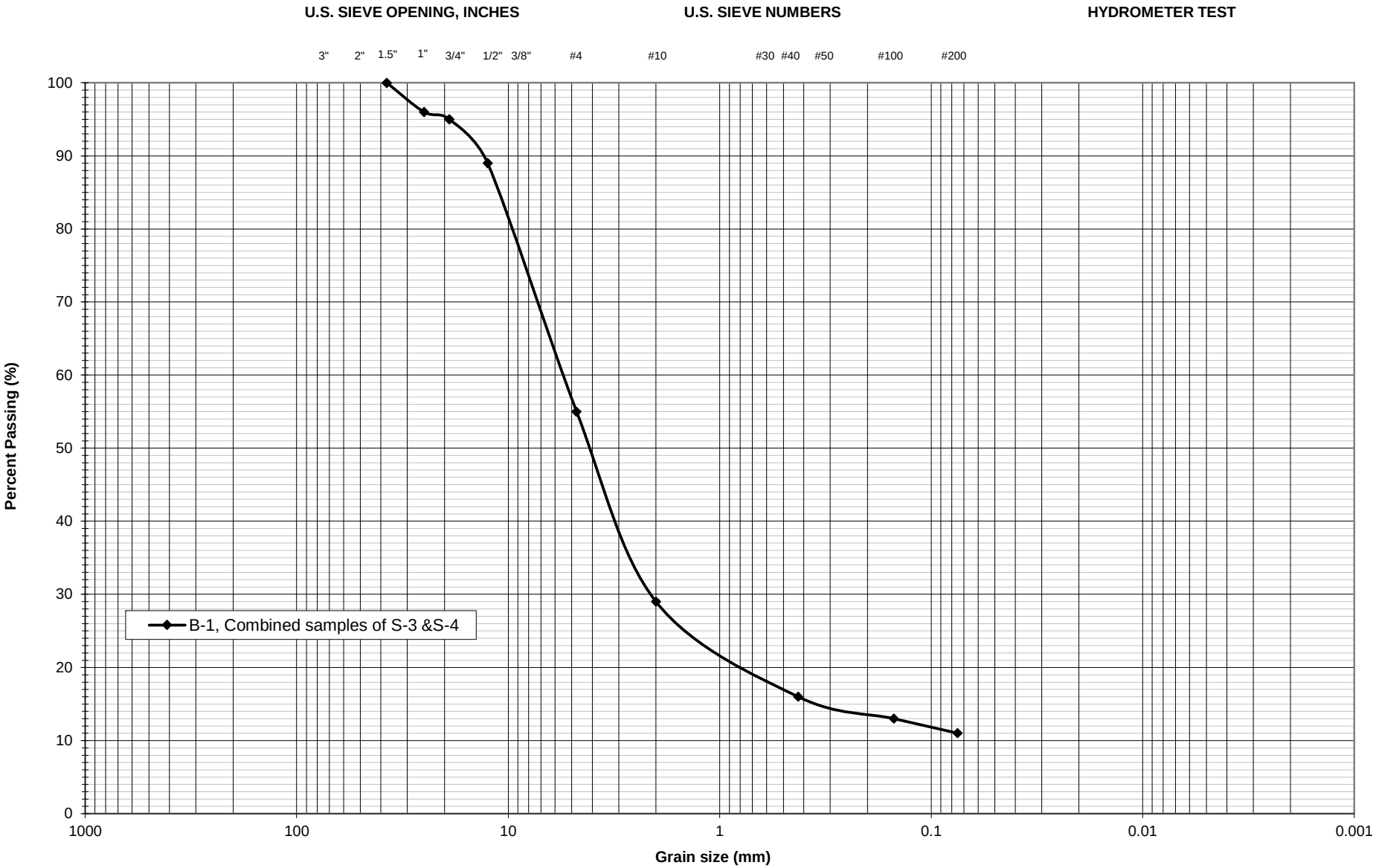
Breccia Geotechnical Testing, LLC.	Particle-Size Analysis of Soils (ASTM D422) - *Mechanical Analysis without Hydrometer Test*

Client:	Delve Underground	By:	FS
Project Name:	Camas Water System PFAS Evaluation	Date:	5/24/2024
Project Number:	6571.0		

Exploration ID	B-1					
Samples ID	S-3&S-4					
Samples Depth (ft.)	10&12.5					
Sieve Size	Percent Passing					
1-1/2"	100					
1"	96					
3/4"	95					
1/2"	89					
No. 4	55					
No. 10	29					
No. 40	16					
No. 100	13					
No. 200	11					

% Coarse Gravel	5.0					
% Fine Gravel	40.0					
% Coarse Sand	26.0					
% Medium Sand	13.0					
% Fine Sand	5.0					
% Fines	11.0					

Note: Samples prepared by washing over No. 200 sieve


U.S. SIEVE OPENING, INCHES
U.S. SIEVE NUMBERS
HYDROMETER TEST
3"
2"
1.5"
1"
3/4"
1/2"
3/8"
#4
#10
#30
#40
#50
#100
#200
Percent Passing (%)
100
90
80
70
60
50
40
30
20
10
0
1000
100
10
1
0.1
0.01
0.001
Grain size (mm)
B-1, Combined samples of S-3 &S-4

Appendix C Water Well Reports

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File Original with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy 193881

WATER WELL REPORT
STATE OF WASHINGTON

Notice of Intent W24453
UNIQUE WELL I.D. # AH[redacted] ALL-996
Water Right Permit No.

(1) **OWNER:** Name City of Camas Address PO Box 1055, Camas, WA 98607

(2) **LOCATION OF WELL:** County Clark SE 1/4 NE 1/4 Sec 11 T 1 N.R. 3E WM

(2a) **STREET ADDRESS OF WELL:** (or nearest address) Lawn Block Park - NE 1st Ave

TAX PARCEL NO.: 090988-000

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☒ Test Well ☐ Other ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one) TW-1
☒ New Well ☐ Deepened ☐ Reconditioned ☐ Decommission
Method: ☐ Dug ☐ Bored ☒ Cable ☐ Driven ☐ Rotary ☐ Jetted

(5) **DIMENSIONS:** Diameter of well 8 inches
Drilled 138 feet. Depth of completed well 138 ft.

(6) **CONSTRUCTION DETAILS**
Casing Installed:
☒ Welded 8 " Diam. from +2 ft. to 138 ft.
☐ Liner installed " Diam. from ft. to ft.
☐ Threaded " Diam. from ft. to ft.

Perforations: ☒ Yes ☐ No
Type of perforator used Mills Knife
SIZE of perforations 1/4" in. by 4" in.
60 perforations from 95 ft. to 110 ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location
Manufacturer's Name
Type Model No.
Diam. Slot Size from ft. to ft.
Diam. Slot Size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
Material placed from ft. to ft.

Surface seal: ☒ Yes ☐ No To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level 70 ft.
Static level 61.6 ft. below top of well Date 2/8/06
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No

(10) **WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION**
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
Brown silty Sand & Clay	0	10
Brown siltbound sand, Gravel, and Boulders	10	29
Brown siltbound Sand, Gravel and Cobbles	29	40
Brown siltbound Sand & Gravel	40	49
Brown very silty Sand and Gravel	49	58
Brown Silty Sand & Gravel	58	80
Brown Sand & Gravel w/minor cobbles and siltbound interbeds	80	92
Brown Sand & Gravel	92	111
Brown Fine Sand	111	120
Brown silty to very silty fine Sand	120	132
Tan Clay	132	136
Reddish-brown clay and Rock frags. (weathered bedrock)	136	138

RECEIVED RECEIVED
FEB 17 2006 APR 17 2006
Washington State Department of Ecology Washington State Department of Ecology

Work Started 10/26/2005 Completed 2/15/2005

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Randy Holt License No. 1099
(Licensed Driller/Engineer)

Trainee Name License No.
Drilling Company Holt Drilling / Boart Longyear
(Signed) Randy Holt License No. 1099
(Licensed Driller/Engineer)
Address Po Box 1890 Milton WA 98354
Contractor's Registration No. BOARTLS055P2 Date 4/04/06

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (11/98)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (360) 6600. The TDD number is (360) 407-6006.

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. RE09349

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction

☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

499829

Consulting Firm

Unique Ecology Well IDTag No. BCM274

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Dennis, James

Driller/Engineer /Trainee Signature James Dennis

Driller or Trainee License No. 3145

If trainee, licensed driller's Signature and License Number:

Property Owner City of Camas

Site Address NE 3rd Ave + NE 3rd Pl

City Camas County Clark

Location SE 1/4-1/4 NE 1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____

Long Deg ____ Min ____ Sec ____

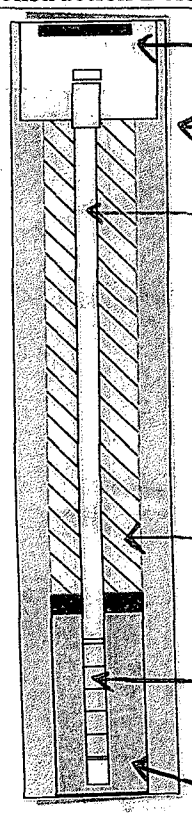
Tax Parcel No.

Cased or Uncased Diameter 5" Static Level none

Work/Decommission Start Date 12/6/13

Work/Decommission Completed Date 12/6/13

Construction Design



Well Data

MONUMENT/VAULT Below Ground From 0 To 1

BORE HOLE Diameter 5" From 0 To 20

CASING Dia. 1" From ☐ 0 To 10

Gauge 580 Wld Thrd

Material ◯Steel ◉Plastic ☐ ☒

LINER Dia. ____ From ☐ ____ To ____

Gauge ____ Wld Thrd

Material ◯Steel ◯Plastic ☐ ☐

SEAL From 1 To 9

Material Bent Chips

Amount 23 Grout weight ____

SCREEN (Casing/Liner) ____ Material PVC

Diameter 1" From 10 To 20

Slot Size .010

FILTER Material Silica Sand Size of pack 10/20

From 9 To 20

Formation Description

Cobbles 0-3'

Sandy Silt/Gravels 3-7'

Boulders 7-9'

Cobbles 9-20'

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WA State Department of Ecology (SWRO)

SCALE: 1"= ____ PAGE ____ OF ____

ECY 050-12 (Rev. 7/06)

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. SE50012

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Type of Well *("x in box)* 499848
☐ Resource Protection
☒ Geotech Soil Boring

Property Owner City of Camas

Site Address NE 3rd Ave & NE 3rd Pl

Consulting Firm

City Camas County Clark

Unique Ecology Well IDTag No.

Location SE1/4-1/4 NE1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____
Long Deg ____ Min ____ Sec ____

☒ Driller ☐ Engineer ☐ Trainee
Name (Print Last, First Name) Dennis, James
Driller/Engineer /Trainee Signature James Dennis
Driller or Trainee License No. 3145

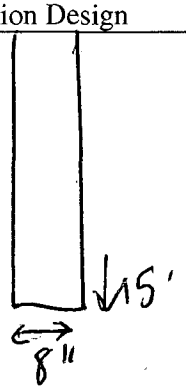
Tax Parcel No.

Cased or Uncased Diameter 8" Static Level None

Work/Decommission Start Date 12/05/2013

If trainee, licensed driller's Signature and License Number:

Work/Decommission Completed Date 12/05/2013

Construction Design	Well Data	Formation Description
	Drilled (1) 15' hollow stem auger boring for geotechnical purposes.	Asphalt 0-6" Sand 6"-15'

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WA State Department of Ecology (SWRO)

SCALE: 1"= 10 PAGE ____ OF 8

ECY 050-12 (Rev. 7/06)

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. AE24763

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction
☒ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:
SE50012

Consulting Firm

Unique Ecology Well IDTag No.

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee
Name (Print Last, First Name) Dennis, James
Driller/Engineer /Trainee Signature James Dennis
Driller or Trainee License No. 3145

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

☐ Resource Protection
☒ Geotech Soil Boring

499849

Property Owner City of Camas

Site Address NE 3rd Ave & NE 3rd Pl

City Camas County Clark

Location SE1/4-1/4 NE1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

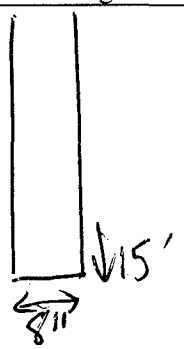
Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____
Long Deg ____ Min ____ Sec ____

Tax Parcel No.

Cased or Uncased Diameter 8" Static Level None

Work/Decommission Start Date 12/05/2013

Work/Decommission Completed Date 12/05/2013

Construction Design	Well Data	Formation Description
	Decommissioned (1) 15' hollow stem auger boring using (6) 50lb sack bentonite chips 15-2', gravel 2-6", Asphalt 6"-0'	Asphalt 0-6" Sand 6"-15' Boring decommssioned as described under well data.

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WA State Department of Ecology (SWRO)

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ECY 050-12 (Rev. 7/06)

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RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. AE24763

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction
☒ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:
SE50012

Consulting Firm

Unique Ecology Well IDTag No.

Type of Well *("x in box)*

☐ Resource Protection
☒ Geotech Soil Boring 499853

Property Owner City of Camas

Site Address NE 3rd Ave & NE 3rd Pl

City Camas County Clark

Location SE1/4-1/4 NE1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____
Long Deg ____ Min ____ Sec ____

Tax Parcel No.

Cased or Uncased Diameter 8" Static Level None

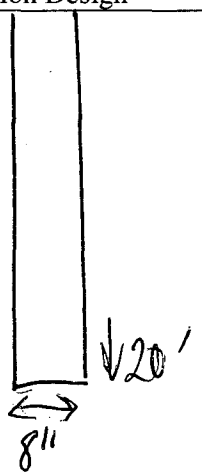
Work/Decommission Start Date 12/05/2013

Work/Decommission Completed Date 12/05/2013

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee
Name (Print Last, First Name) Dennis, James
Driller/Engineer /Trainee Signature James Dennis
Driller or Trainee License No. 3145

If trainee, licensed driller's Signature and License Number:

Construction Design	Well Data	Formation Description
	Decommissioned (1) 20' hollow stem auger boring using (8) 50lb sack bentonite chips 20-2', gravel 2-6", Asphalt 6"-0'	Asphalt 0-1' Gravel 1-1.5' Sand 1.5-20' Boring decommssioned as described under well data.

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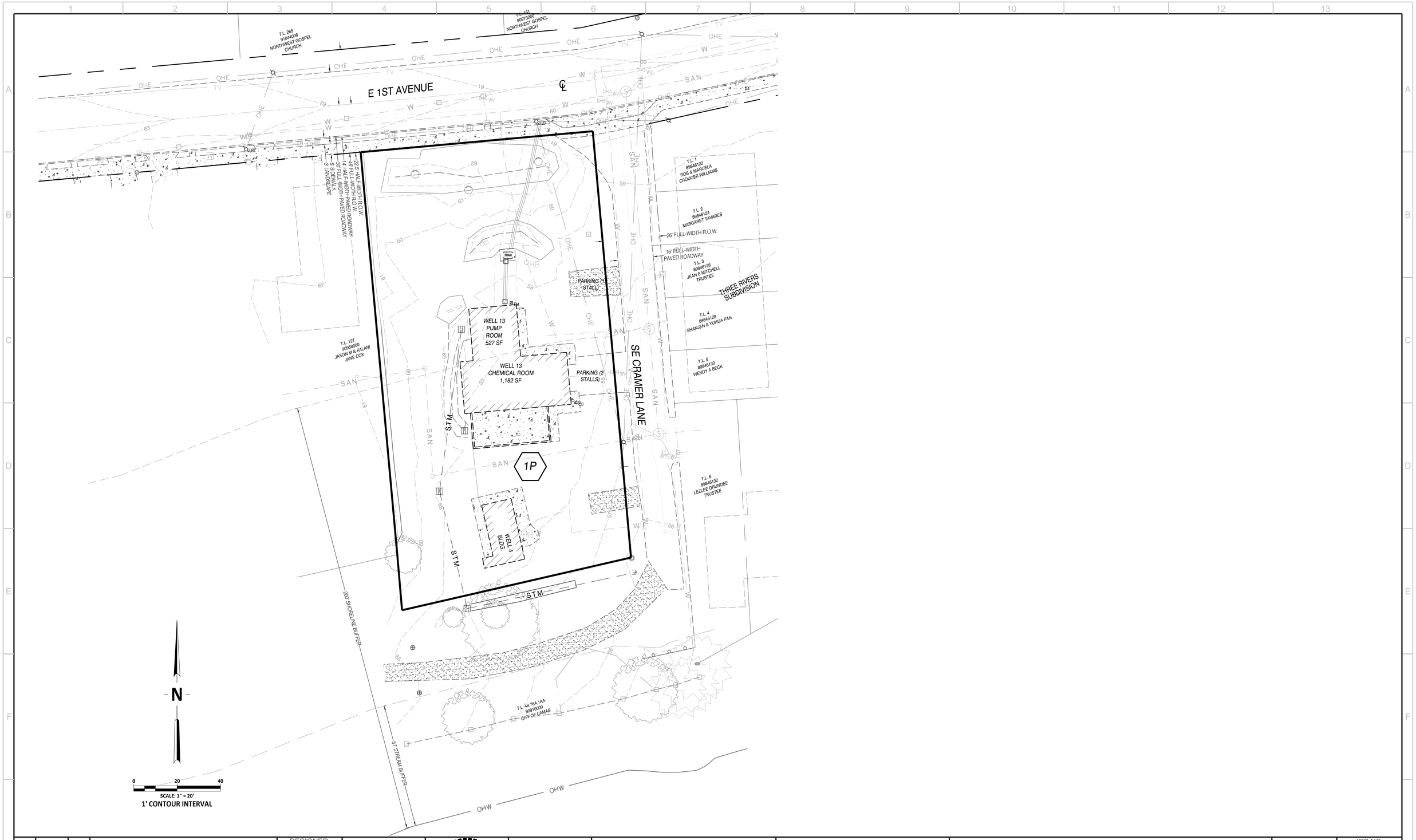
DEC 23 2013
WA State Department of Ecology (SWRO)

SCALE: 1"= 10 PAGE ____ OF 8

ECY 050-12 (Rev. 7/06)



REV	DATE	BY	DESCRIPTION
			INTERMEDIATE DESIGN SUBMITTAL NOT FOR CONSTRUCTION

DESIGNED
DRAWN
CHECKED
DATE
DECEMBER 2024

RICHARD WILLIAM PROSSER — STATE OF WASHINGTON — 43703 — REGISTERED PROFESSIONAL ENGINEER
02/20/2025

MacKay Sposito

carollo

City of Camas WASHINGTON

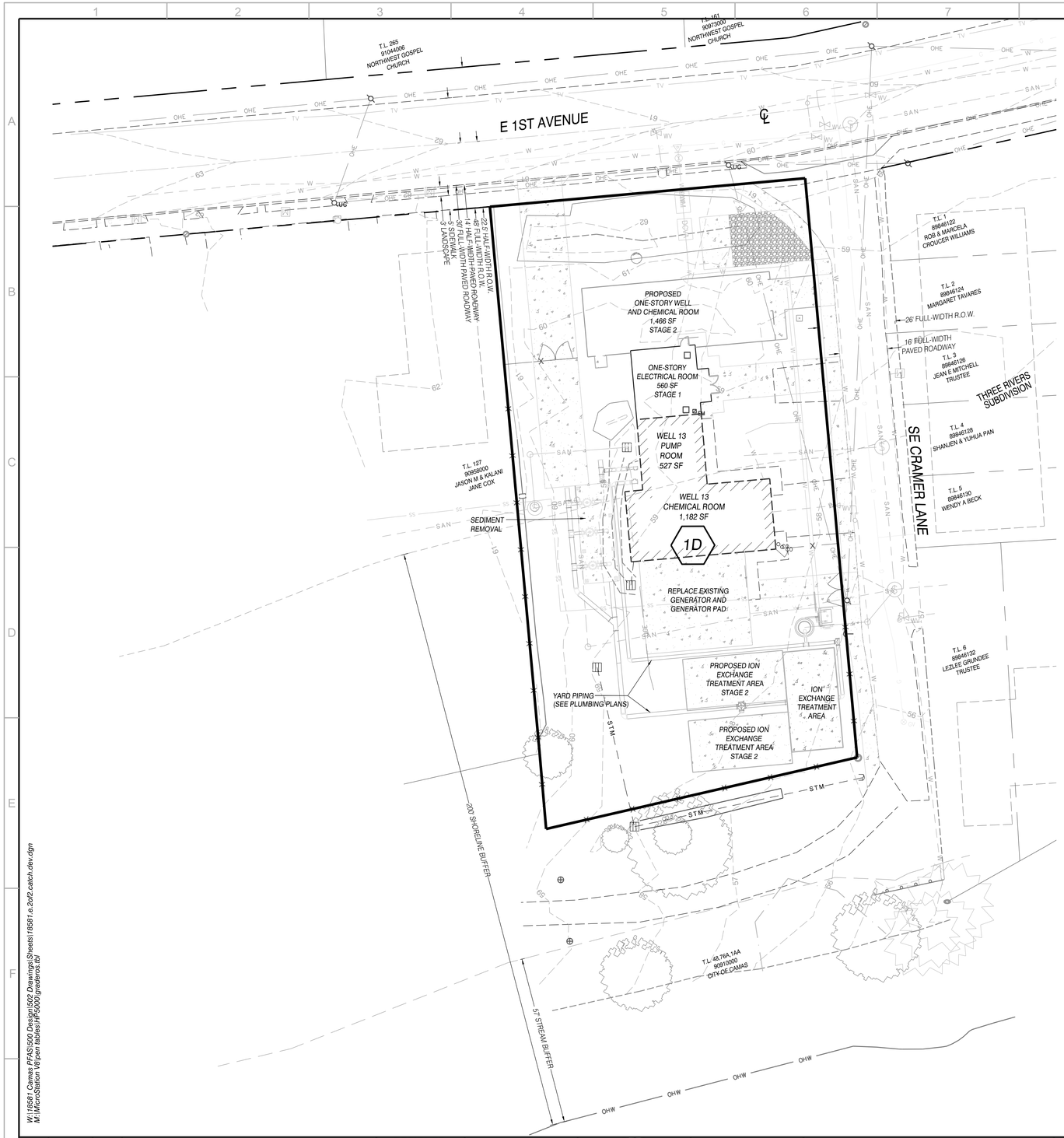
CITY OF CAMAS

CAMAS PFAS EVALUATION & WELL 13 TREATMENT

PRE-DEVELOPED CATCHMENT PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 203101
DRAWING NO.
SHEET NO. 1 OF 2



W:\18581 Camas PFAS\500 Design\502 Drawings\Sheets\18581.e.2of2.catch.dev.dgn
M:\MicroStation V8\pen tables\HP5000\graterois.tbl

REV	DATE	BY	DESCRIPTION
			INTERMEDIATE DESIGN SUBMITTAL NOT FOR CONSTRUCTION

DESIGNED
DRAWN
CHECKED
DATE
DECEMBER 2024

02/20/2025

MacKay Sposito

carollo

City of Camas WASHINGTON

CITY OF CAMAS

CAMAS PFAS EVALUATION & WELL 13 TREATMENT

DEVELOPED CATCHMENT PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

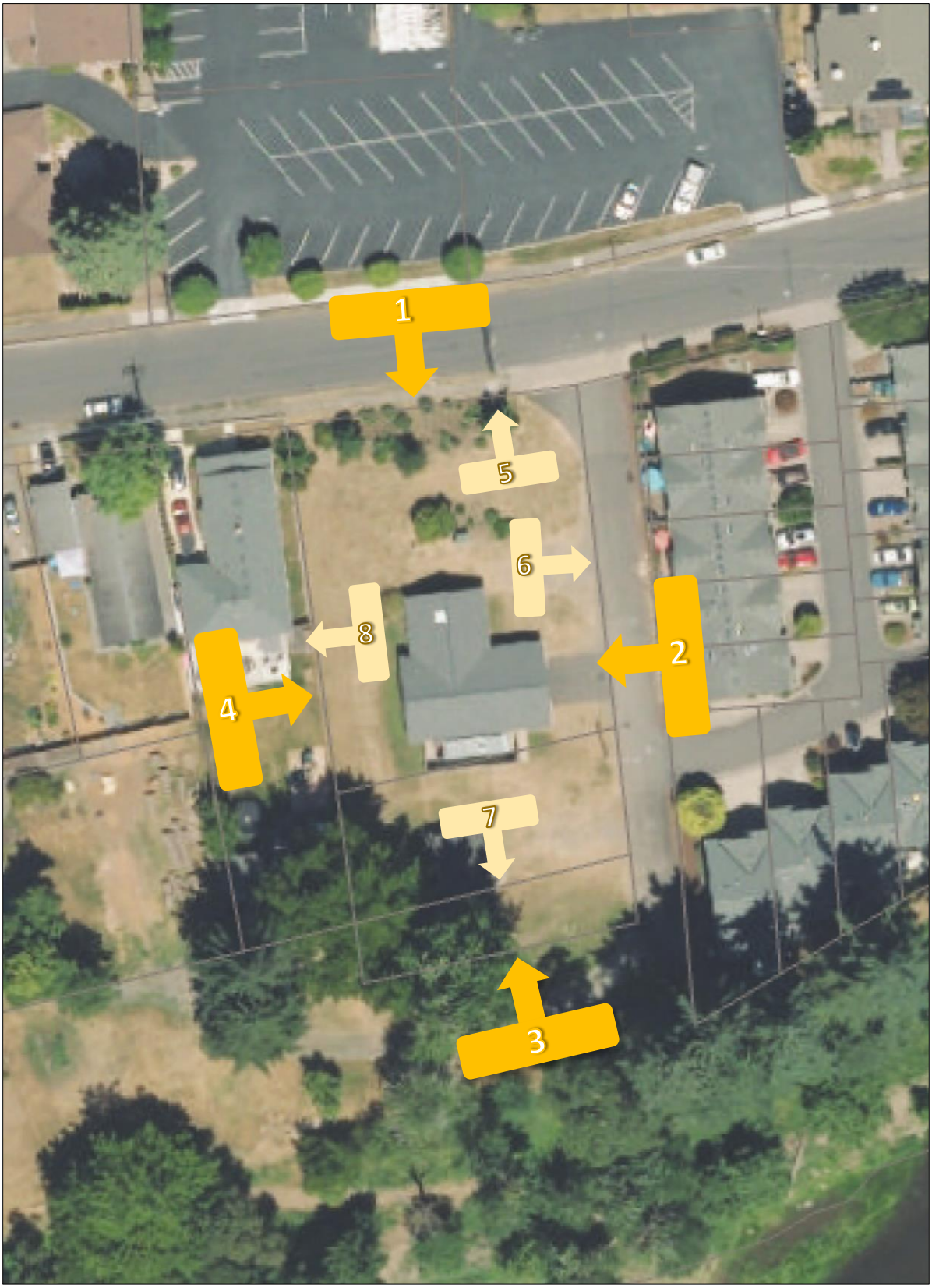
JOB NO. 203101
DRAWING NO.
SHEET NO. 2 OF 2

CAROLLO ENGINEERS

Camas Well 13 PFAS Treatment Design Site Photos

FEBRUARY 25, 2025

Site Photos



Location/Direction of Picture Taken with Picture Reference Number

Photo 1

Facing South into the Site

Photo 2

Facing West Into the Site

Photo 3

Facing North Into the Site

Photo 4

Facing East Into the Site

Photo 5

Facing North of the Site

Photo 6

Facing East of the Site

Photo 7

Facing South of the Site

Photo 8

Facing West of the Site

MacKay Sposito

18405 SE Mill Plain Blvd., Suite 100, Vancouver, WA 98683 (360) 558-3971

Camas PFAS Evaluation & Well 13 Treatment - Preliminary Cost Estimate

Item #	Description	Unit Of Measure	Quantity	Unit Price	Total Price
	GENERAL CONDITIONS				
1	Mobilization	LS	1	$ 22,000.00	$ 22,000.00
				Total	$ 22,000.00
	DEMOLITION				
2	Sawcut	LF	220	$ 2.00	$ 440.00
3	Remove Exist. 12" Storm Sewer and Catch Basins	LS	1	$ 500.00	$ 500.00
4	Remove Exist. Structure	LS	1	$ 5,000.00	$ 5,000.00
5	Removal & Disposal of AC Paving	SF	217	$ 0.60	$ 130.20
6	Removal & Disposal of Conc. Paving	SF	593	$ 1.20	$ 711.60
7	Removal & Disposal of Sidewalks	SF	344	$ 0.80	$ 275.20
8	Traffic Control	LS	1	$ 5,000.00	$ 5,000.00
				Total	$ 12,057.00
	EROSION CONTROL				
9	Construction Entrance	EA	1	$ 5,500.00	$ 5,500.00
10	Silt Fence	LF	316	$ 6.50	$ 2,054.00
11	Inlet Protection	EA	6	$ 80.00	$ 480.00
12	Hydroseed And Mulch	AC	0.2	$ 2,200.00	$ 528.00
13	Erosion Control Maintenance & Reporting	LS	1	$ 2,500.00	$ 2,500.00
				Total	$ 11,062.00
	GRADING				
14	Clearing & Grubbing	AC	0.5	$ 4,750.00	$ 2,137.50
15	Stripping 3", & Stockpile	CY	188	$ 3.50	$ 658.00
16	Place 0.25' of Stripping from Stockpile on landscape	CY	100	$ 6.50	$ 650.00
17	Export Excess Stripping	CY	88	$ 22.00	$ 1,936.00
18	Mass Grading	CY	873	$ 4.75	$ 4,146.75
19	Export Trench Spoils	CY	180	$ 22.00	$ 3,960.00
				Total	$ 13,488.25

SITEWORK

20	Finish Grade	SF	20,815	$	0.20	$	4,163.00
21	1¼"- Crushed Rock (0.50') Heavy Paving	TN	54	$	33.00	$	1,782.00
22	1¼"- Crushed Rock (0.50') Light Paving	TN	36	$	33.00	$	1,188.00
23	1¼"- Crushed Rock (0.50') Concrete Slabs	TN	112	$	33.00	$	3,696.00
	1¼"- Crushed Rock (1.00') Concrete Transformer Access	TN	20	$	33.00	$	660.00
24	Concrete Pavement (0.67') 3,500 psi, Heavy Paving	SF	1,456	$	24.00	$	34,944.00
25	Concrete Pavement (0.50') 3,500 psi, Light Paving	SF	954	$	20.00	$	19,080.00
26	Concrete Pavement (2.00') 3,500 psi, Slabs	SF	1,268	$	42.00	$	53,256.00
27	Concrete Pavement (1.00') 3,500 psi, Slabs	SF	1,762	$	30.00	$	52,860.00
28	Concrete Driveway on 2" Crushed Rock	SF	582	$	15.25	$	8,875.50
29	Concrete Sidewalk on 2" Crushed Rock	SF	1,290	$	15.25	$	19,672.50
30	Metal Fence, 8' Height	LF	390	$	120.00	$	46,800.00
					Total	$	246,977.00

STORM SEWER SYSTEM

31	8" CPP w/ Granular Backfill	LF	175	$	48.00	$	8,400.00
32	6" CPP Roof Drains w/ Granular Backfill	LF	120	$	44.00	$	5,280.00
33	4" Perf. CPP w/ Drain Rock, Building Foundation Drain	LF	206	$	40.00	$	8,240.00
34	Connect to Exist. Catch Basin	EA	1	$	1,500.00	$	1,500.00
35	12" Nyoplast Area Drain	EA	5	$	750.00	$	3,750.00
					Total	$	27,170.00

SANITARY SEWER

36	Connect To Existing Manhole 48"	EA	1	$	1,500.00	$	1,500.00
37	10" PVC 3034 w/ Granular Backfill	LF	80	$	230.00	$	18,400.00
38	Manhole 48" Over Exist. 10" Pipe	EA	1	$	8,000.00	$	8,000.00
39	Cleanout Assembly	EA	2	$	850.00	$	1,700.00
					Total	$	29,600.00

WATER

40	Connect To Existing 8" Main (8" x 4" Hot Tap)	LS	1	$	3,500.00	$	3,500.00
41	Connect To Existing 1" Water Service	LS	1	$	1,500.00	$	1,500.00
42	4" D.I.P. w/ Granular Backfill	LF	193	$	68.00	$	13,124.00
43	4" Water Meter (Domestic)	EA	1	$	12,000.00	$	15,000.00
44	4" Backflow Prevention Assembly	EA	1	$	12,000.00	$	15,000.00
45	Sawcut, Trenching, and AC Patch in Road	LF	10	$	250.00	$	2,500.00
					Total	$	50,624.00

STRIPING & SIGNAGE

46	Striping & Signage	LS	1	$	2,500.00	$	2,500.00
					Total	$	2,500.00

	LANDSCAPING (WITH IRRIGATION)					
47	Site Landscape	SF	10,640	$ 2.50	$	26,600.00
				Total	$	26,600.00
	Total Construction Costs				**$**	**442,078.25**

NOTES

1 Plans being prepared for the Preliminary Submittal were used to obtain quantities for the Cost Estimate.

2 Exported and Imported materials are in place cubic yards.

3 Conversion Factor used to convert Cubic Yards of Crushed Rock to compacted in place Tons = CY x 1.917.

4 Conversion Factor used to convert Cubic Yards of Asphalt Concrete to compacted in place Tons = CY x 2.052.

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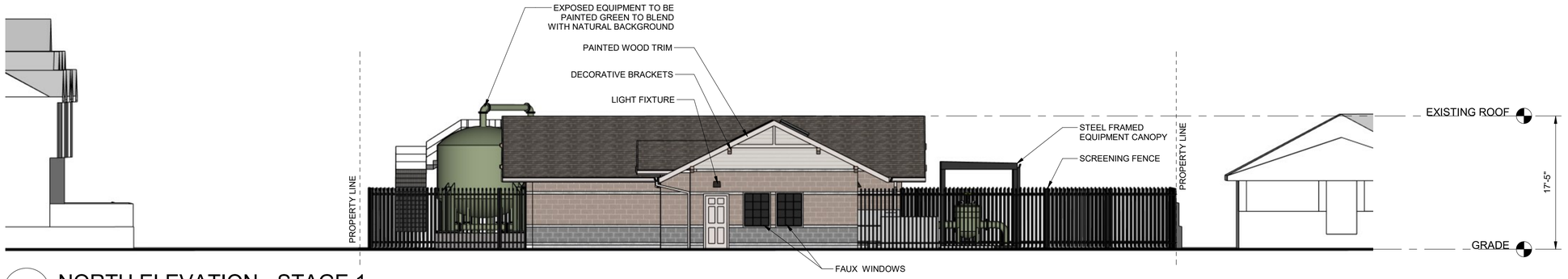

1 NORTH ELEVATION - STAGE 1
SCALE: 1/8" = 1'-0"

MATERIAL LEGEND:

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- EXPOSED CONCRETE (CURBS AND WALKWAYS)
- FAUX WINDOWS

2 EAST ELEVATION - STAGE 1
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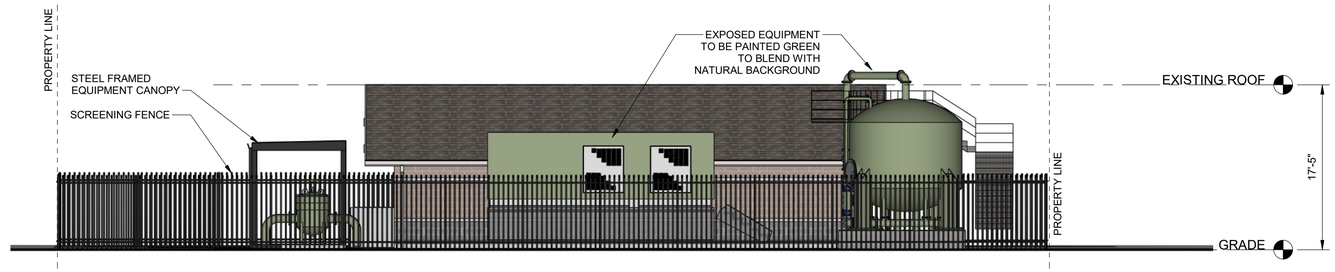

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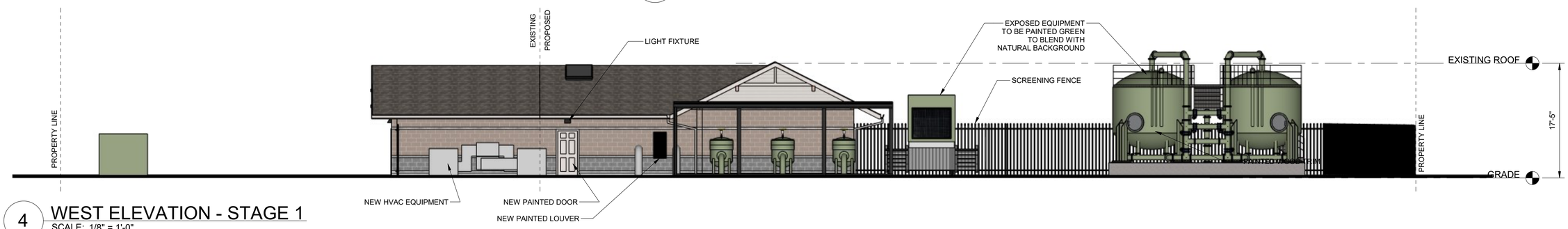
SCALE: 1/8" = 1'-0"



4 WEST ELEVATION - STAGE 1
SCALE: 1/8" = 1'-0"

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ELEVATIONS - STAGE 1

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1 NORTH ELEVATION - STAGE 2
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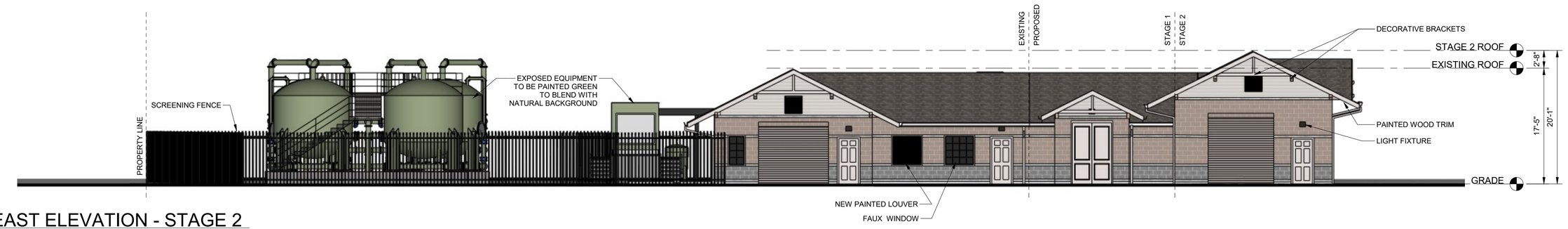

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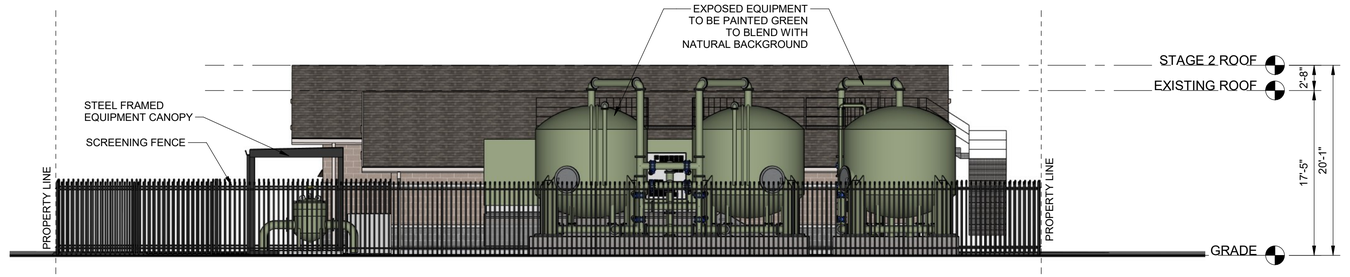

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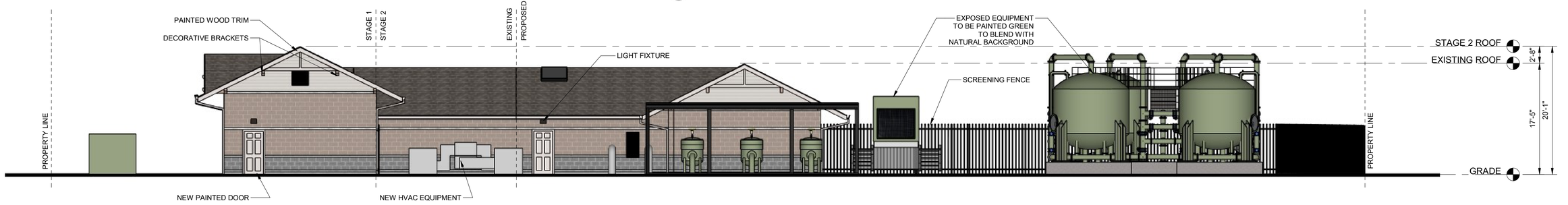

4 WEST ELEVATION - STAGE 2
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PLAN LEGEND:
EXISTING
NEW CONSTRUCTION

71'-4"
3'-4"
2'-8"
23'-4"

LU - A03
WEST ELEVATION - STAGE 1

LU - A03
SOUTH ELEVATION - STAGE 1

LU - A03
NORTH ELEVATION - STAGE 1

LU - A03
EAST ELEVATION - STAGE 1

EXISTING CHEMICAL ROOM
100

EXISTING WELL ROOM
101

STAGE 1 ELECTRICAL ROOM
102

EXISTING ADDITION

D.S.

T

7'-4"
3'-4"
8"
3'-4"
2'-0"
3'-4"
2'-0"
4'-0"
22'-0"

4'-0"
11'-4"
8'-0"
23'-4"

A PLAN
SCALE: 1/4" = 1'-0"

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FLOOR PLAN - STAGE 1

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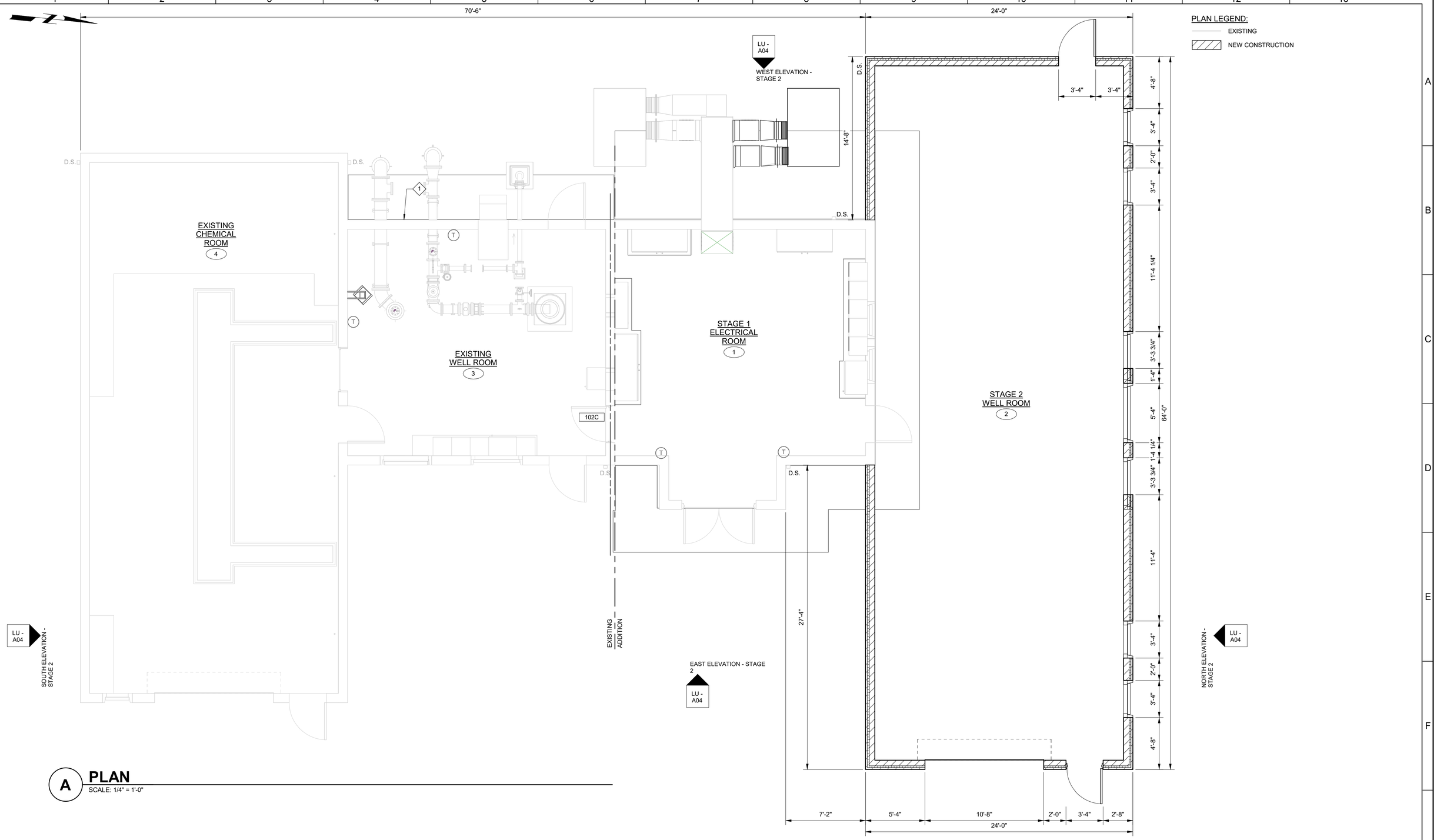

A PLAN
SCALE: 1/4" = 1'-0"

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FLOOR PLAN - STAGE 2

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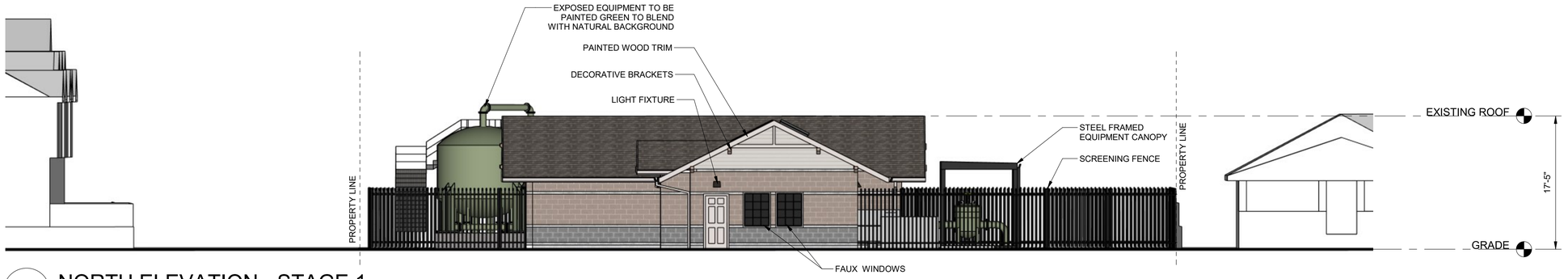

1 NORTH ELEVATION - STAGE 1
SCALE: 1/8" = 1'-0"

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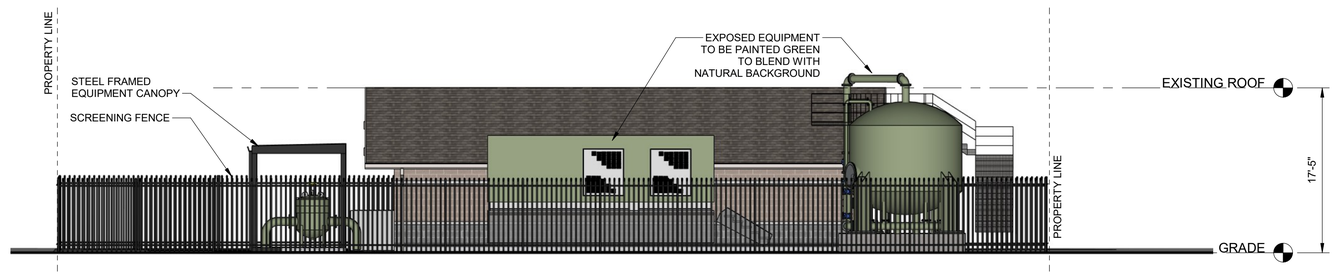
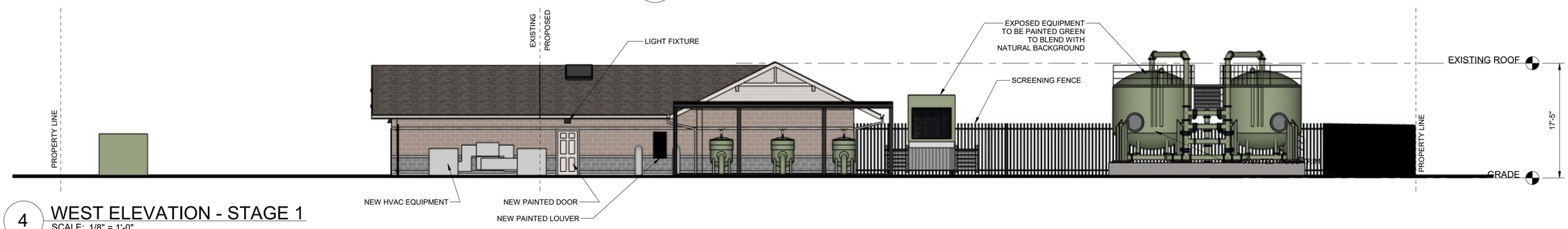
2 EAST ELEVATION - STAGE 1
SCALE: 1/8" = 1'-0"



3 SOUTH ELEVATION - STAGE 1
SCALE: 1/8" = 1'-0"



4 WEST ELEVATION - STAGE 1
SCALE: 1/8" = 1'-0"

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ELEVATIONS - STAGE 1

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1 NORTH ELEVATION - STAGE 2
SCALE: 1/8" = 1'-0"

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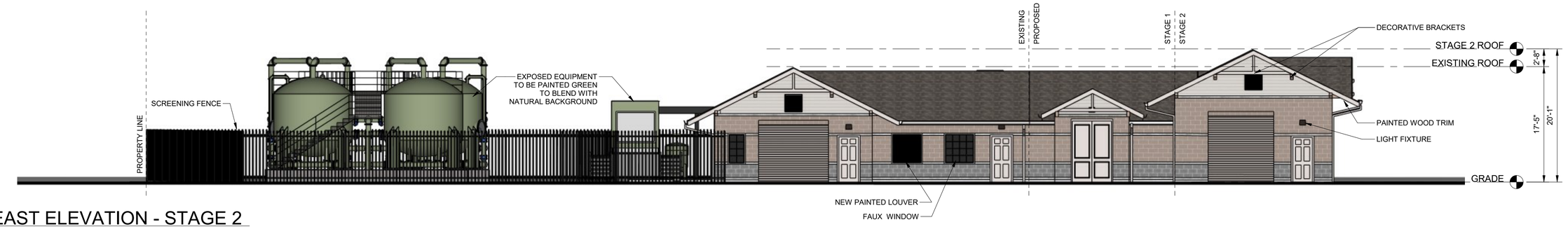

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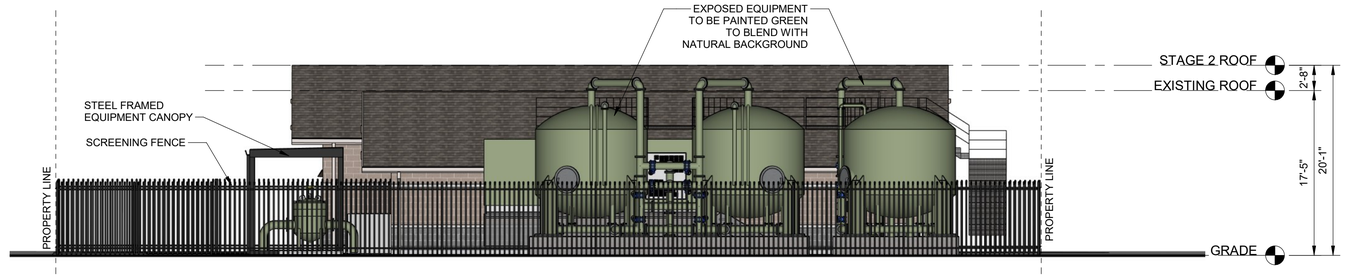

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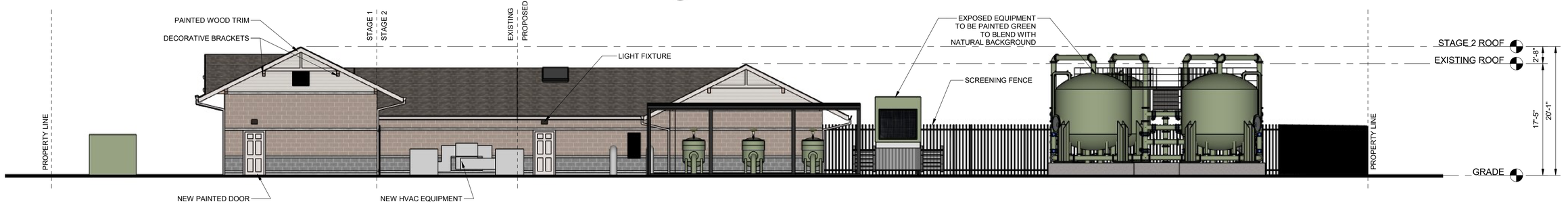

4 WEST ELEVATION - STAGE 2
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ELEVATIONS - STAGE 2

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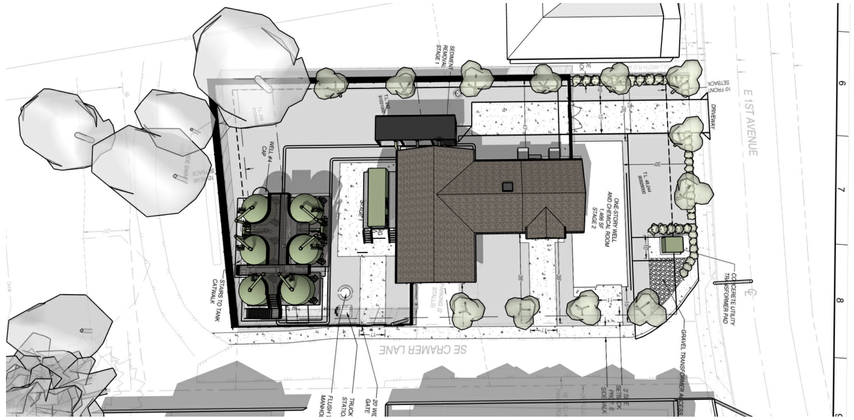
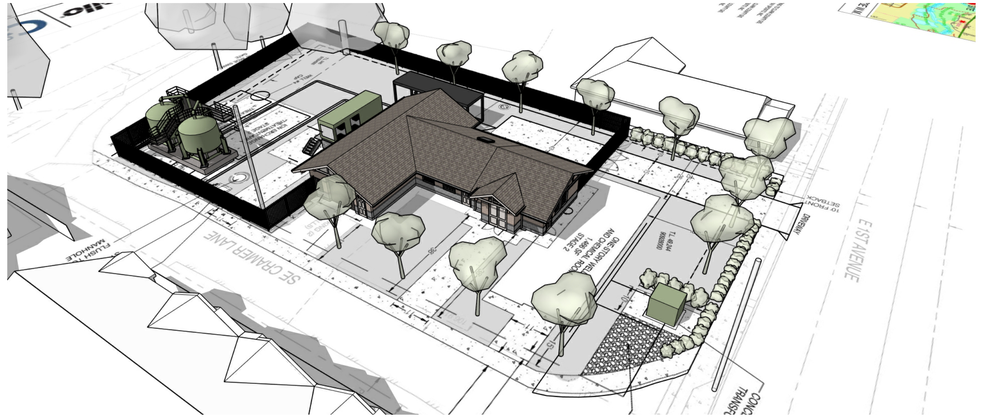


1 TOP DOWN AERIAL - STAGE 1
NOT TO SCALE



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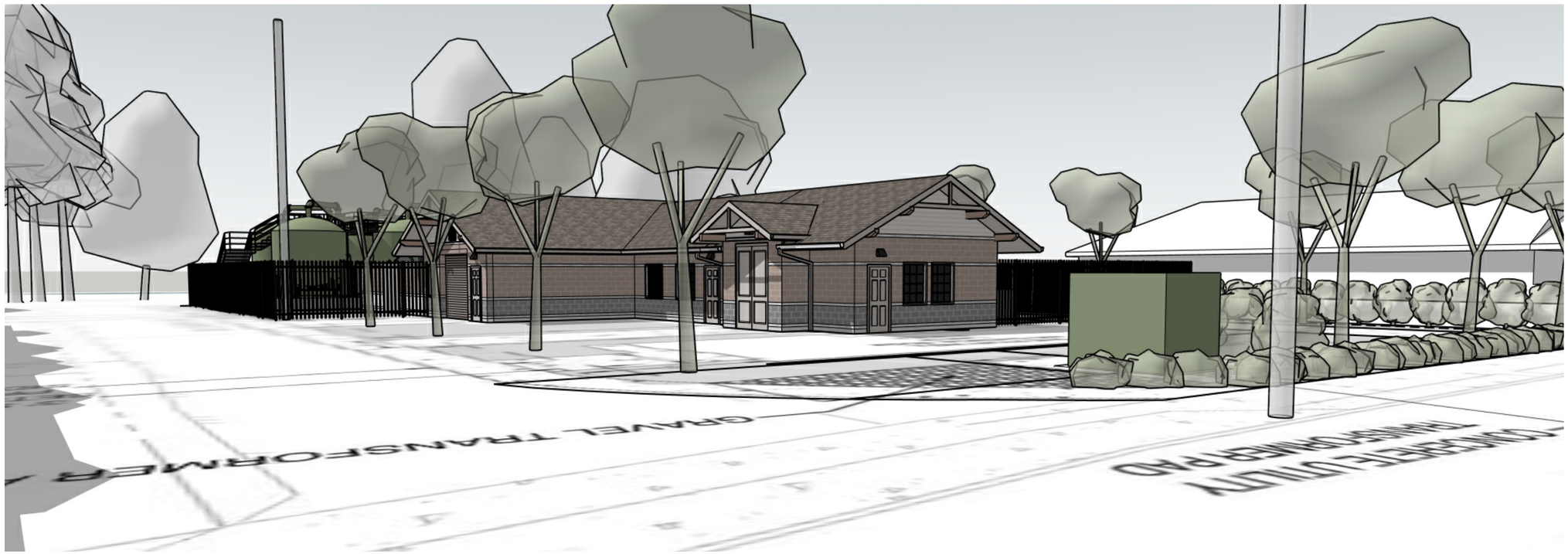

3 BUILDING APPROACH - STAGE 1
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1 TOP DOWN AERIAL - STAGE 2
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2 ENTRY AERIAL - STAGE 2
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3 BUILDING APPROACH - STAGE 2
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Camas Water System Well 13 PFAS Treatment Design

Geotechnical Engineering Report

March 2025

Final

Prepared for:

DELVE underground

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Project Number and Name:		6571.0				
Document Title:		Geotechnical Engineering Report				
Rev. No.	**Document Date**	**Description / Design Phase:**	**Geotechnical Engineering Report**			
0	6/4/2024	**Draft Submittal**	**Prepared by**	**Checked by**	**Technical Editor Review by**	**Approved by**
		Name	Jeremy Fissel, PE	Wolfe Lang, PE	Wolfe Lang, PE	Jeremy Fissel, PE
		Date	6/4/2024	6/4/2024	6/4/2024	6/4/2024
0	3/7/2025	**Final Submittal**	**Prepared by**	**Checked by**	**Technical Editor Review by**	**Approved by**
		Name	Jeremy Fissel, PE	Farid Sariosseiri, PE	Jeremy Fissel, PE	Farid Sariosseiri, PE
		Date	3/4/2025	3/5/2025	3/7/2025	3/7/2025

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Appendix B Laboratory Testing Results
Appendix C Water Well Reports

Distribution

To:	Jude D. Grounds, PE Carollo Engineers, Inc.
	Tyler Kane, PE Carollo Engineers, Inc
From:	Jeremy Fissel, PE Delve Underground
Prepared By:	Jeremy Fissel, PE Delve Underground
Reviewed By:	Bryan Duevel, PE Delve Underground

1.0 Introduction

1.1 Background

The City of Camas (City) is developing a strategy to address the public health concerns associated with per- and polyfluoroakyl substances (PFAS) in its drinking water. PFAS has been detected in groundwater at the City's Lower Washougal Wellfield (LWWF) and impacts the quality and quantity of its primary supply source. PFAS levels from LWWF Well 13 exceeds Washington State Action Levels (SAL), and other LWWF wells have yielded results that exceed the United States Environmental Protection Agency's (USEPA) proposed maximum contaminant levels (MCL).

The City developed a Water System Plan Addendum to advance the PFAS mitigation strategy. With this project, the City intends to 'fast track' the planning and implementation of wellfield development, treatment, funding, and an outreach approach that addresses the near-term water quality and quantity needs while establishing a sustainable and equitable approach for long-term PFAS mitigation.

1.2 Project Description

Carollo Engineers, Inc. (Carollo) has been contracted by the City for the Design, Planning, and Bidding efforts of the Project. Based on our communications with the City and Carollo, preliminary plans for the PFAS mitigation will include construction of a new facility that will include treatment for PFAS at the existing Well 13 site located at 1250 East 1st Avenue, Camas, Washington. Figures 1 and 2 show the general site location.

The new treatment facility and associated improvements at the site are expected to include new tanks, piping, increased supply capacities, and electrical upgrades at the site. A specific layout of the site improvements, including volume capacities, tank dimensions and elevations, and a hydraulic profile have not been developed during this preliminary design phase. As the project design phases continue, we should be provided an opportunity to review and possibly revise recommendations included in this report.

1.3 Purpose and Scope of Work

Carollo retained Delve Underground to evaluate the subsurface conditions and to provide preliminary geotechnical engineering design and construction recommendations for subsequent use by the design team in support of the Project. Specifically, our scope of work includes the following:

- *Geotechnical Visual Reconnaissance and Background Information Review*: Visit the site to evaluate existing and surrounding conditions and identify geologic hazards, if present.

Review available geologic publications to assess the subsurface conditions and potential geologic hazards.

- *Geotechnical Investigation*: Complete a geotechnical investigation at the Well 13 site consisting of one soil boring extending to a depth of 50 feet below ground surface. Our investigation included laboratory testing for the purpose of further defining the subsurface soils and for use in our geotechnical analyses. Infiltration testing was also performed at the site.
- *Geotechnical Analyses*:
  - Evaluate the Well 13 site for liquefaction potential, and liquefaction-induced effects such as seismic-induced settlements, lateral spreading, and potential reduction in bearing capacities.
  - Assess soil seismic profile (site classification) and site response parameters in accordance with the 2021 Washington State Building Code and the 2021 International Building Code. If the site is potentially liquefiable, the seismic profile will include those facilities with seismic periods less than 0.5 seconds.
  - Evaluate and provide recommendations for static and seismic soil bearing capacity, subgrade modulus, and total and differential settlement for potential foundations.
  - Recommendations and preliminary design criteria for the preferred foundation type, or preliminary ground improvement recommendations to mitigate potential site hazards or conditions.
  - Recommendations for shoring and dewatering of excavations.
  - Recommendations for site preparation, grading, drainage, and wet weather earthwork procedures.
  - Recommendations for engineered fill and compaction criteria for foundations, or ground improvement if deemed necessary.
- *Summarize the Above in this Geotechnical Engineering Report.*

2.0 Geotechnical Investigation

2.1 Exploratory Boring

The subsurface exploration was completed in the presence of a Delve Staff Engineer who directed the drilling operations, collected samples, and provided continuous observation and logging of the explorations. Soil materials were classified in the field in accordance with ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedures). Sample depths, stratigraphy, groundwater occurrence, and soil characteristics were also recorded. The stratigraphic contacts indicated in the boring logs represent the approximate

boundaries between soil types; actual transitions between soil units may be more gradual than shown. A log of the exploration is included in Appendix A.

To evaluate the subsurface conditions at the site, we completed one exploratory boring, B-1, advanced by Western States Soil Conservation (WSSC) of Hubbard, Oregon using a truck mounted CME 75 drill rig. The boring was advanced to a depth of 50 feet below ground surface (bgs) using mud rotary techniques. The approximate location of B-1 is shown in Figure 3.

Disturbed soil samples were obtained in our investigation. Split spoon samples were obtained in general accordance with ASTM D1586, "Standard Test Method for Standard Penetration Test (SPT) and Split Barrel Sampling of Soils." This procedure uses a 140-lb hammer dropped from a height of 30 inches to advance a 2-inch diameter split barrel sampler 18 inches. The number of hammer-blows for each 6 inches of penetration was recorded. The standard penetration resistance (designated as the "N-value") of the soil is the sum of the number of blows required for the final 12 inches of sampler penetration. The N-value is an indication of the relative density of granular soils and the relative consistency of cohesive soils. SPT N-values of 50 or more blows per 6 inches or less of penetration is defined as "refusal." Uncorrected, field-recorded N-values are presented in the boring log in Appendix A. An automatic hammer was used in our exploration. WSSC provided a Report of SPT hammer efficiencies (Shannon and Wilson 2023) which cite an energy transfer ratio (efficiency) of 90.6 and a Correction Factor of 1.51 for the automatic hammer used in our investigation.

Disturbed samples were also obtained using a 3-inch diameter, "Modified California" sampler. Blow counts to drive the sampler with the 140-lb hammer three 6-inch increments were recorded. The total number blows to drive the 3-inch sampler the final 12 inches were correlated to an N-value that would be obtained from the SPT method previously described using the Caltrans Geotechnical Manual Soil Correlations section (March 2021).

2.2 Laboratory Testing

Soil samples obtained from the exploration borings were re-examined and classified independently of field boring log descriptions to provide a quality control check of the field classifications. Representative soil samples were selected for laboratory testing. The laboratory testing program included the following tests:

- Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216);
- Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing Amount of Material Finer than U.S. No. 200 Sieve (ASTM D1140);
- Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318);

- Standard Test Method for Particle-Size Analysis of Soils (ASTM D422, Mechanical Analysis Only).

Laboratory testing was performed by Breccia Geotechnical of Tigard, Oregon. Laboratory test results were used to characterize soil properties and refine soil classifications. The boring log in Appendix A includes the results for the laboratory index tests. The report provided by the testing laboratory is included in Appendix B.

2.3 Infiltration Testing

We performed infiltration testing at the Well 13 site. The testing was performed by a Delve Underground Staff Engineer in accordance with Section 6.6 of the Clark County Stormwater Manual (November 2009). The testing was done inside a 4.5-inch inside diameter (ID) hollow stem auger at an approximate depth of 6.25 feet bgs. The soil surface in contact with the hollow stem auger at the test depth were fine grained Missoula Flood Deposits.

Prior to testing, the soil was soaked for a four-hour period. Water levels inside the auger were observed in 15 and 30-minute intervals following the presoaking period. These observations continued over a period of 2 hours when consistent rates were observed. Our infiltration testing results are reported in Section 3.5.

After testing was complete, the auger was removed using the drill rig and the bored hole was backfilled with bentonite chips and the previously excavated soils.

3.0 Site Conditions

3.1 Surface Conditions

The address for the Well 13 property is 1250 East 1st Avenue in Camas, Washington. The property is rectangular, about 0.4 acres and located southwest of the intersection of East 1st Avenue and East Cramer Lane. The property is amongst a mostly residential community with a one-story single-family home located at the west and a two-story apartment building located at the east.

The property includes two existing structures, each is an above ground, one-story building constructed using Cement Masonry Units (CMUs). The structures were built in 1965 and 2007 and roughly have footprints of 400 and 1730 square feet, respectively, according to Clark County Property Maps (Clark County 2024).

The Well 13 property is mostly level and includes an asphalt paved driveway accessing the larger structure from East Cramer Lane. The asphalt paved East Cramer Lane transitions to a gravel surface lane which crosses the adjacent property at the south. Otherwise, the ground surface surrounding each of the Well 13 facilities is grass-surfaced. The property is landscaped with shrubs and bushes adjacent to East 1st Avenue.

The southern extent of Lacamas Creek and its confluence with the Washougal River is about 100 feet south of the Well 13 site. Although not located on the subject property, there are steep banks trending down to Lacamas Creek on the order of 1 Horizontal : 1 Vertical (H:V). This ground slope is currently wooded with young and mature trees and thick underbrush. The ground surface elevation at the property is about 60 feet and slopes down to about 14 feet, the approximate water surface of Lacamas Creek.

3.2 Local Geology

The Well 13 site is located within the Portland Basin at the mouth of the Columbia River Gorge. A recently published geologic map of the Camas Quadrangle at a scale of 1:24,000 shows the Well 13 site is underlain by the gravel facies of cataclysmic floods referred to as the Missoula floods (Evarts and O'Connor, 2008). During the glacial periods of the late Pleistocene, several lakes developed behind ice dams at the margins of the continental glaciers in northeastern Washington, Idaho, and western Montana—the largest of which was Glacial Lake Missoula. Periodic failure of these ice dams caused a series of flood episodes on the Columbia River system. These massive floods scoured the Columbia River Gorge before spreading into the Portland Basin and through to the Willamette Valley. As the flood waters repeatedly entered the basin they cut flood channels, scoured the bedrock in areas, such as nearby Lacamas Lake, and left behind massive sediment deposits such as the gravel deposit near the mouth of the Washougal River in Camas (Burns and Coe, 2012). When the flood waters stopped, the water would flow from the Willamette Valley and other tributary valleys back into the Portland Basin

leaving temporary lakes, where fine-grained sediments would settle, and the water would eventually drain to the ocean. The Missoula floods are believed to have occurred during a 2,000 to 3,000-year period between approximately 15,500 and 13,000 years before present (Waitt, et al., 2009; Allen, et al., 2009).

The Missoula-flood deposits-gravel facies (Qfg) are described by Evarts and O'Conner (2008) as "unconsolidated, gray, stratified, bouldery to cobbly gravel and sand." The gravel is texturally and compositionally variable. The unit includes local sand deposits that were likely deposited by smaller late-episode floods. The thickness of the unit at the Well 13 site is not known but a similar deposit to the west of the Camas Slough is estimated on the map cross-section to be around 100 feet thick. The bedrock adjacent to the site is mapped as Basaltic Andesite of Elkhorn Mountain.

Recent fine-grained alluvium derived from the Washougal River overbank deposits mantles the site.

3.3 Subsurface Conditions

The subsurface conditions at the Project site were explored with one geotechnical boring to 51.5 feet (B-1) in depth and one shallow boring to 6.5 feet (I-1) in depth for use with infiltration testing. We grouped the subsurface materials encountered into three based on their engineering properties, geologic origins, and their distribution in the subsurface: Fill, Recent Alluvium, and Coarse-Grained Catastrophic Flood Deposits. Variations in subsurface conditions may exist across the footprint of the Project. Contacts between the geotechnical units are approximate and may be more gradational than shown on the exploration log in Appendix A.

The following sections provide a discussion of soil unit characteristics, including a summary of soil index testing results and soil density/consistency for each unit based on data from the recent geotechnical exploration.

3.3.1 Fill

Fill was encountered from the surface in B-1 and I-1. At the surface, the soils were a clayey silt with fine to coarse sand, fine to coarse gravel, and rootlets from the surficial grasses, and was approximately 2 inches thick. Low plasticity silt (ML) with trace fine to coarse sand was present beneath this surficial layer. Although no particular manmade materials were observed in the auger cuttings (IT-1) or SPT samples (B-1), based on the general level site topography and inconsistent texture of the material, it is very likely that the fill soils at the site extend to about 18 inches below ground surface.

3.3.2 Recent Alluvium

Beneath the fill at about 18 inches bgs, we encountered similar fine-grained alluvial deposits comprised of silt (ML) with varying amounts of sand. The fine-grained alluvial deposits extended to about 5 feet bgs in B-1 and 6.5 feet bgs in I-1. Three SPT samples were obtained within this unit resulted in N-values of 1, 2, and 6 blows per foot, indicating very soft to medium stiff consistency.

Laboratory moisture content tests completed on the two samples within this unit resulted in 23 and 30 and 51 percent moisture. One fines content (ASTM D1140) was completed and resulted in 67% passing the No. 200 sieve, indicating a sandy silt (ML) soil classification per the Unified Soil Classification System (USCS, ASTM D2487).

3.3.3 Coarse Grained Catastrophic Flood Deposits

Gravel was encountered beneath the native fine-grained unit at a depth of approximately 5 feet bgs and extended to a depth of 50 feet bgs. The unit generally consisted of clayey gravel (GC), well graded gravel (GW), and poorly graded gravel (GP), each with varying amounts of sand. At the terminal depth of Boring B-1, 50 feet bgs, we encountered very dense, micaceous poorly graded sand (SP).

This consistency of this unit ranged from medium dense to very dense conditions and primarily gray to gray-brown in color.

A composite of the samples in boring B-1 at 10 and 12.5 feet bgs was tested for particle size analysis. A plot of the testing results is included in Appendix B. The results of this testing are summarized below:

- Coarse Gravel – 5 percent
- Fine Grave – 40 percent
- Coarse Sand – 26 percent
- Medium Sand – 13 percent
- Fine Sand – 5 percent
- Fines – 11 percent

3.4 Groundwater

Mud rotary drilling was used to drill soil boring B-1 for this project. The mud rotary method involves the circulation of drilling fluids; therefore, the presence or absence of groundwater could not be confidently determined. Groundwater was not encountered while advancing the infiltration test boring I-1 to about 6.5 feet bgs using hollow stem auger methods.

Water Well Reports maintained by the Washington State Department of Ecology cite a groundwater surface located 67.6 feet bgs at Louis Block Park in February 2006. Louis Block Park is located about 650 feet west of the Well 13 property and has a ground surface elevation approximately 10 feet higher than the subject property.

Several Resource Protection Well Reports at a site located at NE 3rd Avenue and NE 3rd Place, about 500 feet northwest of the Well 13 property, did not indicate groundwater was encountered during hollow stem auger soil borings drilled between 15 and 20 feet below the ground surface in December 2013.

The Water Well Reports referenced in this report section are provided in Appendix C.

Groundwater levels vary with precipitation, the time of year, and other factors. Generally, groundwater highs occur near the end of the wet season in late spring or early summer and groundwater lows occur near the end of the dry season in the early fall.

3.5 Infiltration Testing Results

We completed infiltration testing at one location at the site, shown as I-1 in Figure 2. The testing was performed inside a 4.25-inch (inside) diameter hollow stem auger at a depth of approximately 6.25 feet bgs. After presoaking for 4 hours, the testing was performed for a 2-hour period when consistent results were observed. The infiltration rate was 1.0 inch per hour. Per the Clark County Stormwater Manual (2006), the coefficient of permeability, k, was 0.0162 inches per hour for the auger borehole method.

4.0 Seismic and Geologic Hazards Evaluation

We performed a seismic hazards evaluation in general accordance with the 2021 Washington State Building Code (WSBC) which references the 2021 International Building Code (IBC) and ASCE's Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2017 Edition (ASCE/SEI 7-16). We evaluated the seismic hazards for the Maximum Considered Earthquake (MCE) having a 2 percent probability of exceedance in a 50-year period (2,475 year return period).

4.1 Seismic Setting

4.1.1 Regional Seismicity

The Pacific Northwest is a seismically active region. Earthquakes in the Pacific Northwest occur in response to active convergence of the Juan de Fuca oceanic plate and the North America continental plate. Stress builds within the colliding plates, resisted by friction at the contact between the plates. Periodically, the stress exceeds the friction and fault rupture occurs. Faulting can occur both between the plates (interplate) and within the plates (intraplate). In northwest Oregon, earthquakes can be generated from three primary sources:

- The Cascadia Subduction Zone (CSZ), which represents the interface between the subducting Juan de Fuca Plate and the overriding North American Plate;
- The CSZ intraslab within the deep subducted portion of the Juan de Fuca Plate; and
- Shallow intraplate crustal faults that form in the continental crust and accretionary wedge of sediments that accumulate along continental shelf and slope.

Background earthquakes not associated with known geologic structures, or on faults that do not exhibit surface expression or are not identified, are accounted for as grid sources in the seismic hazard analysis. Grid sources are used to account for seismic activity occurring in uncharacterized and unrecognized faults or seismic structures, and to include the effect of what has been described as a "floating earthquake."

The three primary sources above and the grid sources are included in the development of design ground motion parameters discussed in Section 4.3.

4.1.2 Cascadia Subduction Zone Seismic Sources

The CSZ extends from Vancouver Island to Northern California (about 754 km [469 mi]) and forms the boundary between the overriding North American plate and the subducting Juan de Fuca Plate. The interface and slab sources are associated with the CSZ and are described below:

- *Subduction Zone Megathrust Interface Source*: Large subduction zone (megathrust) earthquakes occur within the upper approximately 30 kilometers (18.6 mi) of the

contact between the two plates (Pacific Northwest Seismic Network [PNSN], 2020). As the Juan de Fuca Plate subducts beneath the North American Plate through this zone, the plates are locked together by friction (PNSN, 2020). Stress slowly builds as the plates converge until the frictional resistance is exceeded and the plates rapidly slip past each other, resulting in a megathrust earthquake. The subduction zone dips between 9 and 11 degrees eastward and has a slip rate of less than 5 mm/year (Personius and Nelson, 2006). Geologic evidence indicates a recurrence interval for major subduction zone earthquakes of 250 to 650 years, with the last major event occurring in 1700 (Atwater et. al., 1995). The interface source generates earthquakes that range from 8 to 9.3 M on the interface between the Juan de Fuca and North American Plates. The 2021 WSBC

- *Subduction Zone Intraplate Source*: Below depths of approximately 30 kilometers, the plate interface does not appear to be locked by friction and the plates slowly slide past each other. The curvature of the subducted plate increases as the advancing edge moves east, creating extensional forces within the plate. Normal faulting occurs in response to these extensional forces. This region of maximum curvature and faulting of the subducting plate is where large intraplate (intraslab) earthquakes are expected and is located at approximate depths ranging from 30 to 60 kilometers (18.6–37.3 mi) (Geomatrix Consultants 1993, 1995; and Kirby et al., 2002). Intraplate earthquakes generally originate below depths of 30 kilometers and are typically less than M7.5 (Cascadia Region Earthquake Workshop, 2008).

4.1.3 Shallow Crustal Source

Crustal sources typically occur at depths ranging from approximately 14 to 40 kilometers (8.7–24.9 mi) below ground surface (Geomatrix Consultants, 1995). The US Geologic Survey (USGS) uses four class definitions to classify Quaternary-age faults (e.g., faults that have generated tectonic movement within the past 2.6 million years). These classes are defined as follows (Crone and Wheeler 2000):

- *Class A* – Geologic evidence demonstrates the existence of a Quaternary fault of tectonic origin, whether the fault is exposed for mapping or inferred from liquefaction or other deformational features.
- *Class B* – Geologic evidence demonstrates existence of a fault or suggests Quaternary deformation, but the fault may not extend deep enough to be a potential source of significant earthquakes, or the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.
- *Class C* – Geologic evidence is insufficient to demonstrate (1) the existence of a tectonic fault or (2) a Quaternary slip or deformation associated with the feature.
- *Class D* – Geologic evidence demonstrates that the feature is not a tectonic fault or feature; this category includes features such as demonstrated joints or joint zones, landslides, erosional or fluvial scarps, or landforms resembling fault scarps, but of demonstrable non-tectonic origin.

The USGS online Interactive Quaternary Faults database (USGS, 2024) catalogs known, Class A crustal seismic sources. The Class A faults within 20 km of the site are presented in Table 4-1.

Table 4-1. USGS Class A Faults Within 20 km (12.5 miles) of the Project Site

USGS Fault ID.	Fault Name	Type of Fault	Slip Rate (mm/year)	Distance & Direction from Site
878	Grant Butte Fault	Normal	>0.2	11.0 km Southwest
879	Damascus-Tickle Creek Fault Zone	Right Lateral, Left Lateral, Reverse	>0.2	10.4 km South
880	Lacamas Lake Fault	Right Lateral, Normal	>0.2	0.6 km Northeast

Although not included in the USGS Fault and Fold Database, the northeast trending Prune Hill Fault and the northwest trending Blue Lake Fault about 4 km northwest and 4 km southwest of the site, respectively according to Evarts and O'Connor (2008).

The Washington State Department of Natural Resources (WSDNR) Division of Geology and Earth Resources (2024) identifies frequent seismic activity within the Saint Helens Fault Zone which southern extent is about 54 miles north of the site. The WSDNR Division of Geology and Earth Resources (2024) also archives historic seismic activity southwest of the Lacamas Lake Fault, about 0.5 km west of the Project site, with 6 noted events with Magnitude (M) 2.0 to 3.0 and two events between M 3.0 and 6.8.

The Pacific Northwest Seismic Network (PNSN) catalogs historic seismic events throughout the northwest. Within 5 km of the Project site the PNSN identifies more than 90 events between May 1988 and August 2022, with most occurring northwest of the site. The strongest event, M 2.8, occurred on September 7, 1996. These mapped locations of the events are bound by the Prune Hill Fault, Lacamas Lake Fault, and Blue Lake Fault previously described.

4.2 Site Classification

We assigned a seismic site class for the Project site following code-based procedures in Section 1613.2.2 of the Internation Building Code, which references the ASCE/SEI 7-16, Chapter 20 (2017). Site class is used to categorize common subsurface conditions into broad classes to which ground motion attenuation and amplification effects are assigned. Site classification is based on the weighted average of the shear wave velocity or Standard Penetration Test (SPT)

blow counts (N-value) in the upper 100 feet of subsurface profile. Based on the SPT N-values in boring B-1, a Site Class D is appropriate for design purposes.

4.3 Seismic Design Parameters

The 2021 WSBC with its two amendments (WSBC 2023 and WSBC 2024) requires that spectral response accelerations be developed based on the ASCE 7-16 procedures. To develop spectral response accelerations, we used the online ASCE 7 Hazard Tool, which follows ASCE 7-16 and is based on the USGS 2014 National Seismic Hazard Mapping Project (NSHMP) developed for the Maximum Considered Earthquake (MCE) (Peterson et. al., 2014). The MCE consists of ground motions (accelerations) with a 2-percent probability of exceedance in 50 years (return period of 2,475 years). The mean earthquake magnitude and the mean site-to-source distance for the zero-second period of vibration (e.g., PGA) are 7.39 and 60.89 km, respectively, for the MCE. The recommended spectral acceleration parameters for use in structural design are provided in Table 4-2.

Table 4-2. MCE Spectral Acceleration Parameters for Site Class D

Parameter	0.2-Second Period	1-Second Period
Mapped MCE_R (Rock site)	S_S = 0.807g	S_1 = 0.350g
Site Coefficients	F_a = 1.177	F_v = 1.95
Site-Adjusted MCE_R	S_{MS} = 0.950g	S_{M1} = 0.682
Design MCE_R	S_{DS} = 0.633g	S_{D1} = 0.455
Mapped MCE PGA (Rock Site)	0.363g	
Site Coefficient F_{PGA}	1.237	
Site-adjusted MCE PGA_M	0.449g	

It is important to note that Section 11.4.8 of ASCE 7-16 requires a site-specific ground motion hazard analysis be performed on structures on Site Class D sites with a 1-second spectral response acceleration parameter (S_1) greater than 0.2g. However, Exception No. 2 in Section 11.4.8 states that a site-specific ground motion hazard analysis is not required at Site Class D site if the structure's fundamental period of vibration T is less than $1.5T_s$ and the seismic response coefficient C_s is used for design. We assume structures for the Project will be single story or below grade. Therefore, we anticipate the fundamental period of vibration T will be less than 0.5-second.

4.4 Seismic Sources and Hazard Deaggregation

We used the online USGS Unified Hazard Tool (USGS 2024b) to perform a deaggregation of the Uniform Hazard Spectrum at the site. Table 4-3 summarizes the results of the MCE hazard deaggregation for the zero-second period of vibration (e.g., PGA). The deaggregation data identify the earthquake sources, magnitudes, and site-to-source distances that contribute to the mean source event acceleration parameters summarized in Table 4-3 below.

Table 4-3. Deaggregation Results for 2,475-year Mean Source Event (MCE), PGA Period

Source	Moment Magnitude, M_W[1]	Site-to-Source Distance[2] (km)	% Contribution to Hazard
CSZ Interface	8.99	116.64	40.2
CSZ Intraslab	7.01	77.35	11.2
Crustal Faults[3]	6.04 to 6.33	7.81 to 12.94	48.6

Notes:
1. M_W values represent the mean value from each type of earthquake source.
2. Site-to-Source distances represent the mean value from each type of earthquake source.
3. Crustal faults source include gridded seismic sources that represent earthquakes that do not occur on known, mapped faults.

4.5 Liquefaction and Lateral Spreading

Liquefaction is the phenomenon whereby saturated cohesionless soils (e.g., sands, gravels, and non-plastic to low-plasticity silts) undergo significant strength loss and stiffness when subjected to vibration or large cyclic ground motions produced by earthquakes. Saturated granular and low-plasticity soils (i.e., gravels, sands, and silts) are most susceptible to liquefaction.

Because of the very dense gravelly conditions encountered, we conclude that the risk of liquefaction is very low at the site. This concurs with hazards maps provided by Washington State Department of Natural Resources Division of Geology and Earth Resources (Palmer et. al, 2004).

Lateral spreading is a liquefaction-related phenomenon that results in ground displacement during an earthquake and occurs in sloping ground or flat ground with free face (i.e., a creek bank or channel). Although these are steep creek banks to the south trending toward the south extent of Lacamas Creek, we consider the risk of lateral spreading low due to the lack of liquefiable soils encountered and the distance between the slope and the planned site improvements (which is more than 200 feet from the top of the nearest site slope).

4.6 Slope Stability

The Washington Geologic Information Portal (Washington DNR 2024) does not show any known landslides at the Project site. The nearest mapped landslide mass is about 1,200 feet north of the site along the banks of Lacamas Creek. This movement is reported to have occurred within the last 150 years and has a failure depth of 43 feet and a headscarp height of 50 feet. We confirmed these features by available LIDAR imagery.

A large slide mass is mapped about 1,800 feet west of the site along the steep slopes of Northwest 6th Avenue. This feature is reported to be fan material from a deep-seated slide mass with a failure depth of have a failure depth of 87 feet. This feature is located along the south slopes of Prune Hill bound at the north by Forest Home Road and is approximately 320 acres in size (Washington Geologic Portal, 2024).

The Well 13 site is relatively level. However, there are steep banks trending down to the confluence of Lacamas Creek and the Washougal River. These slopes are generally 1H:1V and wooded. During our site reconnaissance in April 2024, we did not observe clearly indicative signs of instability along this slope face, such as pistol butted tree trunks, surficial cracking, or soil raveling. Our review of available Lidar imagery (Washington Geologic Information Portal) confirms our observations. Although we do not interpret previous soil movement from Lidar imagery provided by WS DNR (Washington Geologic Information Portal 2024), the imagery could be interpreted to include erosional characteristics along the slope near the south terminus of East Cramer Lane.

In general, we anticipate that the risk of the creek bank failure and landslide affecting the proposed improvements is low.

4.7 Flood Hazard

The Federal Emergency Management Agency (FEMA) shows the site adjacent to Zone AE (Floodway) near the south banks to the Lacamas Creek (FEMA 2018). A flood water surface elevation is reported to be 35 feet at the site. The ground surface of the site is approximately between 50 and 60 feet.

4.8 Other Hazards

Other geologic and seismic hazards, including debris flows, fault rupture, and tsunamis/seiches are not considered risks to the project.

5.0 Conclusions

Based on the results of our geotechnical investigation, laboratory testing, seismic hazards evaluation, new site structures associated with the Project can be supported on shallow foundations, provided the recommendations in Section 6 are incorporated.

The layout, size, and elevations for new structures/facilities have not been established at this stage of the Project. At this preliminary stage of the Project, we assume the location of the site improvements will be in the north, undeveloped section of the property near East 1st Avenue.

There are two primary geotechnical-related considerations at the project site:

- *Soft Surficial Soils:* We encountered a 5- to 6.5-foot-thick mantle of very soft to soft fine-grained soils at the site that overlie dense gravely soil. Foundations bearing on the soft soils are highly likely to settle over time. Bearing surfaces of new foundations should be within the gravel stratum underlying these soft soils. Therefore, we recommend the foundation subgrade, if founded within the upper 5 feet, be overexcavated and replaced with structural fill.

- *Slope Setback*: The slopes down to the confluence of Lacamas Creek and the Washougal River are up to 1H:1V. Based on the dense gravelly subsurface conditions encountered, we do not expect new structures/facilities over 200 feet from the top of these slopes to be impacted from the potential slope erosion and instability conditions. However, we recommend a setback of at least 50 feet from the top of the slopes for any other possible project improvements. Stormwater generated by site improvements should be managed so that there is no discharge or open channel flow down these existing slopes and all stormwater management facilities should be setback the minimal distance recommended.

6.0 Design Recommendations

We are providing geotechnical design recommendations for the planning and layout of the site improvements that provide PFAS treatment at the site. We understand the new structure(s) will house and support tanks needed for the treatment processes. At this phase of the project, the layout, elevations, size, and of the new tanks and other equipment have not been established and our recommendations should be considered preliminary.

6.1 Slab-on-Grade Foundations

We recommend a modulus of subgrade reaction of 250 pounds per cubic inch (pci) for the design of concrete slab-on-grade foundations which will be supported on structural fills placed on native gravelly subgrade soils which should be prepared as recommended in Section 6.1.1

below. The recommended modulus of subgrade reaction represents the anticipated value, which would be obtained in a standard in situ plate test with a 1-foot square plate. Use of this subgrade modulus for design should include appropriate modifications based on dimensions as necessary.

We anticipate concrete slabs-on-grade will have a total static settlement up to ½ inch when designed in accordance with our recommendations. Differential settlement is expected to be one-half of this amount, or up to ¼-inch. We recommend allowing for an additional ½-inch total settlement and ¼-inch differential settlement under seismic conditions.

6.1.1 Subgrade Preparation

Subgrade soils supporting concrete slab foundations should consist of the native gravelly soils encountered beneath the surficial soft fine-grained soils about 5 to 6.5 feet bgs in our investigation. The subgrade should be excavated using a smooth bucket. After excavating to the proposed subgrade level, the subgrade surface should be observed by Delve Underground or their representative. Due to the soft surficial conditions at the site, we recommend assessing subgrade suitability by subgrade probing rather than proof rolling with a fully-loaded dump truck or equivalent. Soils that are observed to be unsuitable should be overexcavated and replaced with structural fill (see Section 7.2.1) at the direction of the Delve Underground Geotechnical Engineer, or their representative.

The exposed subgrade should be mechanically compacted to unyielding conditions and should be overlayed by a layer of separation geotextile (see section 7.3) prior to the placement of structural fill.

The structural fill should be capped by a 6-inch thick leveling coarse on which the slab-on-grade and footing foundations can be placed. The prepared subgrade, geotextile, and structural fill should extend a minimum of 2 feet outside the perimeter of the concrete slab.

6.2 Continuous, Strip, and Spread Footings

Although locations and depths of new structures are not shown at this phase of the design, those structures can be supported by shallow foundations, such as conventional strip, continuous, or spread footings bearing on the native gravelly soils. Preliminary recommendations for the design of shallow foundations are provided in Table 6-1.

Table 6-1. Foundation Design Recommendations

Parameter	Value
Net Allowable Bearing Pressure (psf)	2,500
Friction Coefficient, Pre-Cast Concrete Foundations	0.30
Friction Coefficient, Cast-in-Place Concrete Foundations	0.45
Passive Pressure (psf)	200D[1]

Note:

1. D: embedment depth; passive pressure value includes a factor of safety of 2.

The net allowable bearing pressure applies to the total of dead and long-term loads and may be increased by one-third when considering seismic loads. We recommend disregarding the effects of the upper 12 inches of soil in calculating passive resistance due to the likelihood of soil disturbance in this area.

Based on our analysis, the total static settlement is anticipated to be less than 1/2 inch. We estimate minimal total dynamic settlement, which will be about 0.1-inch. We estimate differential settlement to be up to one-half the total settlement under each condition.

6.2.1 Subgrade Preparation

The design parameters provided in Table 6-1 assume the foundations are bearing on prepared subgrade, as recommended in Section 6.1.1.

6.3 Lateral Earth Pressures on Embedded Walls

Below grade structures at the site can be designed to resist the lateral earth pressures provided in Figure 4.

7.0 Construction Recommendations

The following are preliminary recommendations intended for use during the construction phase. Once the Project design phase progresses, we can provide additional or revised recommendations based on the new information.

7.1 Site Preparation

All existing utilities should be identified prior to excavation. If applicable, demolition of any existing structures should include complete removal of all structural elements, including foundations, and concrete slabs. Abandoned buried utilities should similarly be removed or fully grouted.

7.2 Backfill Materials and Compaction Criteria

7.2.1 Structural Fill

Structural fill should be used under foundations and slabs. Structural fill should consist of imported, crushed rock conforming to Washington State Department of Transportation (WSDOT) 2025 Standard Specifications, M 41-10 (WSDOT 2025) Class B Gravel Backfill for Foundations, Section 9-03.12(1)B. Unless otherwise noted, structural fill below structures should be compacted to a minimum 95% of the maximum dry density determined by ASTM D698.

Structural fill placed within 5 feet around embedded walls should be compacted to no more than 95% of dry density determined by ASTM D698. The structural fill should be placed in maximum lifts of 8 inches of loose material. Each lift of structural fill should be tested prior to placement of subsequent lifts.

7.2.2 Embedded Wall Backfill

The walls of fully-embedded structures should be backfilled with free-draining granular materials the requirements of WSDOT 2025 Standard Specification, M 41-10 Section 9.03.12(2) for Gravel Backfill for Walls. The backfill placed within 3 feet of the wall for the structure should be compacted to not more than 92 percent of the maximum dry density per ASTM D698.

Large and heavy equipment, particularly compaction equipment, should not be allowed to operate near the walls during construction. The compaction equipment used within 3 feet of the wall should be hand compaction equipment, walk-behind, or self-propelled rollers with a limit static weight of less than 1,000 pounds. Loose lift thickness may need to be reduced where hand compaction equipment is used.

7.3 Separation Geotextiles

Separation geotextile placed on foundation subgrade should be installed over the prepared subgrade to prevent fines migration of the imported structural fill material into the prepared native gravel subgrade. The separation geotextile should be installed per the manufacturer's instructions. Separation geotextiles should meet the requirements for Separation Geotextile in Table 3 of WSDOT Standard Specification, M 41-10, Section 9-33.2(1).

7.4 Temporary Shoring

At this stage the locations, size and depths of the new Project structure are not known.

Selection of shoring systems and the safety of temporary excavation and cut slopes is solely the responsibility of the Contractor. The Contractor must submit an excavation and shoring plan to the Engineer prior to construction. The plan should show the design of the shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground for excavations over 4 feet in depth. The Contractor should be aware of, and familiar with, applicable local, state, and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. The shoring plan must be prepared and stamped by a Professional Engineer in the State of Washington.

7.5 Groundwater Control

Static groundwater is not expected to be encountered within anticipated excavation depths (up to 10 feet). Therefore, we anticipate that any groundwater inflow to the excavation can be controlled using sumps.

7.6 Temporary Cuts

If cut slopes are required, maximum cut slope inclinations must be made in accordance with OSHA regulations. Based on the subsurface conditions encountered at the project site, an OSHA Type C soil type should be used in the upper 5 feet for temporary excavation layout. Below 5 feet, Type B soils can be used for the underlying gravelly conditions. For excavations up to 20 feet, ground cuts should not exceed 1H:1V in the site gravels and not exceed 1.5H:1V in the upper fine-grained silt soils.

Temporary slope recommendations do not consider site constraints such as groundwater, surcharge, or nearby structures. Temporary slopes should be evaluated on a case-by-case basis and incorporate groundwater conditions, soil classification, and site constraints. Cut slopes should be inspected and maintained as required by OSHA.

With time, the presence of seepage, and precipitation, temporary cut slope stability can be compromised. Therefore, temporary slopes kept open during construction should be protected

from erosion by installing a surface water diversion ditch or berm at the top of the slope and covering the cut face with well-anchored plastic sheets. In addition, the Contractor should monitor the stability of the temporary cut slopes and adjust the construction schedule and slope inclination accordingly. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor and all excavations must comply with current federal, state, and local requirements.

7.7 Wet Weather Construction

Soil conditions should be evaluated in the field by the geotechnical engineer or their representative at the initial stage of site preparation to determine whether the recommendations within this section should be incorporated into construction. If earthwork is performed during extended periods of wet weather or in wet conditions, we recommend the following:

- Excavations should be protected from surface water runoff by placing sandbags or by other means to direct runoff of precipitation away from work areas and to prevent ponding of water in excavations.
- Plastic covers, sloping, ditching, sumps, dewatering, and other measures should be employed in work areas as necessary to permit timely completion of work. Bales of straw and/or geotextile silt fences should be used to control surface soil movement and erosion.
- Excavation or the removal of unsuitable soil should be followed promptly by placement and compaction of structural fill.

8.0 Closure

This report has been prepared for the exclusive use for Carollo Engineers for the PFAS Evaluation and Well 13 Treatment Design for the City of Camas, Washington. The data presented in this report is based on the subsurface conditions encountered during our site explorations and is intended to support the design of the proposed improvements. Delve Underground is not responsible for the interpretation of the data contained in this report by anyone; as such interpretations are dependent on each person's subjectivity.

In the performance of geotechnical work, specific information is obtained at specific locations at specific times, and geologic conditions can change over time. It should be acknowledged that variations in soil conditions may exist between exploration and exposed locations and this report does not necessarily reflect variations between different explorations. The nature and extent of variation may not become evident until construction. If, during construction, conditions observed or encountered differ from those disclosed by this report, Delve Underground should be advised at once so we can observe and review these conditions and reconsider our recommendations where necessary.

The geotechnical engineering evaluations and interpretations are completed within the limitations of Delve Underground's approved scope of work, schedule and budget. The services rendered by Delve Underground have been performed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same area. The construction recommendations are considered preliminary and provided for planning purposes only. Delve Underground is not responsible for the use of this report in connection with anything other than the project at the location described above.

Delve Underground

Farid Sariosseiri, PE
Senior Engineer

Jeremy Fissel, PE
Associate Engineer

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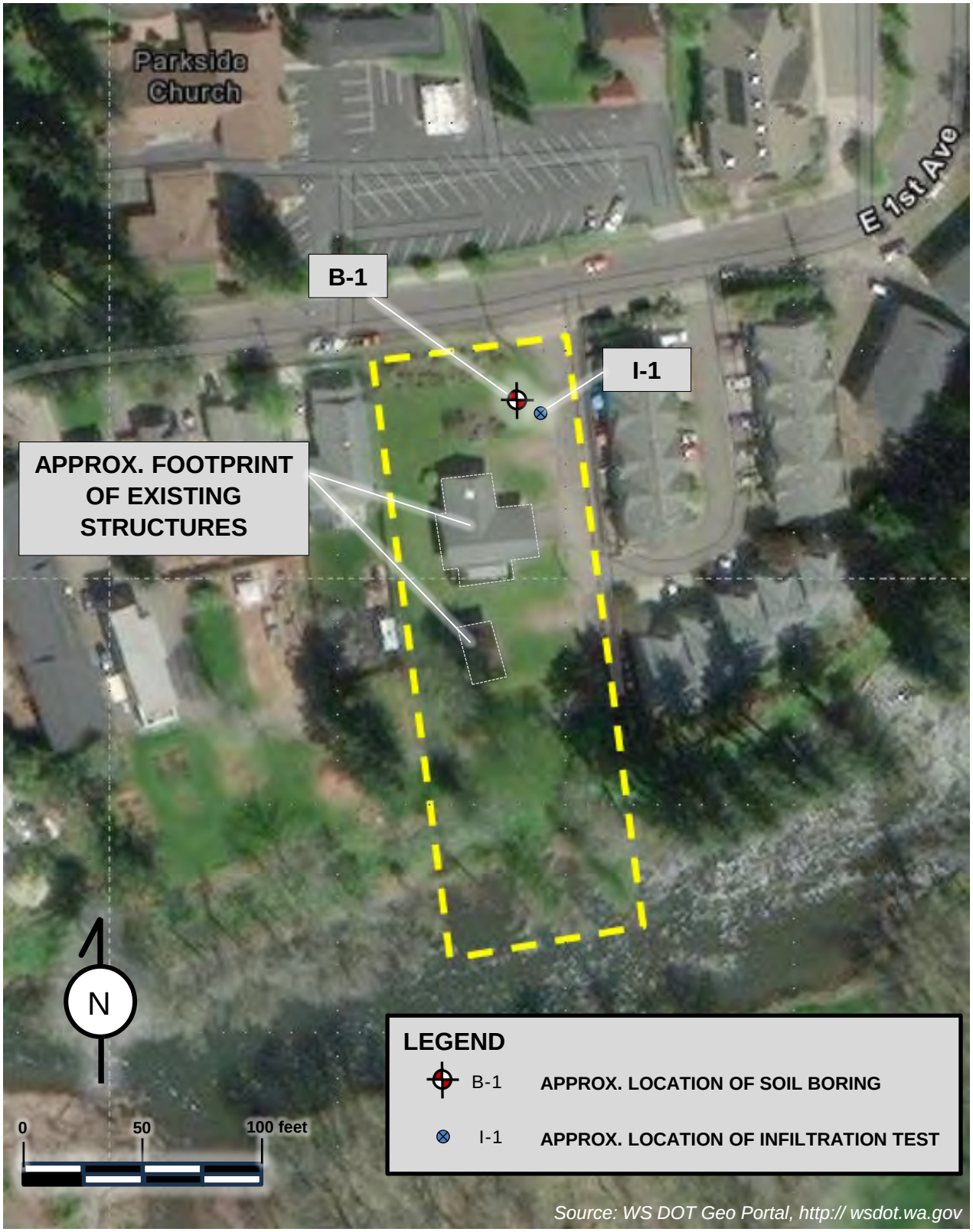
Source: https://databasin.org/maps/

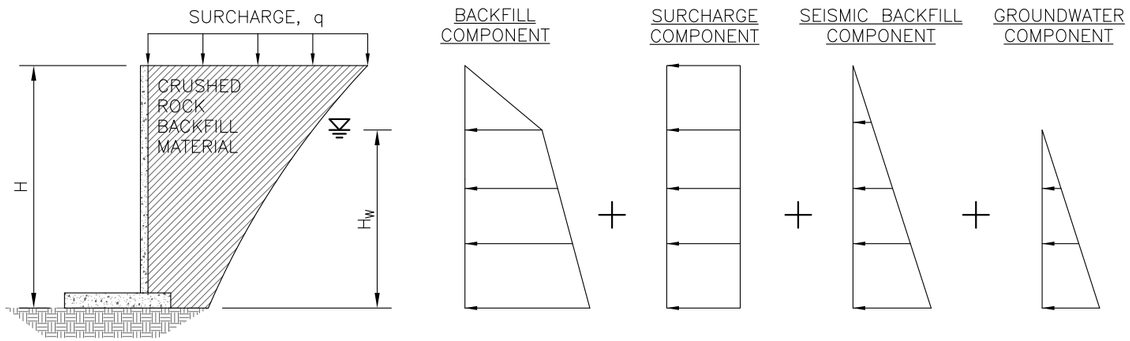
DELVE underground	**CAMAS WATER SYSTEM WELL 13 PFAS TREATMENT DESIGN**	**FIG 1**
	SITE VICINITY PLAN	**MA 2025**

DELVE underground	CAMAS WATER SYSTEM WELL 13 PFAS TREATMENT DESIGN	FIG 2
	SITE LOCATION PLAN	MA 2025



DELVE underground	CAMAS WATER SYSTEM WELL 13 PFAS TREATMENT DESIGN	FIG 3
	SITE EXPLORATION PLAN	MARC 2025

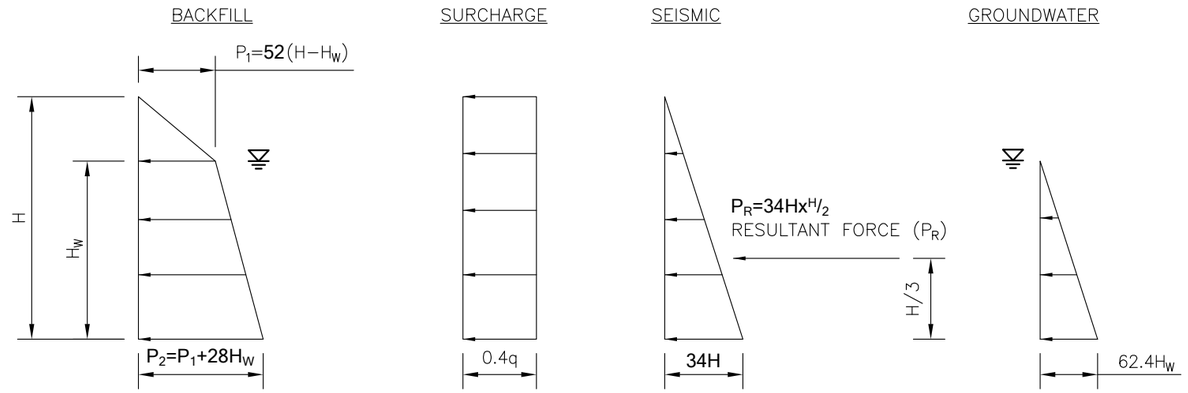
LATERAL EARTH PRESSURES ON EMBEDDED WALLS & STRUCTURES



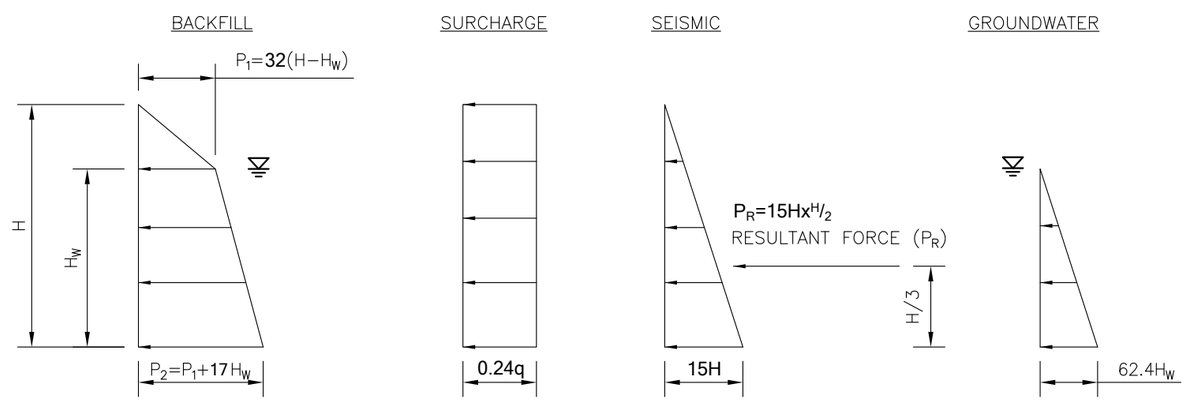
NOTES:

1. UNITS ARE POUNDS PER SQUARE FOOT (PSF).
2. PRESSURES BASED ON WALL BACKFILL PER WSDOT 2024 STANDARD SPECIFICATIONS M41-10 SECTION 9.03.12(2)

RESTRAINED (NON–YIELDING) EMBEDDED WALLS & STRUCTURES



NON-RESTRAINED (YIELDING) EMBEDDED WALLS & STRUCTURES



DELVE underground

CITY OF CAMAS

WELL 13 PFAS TREATMENT DESIGN

GEOTECHNICAL ENGINEERING REPORT
LATERAL EARTH PRESSURES FOR EMBEDDED WALLS

FIG.4

MARCH 2

Appendix A Soil Boring Logs

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Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

B-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	51.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	Mud Rotary CME 75
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	4.78 in
Location	45 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT)	DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS
							ML	Soft, moist, brown, SILT (ML); trace fine to coarse sand, low plasticity. **FILL**	
	2						ML	Very soft, moist, brown (SILT (ML); trace fine to coarse sand, trace mica. **RECENT ALLUVIUM**	
	4		67	0-0-1 (N=1)	S-01				
55	6		6	4-3-26 (N=29)	S-02		GW-GC	Medium dense, moist, brown fines, gray gravel, Well Graded GRAVEL with Clay (GW-GC); fine to coarse gravel, fine to coarse sand. **COARSE GRAINED CATASTROPHIC FLOOD DEPOSITS** *(7.5 ft. bgs) Refusal, no recovery at S-00*	
	8		0	50/1" (Refusal)	S-00				
50	10		61	9-12-13 (N=25)	S-03		GC	Medium dense, moist, brown to gray, CLAYEY GRAVEL (GC); mostly coarse subrounded to subangular gravel, fine to coarse sand, medium plasticity fines.	
	12								Modified California sampler for S-4., and S-6 through S-13. Hammer blow counts are as observed and uncorrected.
	14		56	18-27-27	S-04		GC	Dense, wet, brown fines and sand, gray gravel, red and red-brown clasts, CLAYEY GRAVEL (GC); fine to coarse gravel, fine to coarse sand, coarse sand/fine gravel red clasts, occassional charcoal, subrounded to angular gravel.	
45	16		45	14-16-14 (N=30)	S-05		GP	Medium dense, gray, wet, well Poorly Graded GRAVEL (GP); fine to coarse sand, fine to coarse gravel, angular to subangular gravel. *(17.5 ft bgs) Encountered red, coarse gravel-sized weak clasts.*	(~17 ft. bgs) Drill rig chatter.
	18		56	13-16-17	S-06				

N (blows/ft) 10 20 30 40
MC (%)
LL/PL 20 40 60 80

BACKFILL/INSTALL.

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring B-1

Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

B-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	51.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	Mud Rotary CME 75
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	4.78 in
Location	45 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT)	WATER LEVEL	DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
				67	19-37-49	S-07				Very dense, wet, gray with light brown gravel fragments, Well Graded GRAVEL with Sand (GW); fine to coarse sand, fine to coarse gravel, angular (recently fractured) to subangular gravel, trace green-gray gravel. *(20 ft. bgs) Becomes very dense. Fine gravel clasts present.*		
		22										
		24										
35				100	75/5"	S-08			GW			
		26										
		28										
30		30		100	75/6"	S-09			GP	Very dense, moist, gray and gray brown with red clasts, Poorly Graded GRAVEL with Sand (GP); mostly fine subrounded to angular gravel, fine to coarse sand.		
		32										
		34										
25				100	29-75/1"	S-10			GW	Very dense, moist, gray, Well Graded GRAVEL (GW); fine to coarse sand, fine to coarse gravel, subrounded to angular gravel, recently broken subrounded gravels present.		
		36										
		38										

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring B-1

Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

B-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	51.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	Mud Rotary CME 75
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	4.78 in
Location	45 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT) / WATER LEVEL / DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
42		67	40-75/12 "	S-11			GP	Very dense, wet, gray to brown, Poorly Graded GRAVEL (GP); fine to coarse sand, fine gravel, occasional coarse gravel.		
44								Very dense, moist-gray-brown, dark red, red-orange, and light gray, Poorly Graded GRAVEL with Sand (GP); mostly fine gravel, fine to coarse sand.		
15										
46		67	43-75/12 "	S-12			GP			
48										
10 50		100	45-62-65	S-13			SP	Very dense, moist, gray and gray-brown, Poorly Graded SAND (SP); red, brown and light brown sand visible, micacous.		
52									Borehole completed at 51.5 feet below ground surface (bgs).	
54										
5										
56										
58										

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring B-1

Project: Camas Water System WELL 13 PFAS Treatment Design
Project Location: Camas, Washington
Project Number: 6571.0

Log of Boring

I-1

Date(s) Drilled	05/01/2024	Client	Carollo Engineers	Final Depth	6.5 ft bgs
Coordinates	Lat. 45.58795°, Lon. -122.39343°	Geotechnical Consultant	Delve Underground	Method/ Rig Type	4.25" HSA CME 55
Surface Elevation	60.0 ft.	Drilling Contractor	Western States Soil Conservation, Inc.	Hole Diameter	6.00 in
Location	~35 ft. South of sidewalk, ~12 ft off SE Cramer Rd.	Logged by/ Checked by	N. Lambing / A. Havekost	Hammer Type	140 lb / 30 in / Automatic

ELEV. (FT) / WATER LEVEL / DEPTH (FT)	SAMPLE TYPE	RECOVERY (%)	BLOW COUNTS	SAMPLE NUMBER	N (blows/ft) 10 20 30 40 / MC (%) / LL/PL 20 40 60 80	USCS GRAPHIC	USCS	MATERIAL DESCRIPTION	REMARKS AND TESTS	BACKFILL/INSTALL.
2							ML	Moist, brown SILT (ML), trace fine to coarse sand, low plasticity. **FILL**		
4		67	1-1-1 (N=2)	S-01	■ ◐		ML	Moist, brown SANDY SILT (ML); trace fine sand, low plasticity. **RECENT ALLUVIUM**		
55 6		67	2-2-4 (N=6)	S-02	■		ML	Moist, brown SILT with SAND (ML); fine to coarse sand, low plasticity, coarse gravel fragment in shoe of split spoon *Perform infiltration test. Pre-soak for 4 hours. Take two hours of measurements, adding additional water at each interval.*	Borehole completed at 6.5 feet below ground surface (bgs).	
8										
50 10										
12										
14										
45 16										
18										

DELVE underground

NOTES: AL: Atterberg limits; N: Penetration resistance; MC: Moisture content; SA: Sieve analysis; LL/PL: Atterberg liquid/plastic limits
Location and Elevation Source:
Vertical Datum: USGS Camas Quadrangle 7.5 Min. Topo; NAD83 ; Coordinate System: WGS84

Boring I-1

Sheet 1 of 1

Appendix B Laboratory Testing Results

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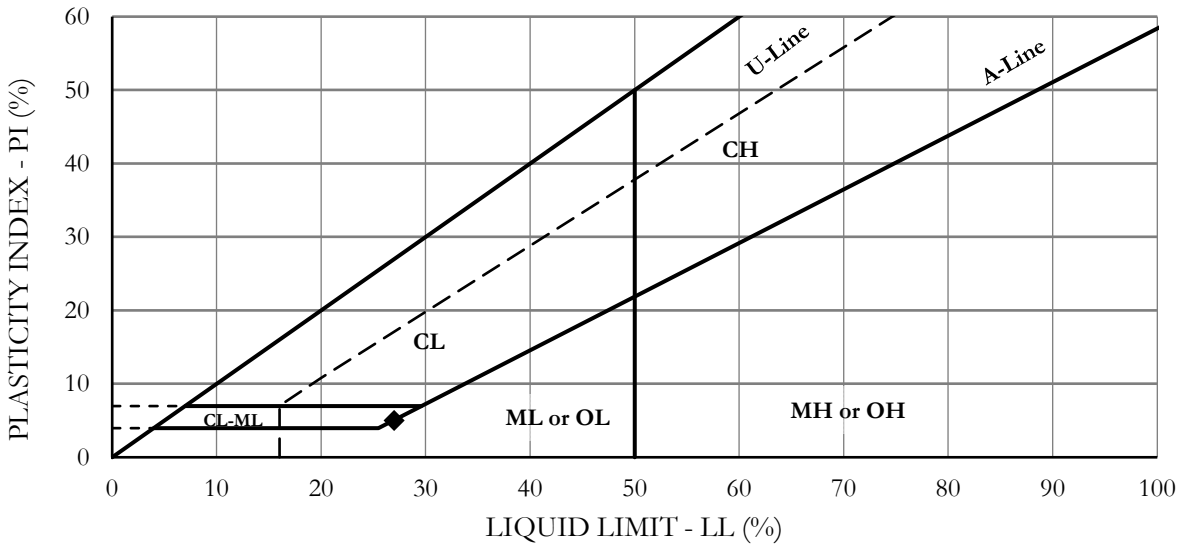
Breccia Geotechnical Testing, LLC.		Percent Fines (ASTM D1140)	
Client:	Delve Underground	By:	FS
Project Name:	Camas Water System PFAS Evaluation	Date:	5/24/2024
Project Number:	6571.0		

Exploration ID	I-1					
Samples ID	S-2					
Samples Depth (ft.)	5					
Moisture Content (%)	30.3					
Percent Fines (%)	66.6					

ATTERBERG LIMITS TEST RESULTS (ASTM D4318)



	Boring ID	Sample ID	Depth (feet)	Moisture Content (%)	Atterberg Limits			%Pass #200	USCS
					LL	PL	PI		
◆	I-1	S-1	2.5	22.6	27	22	5	--	ML

Remarks

Project: Camas Water System PFAS Evaluation
Project No.: 6571.0
Location: Camas, WA

Breccia Geotechnical Testing, LLC.
Brecciageolab@gmail.com
Tel: 971-246-1324

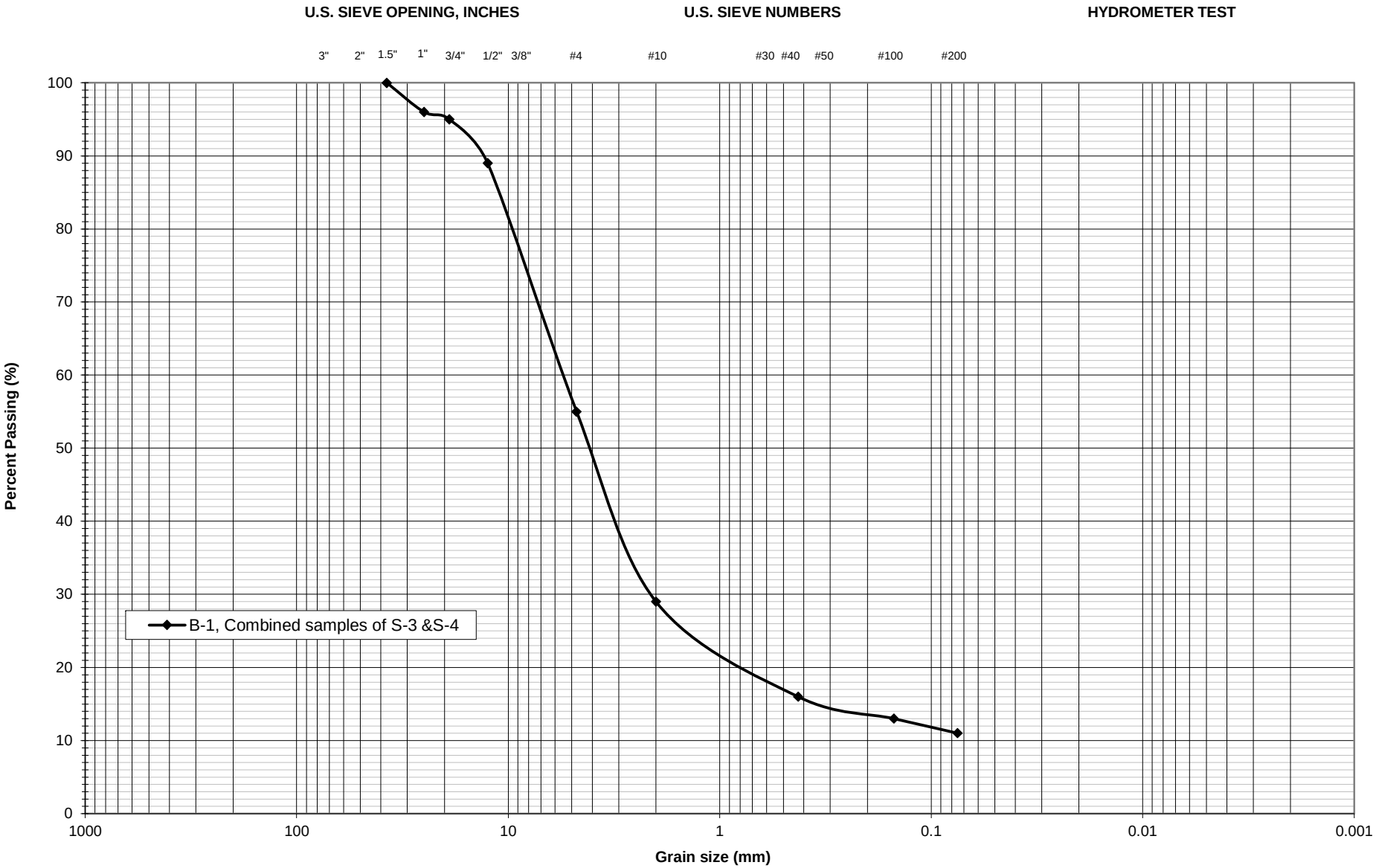
Breccia Geotechnical Testing, LLC.	Particle-Size Analysis of Soils (ASTM D422) - *Mechanical Analysis without Hydrometer Test*

Client:	Delve Underground	By:	FS
Project Name:	Camas Water System PFAS Evaluation	Date:	5/24/2024
Project Number:	6571.0		

Exploration ID	B-1					
Samples ID	S-3&S-4					
Samples Depth (ft.)	10&12.5					
Sieve Size	Percent Passing					
1-1/2"	100					
1"	96					
3/4"	95					
1/2"	89					
No. 4	55					
No. 10	29					
No. 40	16					
No. 100	13					
No. 200	11					

% Coarse Gravel	5.0					
% Fine Gravel	40.0					
% Coarse Sand	26.0					
% Medium Sand	13.0					
% Fine Sand	5.0					
% Fines	11.0					

Note: Samples prepared by washing over No. 200 sieve


U.S. SIEVE OPENING, INCHES
U.S. SIEVE NUMBERS
HYDROMETER TEST
3"
2"
1.5"
1"
3/4"
1/2"
3/8"
#4
#10
#30
#40
#50
#100
#200
Percent Passing (%)
100
90
80
70
60
50
40
30
20
10
0
1000
100
10
1
0.1
0.01
0.001
Grain size (mm)
B-1, Combined samples of S-3 &S-4

Appendix C Water Well Reports

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File Original with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy 193881

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent W24/453

UNIQUE WELL I.D. # ALL-996

Water Right Permit No.

(1) **OWNER:** Name City of Camas Address PO Box 1055, Camas, WA 98607

(2) **LOCATION OF WELL:** County Clark SE 1/4 NE 1/4 Sec 11 T 1 N.R. 3E WM

(2a) **STREET ADDRESS OF WELL:** (or nearest address) Lawn Block Park - NE 1st Ave

TAX PARCEL NO.: 090988-000

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☒ Test Well ☐ Other ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one) TW-1
☒ New Well ☐ Deepened ☐ Reconditioned ☐ Decommission
Method: ☐ Dug ☒ Cable ☐ Rotary ☐ Bored ☐ Driven ☐ Jetted

(5) **DIMENSIONS:** Diameter of well 8 inches
Drilled 138 feet. Depth of completed well 138 ft.

(6) **CONSTRUCTION DETAILS**
Casing Installed:
☒ Welded 8 " Diam. from +2 ft. to 138 ft.
☐ Liner installed " Diam. from ft. to ft.
☐ Threaded " Diam. from ft. to ft.

Perforations: ☒ Yes ☐ No
Type of perforator used Mills Knife
SIZE of perforations 1/4" in. by 4" in.
60 perforations from 95 ft. to 110 ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location
Manufacturer's Name
Type Model No.
Diam. Slot Size from ft. to ft.
Diam. Slot Size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
Material placed from ft. to ft.

Surface seal: ☒ Yes ☐ No To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level 70 ft.
Static level 61.6 ft. below top of well Date 2/8/06
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No

(10) **WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION**
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
Brown silty Sand & Clay	0	10
Brown siltbound sand, Gravel, and Boulders	10	29
Brown siltbound Sand, Gravel and Cobbles	29	40
Brown siltbound Sand & Gravel	40	49
Brown very silty Sand and Gravel	49	58
Brown silty Sand & Gravel	58	80
Brown Sand & Gravel w/minor cobbles and siltbound interbeds	80	92
Brown Sand & Gravel	92	111
Brown fine Sand	111	120
Brown silty to very silty fine Sand	120	132
Tan Clay	132	136
Reddish-brown clay and Rock frags. (weathered bedrock)	136	138

RECEIVED RECEIVED
FEB 17 2006 APR 17 2006
Washington State Department of Ecology Washington State Department of Ecology

Work Started 10/26/2005 Completed 2/15/2005

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Randy Holt License No. 1099
(Licensed Driller/Engineer)

Trainee Name License No.
Drilling Company Holt Drilling / Boart Longyear
(Signed) Randy Holt License No. 1099
(Licensed Driller/Engineer)
Address Po Box 1890 Milton WA 98354
Contractor's Registration No. BOARTLS055P2 Date 4/04/06

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (11/98)

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. RE09349

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction

☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Type of Well *("x in box)* 499829

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner City of Camas

Site Address NE 3rd Ave + NE 3rd Pl

City Camas County Clark

Location SE 1/4-1/4 NE 1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

Consulting Firm

Unique Ecology Well IDTag No. BCM274

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____

Long Deg ____ Min ____ Sec ____

Tax Parcel No.

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Dennis, James

Driller/Engineer /Trainee Signature James Dennis

Driller or Trainee License No. 3145

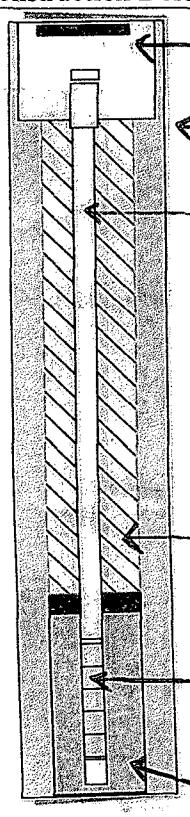
Cased or Uncased Diameter 5" Static Level none

Work/Decommission Start Date 12/6/13

Work/Decommission Completed Date 12/6/13

If trainee, licensed driller's Signature and License Number:

Construction Design



Well Data

MONUMENT/VAULT Below Ground From 0 To 1

BORE HOLE Diameter 5" From 0 To 20

CASING Dia. 1" From ☐ 0 To 10

Gauge 580 Wld Thrd

Material ◯Steel ◉Plastic ☐ ☒

LINER Dia. ____ From ☐ ____ To ____

Gauge ____ Wld Thrd

Material ◯Steel ◯Plastic ☐ ☐

SEAL From 1 To 9

Material Bent Chips

Amount 23 Grout weight ____

SCREEN (Casing)/Liner ____ Material PVC

Diameter 1" From 10 To 20

Slot Size .010

FILTER Material Silica Sand Size of pack 10/20

From 9 To 20

Formation Description

Cobbles 0-3'

Sandy Silt/Gravels 3-7'

Boulders 7-9'

Cobbles 9-20'

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DEC 23 2013

WA State Department of Ecology (SWRO)

SCALE: 1"= ____ PAGE ____ OF ____

ECY 050-12 (Rev. 7/06)

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. SE50012

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Type of Well *("x in box)* 499848

☐ Resource Protection
☒ Geotech Soil Boring

Property Owner City of Camas

Site Address NE 3rd Ave & NE 3rd Pl

Consulting Firm

City Camas County Clark

Unique Ecology Well IDTag No.

Location SE1/4-1/4 NE1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____

Long Deg ____ Min ____ Sec ____

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Dennis, James

Driller/Engineer /Trainee Signature James Dennis

Driller or Trainee License No. 3145

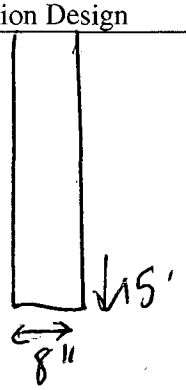
Tax Parcel No.

Cased or Uncased Diameter 8" Static Level None

Work/Decommission Start Date 12/05/2013

Work/Decommission Completed Date 12/05/2013

If trainee, licensed driller's Signature and License Number:

Construction Design	Well Data	Formation Description
	Drilled (1) 15' hollow stem auger boring for geotechnical purposes.	Asphalt 0-6" Sand 6"-15'

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WA State Department of Ecology (SWRO)

SCALE: 1"= 10 PAGE ____ OF 8

ECY 050-12 (Rev. 7/06)

Ecology is an Equal Opportunity E[illegible]

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. AE24763

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction
☒ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:
SE50012

Consulting Firm

Unique Ecology Well IDTag No.

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee
Name (Print Last, First Name) Dennis, James
Driller/Engineer /Trainee Signature James Dennis
Driller or Trainee License No. 3145

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

☐ Resource Protection
☒ Geotech Soil Boring

499849

Property Owner City of Camas

Site Address NE 3rd Ave & NE 3rd Pl

City Camas County Clark

Location SE1/4-1/4 NE1/4 Sec 11 Twn 1N R 3E

EWM ☒ or WWM ☐

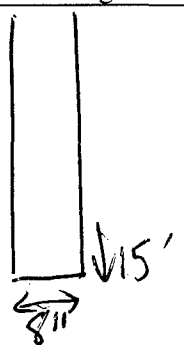
Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____
Long Deg ____ Min ____ Sec ____

Tax Parcel No.

Cased or Uncased Diameter 8" Static Level None

Work/Decommission Start Date 12/05/2013

Work/Decommission Completed Date 12/05/2013

Construction Design	Well Data	Formation Description
	Decommissioned (1) 15' hollow stem auger boring using (6) 50lb sack bentonite chips 15-2', gravel 2-6", Asphalt 6"-0'	Asphalt 0-6" Sand 6"-15' Boring decommssioned as described under well data.

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DEC 23 2013
WA State Department of Ecology (SWRO)

SCALE: 1"= 10 PAGE ____ OF 8

ECY 050-12 (Rev. 7/06)

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. AE24763

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction
☒ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:
SE50012

Consulting Firm

Unique Ecology Well IDTag No.

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee
Name (Print Last, First Name) Dennis, James
Driller/Engineer /Trainee Signature James Dennis
Driller or Trainee License No. 3145

If trainee, licensed driller's Signature and License Number:

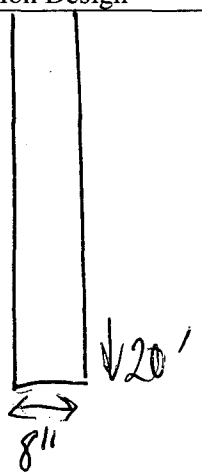
Type of Well *("x in box)*

☐ Resource Protection
☒ Geotech Soil Boring 499853

Property Owner City of Camas
Site Address NE 3rd Ave & NE 3rd Pl
City Camas County Clark
Location SE1/4-1/4 NE1/4 Sec 11 Twn 1N R 3E
EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____
Long Deg ____ Min ____ Sec ____

Tax Parcel No.
Cased or Uncased Diameter 8" Static Level None
Work/Decommission Start Date 12/05/2013
Work/Decommission Completed Date 12/05/2013

Construction Design	Well Data	Formation Description
	Decommissioned (1) 20' hollow stem auger boring using (8) 50lb sack bentonite chips 20-2', gravel 2-6", Asphalt 6"-0'	Asphalt 0-1' Gravel 1-1.5' Sand 1.5-20' Boring decommssioned as described under well data.

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DEC 23 2013
WA State Department of Ecology (SWRO)

SCALE: 1"= 10 PAGE ____ OF 8

WILLIAMS ROB & WILLIAMS MARCELA CROUCHER
PO BOX 632
CAMAS, WA 98607

TAVARES MARGARET
1302 E 1ST AVE
CAMAS, WA 98607

MITCHELL JEAN E TRUSTEE
1304 E 1ST AVE
CAMAS, WA 98607

PAN SHANJEN & PAN YUHUA
1306 E 1ST AVE
CAMAS, WA 98607

BECK WENDY A
1308 SE 1ST AVE
CAMAS, WA 98607

GRUNDY LEZLEE TRUSTEE
1310 E 1ST AVE
CAMAS, WA 98607

JONES LISA L & JONES KAYLYN E
1312 E 1ST AVE
CAMAS, WA 98607

CRANG-GEIGER SHERRIE L
1314 E 1ST AVE
CAMAS, WA 98607

WESSLING VICKY L TRUSTEE
1316 E 1ST AVE
CAMAS, WA 98607

COLAS LAUREN D
1318 E 1ST AVE
CAMAS, WA 98607

MARQUEZ LORIMAR A
1320 E 1ST AVE
CAMAS, WA 98607

PAN SHANJEN & PAN YUHUA
1306 E 1ST AVE
CAMAS, WA 98607

PETRUSKA MARY ANN C
1324 E 1ST AVE
CAMAS, WA 98607

BUTTON MEAGAN & BUTTON BRANDON
1326 E 1ST AVE
CAMAS, WA 98607

BOCKHOEFER STEVEN D
1328 E 1ST AVE
CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

KRIEGER KAREN L
114 SE KING ST
CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

LONER P
122 SE KING ST
CAMAS, WA 98607

DONALD RODGER D & DONALD DORIS E
134 SE KING ST
CAMAS, WA 98607

CYVER LLC
8410 W MERCER WAY
MERCER ISLAND, WA 98040

CASCADE INSTRUMENT DESIGN INC
1554 NE 3RD AVE
CAMAS, WA 98607

MARSHALL JOSEPH R & SOGGE KIMBERLY D
1242 E 1ST AVE
CAMAS, WA 98607

FIRST PLACE GARFIELD APARTMENTS LLC
33316 SE 34TH ST
WASHOUGAL, WA 98671

MARSHALL CARLY J
1186 NW 10TH AVE
CAMAS, WA 98607

MARSHALL JOSEPH R & SOGGE KIMBERLY D
1242 E 1ST AVE
CAMAS, WA 98607

COX JASON M & COX KALANI JANE
18018 SE 18TH ST
VANCOUVER, WA 98683

CHEN LI-YE & ZHOU DONGXIA
2643 34TH ST
WASHOUGAL, WA 98671

NORTHWEST GOSPEL CHURCH
305 NE 192ND AVENUE
VANCOUVER, WA 98684

NORTHWEST GOSPEL CHURCH
305 NE 192ND AVENUE
VANCOUVER, WA 98684

NORTHWEST GOSPEL CHURCH
305 NE 192ND AVENUE
VANCOUVER, WA 98684

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

MORAN ROBERT J & MORAN JEANIE M
117 SE 349TH PLACE
WASHOUGAL, WA 98671

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

NORTHWEST GOSPEL CHURCH
305 NE 192ND AVENUE
VANCOUVER, WA 98684

MARSHALL RICHARD C & MARSHALL CASSANDRA R
1186 NW 10TH AVE
CAMAS, WA 98607

Occupant PID 89846122
1300 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846124
1302 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846126
1304 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846128
1306 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846130
1308 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846132
1310 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846134
1312 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846136
1314 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846138
1316 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846140
1318 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846142
1320 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846144
1322 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846146
1324 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846148
1326 E 1ST AVE
CAMAS, WA 98607

Occupant PID 89846150
1328 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90926000
114 SE KING ST
CAMAS, WA 98607

Occupant PID 90928000
1250 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90937000
122 SE KING ST
CAMAS, WA 98607

Occupant PID 90938000
134 SE KING ST
CAMAS, WA 98607

Occupant PID 90944000
1410 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90950000
1554 NE 3RD AVE
CAMAS, WA 98607

Occupant PID 90953000
1244 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90955000
1228 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90956000
1240 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90957000
1242 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90958000
1246 E 1ST AVE
CAMAS, WA 98607

Occupant PID 90965000
1524 NE 3RD AVE
CAMAS, WA 98607

Occupant PID 90974000
1420 NE 3RD AVE
CAMAS, WA 98607

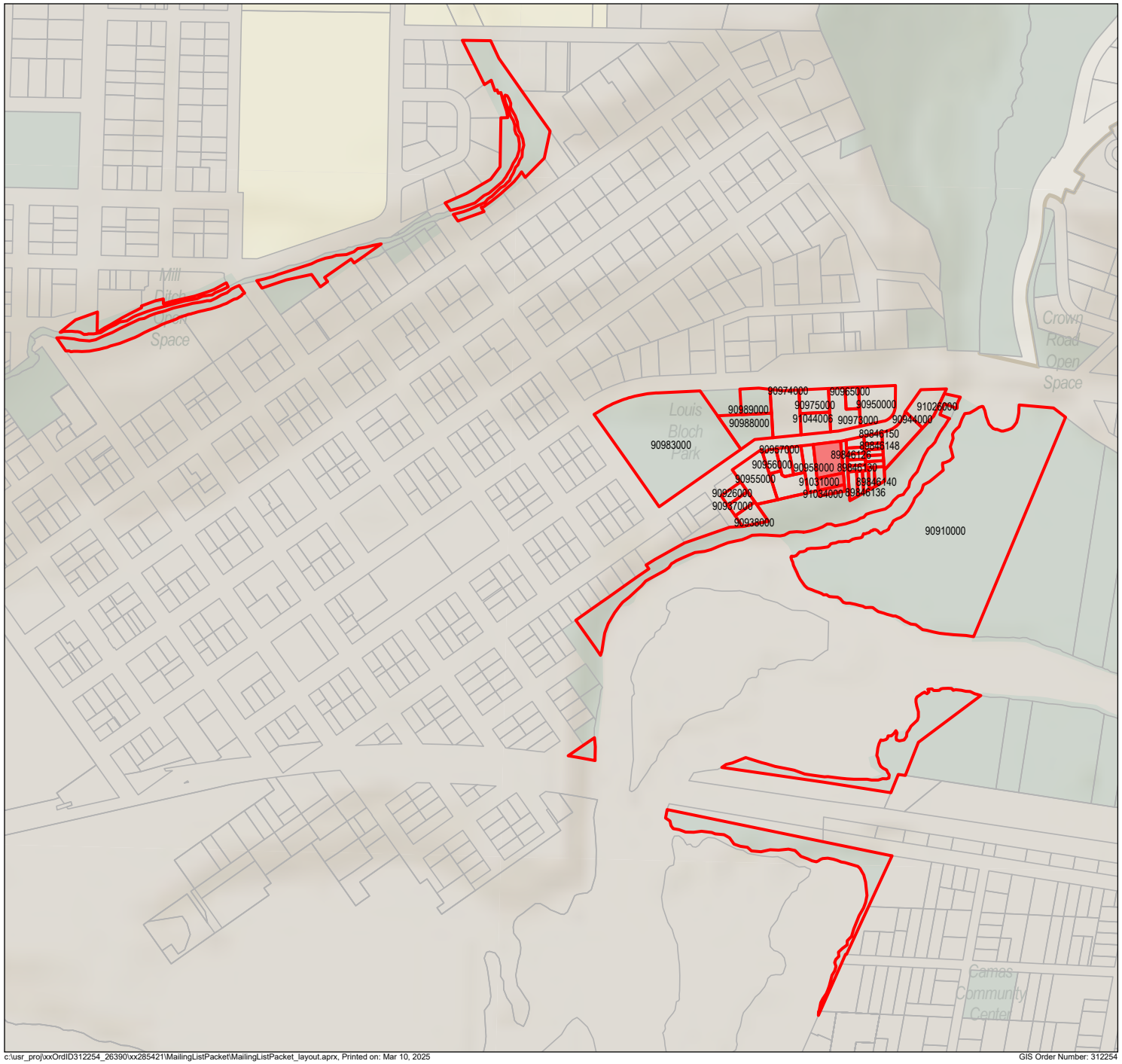
Occupant PID 90975000
1454 NE 3RD AVE
CAMAS, WA 98607

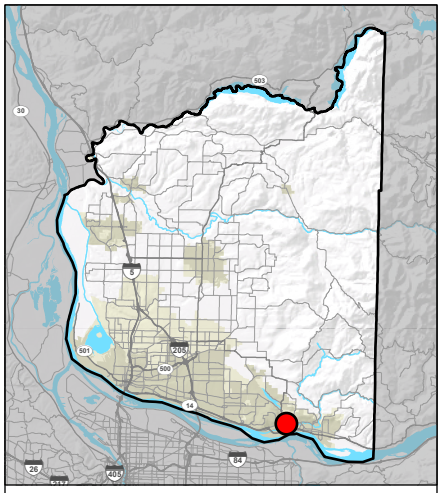
Occupant PID 90983000
160 NE JOY ST
CAMAS, WA 98607

Occupant PID 91026000
1642 NE 3RD AVE
CAMAS, WA 98607

Occupant PID 91031000
135 SE CRAMER LN
CAMAS, WA 98607

Occupant PID 986026555
1236 E 1ST AVE
CAMAS, WA 98607





PID(s): 90928000, 91031000, 91034000, 300-Foot Buffer

KEY

- Subject Property
- Buffer Selection
- Parcels

CLARK COUNTY, WASHINGTON

N

NOTE: *Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.*

0 300 600 900 Feet

c:\usr_proj\xxOrdID312254_26390\xx285421\MailingListPacket\MailingListPacket_layout.aprx, Printed on: Mar 10, 2025

GIS Order Number: 312254

Owner Name	Mailing Address
BECK WENDY A	1308 SE 1ST AVE, CAMAS, WA, 98607
BOCKHOEFER STEVEN D	1328 E 1ST AVE, CAMAS, WA, 98607
BUTTON MEAGAN & BUTTON BRANDON	1326 E 1ST AVE, CAMAS, WA, 98607
CASCADE INSTRUMENT DESIGN INC	1554 NE 3RD AVE, CAMAS, WA, 98607
CHEN LI-YE & ZHOU DONGXIA	2643 34TH ST, WASHOUGAL, WA, 98671
CITY OF CAMAS	616 NE 4TH AVE, CAMAS, WA, 98607
COLAS LAUREN D	1318 E 1ST AVE, CAMAS, WA, 98607
COX JASON M & COX KALANI JANE	18018 SE 18TH ST, VANCOUVER, WA, 98683
CRANG-GEIGER SHERRIE L	1314 E 1ST AVE, CAMAS, WA, 98607
CYVER LLC	8410 W MERCER WAY, MERCER ISLAND, WA, 98040
DONALD RODGER D & DONALD DORIS E	134 SE KING ST, CAMAS, WA, 98607
FIRST PLACE GARFIELD APARTMENTS LLC	33316 SE 34TH ST, WASHOUGAL, WA, 98671
GRUNDY LEZLEE TRUSTEE	1310 E 1ST AVE, CAMAS, WA, 98607
JONES LISA L & JONES KAYLYN E	1312 E 1ST AVE, CAMAS, WA, 98607
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LONER P	122 SE KING ST, CAMAS, WA, 98607
MARQUEZ LORIMAR A	1320 E 1ST AVE, CAMAS, WA, 98607
MARSHALL CARLY J	1186 NW 10TH AVE, CAMAS, WA, 98607
MARSHALL JOSEPH R & SOGGE KIMBERLY D	1242 E 1ST AVE, CAMAS, WA, 98607
MARSHALL RICHARD C & MARSHALL CASSANDRA R	1186 NW 10TH AVE, CAMAS, WA, 98607
MITCHELL JEAN E TRUSTEE	1304 E 1ST AVE, CAMAS, WA, 98607
MORAN ROBERT J & MORAN JEANIE M	117 SE 349TH PLACE, WASHOUGAL, WA, 98671
NORTHWEST GOSPEL CHURCH	305 NE 192ND AVENUE, VANCOUVER, WA, 98684
PAN SHANJEN & PAN YUHUA	1306 E 1ST AVE, CAMAS, WA, 98607
PETRUSKA MARY ANN C	1324 E 1ST AVE, CAMAS, WA, 98607
TAVARES MARGARET	1302 E 1ST AVE, CAMAS, WA, 98607
WESSLING VICKY L TRUSTEE	1316 E 1ST AVE, CAMAS, WA, 98607
WILLIAMS ROB & WILLIAMS MARCELA CROUCHER	PO BOX 632, CAMAS, WA, 98607

This document was created by the Clark County, Washington Geographic Information System

Number of Records 28
Number of Pages 1
Date Created 3/10/2025
Employee
Employee Name Jesse Manley

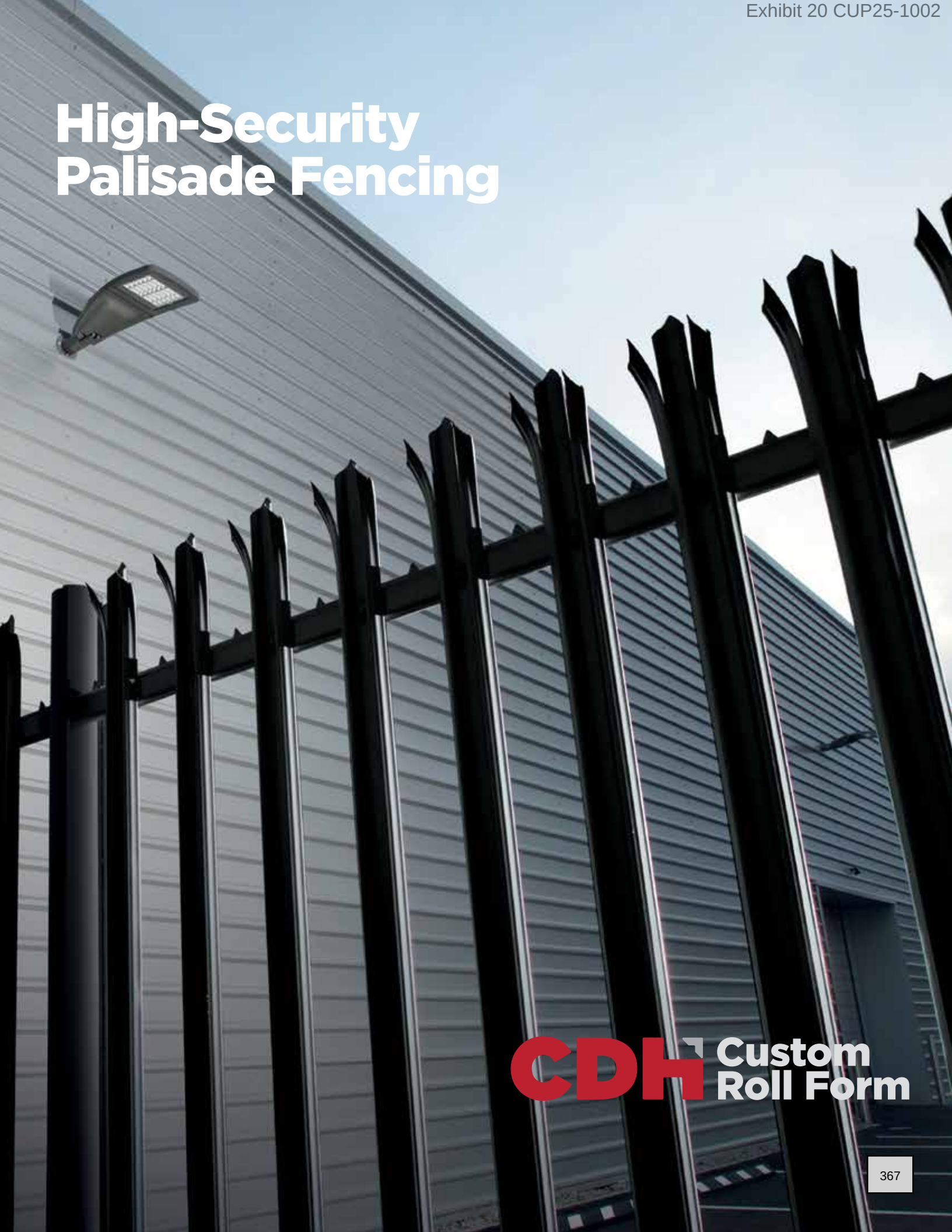
PID	Situs Address			
89846122	1300 E 1ST AVE	CAMAS	WA	98607
89846124	1302 E 1ST AVE	CAMAS	WA	98607
89846126	1304 E 1ST AVE	CAMAS	WA	98607
89846128	1306 E 1ST AVE	CAMAS	WA	98607
89846130	1308 E 1ST AVE	CAMAS	WA	98607
89846132	1310 E 1ST AVE	CAMAS	WA	98607
89846134	1312 E 1ST AVE	CAMAS	WA	98607
89846136	1314 E 1ST AVE	CAMAS	WA	98607
89846138	1316 E 1ST AVE	CAMAS	WA	98607
89846140	1318 E 1ST AVE	CAMAS	WA	98607
89846142	1320 E 1ST AVE	CAMAS	WA	98607
89846144	1322 E 1ST AVE	CAMAS	WA	98607
89846146	1324 E 1ST AVE	CAMAS	WA	98607
89846148	1326 E 1ST AVE	CAMAS	WA	98607
89846150	1328 E 1ST AVE	CAMAS	WA	98607
90910000			WA	0
90926000	114 SE KING ST	CAMAS	WA	98607
90928000	1250 E 1ST AVE	CAMAS	WA	98607
90937000	122 SE KING ST	CAMAS	WA	98607
90938000	134 SE KING ST	CAMAS	WA	98607
90944000	1410 E 1ST AVE	CAMAS	WA	98607
90950000	1554 NE 3RD AVE	CAMAS	WA	98607
90953000	1244 E 1ST AVE	CAMAS	WA	98607
90955000	1228 E 1ST AVE	CAMAS	WA	98607
90956000	1240 E 1ST AVE	CAMAS	WA	98607
90957000	1242 E 1ST AVE	CAMAS	WA	98607
90958000	1246 E 1ST AVE	CAMAS	WA	98607
90965000	1524 NE 3RD AVE	CAMAS	WA	98607
90973000			WA	0
90974000	1420 NE 3RD AVE	CAMAS	WA	98607
90975000	1454 NE 3RD AVE	CAMAS	WA	98607
90983000	160 NE JOY ST	CAMAS	WA	98607
90988000			WA	0
90989000			WA	0
91026000	1642 NE 3RD AVE	CAMAS	WA	98607
91031000	135 SE CRAMER LN	CAMAS	WA	98607
91034000			WA	0
91044006			WA	0
986026555	1236 E 1ST AVE	CAMAS	WA	98607

PID	Situs Address

This document was created by the Clark County, Washington Geographic Information System

Number of Records 39
Number of Pages 2
Date Created 3/10/2025
Employee
Employee Name Jesse Manley

High-Security Palisade Fencing



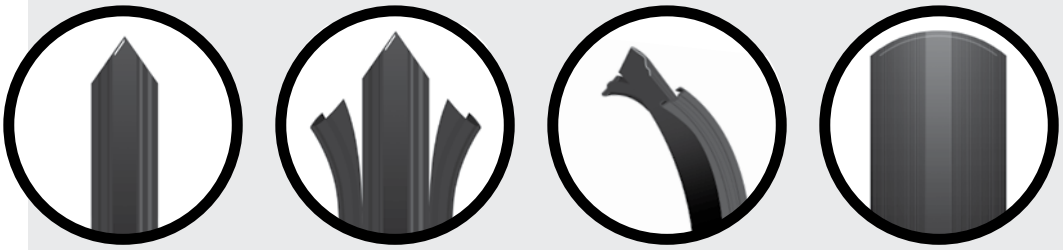
CDH Custom Roll Form

HIGH-SECURITY PALISADE FENCING PROVIDES SAFETY AND SECURITY FOR ANY APPLICATION

Pickets

CDH Palisade Security Fencing offers three head styles offering a high level of security, and the profile of the steel picket makes scaling the fence difficult. The pickets are attached to the support members using break-away nuts and anti-pry bolts. In the instance where a picket has been damaged, you can replace individual pieces versus replacing the entire section(s).

HEAD STYLE OPTIONS



SINGLE POINT | TRIPLE POINT | SPLAYED | ROUNDED

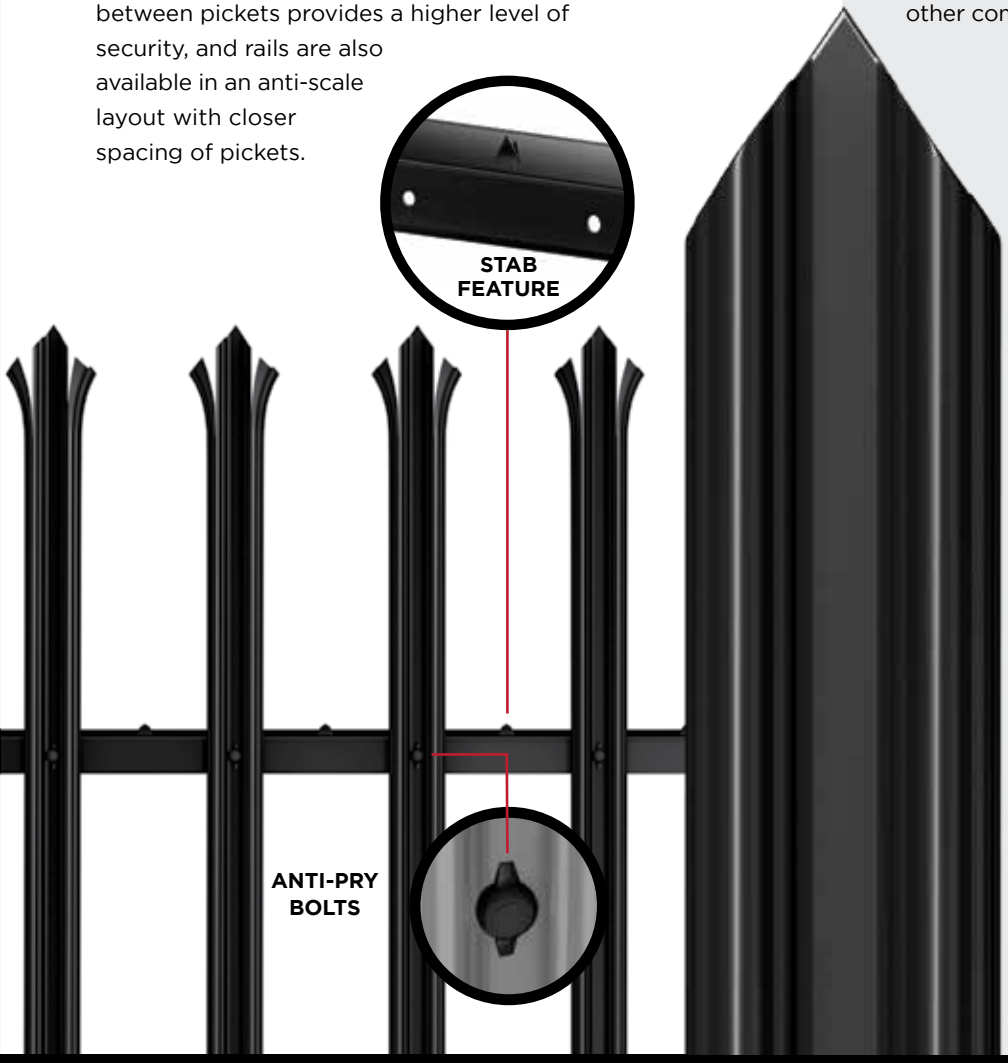
One of the highest priorities for any organization is to provide a safe and secure environment for people and equipment.

Rails

The rails are pre-punched to connect to the vertical pickets. The rail is designed for a permanent installation and combined with the other components provides a high level of security. An anti-climb “stab” feature between pickets provides a higher level of security, and rails are also available in an anti-scale layout with closer spacing of pickets.

Posts

The “I-beam” shaped posts are available at various heights to meet your needs, and they are pre-punched to receive the cross-support rails. The post is designed for a permanent installation and combined with the other components provides a high level of security.



POST CAP

EMBEDMENT HOLES

Best in Safety and Security

Palisade Security Fencing is a great option for outdoor use when a higher level of security is required, and the architectural look of the fencing is important. It is designed to be permanently installed in an outdoor environment and is often used for both industrial and commercial buildings.

The product is rolled from galvanized steel and is protected by a resilient powder coating that when combined offer a long lifetime for the product. The spikes at the top of the fence deter people from attempting to scale the fence.

To ensure the best in safety and security at your facility, select high-security palisade fencing from CDH Custom Roll Form.

A Best-In-Class Solution

In addition to serving as a visual deterrent to any unwanted visitors, CDH Palisade Security Fencing provides a physical barrier while complementing the surroundings.

Our attractive designs combine with high strength, security and durability to meet the needs of any facility. Our Palisade Security Fencing system provides much greater security than traditional chain link or wire-mesh fences but with the design and aesthetic appeal of ornamental fencing.

All the roll-formed components of our palisade fencing system (vertical and horizontal rails, posts and pickets) are manufactured in the USA using high-tensile steel and roll-formed with precision into profiles that provide high strength and versatility for your particular needs. Our top-quality connection hardware makes each connection point secure and safe, and our range of components provides the ultimate in flexibility and optio

Component Hardware

In addition to the posts, pickets and rails, we provide all the component hardware needed, including:

- Bolts
- Nuts
- Post Caps

Plates are hot dipped galvanized, powder coated and include the following:

- Straight Connecting Plates
- Right-Hand Termination Plates
- Left-Hand Termination Plates
- Corner Plates

Coating & Color Options

All components of our palisade fencing system are powder coated, and a hot-dipped galvanized option is also available. Components are available in black, and additional colors are available. Contact CDH for more information.

CDH Palisade Security Fencing is available in black as a stock color, but a variety of custom colors are also available upon request.

CODE APPROVALS & PERFORMANCE STANDARDS

CDH Fencing complies with ICC ESL-1435

ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM F2408 – Standard Specification for Ornamental Fences Employing Galvanized Steel Tubular Pickets

ASTM F2814 – Standard Guide for Design and Construction of Ornamental Steel Picket Fence Systems for Security Purposes

ASTM B117 – Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM D523 (60° Method) – Standard Test Method for Specular Gloss

ASTM D822 – Standard Practice for Filtered Open Flame Carbon-Arc Exposures of Paint and Related Coatings

ASTM D1654 – Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments

ASTM D2244 – Standard Practice Calculation for Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates

ASTM D2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

ASTM D3359-Method B – Standard Test Method for Rating Adhesion by Tape Test

ISO 9001:2015 Certification for CDH manufacturing facility in Warren, OH

CDH Palisade fencing meets all requirements for Buy America Buy American and qualifies for LEED points.

Why CDH?

CDH is a joint venture of U.S.-based ClarkDietrich and U.K.-based Hadley Group and offers more than 100 years of combined experience, and technical and manufacturing expertise. We have in-house roll forming, stamping and slitting as well as internal testing and laboratory facilities. Our engineering support group is the largest in the industry, and we feature a wide product distribution footprint and first-class customer service capabilities.

CDH has received ISO 9001:2015 certification for its quality management system in its Warren, OH facility. The certification has a scope of the manufacture and supply of cold roll-formed sections to customer requirements for, but not limited to, custom profiles, construction components, power transmission and metal fencing.

CDH Custom Roll Form

CDH Custom Roll Form, LLC
1300 Phoenix Rd NE
Warren, OH 44483

info@cdhrollform.com
330-984-0555
www.cdhrollform.com

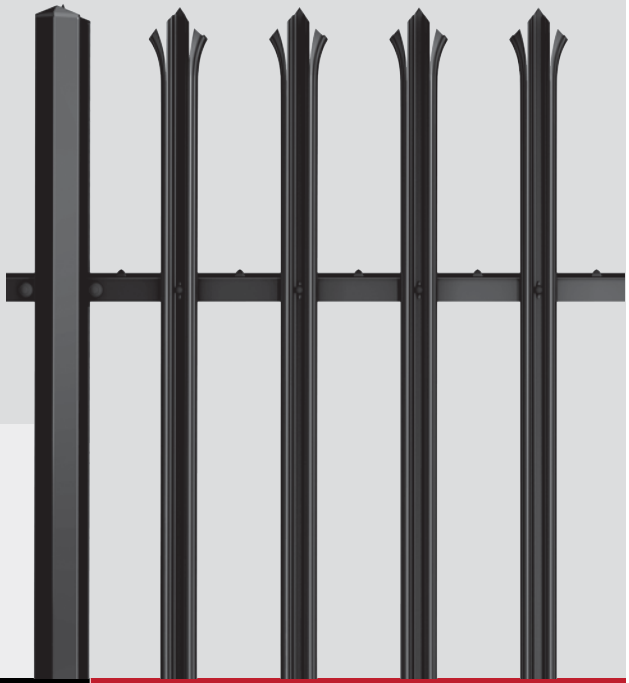
Product Data Sheet

Palisade Fencing **Picket**

PICKET PROFILE

CDH palisade fencing offers three head styles offering a high level of security, and the profile of the steel picket makes scaling the fence difficult. The pickets are bolted to the support members so in the instance where a picket has been damage, you can replace individual pieces versus replacing the entire section(s).

Pickets are powder coated, and a hot-dipped galvanized option is also available. Components are available in black, and additional colors are available. **Contact CDH for more information.**



HEAD STYLE OPTIONS

SINGLE POINT

TRIPLE POINT

SPLAYED POINT

Section Profile Properties	U.S.		METRIC	
Design Yield Strength	KSI	50.8	N/mm²	350
Section Size Height	In	0.827	mm	20.5
Section Size Width	In	2.559	mm	65
Material Thickness	In	0.079	mm	2.00

Skid Size	
Single Point	120 pieces
Triple Point	120 pieces
Triple Point Splayed	120 pieces

Product Data Sheet

Palisade Fencing **Picket**

Code Approvals & Performance Standards

- CDH Fencing complies with ICC ESL-1435
- ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
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- ASTM F2814 – Standard Guide for Design and Construction of Ornamental Steel Picket Fence Systems for Security Purposes
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CDH Palisade fencing meets all requirements for Buy America Buy American and qualifies for LEED points.

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CDH
Shaping What's Possible

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SEPA[1] 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.

[1] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/Checklist-guidance

A. Background

Find help answering background questions[2]

1. **Name of proposed project, if applicable:**

   Camas PFAS Evaluation & Well 13 Treatment

2. **Name of applicant:**

   City of Camas, Washington Attn: Rob Charles

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

   616 NE 4th Ave. Camas, WA 98607 |(360) 817-1568 | rcharles@cityofcamas.com

4. **Date checklist prepared:**

   February 11, 2025

5. **Agency requesting checklist:**

   City of Camas, WA

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

   Construction is anticipated to take place upon approval and procurement of all applicable reviews and permits. The projection would be fall of 2025 for construction of Stage 1 with Stage 2 following completion of Stage 1.

   Stage 1 consists of the following:
   - *Construction of a new electrical room.*
   - *Construction of a new generator pad.*
   - *Construction of a new transformer pad and gravel access.*
   - *Installation of two ion exchange tanks.*
   - *Installation of a covered bag filter pad.*
   - *Installation of a new driveway for a crane truck.*

   Stage 2 consists of the following:
   - *Installation of a new well.*
   - *Construction of a new well and chemical building.*
   - *Installation of four ion exchange tanks.*

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

   No.

[2] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-A-Background

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

Shoreline Critical Areas Report – MacKay Sposito, Inc., January 22, 2025
Shoreline Narrative – MacKay Sposito, Inc., February 28, 2025
Archaeological Survey – Archaeological Investigations Northwest, February 9, 2007
Stormwater Report – MacKay Sposito, February 20, 2025
Geotechnical Site Investigation – Delve Underground, March, 2025
SEPA Environmental Checklist

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.**

There are no known other applications pending that directly affect this site to the Applicant's knowledge.

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

Conditional Use Permit Approval
Preliminary Site Plan Approval
Final Site Plan Approval
Design Review Approval
Grading and Utilities Plan Approval
Stormwater Plan Approval
Erosion Control Plan Approval
Grading Permit
SEPA determination
Shoreline Review
Archaeological Predetermination
Demolition Permit
Building Permit
Washington State Department of Ecology Approval
Washington State Department of Health Approval
Clark County Public Health Approval

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

The Applicant, the City of Camas, requests a Type III Conditional Use Permit Review, Shoreline Conditional Use Permit, Site Plan Review, Design Review, SEPA Review, Archaeological Review and Critical Areas Review for updates to the existing Well 13 facility. The proposed improvements include installing per- and polyfluoroalkyl substances (PFAS) treatment equipment for Well 13 (ion exchange tanks and bag filters), adding a new generator, a building addition for a new electrical room, building addition for a new chemical/well room for a proposed new well, and constructing a new driveway off E 1st

Avenue to accommodate a well pump crane truck. A detailed description of the project is as follows:

Stage 1 consists of the following:

- *Construction of a new electrical room.*
- *Construction of a new generator pad.*
- *Construction of a new transformer pad and gravel access.*
- *Installation of two ion exchange tanks on a concrete pad.*
- *Installation of a covered bag filter pad and associated bag filters.*
- *Installation of a new driveway for a crane truck.*
- *Removal of the Well 4 building.*

Stage 2 consists of the following:

- *Installation of a new well.*
- *Construction of a new chemical/well building.*
- *Installation of four ion exchange tanks on two concrete pads.*

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 site is located at 1250 E. 1st Avenue, Camas, Washington, in the Multifamily Residential-18 (MF-18) zoning district. The property is further identified as Tax Lots 49,244, 242 and 245, tax assessor's serial numbers 90928000, 91031000 and 91034000, located in the Northeast ¼ of Section 11 and Northwest ¼ of Section 12, Township 1 North, Range 3 East of the Willamette Meridian, Clark County. The entire site is 0.56 acres (24,394 square feet) according to Clark County GIS, 0.50 acres (21,975 square feet) according to a survey by MacKay Sposito, Inc.

B. Environmental Elements

1. Earth

Find help answering earth questions[3]

a. General description of the site:

Circle or highlight 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 10%.

[3] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-earth

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

According to Clark County GIS, soil types on the site consist of Fn, Fill Land, 61.1%, and OmE, Olympic stony clay loam, 3-30% slopes, 38.9% of the site.

There are no agricultural land of long-term commercial significance on site.

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

No known surface indications or history of unstable soils are located in the immediate vicinity. According to Clark County GIS, there is an area of severe erosion hazard associated with the bank that leads down to Lacamas Creek located south of the site.

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

Site grading will be associated with construction of the proposed buildings, driveways, concrete pads, sidewalks, landscape areas and other associated improvements. It is anticipated the site will have excess cut material to be hauled off site and it will be taken to an approved location. If any fill material ends up being required, it will be procured from an approved site. The quantity of grading is estimated to be approximately 300 cubic yards of cut and 0 cubic yards of fill.

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

Yes, non-mitigated erosion impacts could occur as a result of clearing and construction. An erosion control plan utilizing adopted best management practices (BMPs) for erosion control will be implemented prior to commencing ground-disturbing activities. Erosion control plans will conform to the standards identified in the Camas Municipal Code.

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

Approximately 50% of the site area will be covered with impervious surfaces, which includes existing and proposed driveways, buildings, concrete pads, etc. after project construction.

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

Stormwater and erosion control plans will be provided as required to put protections in place at potential areas vulnerable to erosion. Erosion controls BMPs, such as minimal disturbance of soils outside of the construction area, retention of existing vegetation to the maximum extent possible, covering exposed soil stockpiles, providing temporary and/or permanent vegetative cover, inlet protection, etc. will be employed during site

grading of the property. Additionally, a SWPPP will be provided. Refer to the plans included in this application for more information.

2. Air

Find help answering air questions[4]

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.

Construction equipment and vehicles will generate dust and particulate emissions during the construction period. Maintenance vehicles may generate minor particulate emissions in the long-term. Other emission sources include typical HVAC and maintenance emissions from small power tools including, but not limited to, small gas-powered equipment used for site and landscape maintenance, such as lawn mowers, blowers, trimmers, etc. The generator runs on diesel fuel and there will be some emissions during weekly testing and/or when there is a power outage, however this will be no different than the existing generator. The quantities of these emissions is unknown. Emissions after construction is anticipated to be minimal as the facility is intended to serve the community and will not be open to the public.

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

There are no known off-site sources of emissions or odor that may affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

If necessary, water will be utilized for dust control as needed during construction of on-site improvements. Emission control measures for vehicles and equipment are regulated under the Camas Municipal Code Standards, Washington State Department of Ecology (DOE) and U.S. Environmental Protection Agency (EPA). It is anticipated that all vehicles and equipment will be in compliance with these regulations.

[4] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-Air

3. Water

Find help answering water questions[5]

a. Surface:

Find help answering surface water questions[6]

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.**

   Lacamas Creek, a Type S stream, is a shoreline of state-wide significance and runs along the southern project study area boundary. Lacamas Creek flows into the Washougal River.

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.**

   Yes. The PFAS equipment, new generator and generator pad, and fencing will be installed within 200 feet of the Ordinary High Water Mark of Lacamas Creek.

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 a 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.**

   The proposal does not lie within a 100-year floodplain.

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

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

b. Ground:

[7]

[5] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water

[6] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Surface-water

[7] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Groundwater

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 a general description, purpose, and approximate quantities if known.**

   The site currently contains two existing municipal wells: Well 4, which is currently not in use /decommissioned, and Well 13, which is currently in operation. Additionally, a new well is proposed. Existing quantities of water being withdrawn from Well 13 is approximately 1,325 gallons per day, which will not change. Anticipated quantities of water to be withdrawn from the new well will be approximately 2,825 gallons per day, pending confirmation of previous hydrogeological efforts. Once both wells are online, the expected amount of water to be withdrawn will be approximately 4,150 gallons per day. No water will be discharged to groundwater on the site.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (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.**

   Waste material will not be discharged into the ground from septic tanks or other sources.

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 proposed project site has an existing storm sewer system that is to remain in place following construction of the proposed improvements. The existing storm sewer system currently picks up runoff from the existing buildings and site area via roof drain connections and area drains and conveys stormwater by pipe to the south end of the site where it is dispersed through a perforated pipe. The runoff ultimately drains downhill in the southeast direction to the Washougal River. All new buildings, concrete slabs, sidewalks, and landscape areas are to drain to this existing stormwater system and ultimately outfall to the Washougal River. The existing road to the east of the site, called SE Cramer Ln., currently drains to the west and south, ultimately flowing downhill to the Washougal River. Refer to the Engineering Plans and the Preliminary Stormwater Report for more information.

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

   Possible spills including fuels such as diesel or gasoline could potentially occur on the site during construction. Without adequate erosion control or stormwater mitigation, waste materials could possibly enter ground or surface waters. However, the proposed stormwater treatment and erosion control measures will minimize the potential for waste materials to be conveyed to ground or surface waters.

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

   The proposal may alter onsite drainage patterns slightly, given the increase in impervious surface, but this will be minimal as well as be accommodated through appropriate water quantity and quality treatment facilities design/implementation.

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

   This proposal will meet or exceed the City of Camas' and Washington State Department of Ecology's erosion control standards.

4. Plants

Find help answering plants questions

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

   ☒ **deciduous tree: alder, maple, aspen, other** *Walnut, oak*

   ☐ **evergreen tree: fir, cedar, pine, other**

   ☒ **shrubs**

   ☒ **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** *Spirea, boxwood, rhododendron, lilac, Oregon grape, huckleberry*

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

   All vegetation will be removed in areas to receive construction activities.

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

   There are no threatened or endangered plant species known to the Applicant to be on or near the site.

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

   An existing 18" walnut tree will be preserved in the southwest corner of the site. Other landscaping includes native and ornamental shrubs, trees and seed mix.

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

   No noxious weeds and invasive species other than the possible presence of Himalayan Blackberries are known to be located on or near the site.

5. Animals

Find help answering animal questions[8]

a. List any birds and other animals that 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:** *Rodents*
- **Fish: bass, salmon, trout, herring, shellfish, other:** *Salmonids in Lacamas Creek, including Chinook, Chum and Coho salmon, steelhead, and Dolly Varden/Bull Trout.*

  Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report has been prepared by MacKay Sposito Inc., a qualified professional, dated January 22, 2025.

  Per this report, no terrestrial species identified by the USFWS IPaC database as potentially present were observed within the project study area, and no suitable habitats for these species were observed within or near the project study area (USFWS 2024a). Table 4 (State and Federally Listed, Threatened, Endangered, and Sensitive Species) identifies five threatened fish species within Lacamas Creek and presumed present.

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

Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report has been prepared by MacKay Sposito Inc., a qualified professional, dated January 22, 2025.

Per this report, no terrestrial species identified by the USFWS IPaC database as potentially present were observed within the project study area, and no suitable habitats for these species were observed within or near the project study area (USFWS 2024a). Table 4 (State and Federally Listed, Threatened, Endangered, and Sensitive Species) identifies five threatened fish species within Lacamas Creek and presumed present.

c. Is the site part of a migration route? If so, explain.

The site is located within what is commonly referred to as the Pacific Flyway. This Flyway is the general migratory route for various species of ducks, geese, and other migratory waterfowl. The Flyway stretches from Alaska to Mexico and from the Pacific Ocean to the Rocky Mountains. Neotropical birds, such as Robins, may also seasonally utilize or be near the site.

d. Proposed measures to preserve or enhance wildlife, if any.

[8] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-5-Animals

Retain an existing 18" walnut and provide new landscaping throughout the proposed development to enhance wildlife habitats on or adjacent to the site.

e. List any invasive animal species known to be on or near the site.

No invasive animal species are known by the Applicant to be on or near the site.

6. Energy and natural resources

Find help answering energy and natural resource questions[9]

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.

The site is currently served by electrical service from Clark Public Utilities.

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

No, construction should not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

All construction on the site will be designed to comply with the state adopted codes and policies related to energy conservation, and the plans will be reviewed by the City of Camas prior to construction.

7. Environmental health

Health Find help with answering environmental health questions[10]

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

Heavy equipment and a variety of materials will be utilized to construct the project. The project will also meet all Federal, State and local construction regulations.

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

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

[9] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-6-Energy-natural-resou
[10] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-7-Environmental-health

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

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

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.**

   The City currently uses 25% caustic soda and 0.8% sodium hypochlorite as part of their drinking water treatment process. Stage 1 will not modify this current operation. Stage 2 will add additional storage capacity (approximately double) for these chemicals in the new chemical room to accommodate the increased capacity from the new well. Additionally, this project will be undertaken to remove PFAS from the City's water supply. Certain PFAS are designated as hazardous substances. The treatment process removes the PFAS from the groundwater before it is sent into the City's drinking water distribution system. On occasion, the resin used in the treatment process to remove the PFAS from the water will need to be replaced. In these cases, the resin is securely taken from the site and sent to a facility that is designated to handle these substances. Fresh resin will replace the used resin to maintain high quality drinking water.

4. **Describe special emergency services that might be required.**

   No special emergency services are anticipated.

5. **Proposed measures to reduce or control environmental health hazards, if any.**

   During construction, contractors will be expected to comply with applicable local, state and federal regulations relating to the construction and operation of the project. All construction is anticipated to be inspected according to industry requirements and standards. This project's purpose is to reduce the amount of PFAS in the City's water supply and improve public health. PFAS chemicals collected as part of the treatment process will be removed from the site as indicated above.

b. Noise

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

   There is limited noise in the area generated from vehicular traffic and residential uses which is not anticipated to affect the proposed 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)?**

   Construction equipment and vehicles will generate noise during the construction period and to lift the generator and ion exchange tanks into place. Maintenance vehicles and monthly testing of the generator will generate noise (which will continue to be on a

weekly basis for 2-4 hours at a time for maintenance purposes, or longer during a power outage) in the long-term. Other noise sources include typical HVAC (that will be within required WAC noise levels) and maintenance noise from small power tools including, but not limited to, small gas-powered equipment used for site and landscape maintenance, such as lawn mowers, blowers, trimmers, etc. Minimal changes to long-term noise are anticipated after completion of the project.

3. **Proposed measures to reduce or control noise impacts, if any:**

Per CMC 9.32.050, construction activities will not occur before 7 a.m. or after 7 p.m. Monday through Friday, before 7 a.m. or after 5 p.m. on Saturdays or anytime on Sundays or the following holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day or Christmas Day. Generator testing maintenance takes place during the day.

8. Land and shoreline use

Find help answering land and shoreline use questions[11]

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

The site is currently the site of Well 13 which includes an operational municipal drinking water well, a decommissioned well (Well 4), and an emergency back-up generator. Adjacent uses are as follows:

- *North: (Across E 1st Avenue) Church parking lot on community commercial zoned property.*
- *South: Washougal River Greenway on Multifamily Residential – 18 zoned property.*
- *East: Single-famikly attached (townhome) residential uses on Multifamily Residential – 18 property.*
- *West: Single-family detached residential uses on Multifamily Residential – 18 zoned property.*

The proposed PFAS ion exchange tanks and bag filters will not affect current land uses on nearby and adjacent 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 because 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?**

No.

[11] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-8-Land-shoreline-use

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.

c. Describe any structures on the site.

There is an existing pump room/chemical room building, an existing building that houses Well 4 and a generator on the south side of the pump room/chemical room building.

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

Yes. The building that houses Well 4 will be demolished. Well 4's casing and concrete cap will be maintained so the City can continue to utilize the well as a monitoring well.

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

The site is currently zoned Multifamily Residential (MF-18).

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

MFH

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

The southern portion of the site lies within the Medium Intensity Shoreline Designation.

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

Clark County MapsOnline identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) with associated riparian habitat, making it a shoreline of state-wide significance. The creek runs along the southern boundary of the project study area, and Clark County GIS mapping confirms shoreline presence on or adjacent to the property. As such, MacKay Sposito Inc., a qualified professional, prepared a Shoreline Critical Areas Report dated January 22, 2025. According to this report, no wetlands were observed within the project study area.

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

The site is and will continue to remain unoccupied with no permanent employees on site. Occasional maintenance visits by City of Camas staff will required on a weekly basis.

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

None.

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

Not applicable.

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

The proposal complies with all applicable land use requirements and is consistent with current zoning and comprehensive plan designations.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

There are no nearby or adjacent agricultural or forest lands of long-term commercial significance.

9. Housing

Find help answering housing questions[12]

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

Not applicable.

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:

Not applicable.

10. Aesthetics

Find help answering aesthetics questions[13]

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

The tallest of the proposed structures are the ion exchange tanks which will be approximately 20 feet tall and the new chemical/well building, which will be approximately 20 feet 4 inches tall. The new electrical building will be approximately 17 feet 4 inches tall. The ion exchange tanks will be metal and the electrical and well/chemical buildings will be concrete masonry unit (CMU) to match the existing building.

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

The view across the development area of the project will be altered by the construction of the ion exchange tanks and electrical and chemical/well buildings.

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

[12] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-9-Housing
[13] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-10-Aesthetics

Architectural features and landscaping, along with providing an 8-foot-tall fence around the ion exchange and bag filter area.

11. Light and glare

Find help answering light and glare questions[14]

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

Limited site lighting will be added near the entries to the new electrical and chemical/well buildings, per code requirements. The lights will be shielded to avoid glare and offsite impacts to the greatest extent practicable and will be energy efficient LED lighting where possible. The existing streetlight along the west side of SE Cramer will be relocated as coordinated with Clark Public Utilities. Site and security lighting near the filtration units and bag filters will be activated only when needed by maintenance personnel.

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

No known views appear on the site. However, it is reasonable to conclude that the proposed development on the site will not create a safety hazard or interfere with views.

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

Existing residential uses and traffic may cause only minimal light and glare and should not adversely impact the proposed development on the site.

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

Lights will be installed and shielded to minimize dispersion and control any potential offsite impacts. Intensity of lighting will be kept at a level to assure safety on the site, but will meet all applicable City of Camas light shielding and glare reductions.

12. Recreation

Find help answering recreation questions

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

The subject property is located in close proximity to the Louis Bloch Park, the Lacamas Creek Park, Lacamas Regional Park, Washougal River Greenway as well as the Lacamas Creek is located to the south of the property.

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

[14] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-11-Light-glare

No

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

An ADA compliant sidewalk will be installed along the east side of the site to provide access to an existing gravel pedestrian path within the Washougal River Greenway that runs south of the site.

13. Historic and cultural preservation

Find help answering historic and cultural preservation questions[15]

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.

There are no historic buildings or structures known by the Applicant to be located on or near the site.

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.

Clark County GIS data indicates that 100% of the site has a high probability of containing archaeological findings. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is recommended as not eligible for listing in the NRHP and they recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information.

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.

Clark County GIS data indicates that 100% of the site has a high probability of containing archaeological findings. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is recommended as not eligible for listing in the NRHP and they

[15] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-13-Historic-cultural-p

recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information for more information on the methods used to assess the potential impacts to cultural and historic resources on or near the project site.

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.

In the event any archaeological or historic materials are encountered during project activity, work in the immediate area must stop and the following actions taken:

1. *Implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering; and*
2. *Take reasonable steps to ensure the confidentiality of the discovery site; and,*
3. *Take reasonable steps to restrict access to the site of discovery. If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If remains are determined to be Native, consultation with the effected Tribes will take place in order to mitigate the final disposition of said remains.*

If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If remains are determined to be Native, consultation with the effected Tribes will take place in order to mitigate the final disposition of said remains.

14. Transportation

Find help with answering transportation questions[16]

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

The subject property is located on the south side of E 1st Avenue and the west side of SE Cramer Lane. E 1st Avenue is a fully improved local roadway with curbs and sidewalks on both sides, and a new driveway is proposed off E 1st Avenue to provide vehicular access for a well pump crane truck. SE Cramer Lane is a 20-foot-wide paved roadway without curbs or sidewalks located within an easement. Existing driveway approaches off SE Cramer Lane provide access to the Well 13 site. Additionally, residents of the Three Rivers condo complex use both E 1st Avenue and SE Cramer Lane for ingress and egress.

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?

[16] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-14-Transportation

The site is not served by and is not near public transit. The nearest transit stop to the is located near the intersection of NE 3rd Avenue and E First Avenue, C-Tran route 92, approximately 500 feet to the northeast.

c. 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).

A new 5-foot-wide concrete sidewalk will be installed along the east side of the site to provide ADA compliance access to the existing gravel path within the Washougal River Greenway south of the site.

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

No

e. 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?

Currently maintenance staff visit the site daily and there are chemical delivery trucks that visit the site monthly. Following completion of the PFAS treatment system, the current vehicular trip frequency will largely remain the same. Media replacement associated with the ion exchange media is done via truck and only expected to occur on a yearly basis.

f. 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

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

None.

15. Public services

Find help answering public service questions[17]

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.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

[17] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-15-public-services

None

16. Utilities

Find help answering utilities questions[18]

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

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

There are no new services proposed with this project. However, the existing 1-inch water line that currently serves the site will be upsized to a 4-inch water line and two new connections to the existing sanitary sewer line on the site is proposed for disposal of process water during occasional startup periods.

[18] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-16-utilities

C. Signature

Find help about who should sign[19]

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.

X _____

Type name of signee: Rob Charles

Position and agency/organization: Utilities Manager / City of Camas

Date submitted: 3/5/2025

[19] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-C-Signature

MacKay Sposito

Vancouver Office

18405 SE Mill Plain Boulevard, Suite 100 Vancouver, WA 98683
360.695.3411 www.mackaysposito.com

February 25, 2025

City of Camas Department of Community Development
616 NE 4th Avenue
Camas, WA 98607

Re: Request for Early Notice of DS, Camas PFAS Evaluation & Well 13 Treatment SEPA Review

On behalf of the applicant, the City of Camas, we would like to request early notice as allowed under WAC 197-11-350 if the City of Camas believes a Determination of Significance is likely for this project. The applicant may wish to clarify or change features of this project.

Sincerely,

Michael Odren

Digitally signed by Michael Odren
DN: C=US, E=modren@mackaysposito.com, O="MacKay Sposito, Inc.", CN=Michael Odren
Date: 2025.03.10 15:50:39-07'00'

Michael Odren, RLA
Landscape Architect, Land Use Planner
MacKay Sposito, Inc.

COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4th Avenue
Camas, WA 98607
www.cityofcamas.us

March 25, 2025

Mike Odren
modren@mackaysposito.com
submittals@mackaysposito.com

Rob Charles
rcharles@cityofcamas.us

RE: CUP25-1002: Completeness Review for Well 13 – PFAS Facility – 1250 E 1st Avenue

Dear Applicant,

The purpose of this letter is to inform you that the above application submitted on March 10, 2025, has been **deemed technically complete** in accordance with Camas Municipal Code (CMC) Section 18.55.130.

Staff will begin reviewing the application materials and will contact you if there are any comments, questions, or clarification needed prior to scheduling a public hearing. When the public hearing date has been determined, the development sign will need to be updated with the hearing information.

Should you have any questions related to this project, please feel free to contact me by email: YSennewald@cityofcamas.us or by phone: (360) 817-7269.

Respectfully,

Yvette Sennewald, Senior Planner

NOTICE OF APPLICATION FOR A CONDITIONAL USE PERMIT FOR UPDATES TO THE EXISTING WELL 13 FACILITY INCLUDING INSTALLATION OF PFAS TREATMENT EQUIPMENT

(Planning Case: CUP25-1002)

NOTICE IS HEREBY GIVEN that an application for a Conditional Use Permit for updates to existing Well 13 facility including, but not limited to, installing per- and polyfluoroalkyl substances (PFAS) treatment equipment, new generator, building additions, new well, and driveway was received on March 10, 2025, and deemed technically complete on March 25, 2025. A public hearing is required for the development proposal and will be scheduled at a later date. A separate public hearing notice will be mailed to all property owners within 300-feet of the subject development and published in the Post Record.

Location: The approximate 0.56-acre site consisting of 3 parcels, in the MF-18 – Multi-Family Residential Zone, is situated on the southerly side of East 1st Avenue, west of Cramer Lane, located at 1250 E 1st Avenue in the Northeast ¼ of Section 11 and Northwest ¼ of Section 12, Township 1 North, Range 3 East of the Willamette Meridian, Camas, WA. The project area includes Tax Parcel Numbers 90928000, 91031000, and 91034000.

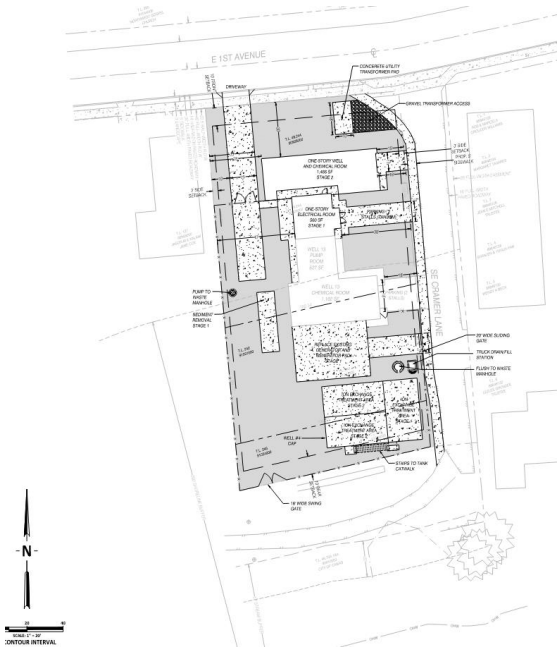
Application Materials: The application included the following: project narrative, technical reports, and preliminary development plans. Application materials are available for review from the Community Development Department during regular business hours Monday – Friday 8am-5pm and through the online permit processing portal with the following link: https://cityofcamaswa-energovweb.tylerhost.net/apps/selfservice - /home

Questions/Comments: For questions related to this application, please contact Yvette Sennewald, Senior Planner, at (360) 817-1568 or by email at communitydevelopment@cityofcamas.us.

Published in the Post Record on April 10, 2025 Legal Publication #998190
Posted at Camas City Hall, Camas Library, City of Camas website at: http://www.cityofcamas.us
Mailed to property owners within 300-feet on April 9, 2025

Vicinity Map

Preliminary Site Plan



In re: City of Camas PFAS Treatment Equipment

) NO. CUP25-1002
)
) AFFIDAVIT OF MAILING
)
)
)
)
)
Respondent.)

STATE OF WASHINGTON)
) ss.
CLARK COUNTY)

I, , on oath says:

I, Yvette Sennewald, on April 9, 2025, I directed a true and correct copy of the Notice of Application be served upon the parties herein, in the above-entitled action, by depositing with the U.S. Post Office, Camas, Washington, a postage-prepaid envelope containing same addressed as follows: See attached list.

Yvette Sennewald
SIGNATURE

SUBSCRIBED and SWORN to before me this 9th day of April, 2025.

Aireanna Baldwin
Notary Public
State of Washington
My Appointment Expires 10/1/2028
Commission Number 183848

Aireanna Baldwin
Notary Public in and for the State of Washington, residing at Clark County
My appointment expires: 10/1/28

WILLIAMS ROB & WILLIAMS MARCELA CROUCHER
PO BOX 632
CAMAS, WA 98607

TAVARES MARGARET
1302 E 1ST AVE
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MITCHELL JEAN E TRUSTEE
1304 E 1ST AVE
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PAN SHANJEN & PAN YUHUA
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CAMAS, WA 98607

COLAS LAUREN D
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CAMAS, WA 98607

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PAN SHANJEN & PAN YUHUA
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CAMAS, WA 98607

PETRUSKA MARY ANN C
1324 E 1ST AVE
CAMAS, WA 98607

BUTTON MEAGAN & BUTTON BRANDON
1326 E 1ST AVE
CAMAS, WA 98607

BOCKHOEFER STEVEN D
1328 E 1ST AVE
CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

KRIEGER KAREN L
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CAMAS, WA 98607

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

LONER P
122 SE KING ST
CAMAS, WA 98607

DONALD RODGER D & DONALD DORIS E
134 SE KING ST
CAMAS, WA 98607

CYVER LLC
8410 W MERCER WAY
MERCER ISLAND, WA 98040

CASCADE INSTRUMENT DESIGN INC
1554 NE 3RD AVE
CAMAS, WA 98607

MARSHALL JOSEPH R & SOGGE KIMBERLY D
1242 E 1ST AVE
CAMAS, WA 98607

FIRST PLACE GARFIELD APARTMENTS LLC
33316 SE 34TH ST
WASHOUGAL, WA 98671

MARSHALL CARLY J
1186 NW 10TH AVE
CAMAS, WA 98607

MARSHALL JOSEPH R & SOGGE KIMBERLY D
1242 E 1ST AVE
CAMAS, WA 98607

COX JASON M & COX KALANI JANE
18018 SE 18TH ST
VANCOUVER, WA 98683

CHEN LI-YE & ZHOU DONGXIA
2643 34TH ST
WASHOUGAL, WA 98671

NORTHWEST GOSPEL CHURCH
305 NE 192ND AVENUE
VANCOUVER, WA 98684

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CAMAS, WA 98607

MORAN ROBERT J & MORAN JEANIE M
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WASHOUGAL, WA 98671

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

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616 NE 4TH AVE
CAMAS, WA 98607

NORTHWEST GOSPEL CHURCH
305 NE 192ND AVENUE
VANCOUVER, WA 98684

MARSHALL RICHARD C & MARSHALL CASSANDRA R
1186 NW 10TH AVE
CAMAS, WA 98607

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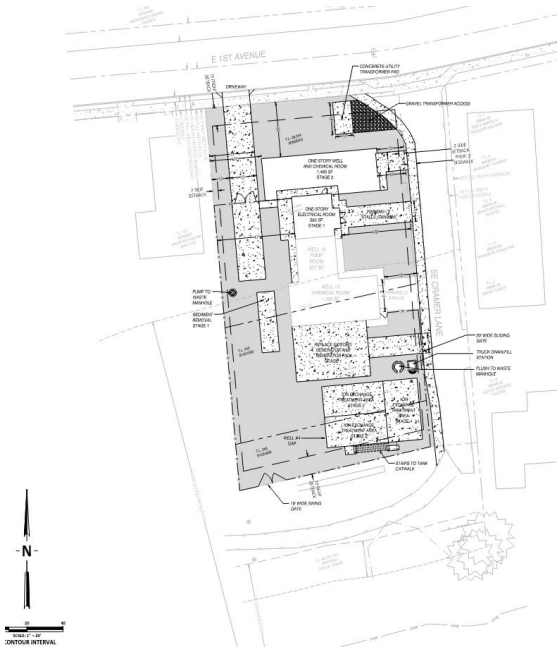
Vicinity Map

Preliminary Site Plan



State Environmental Policy Act
Determination of Non-Significance

CASE NO: CUP25-1002: Proposed Updates to Existing Well 13 Facility Including Installation of PFAS Treatment Equipment

APPLICANT: Mike Odren, MacKay Sposito
18405 SE Mill Plain Blvd. #100
Vancouver, WA 98683

REQUEST: Conditional Use Permit, Design Review, Critical Area, Archeological, and SEPA Review for updates to existing Well 13 including installing per- and polyfluoroalkyl substances (PFAS) treatment equipment, new generator, building additions, new well and driveway access on approximately 0.56 acres, situated in the MF - 18 Multi-Family Residential Zone.

LOCATION: 1250 E. 1ST AVENUE, CAMAS, WA 98607
PARCEL NUMBERS 90928000, 91031000 AND 91034000

LEGAL DESCRIPTION: THE PROJECT IS LOCATED IN THE CITY OF CAMAS IN THE NE ¼ OF SECTION 11 AND NORTHWEST ¼ OF SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN

SEPA DETERMINATION: DETERMINATION OF NON-SIGNIFICANCE (DNS)

COMMENT DEADLINE: **MAY 1, 2025, AT 5:00 P.M.**

As lead agency under the State Environmental Policy Act (SEPA) Rules [Chapter 197-11, Washington Administrative Code (WAC)], the City of Camas must determine if there are possible significant adverse environmental impacts associated with this proposal. The options include the following:

- DS = Determination of Significance (The impacts cannot be mitigated through conditions of approval and, therefore, requiring the preparation of an Environmental Impact Statement (EIS).
- MDNS = Mitigated Determination of Non-Significance (The impacts can be addressed through conditions of approval), or;
- DNS = Determination of Non-Significance (The impacts can be addressed by applying the Camas Municipal Code).

Published in the Post Record on April 17, 2025 Legal Publication #1000300
Mailed to property owners within 300-feet on April 16, 2025
Posted on bulletin boards at Camas City Hall, Camas Library and the City of Camas web site at: http://www.cityofcamas.us

Determination:

Determination of Non-Significance (DNS). The City of Camas, as lead agency for review of this proposal, has determined that this proposal 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)(e). This decision was made after review of a completed environmental checklist, and other information on file with the City of Camas.

Date of Publication & Comment Period:

Publication date of this DNS is **April 17, 2025**, and is issued under WAC 197-11-340. The lead agency will not act on this proposal until the close of the 14-day comment period which ends on **May 1, 2025**. Comments may be sent by email to communitydevelopment@cityofcamas.us or regular mail to:

City of Camas SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607

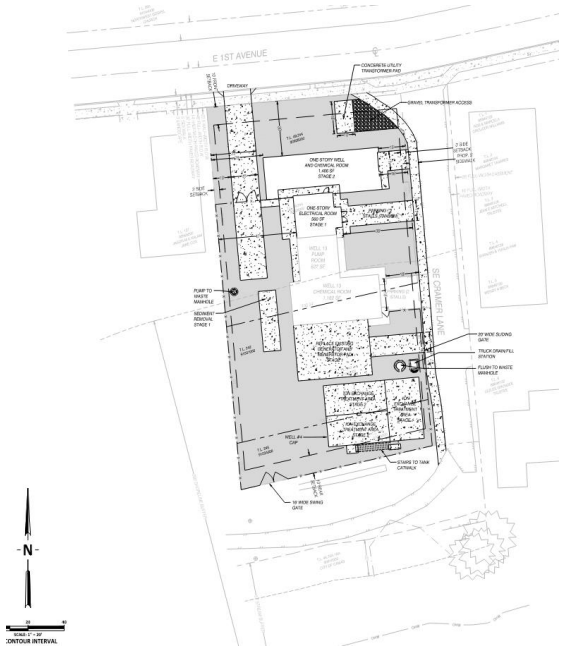
Responsible Official: Robert Maul (360) 817-1568

Robert Maul, Planning Manager and Responsible Official

4/17/25
Date of publication

Vicinity Map

Preliminary Site Plan



COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4th Avenue
Camas, WA 98607
www.ci.camas.wa.us

Date Published: April 17, 2025

To Whom It May Concern:

Please find enclosed a Determination of Non-Significance (DNS) for **Planning Case CUP25-1002 - Updates to Well 13** that was issued pursuant to the State Environmental Policy Act (SEPA) Rules, Chapter 197-11, Washington Administrative Code. The proposed project includes installation of per- and polyfluoroalkyl substances (PFAS) treatment equipment. The enclosed review comments reflect evaluation of the environmental checklist by the lead agency as required by WAC 197-11-330(1)(a)(i).

The following materials were submitted with the initial application:

- Application Form and Fees
- Applicant's Narrative
- Archaeological Predetermination*
- Geotechnical Study
- Project Plans
- Preliminary Geotechnical Report
- Preliminary Grading Plan
- Preliminary Landscape Plan
- Preliminary Stormwater Plan & Preliminary Stormwater Report
- SEPA checklist

All application materials are available for review upon request from the Community Development Department. *Archaeological information is exempt from public disclosure, consistent with RCW 42.56.300.

Written comments may be submitted on this determination within fourteen (14) days of its issuance, after which the DNS will be reconsidered in light of the comments received.

Please address all correspondence to:
City of Camas, SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607
communitydevelopment@cityofcamas.us

Distribution:

Applicant
C-Tran
Camas School District
Camas Building Official, Brian Smith
Camas Communications Director, Bryan Rachal
Camas Engineering Department Managers and Staff
Camas Fire Department, Randy Miller
Camas Finance Director, Cathy Huber Nickerson
Camas Community Development Director, Alan Peters
Camas Mayor and City Council Members
Camas Parks and Recreation Interim Director, Bryan Rachal
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Camas Police Chief, Tina Jones
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Camas-Washougal Post Record
Chinook Indian Nation
Cultural Resource Program, Cowlitz Indian Tribe
Cultural Resource Program, Yakama Indian Nation
Clark County Department of Environmental Services
Clark County Department of Transportation
Clark County Natural Resources Council
Clark Public Utilities
Department of Ecology
Department of Fish and Wildlife, Region 5
Department of Natural Resources, SEPA Center
Southwest Clean Air Agency
US Army Corps of Engineers
Vancouver - Clark Parks & Recreation
Washington Office of Archaeology & Historic Preservation
Washington State Department of Transportation
Washington State Parks and Recreation Commission, Environmental Program
Property Owners within 300 feet *(mailed the SEPA Determination & map)*

State Environmental Policy Act
Determination of Non-Significance

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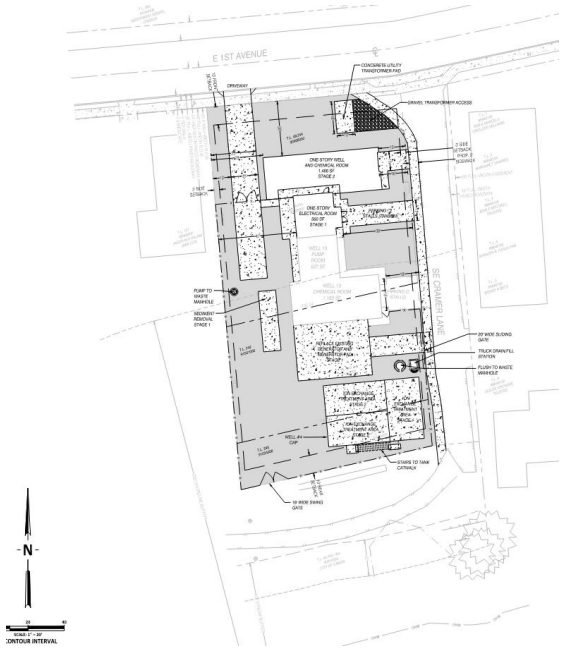

SEPA[1] Environmental Checklist

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.

[1] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/Checklist-guidance

A. Background

Find help answering background questions[2]

1. **Name of proposed project, if applicable:**

   Camas PFAS Evaluation & Well 13 Treatment

2. **Name of applicant:**

   City of Camas, Washington Attn: Rob Charles

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

   616 NE 4th Ave. Camas, WA 98607 |(360) 817-1568 | rcharles@cityofcamas.com

4. **Date checklist prepared:**

   February 11, 2025

5. **Agency requesting checklist:**

   City of Camas, WA

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

   Construction is anticipated to take place upon approval and procurement of all applicable reviews and permits. The projection would be fall of 2025 for construction of Stage 1 with Stage 2 following completion of Stage 1.

   Stage 1 consists of the following:
   - *Construction of a new electrical room.*
   - *Construction of a new generator pad.*
   - *Construction of a new transformer pad and gravel access.*
   - *Installation of two ion exchange tanks.*
   - *Installation of a covered bag filter pad.*
   - *Installation of a new driveway for a crane truck.*

   Stage 2 consists of the following:
   - *Installation of a new well.*
   - *Construction of a new well and chemical building.*
   - *Installation of four ion exchange tanks.*

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

   No.

[2] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-A-Background

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

Shoreline Critical Areas Report – MacKay Sposito, Inc., January 22, 2025
Shoreline Narrative – MacKay Sposito, Inc., February 28, 2025
Archaeological Survey – Archaeological Investigations Northwest, February 9, 2007
Stormwater Report – MacKay Sposito, February 20, 2025
Geotechnical Site Investigation – Delve Underground, March, 2025
SEPA Environmental Checklist

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.**

There are no known other applications pending that directly affect this site to the Applicant's knowledge.

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

Conditional Use Permit Approval
Preliminary Site Plan Approval
Final Site Plan Approval
Design Review Approval
Grading and Utilities Plan Approval
Stormwater Plan Approval
Erosion Control Plan Approval
Grading Permit
SEPA determination
Shoreline Review
Archaeological Predetermination
Demolition Permit
Building Permit
Washington State Department of Ecology Approval
Washington State Department of Health Approval
Clark County Public Health Approval

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

The Applicant, the City of Camas, requests a Type III Conditional Use Permit Review, Shoreline Conditional Use Permit, Site Plan Review, Design Review, SEPA Review, Archaeological Review and Critical Areas Review for updates to the existing Well 13 facility. The proposed improvements include installing per- and polyfluoroalkyl substances (PFAS) treatment equipment for Well 13 (ion exchange tanks and bag filters), adding a new generator, a building addition for a new electrical room, building addition for a new chemical/well room for a proposed new well, and constructing a new driveway off E 1st

Avenue to accommodate a well pump crane truck. A detailed description of the project is as follows:

Stage 1 consists of the following:

- *Construction of a new electrical room.*
- *Construction of a new generator pad.*
- *Construction of a new transformer pad and gravel access.*
- *Installation of two ion exchange tanks on a concrete pad.*
- *Installation of a covered bag filter pad and associated bag filters.*
- *Installation of a new driveway for a crane truck.*
- *Removal of the Well 4 building.*

Stage 2 consists of the following:

- *Installation of a new well.*
- *Construction of a new chemical/well building.*
- *Installation of four ion exchange tanks on two concrete pads.*

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 site is located at 1250 E. 1st Avenue, Camas, Washington, in the Multifamily Residential-18 (MF-18) zoning district. The property is further identified as Tax Lots 49,244, 242 and 245, tax assessor's serial numbers 90928000, 91031000 and 91034000, located in the Northeast ¼ of Section 11 and Northwest ¼ of Section 12, Township 1 North, Range 3 East of the Willamette Meridian, Clark County. The entire site is 0.56 acres (24,394 square feet) according to Clark County GIS, 0.50 acres (21,975 square feet) according to a survey by MacKay Sposito, Inc.

B. Environmental Elements

1. Earth

Find help answering earth questions[3]

a. General description of the site:

Circle or highlight 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 10%.

[3] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-earth

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

According to Clark County GIS, soil types on the site consist of Fn, Fill Land, 61.1%, and OmE, Olympic stony clay loam, 3-30% slopes, 38.9% of the site.

There are no agricultural land of long-term commercial significance on site.

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

No known surface indications or history of unstable soils are located in the immediate vicinity. According to Clark County GIS, there is an area of severe erosion hazard associated with the bank that leads down to Lacamas Creek located south of the site.

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

Site grading will be associated with construction of the proposed buildings, driveways, concrete pads, sidewalks, landscape areas and other associated improvements. It is anticipated the site will have excess cut material to be hauled off site and it will be taken to an approved location. If any fill material ends up being required, it will be procured from an approved site. The quantity of grading is estimated to be approximately 300 cubic yards of cut and 0 cubic yards of fill.

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

Yes, non-mitigated erosion impacts could occur as a result of clearing and construction. An erosion control plan utilizing adopted best management practices (BMPs) for erosion control will be implemented prior to commencing ground-disturbing activities. Erosion control plans will conform to the standards identified in the Camas Municipal Code.

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

Approximately 50% of the site area will be covered with impervious surfaces, which includes existing and proposed driveways, buildings, concrete pads, etc. after project construction.

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

Stormwater and erosion control plans will be provided as required to put protections in place at potential areas vulnerable to erosion. Erosion controls BMPs, such as minimal disturbance of soils outside of the construction area, retention of existing vegetation to the maximum extent possible, covering exposed soil stockpiles, providing temporary and/or permanent vegetative cover, inlet protection, etc. will be employed during site

grading of the property. Additionally, a SWPPP will be provided. Refer to the plans included in this application for more information.

2. Air

Find help answering air questions[4]

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.

Construction equipment and vehicles will generate dust and particulate emissions during the construction period. Maintenance vehicles may generate minor particulate emissions in the long-term. Other emission sources include typical HVAC and maintenance emissions from small power tools including, but not limited to, small gas-powered equipment used for site and landscape maintenance, such as lawn mowers, blowers, trimmers, etc. The generator runs on diesel fuel and there will be some emissions during weekly testing and/or when there is a power outage, however this will be no different than the existing generator. The quantities of these emissions is unknown. Emissions after construction is anticipated to be minimal as the facility is intended to serve the community and will not be open to the public.

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

There are no known off-site sources of emissions or odor that may affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

If necessary, water will be utilized for dust control as needed during construction of on-site improvements. Emission control measures for vehicles and equipment are regulated under the Camas Municipal Code Standards, Washington State Department of Ecology (DOE) and U.S. Environmental Protection Agency (EPA). It is anticipated that all vehicles and equipment will be in compliance with these regulations.

[4] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-Air

3. Water

Find help answering water questions[5]

a. Surface:

Find help answering surface water questions[6]

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.**

   Lacamas Creek, a Type S stream, is a shoreline of state-wide significance and runs along the southern project study area boundary. Lacamas Creek flows into the Washougal River.

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.**

   Yes. The PFAS equipment, new generator and generator pad, and fencing will be installed within 200 feet of the Ordinary High Water Mark of Lacamas Creek.

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 a 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.**

   The proposal does not lie within a 100-year floodplain.

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

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

b. Ground:

[7]

[5] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water

[6] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Surface-water

[7] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Groundwater

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 a general description, purpose, and approximate quantities if known.**

   The site currently contains two existing municipal wells: Well 4, which is currently not in use /decommissioned, and Well 13, which is currently in operation. Additionally, a new well is proposed. Existing quantities of water being withdrawn from Well 13 is approximately 1,325 gallons per day, which will not change. Anticipated quantities of water to be withdrawn from the new well will be approximately 2,825 gallons per day, pending confirmation of previous hydrogeological efforts. Once both wells are online, the expected amount of water to be withdrawn will be approximately 4,150 gallons per day. No water will be discharged to groundwater on the site.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (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.**

   Waste material will not be discharged into the ground from septic tanks or other sources.

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 proposed project site has an existing storm sewer system that is to remain in place following construction of the proposed improvements. The existing storm sewer system currently picks up runoff from the existing buildings and site area via roof drain connections and area drains and conveys stormwater by pipe to the south end of the site where it is dispersed through a perforated pipe. The runoff ultimately drains downhill in the southeast direction to the Washougal River. All new buildings, concrete slabs, sidewalks, and landscape areas are to drain to this existing stormwater system and ultimately outfall to the Washougal River. The existing road to the east of the site, called SE Cramer Ln., currently drains to the west and south, ultimately flowing downhill to the Washougal River. Refer to the Engineering Plans and the Preliminary Stormwater Report for more information.

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

   Possible spills including fuels such as diesel or gasoline could potentially occur on the site during construction. Without adequate erosion control or stormwater mitigation, waste materials could possibly enter ground or surface waters. However, the proposed stormwater treatment and erosion control measures will minimize the potential for waste materials to be conveyed to ground or surface waters.

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

   The proposal may alter onsite drainage patterns slightly, given the increase in impervious surface, but this will be minimal as well as be accommodated through appropriate water quantity and quality treatment facilities design/implementation.

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

   This proposal will meet or exceed the City of Camas' and Washington State Department of Ecology's erosion control standards.

4. Plants

Find help answering plants questions

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

   ☒ **deciduous tree: alder, maple, aspen, other** *Walnut, oak*

   ☐ **evergreen tree: fir, cedar, pine, other**

   ☒ **shrubs**

   ☒ **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** *Spirea, boxwood, rhododendron, lilac, Oregon grape, huckleberry*

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

   All vegetation will be removed in areas to receive construction activities.

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

   There are no threatened or endangered plant species known to the Applicant to be on or near the site.

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

   An existing 18" walnut tree will be preserved in the southwest corner of the site. Other landscaping includes native and ornamental shrubs, trees and seed mix.

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

   No noxious weeds and invasive species other than the possible presence of Himalayan Blackberries are known to be located on or near the site.

5. Animals

Find help answering animal questions[8]

a. List any birds and other animals that 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:** *Rodents*
- **Fish: bass, salmon, trout, herring, shellfish, other:** *Salmonids in Lacamas Creek, including Chinook, Chum and Coho salmon, steelhead, and Dolly Varden/Bull Trout.*

  Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report has been prepared by MacKay Sposito Inc., a qualified professional, dated January 22, 2025.

  Per this report, no terrestrial species identified by the USFWS IPaC database as potentially present were observed within the project study area, and no suitable habitats for these species were observed within or near the project study area (USFWS 2024a). Table 4 (State and Federally Listed, Threatened, Endangered, and Sensitive Species) identifies five threatened fish species within Lacamas Creek and presumed present.

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

Clark County MapsOnline (Clark County 2024) identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) and associated riparian habitat. As such, a Shoreline Critical Areas Report has been prepared by MacKay Sposito Inc., a qualified professional, dated January 22, 2025.

Per this report, no terrestrial species identified by the USFWS IPaC database as potentially present were observed within the project study area, and no suitable habitats for these species were observed within or near the project study area (USFWS 2024a). Table 4 (State and Federally Listed, Threatened, Endangered, and Sensitive Species) identifies five threatened fish species within Lacamas Creek and presumed present.

c. Is the site part of a migration route? If so, explain.

The site is located within what is commonly referred to as the Pacific Flyway. This Flyway is the general migratory route for various species of ducks, geese, and other migratory waterfowl. The Flyway stretches from Alaska to Mexico and from the Pacific Ocean to the Rocky Mountains. Neotropical birds, such as Robins, may also seasonally utilize or be near the site.

d. Proposed measures to preserve or enhance wildlife, if any.

[8] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-5-Animals

Retain an existing 18" walnut and provide new landscaping throughout the proposed development to enhance wildlife habitats on or adjacent to the site.

e. List any invasive animal species known to be on or near the site.

No invasive animal species are known by the Applicant to be on or near the site.

6. Energy and natural resources

Find help answering energy and natural resource questions[9]

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.

The site is currently served by electrical service from Clark Public Utilities.

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

No, construction should not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

All construction on the site will be designed to comply with the state adopted codes and policies related to energy conservation, and the plans will be reviewed by the City of Camas prior to construction.

7. Environmental health

Health Find help with answering environmental health questions[10]

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

Heavy equipment and a variety of materials will be utilized to construct the project. The project will also meet all Federal, State and local construction regulations.

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

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

[9] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-6-Energy-natural-resou
[10] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-7-Environmental-health

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

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

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.**

   The City currently uses 25% caustic soda and 0.8% sodium hypochlorite as part of their drinking water treatment process. Stage 1 will not modify this current operation. Stage 2 will add additional storage capacity (approximately double) for these chemicals in the new chemical room to accommodate the increased capacity from the new well. Additionally, this project will be undertaken to remove PFAS from the City's water supply. Certain PFAS are designated as hazardous substances. The treatment process removes the PFAS from the groundwater before it is sent into the City's drinking water distribution system. On occasion, the resin used in the treatment process to remove the PFAS from the water will need to be replaced. In these cases, the resin is securely taken from the site and sent to a facility that is designated to handle these substances. Fresh resin will replace the used resin to maintain high quality drinking water.

4. **Describe special emergency services that might be required.**

   No special emergency services are anticipated.

5. **Proposed measures to reduce or control environmental health hazards, if any.**

   During construction, contractors will be expected to comply with applicable local, state and federal regulations relating to the construction and operation of the project. All construction is anticipated to be inspected according to industry requirements and standards. This project's purpose is to reduce the amount of PFAS in the City's water supply and improve public health. PFAS chemicals collected as part of the treatment process will be removed from the site as indicated above.

b. Noise

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

   There is limited noise in the area generated from vehicular traffic and residential uses which is not anticipated to affect the proposed 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)?**

   Construction equipment and vehicles will generate noise during the construction period and to lift the generator and ion exchange tanks into place. Maintenance vehicles and monthly testing of the generator will generate noise (which will continue to be on a

weekly basis for 2-4 hours at a time for maintenance purposes, or longer during a power outage) in the long-term. Other noise sources include typical HVAC (that will be within required WAC noise levels) and maintenance noise from small power tools including, but not limited to, small gas-powered equipment used for site and landscape maintenance, such as lawn mowers, blowers, trimmers, etc. Minimal changes to long-term noise are anticipated after completion of the project.

3. **Proposed measures to reduce or control noise impacts, if any:**

Per CMC 9.32.050, construction activities will not occur before 7 a.m. or after 7 p.m. Monday through Friday, before 7 a.m. or after 5 p.m. on Saturdays or anytime on Sundays or the following holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day or Christmas Day. Generator testing maintenance takes place during the day.

8. Land and shoreline use

Find help answering land and shoreline use questions[11]

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

The site is currently the site of Well 13 which includes an operational municipal drinking water well, a decommissioned well (Well 4), and an emergency back-up generator. Adjacent uses are as follows:

- *North: (Across E 1st Avenue) Church parking lot on community commercial zoned property.*
- *South: Washougal River Greenway on Multifamily Residential – 18 zoned property.*
- *East: Single-famikly attached (townhome) residential uses on Multifamily Residential – 18 property.*
- *West: Single-family detached residential uses on Multifamily Residential – 18 zoned property.*

The proposed PFAS ion exchange tanks and bag filters will not affect current land uses on nearby and adjacent 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 because 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?**

No.

[11] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-8-Land-shoreline-use

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.

c. Describe any structures on the site.

There is an existing pump room/chemical room building, an existing building that houses Well 4 and a generator on the south side of the pump room/chemical room building.

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

Yes. The building that houses Well 4 will be demolished. Well 4's casing and concrete cap will be maintained so the City can continue to utilize the well as a monitoring well.

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

The site is currently zoned Multifamily Residential (MF-18).

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

MFH

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

The southern portion of the site lies within the Medium Intensity Shoreline Designation.

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

Clark County MapsOnline identifies Lacamas Creek as a Shoreline of the State (WDNR Type S) with associated riparian habitat, making it a shoreline of state-wide significance. The creek runs along the southern boundary of the project study area, and Clark County GIS mapping confirms shoreline presence on or adjacent to the property. As such, MacKay Sposito Inc., a qualified professional, prepared a Shoreline Critical Areas Report dated January 22, 2025. According to this report, no wetlands were observed within the project study area.

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

The site is and will continue to remain unoccupied with no permanent employees on site. Occasional maintenance visits by City of Camas staff will required on a weekly basis.

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

None.

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

Not applicable.

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

The proposal complies with all applicable land use requirements and is consistent with current zoning and comprehensive plan designations.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

There are no nearby or adjacent agricultural or forest lands of long-term commercial significance.

9. Housing

Find help answering housing questions[12]

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

Not applicable.

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:

Not applicable.

10. Aesthetics

Find help answering aesthetics questions[13]

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

The tallest of the proposed structures are the ion exchange tanks which will be approximately 20 feet tall and the new chemical/well building, which will be approximately 20 feet 4 inches tall. The new electrical building will be approximately 17 feet 4 inches tall. The ion exchange tanks will be metal and the electrical and well/chemical buildings will be concrete masonry unit (CMU) to match the existing building.

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

The view across the development area of the project will be altered by the construction of the ion exchange tanks and electrical and chemical/well buildings.

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

[12] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-9-Housing
[13] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-10-Aesthetics

Architectural features and landscaping, along with providing an 8-foot-tall fence around the ion exchange and bag filter area.

11. Light and glare

Find help answering light and glare questions[14]

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

Limited site lighting will be added near the entries to the new electrical and chemical/well buildings, per code requirements. The lights will be shielded to avoid glare and offsite impacts to the greatest extent practicable and will be energy efficient LED lighting where possible. The existing streetlight along the west side of SE Cramer will be relocated as coordinated with Clark Public Utilities. Site and security lighting near the filtration units and bag filters will be activated only when needed by maintenance personnel.

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

No known views appear on the site. However, it is reasonable to conclude that the proposed development on the site will not create a safety hazard or interfere with views.

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

Existing residential uses and traffic may cause only minimal light and glare and should not adversely impact the proposed development on the site.

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

Lights will be installed and shielded to minimize dispersion and control any potential offsite impacts. Intensity of lighting will be kept at a level to assure safety on the site, but will meet all applicable City of Camas light shielding and glare reductions.

12. Recreation

Find help answering recreation questions

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

The subject property is located in close proximity to the Louis Bloch Park, the Lacamas Creek Park, Lacamas Regional Park, Washougal River Greenway as well as the Lacamas Creek is located to the south of the property.

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

[14] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-11-Light-glare

No

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

An ADA compliant sidewalk will be installed along the east side of the site to provide access to an existing gravel pedestrian path within the Washougal River Greenway that runs south of the site.

13. Historic and cultural preservation

Find help answering historic and cultural preservation questions[15]

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.

There are no historic buildings or structures known by the Applicant to be located on or near the site.

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.

Clark County GIS data indicates that 100% of the site has a high probability of containing archaeological findings. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is recommended as not eligible for listing in the NRHP and they recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information.

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.

Clark County GIS data indicates that 100% of the site has a high probability of containing archaeological findings. An archaeological survey has been completed by Archaeological Investigations Northwest. The report indicates that due to the limited number and types of artifacts found at the site and the fact that the project area has been heavily impacted by construction of a house (and associated septic drain field) that previously stood on the property and by the construction of the wells, the site is recommended as not eligible for listing in the NRHP and they

[15] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-13-Historic-cultural-p

recommend no additional study at the site. Please refer to the Archaeological Survey as prepared by Archaeological Investigations Northwest, dated February 9, 2007 for more information for more information on the methods used to assess the potential impacts to cultural and historic resources on or near the project site.

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.

In the event any archaeological or historic materials are encountered during project activity, work in the immediate area must stop and the following actions taken:

1. *Implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering; and*
2. *Take reasonable steps to ensure the confidentiality of the discovery site; and,*
3. *Take reasonable steps to restrict access to the site of discovery. If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If remains are determined to be Native, consultation with the effected Tribes will take place in order to mitigate the final disposition of said remains.*

If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If remains are determined to be Native, consultation with the effected Tribes will take place in order to mitigate the final disposition of said remains.

14. Transportation

Find help with answering transportation questions[16]

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

The subject property is located on the south side of E 1st Avenue and the west side of SE Cramer Lane. E 1st Avenue is a fully improved local roadway with curbs and sidewalks on both sides, and a new driveway is proposed off E 1st Avenue to provide vehicular access for a well pump crane truck. SE Cramer Lane is a 20-foot-wide paved roadway without curbs or sidewalks located within an easement. Existing driveway approaches off SE Cramer Lane provide access to the Well 13 site. Additionally, residents of the Three Rivers condo complex use both E 1st Avenue and SE Cramer Lane for ingress and egress.

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?

[16] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-14-Transportation

The site is not served by and is not near public transit. The nearest transit stop to the is located near the intersection of NE 3rd Avenue and E First Avenue, C-Tran route 92, approximately 500 feet to the northeast.

c. 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).

A new 5-foot-wide concrete sidewalk will be installed along the east side of the site to provide ADA compliance access to the existing gravel path within the Washougal River Greenway south of the site.

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

No

e. 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?

Currently maintenance staff visit the site daily and there are chemical delivery trucks that visit the site monthly. Following completion of the PFAS treatment system, the current vehicular trip frequency will largely remain the same. Media replacement associated with the ion exchange media is done via truck and only expected to occur on a yearly basis.

f. 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

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

None.

15. Public services

Find help answering public service questions[17]

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.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

[17] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-15-public-services

None

16. Utilities

Find help answering utilities questions[18]

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

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

There are no new services proposed with this project. However, the existing 1-inch water line that currently serves the site will be upsized to a 4-inch water line and two new connections to the existing sanitary sewer line on the site is proposed for disposal of process water during occasional startup periods.

[18] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-16-utilities

C. Signature

Find help about who should sign[19]

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.

X

Type name of signee: Rob Charles

Position and agency/organization: Utilities Manager / City of Camas

Date submitted: 3/5/2025

[19] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-C-Signature

MacKay Sposito

Vancouver Office

18405 SE Mill Plain Boulevard, Suite 100 Vancouver, WA 98683
360.695.3411 www.mackaysposito.com

February 25, 2025

City of Camas Department of Community Development
616 NE 4th Avenue
Camas, WA 98607

Re: Request for Early Notice of DS, Camas PFAS Evaluation & Well 13 Treatment SEPA Review

On behalf of the applicant, the City of Camas, we would like to request early notice as allowed under WAC 197-11-350 if the City of Camas believes a Determination of Significance is likely for this project. The applicant may wish to clarify or change features of this project.

Sincerely,

Michael Odren

Digitally signed by Michael Odren
DN: C=US, E=modren@mackaysposito.com, O="MacKay Sposito, Inc.", CN=Michael Odren
Date: 2025.03.10 15:50:39-07'00'

Michael Odren, RLA
Landscape Architect, Land Use Planner
MacKay Sposito, Inc.

In re: City of Camas PFAS Treatment Equipment Well 13

) NO. CUP25-1002
)
) AFFIDAVIT OF MAILING
)
)
)
)
)
Respondent.)

STATE OF WASHINGTON)
) ss.
CLARK COUNTY)

I, Carey Certo, on oath says:

I, Carey Certo, on April 16, 2025, I directed a true and correct copy of the SEPA Determination of Non-Significance be served upon the parties herein, in the above-entitled action, by depositing with the U.S. Post Office, Camas, Washington, a postage-prepaid envelope containing same addressed as follows: See attached list.

Carey Certo
SIGNATURE

SUBSCRIBED and SWORN to before me this 17th day of April, 2025.

Aireanna Baldwin
Notary Public
State of Washington
My Appointment Expires 10/1/2028
Commission Number 183848

Aireanna Baldwin
Notary Public in and for the State of Washington, residing at Clark County
My appointment expires: 10/1/2028

WILLIAMS ROB & WILLIAMS MARCELA CROUCHER
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CAMAS, WA 98607

State Environmental Policy Act
Determination of Non-Significance

CASE NO: CUP25-1002: Proposed Updates to Existing Well 13 Facility Including Installation of PFAS Treatment Equipment

APPLICANT: Mike Odren, MacKay Sposito
18405 SE Mill Plain Blvd. #100
Vancouver, WA 98683

REQUEST: Conditional Use Permit, Design Review, Critical Area, Archeological, and SEPA Review for updates to existing Well 13 including installing per- and polyfluoroalkyl substances (PFAS) treatment equipment, new generator, building additions, new well and driveway access on approximately 0.56 acres, situated in the MF - 18 Multi-Family Residential Zone.

LOCATION: 1250 E. 1ST AVENUE, CAMAS, WA 98607
PARCEL NUMBERS 90928000, 91031000 AND 91034000

LEGAL DESCRIPTION: THE PROJECT IS LOCATED IN THE CITY OF CAMAS IN THE NE ¼ OF SECTION 11 AND NORTHWEST ¼ OF SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN

SEPA DETERMINATION: DETERMINATION OF NON-SIGNIFICANCE (DNS)

COMMENT DEADLINE: **MAY 1, 2025, AT 5:00 P.M.**

As lead agency under the State Environmental Policy Act (SEPA) Rules [Chapter 197-11, Washington Administrative Code (WAC)], the City of Camas must determine if there are possible significant adverse environmental impacts associated with this proposal. The options include the following:

- DS = Determination of Significance (The impacts cannot be mitigated through conditions of approval and, therefore, requiring the preparation of an Environmental Impact Statement (EIS).
- MDNS = Mitigated Determination of Non-Significance (The impacts can be addressed through conditions of approval), or;
- DNS = Determination of Non-Significance (The impacts can be addressed by applying the Camas Municipal Code).

Published in the Post Record on April 17, 2025 Legal Publication #1000300
Mailed to property owners within 300-feet on April 16, 2025
Posted on bulletin boards at Camas City Hall, Camas Library and the City of Camas web site at: http://www.cityofcamas.us

Determination:

Determination of Non-Significance (DNS). The City of Camas, as lead agency for review of this proposal, has determined that this proposal 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)(e). This decision was made after review of a completed environmental checklist, and other information on file with the City of Camas.

Date of Publication & Comment Period:

Publication date of this DNS is **April 17, 2025**, and is issued under WAC 197-11-340. The lead agency will not act on this proposal until the close of the 14-day comment period which ends on **May 1, 2025**. Comments may be sent by email to communitydevelopment@cityofcamas.us or regular mail to:

City of Camas SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607

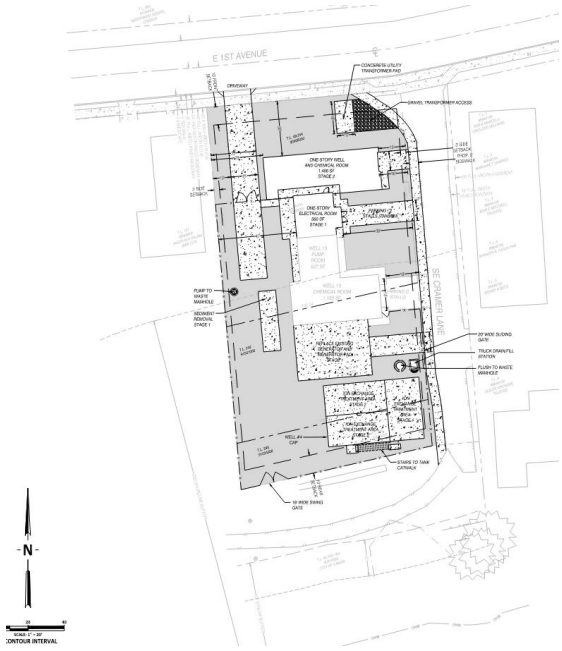
Responsible Official: Robert Maul (360) 817-1568

Robert Maul, Planning Manager and Responsible Official

4/17/25
Date of publication

Vicinity Map

Preliminary Site Plan



Allyson Brooks Ph.D., Director
State Historic Preservation Officer

City of Camas, SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, WA 98607

April 23, 2025

In future correspondence please refer to:
Project Tracking Code: 2025-04-02610
Property: City of Camas Well 13 Facility Updates and PFAS Treatment Equipment Installation (CUP25-1002)
Re: SEPA – Permit Required for Site 45CL00713

Dear SEPA Official:

Thank you for contacting the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP), and providing documentation regarding the above-referenced project. As a result of our review, our professional opinion is that the project area contains archaeological site 45CL00713, and the scale of the proposed ground disturbing actions have the potential to disturb the archaeological site. Therefore, per RCW 27.53.060 a DAHP Permit must be applied for and granted prior to any ground disturbing activities.

If the project proposes to completely avoid any disturbance of the archaeological site, the applicant should update their official site plans to show full site avoidance with a safety buffer. We recommend the safety buffer extend to the first negative archaeological hole excavated out from the site. If any project activities will occur within 50 feet of the site, the buffer zone should also be physically marked on the ground with fencing, flagging, or some other readily visible materials, and remain in place until all project related activities are completed. We also recommend continued consultation with the concerned Tribes' cultural committees and staff regarding cultural resource issues.

These comments are based on the information available at the time of this review and on behalf of the SHPO in conformance with Washington State law. Should additional information become available, our assessment may be revised.

Thank you for the opportunity to comment on this project and we look forward to receiving the complete DAHP Permit application. Please ensure that the DAHP Project Number (a.k.a. Project Tracking Code) is shared with any hired cultural resource consultants and is attached to any communications or submitted reports. Should you have any questions, please feel free to contact me.

Sincerely,

Jessica Stone, Ph.D.
Assistant State Archaeologist
(360) 890-2633
jessica.stone@dahp.wa.gov

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775, Olympia, WA 98504-7775 • 360-407-6300

April 30, 2025

Robert Maul, Planning Manager
City of Camas
Community Development Department
616 Northeast Fourth Avenue
Camas, WA 98607

Dear Robert Maul:

Thank you for the opportunity to comment on the determination of non-significance for the Proposed Updates to Existing Well 13 Facility Including Installation of PFAS Treatment Equipment Project (CUP25-1002) located at 1250 East 1st Avenue as proposed by Mike Odren. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

HAZARDOUS WASTE & TOXICS REDUCTION: Garret Peck (564) 669-0836

The applicant proposes to demolish an existing structure(s). In addition to any required asbestos abatement procedures, the applicant should ensure that any other potentially dangerous or hazardous materials present, such as PCB-containing lamp ballasts, fluorescent lamps, and wall thermostats containing mercury, are removed prior to demolition. It is important that these materials and wastes are removed and appropriately managed prior to demolition. It is equally important that demolition debris is also safely managed, especially if it contains painted wood or concrete, treated wood, or other possibly dangerous materials.

Please review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes," posted at Ecology's website, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Dangerous-waste-guidance/Common-dangerous-waste/Construction-and-demolition. The applicant may also contact Katy Harvey of Ecology's Hazardous Waste and Toxics Reduction Program at katy.harvey@ecy.wa.gov for more information about safely handling dangerous wastes and demolition debris.

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology

Southwest Regional Office

(JKT:202501540)

cc: Garret Peck, HWTR

Notice of Proposed Development

Camas PFAS Evaluation & Well 13 Treatment

Description of Proposal: The Applicant proposes updates to the existing Well 13 facility. The proposed improvements include installing per- and polyfluoroalkyl substances (PFAS) treatment equipment for Well 13 (ion exchange tanks and bag filters), adding a new generator, a building addition for a new electrical room, building addition for a new chemical/well room for a proposed new well, and constructing a new driveway off E 1st Avenue to accommodate a well pump crane truck.

Types of Permit Applications on file being considered by the City of Camas:

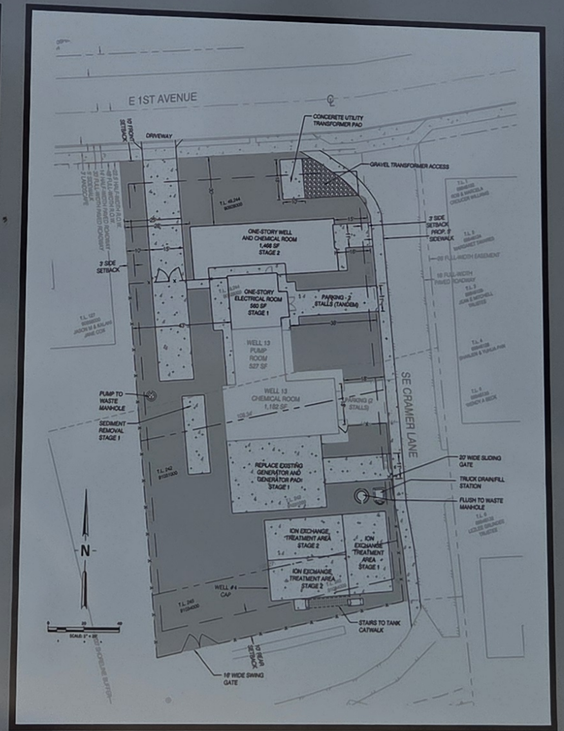
* Type III Conditional Use Permit
* Shoreline Conditional Use Permit
* Site Plan Review
* SEPA Review
* Critical Area Review
* Design Review
*Archaeological Review

Applicant:

City of Camas
616 NE 4th Avenue
Camas, WA 98607

City Contact:

Yvette Sennewald, Senior Planner
City of Camas Community Development Dept.
616 NE 4th Avenue Camas, WA 98607
Phone: (360) 817-1568
Email: YSennewald@cityofcamas.us



Public Hearing Schedule:
(Will be filled in 14 or more days prior to a hearing)

Hearing Date/Time: May 29, 2025 5:00 p.m.

Hearing Location: Camas City Hall 616 NE 4th Avenue

Community Development Department

Notice of Public Hearing

Proposed Updates to the Existing Well 13 Facility

Planning Case CUP25-1002

A public hearing will be held on **Thursday, May 29, 2025, at 5:00 p.m.,** or soon thereafter, before the City's Hearings Examiner to consider a proposal for a Conditional Use Permit for updates to existing Well 13, including but not limited to, installing per- and polyfluoroalkyl substances (PFAS) treatment equipment, adding a generator, addition to electrical room, building addition for chemical/well room for a proposed new well, and constructing a driveway off E 1st Avenue, situated on approximately 0.56 acres. The approximate 0.56-acre site consisting of 3 parcels, in the MF-18 – Multi-Family Residential Zone, is situated on the southerly side of East 1st Avenue, west of Cramer Lane, located at 1250 E 1st Avenue and includes Tax Parcel Numbers 90928000, 91031000, and 91034000. The application was submitted on March 10, 2025, and deemed technically complete on March 25, 2025. The public hearing will be held remotely and in person at city hall.

Questions/Comments: The public hearing will follow the quasi-judicial process described within Camas Municipal Code §18.55.180. Comments related to this development may be submitted as follows: (1) In person by testifying at the public hearing; (2) by regular mail to Community Development Department staff, Yvette Sennewald, Senior Planner, at Camas City Hall, 616 Northeast Fourth Avenue, Camas, WA 98607; (3) by phone at (360) 817-1568; or (4) by email to: communitydevelopment@cityofcamas.us. It is preferable that written comments be received at least five working days prior to the public hearing, to be available with the online agenda and materials. After the agenda has been posted online, all other written comments must be received no later than noon (12:00 p.m.) the day of the hearing, for those comments to be handed to the Hearings Examiner by Staff. Written and oral comments may also be submitted in person during the hearing.

Application Materials: The application included the following: project narrative, development plans and environmental reports, as required for a complete application pursuant to Camas Municipal Code (CMC) §18.55.110. Application materials are available for review from the Community Development Department during regular business hours Monday – Friday 8am-5pm and through the online permit processing portal with the following link: https://cityofcamaswa-energovweb.tylerhost.net/apps/selfservice - /home

Participate: All citizens are entitled to have equal access to the services, benefits, and programs of the City of Camas. Please contact the **City Clerk at (360) 817-1591** for special accommodations if needed. The city will provide translators for non-English speaking persons who request assistance at least three working days prior to a public meeting or hearing.

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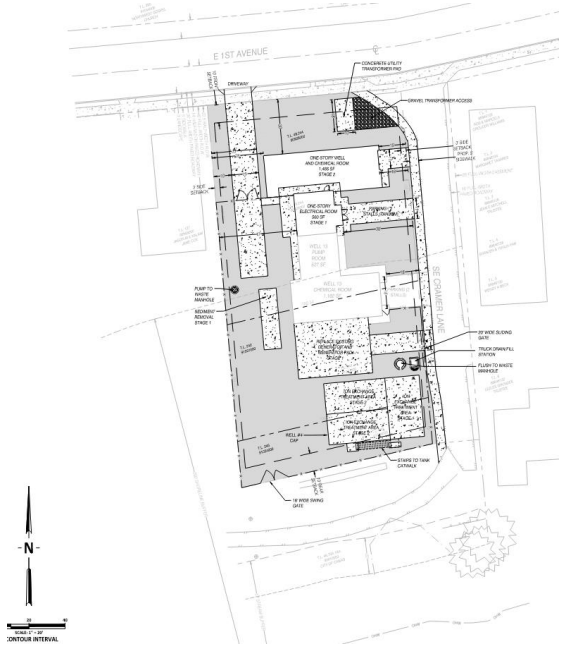
Published in the Post Record on May 15, 2025 Legal Publication #1007310
Posted at Camas City Hall, Camas Library, City of Camas website at: http://www.cityofcamas.us
Mailed to property owners within 300-feet on May 14, 2025

Vicinity Map

Preliminary Site Plan



In re: City of Camas PFAS Treatment Equipment Well 13

) NO. CUP25-1002
)
) AFFIDAVIT OF MAILING
)
)
)
)
)
Respondent.)

STATE OF WASHINGTON)
) ss.
CLARK COUNTY)

I, Yvette Sennewald, on oath says:

I, Yvette Sennewald, on May 15, 2025, I directed a true and correct copy of the Notice of Public Hearing be served upon the parties herein, in the above-entitled action, by depositing with the U.S. Post Office, Camas, Washington, a postage-prepaid envelope containing same addressed as follows: See attached list.

SIGNATURE

SUBSCRIBED and SWORN to before me this 22nd day of May, 2025.

Aireanna Baldwin
Notary Public
State of Washington
My Appointment Expires 10/1/2028
Commission Number 183848

Aireanna Baldwin
Notary Public in and for the State of Washington, residing at Clark County, WA
My appointment expires: 10/01/2028

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Community Development Department

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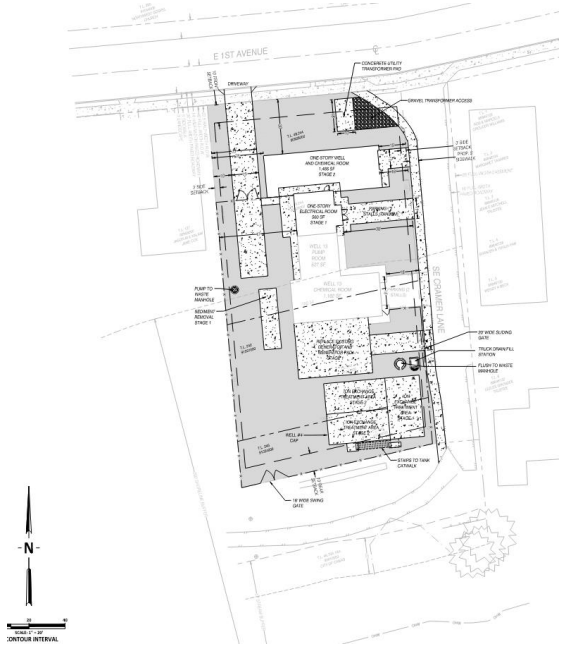

SHORELINE NARRATIVE

Camas Well 13 PFAS Treatment Design

February 28, 2025

Revised May 22, 2025

MSi Project No. 18581

MacKay Sposito

www.mackaysposito.com

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Camas Well 13 PFAS Treatment Design

Shoreline Narrative

Wetland Scientist Signature

Prepared by:

Signature

Kristen Currens

Printed Name

May 22, 2025

Date

1. Introduction

1.1 Purpose

The following document presents a Shoreline Conditional Use Permit Narrative (Narrative) prepared by MacKay Sposito (MSi) for the City of Camas (Applicant) and the Camas Well 13 PFAS Treatment Design Project (Project). The Narrative discusses the proposed development, current conditions, and how the Project will meet the development regulations codified in the Camas Shoreline Master Program (SMP 2021).

On August 5, 2024, MSi scientists met onsite with Meghan Flounlacker from Ecology, Joy Peplinski from WDFW, and Rob Charles from the City of Camas (Pers. Comm. 2024) to discuss site conditions and the future construction of the PFAS treatment facility and associated infrastructure. This site visit was also held to support Ecology's conditional use review and solicit their input early in the project design.

1.2 Project Description/Background

The Applicant proposes constructing a new per- and poly-fluoroalkyl substances (PFAS) treatment facility and associated infrastructure on the existing Well 13 site. Project activities include:

Stage 1

- Removal of the existing Well 4 building (Well 4 has been previously decommissioned);
- Replace the existing generator and expand the existing generator pad at the existing Well 13;
- Install per- and poly-fluoroalkyl substances (PFAS) treatment equipment for the existing Well 13;
- Expand the existing Well 13 electrical room;
- Building addition for a proposed new well;
- A new driveway off E. 1st Avenue to facilitate a pump crane truck

Stage 2

- Construction of a new water well and chemical room in the northern portion of the site as an extension of the new electrical room built as part of Stage 1.

1.3 Existing Conditions

Existing conditions on-site include two buildings, an abandoned well (Well 4), and an existing well (Well 13). Surrounding land use to the north, east, and west consists of high-density residential development, with Lacamas Creek to the south. The topography gently slopes to the south-southeast but is generally level in the north and central portions of the project site. Waterward from the top of the bank, the southern portion of the project site slopes steeply (58 percent slopes) to the south toward Lacamas Creek.

Vegetation in the north and central portion of the Project consists of landscaped and ornamental native and non-native trees (a native balsam poplar (*Populus balsamifera*) and black walnut (*Juglans nigra*)) and shrubs. Typical lawn species, mixed with a small percentage of other herbaceous plants, are present and routinely mowed and maintained throughout the central and northern portions of the shoreline jurisdiction. Vegetation in the southern portion of the Project consists of one Oregon white oak (*Quercus garryana*) and a mix of Douglas fir (*Pseudotsuga menziesii*), balsam poplar, and beaked hazelnut (*Corylus cornuta*) within the greenway at the top of the bank. Himalayan blackberry (*Rubus armeniacus*) dominates the steep slopes above Lacamas Creek (a Type S stream and shoreline of state-wide significance), which flows from east to west along the southern project site boundary.

1.4 Shoreline Designation and Required Setbacks

The project site is adjacent to Lacamas Creek, with a shoreline environmental designation (SED) of Medium Intensity. Utilities are a conditional use within the Medium Intensity shoreline designation, with a minimum setback of 50 feet from the Right-of-way (ROW) and a maximum structure height of 35 feet. This project is located more than 50 feet from the ordinary high water mark of Lacamas Creek, and its maximum structure height is 25 feet.

Table 1. Shoreline Use, Modification, and Development Standards (SMP Table 6-1)

SED	Use	Use per SED	Right-of-Way Setback (ft)	Maximum structure height (ft)
Medium Intensity	Utility	Conditional	50	35

2. Applicable Shoreline Master Program Regulations

The SMP code responses below assess how this Project meets the goals and policies of the Camas SMP. Excerpts from the SMP are in *italics* below, with responses in regular blue font. Only regulations that apply to the Project are addressed.

2.1 Chapter 5 General Shoreline Use and Development Regulations

All uses and development activities in shorelines shall be subject to the following general regulations in addition to the applicable use-specific regulations in Chapter 6.

2.1.1 5.1 General Shoreline Use and Development Regulations

1. *Shoreline uses and developments that are water-dependent shall be given priority.*

   Water-dependent development is not proposed with this project.

2. *Shoreline uses and developments shall not cause impacts that require remedial action or loss of shoreline functions on other properties.*

   This Project will not cause impacts that require remedial action or the loss of shoreline functions on other properties.

3. *Shoreline uses and developments shall be located and designed in a manner such that shoreline stabilization is not necessary at the time of development and will not be necessary in the future for the subject property or other nearby shoreline properties unless it can be demonstrated that stabilization is the only alternative that protects public safety and existing primary structures.*

   Shoreline development will occur approximately 31 feet from the top of the bank. Shoreline stabilization will not be necessary during the development or in the future.

4. *Land shall not be cleared, graded, filled, excavated or otherwise altered prior to issuance of the necessary permits and approvals for a proposed shoreline use or development to determine if environmental impacts have been avoided, minimized and mitigated to result in no net loss of ecological functions.*

   No work will be done within the shoreline jurisdiction prior to approval of this Shoreline Conditional Permit.

5. *Unless otherwise stated, no development shall be constructed, located, extended, modified, converted, or altered or land divided without full compliance with CMC Title 17 Land Development and CMC Title 18 Zoning.*

   Development will not occur until the City reviews and approves that the proposed application meets the requirements of CMC Title 17 Land Development and CMC Title 18 Zoning.

6. *Hazardous materials shall be disposed of and other steps be taken to protect the ecological integrity of the shoreline area in accordance with the other policies and regulations of this Program as amended and all other applicable federal, state, and local statutes, codes, and ordinances.*

   PFAS are present in the groundwater supply. The new PFAS treatment equipment contains a resin media that will remove the PFAS via absorption until the resin is depleted, after which; the resin will be removed from the site and hauled away for off-site incineration within an approved facility. Once the old resin is removed, new resin will be added.

   Additionally, the on-site generator will contain fuel in case of a power outage.

   All hazardous materials will be stored and maintained in safe and leak-proof containers, as local, state, and federal regulations require.

7. *The Applicant shall demonstrate all reasonable efforts have been taken to avoid, and where unavoidable, minimize and mitigate impacts such that no net loss of critical area and shoreline function is achieved. Applicants must comply with the provisions of Appendix C with a focus on mitigation sequencing per Appendix C, Section 16.51.160 Mitigation Sequencing. Mitigation Plans must comply with the requirements of Appendix C, Section 16.51.170 Mitigation Plan Requirements, to achieve no net loss of ecological functions.*

   Existing impervious surfaces (buildings and impermeable asphalt and gravel surfaces) total 0.06 acres within shoreline jurisdiction. With the removal of the Well 4 building, 0.01 acre are proposed to change from impervious to pervious. The proposed facility and infrastructure construction will increase to 0.09 acre of impervious surfaces post-construction, equating to a 0.03-acre net increase within shoreline jurisdiction in an area composed of regularly maintained non-native lawn grass (MSi 2025). Table 2 summarizes impacts within shoreline jurisdiction.

Table 2. Summary of Impacts within Shoreline Jurisdiction

Existing Impervious	Proposed Increase in Pervious	Proposed Increase in Impervious	Net Increase Impervious	Proposed Total Impervious
0.06 acres	0.01 acres	0.04 acres	0.03 acres	0.09 acres

   This plan has been prepared according to Ecology's shoreline no net loss and mitigation guidance (Ecology 2023). The Project will not result in the net loss of shoreline ecological functions. All impacts to critical areas and their buffers have been avoided. In addition, the project has been carefully designed to avoid all alteration or removal of native vegetation within shoreline jurisdiction.

   While there will be a 0.03-acre increase in impervious surface within shoreline jurisdiction, this increase is necessary to provide the hardened surface infrastructure required to meet the project's purpose of treating the drinking water supply for PFAS. To minimize impacts within shorelines, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the new development will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces. The design provides a sustainable, low-maintenance solution to manage water flow and support local ecosystems.

   Construction best management practices (BMPs) to manage stormwater runoff and minimize erosion and sedimentation will be implemented, which include:

   Designate staging and stockpile areas outside critical areas and buffers, establish standard construction entrances, vividly mark clearing limits, and install silt fencing at the edge of the disturbance to prevent sedimentation within remaining critical areas.

8. *Within urban growth areas, Ecology may grant relief from use and development regulations in accordance with RCW 90.58.580, and requested with a shoreline permit application.*

No relief from development regulations is requested with this application.

2.2 5.2 Archaeological, Cultural, and Historic Resources

When a shoreline use or development is in an area known or likely to contain archaeological artifacts as indicated on the City of Camas Archaeological Probability map, or as recorded at the state or county historical offices, then the applicant shall provide for a site inspection and evaluation by a professional archaeologist. Development permits may not be issued until the inspection and evaluation have been completed and the city has issued approval.

If an item of possible archeological interest is discovered on site, all work shall immediately cease and notification of such a find will be sent to the City, the Office of Archaeology and Historic Preservation and affected Native American tribes. Activities on site may resume only upon receipt of the City's approval.

An archaeological investigation has been completed and will be provided.

2.3 5.3 Critical Areas Protection

Critical Areas Regulations are found in Appendix C of this program and are specifically at Chapters 16.51 through 16.61. Provisions of the Critical Areas Regulations that are not consistent with the Shoreline Management Act, RCW Chapter 90.58, and supporting Washington Administrative Code chapters shall not apply in shoreline jurisdiction. These regulations are integral and applicable to this Program, except that:

1. *Non-conforming uses and development within the shoreline jurisdiction shall be subject to both this Program and Appendix C, and where there is a conflict, the most protective of environmental functions shall apply;*
2. *The Fish and Wildlife Habitat Conservation Area buffers for Stream Type S in Appendix C, Section 16.61.040 are modified as follows for the following areas:*
    a) *Columbia River, SR-14 to SE Third Avenue2 at twenty-feet (20').*
    b) *Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, twenty-feet (20') from the top of slopes exceeding forty- percent (40%).*
    c) *Lacamas Lake buffers from OHWM shall not extend landward of NE Leadbetter Road.*
    d) *Columbia River, lots fronting on SE 12th Avenue and SE 11th Avenue between SE Polk Street and SE Front Street, shall be twenty-percent (20%) of lot depth as measured from the OHWM.*
3. *CMC Chapter 16.57 Frequently Flooded Areas applies within shoreline jurisdiction but is not incorporated as specific regulations of this SMP.*

The standard riparian buffer for a Type S stream is 150 feet (CMC 16.61.040.D); the City of Camas SMP 5.3.(2)(b) states that the Fish and Wildlife Habitat Critical Areas (FWHCA) buffers for lots fronting on First Avenue between SE Garfield St. and NE Third St., are modified to 20 feet from the top of slopes exceeding 40 percent (the PSA is located between SE Garfield St. and NE Third St. and slopes are approximately 58%). A Critical Areas Report is included with the City Land Use Application submittal for review and approval by the City (MSi 2025).

2.3.1.1 5.3.1 Applicable Critical Areas

For purposes of this Program, the following critical areas, as defined in Appendix C will be protected under this Program: Wetlands; Critical Aquifer Recharge Areas; Frequently Flooded Areas; Geologically Hazardous Areas; and Fish and Wildlife Habitat Conservation Areas.

All impacts to critical areas will be avoided.

2.4 5.5 Public Access

1. *Provisions for adequate public access shall be incorporated into all shoreline development proposals that involve public funding unless the proponent demonstrates public access is not feasible due to one or more of the provisions of Section 5.5 Regulation 2.a-e.*

   This project will utilize public funding. The public currently accesses the shoreline on this site, and that access will be maintained and upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

2. *Provisions for adequate public access shall be incorporated into all land divisions and other shoreline development proposals unless this requirement is clearly inappropriate to the total proposal. The nexus, proportionality, need, and support for such a connection shall be based on the policies of this Program. Public access will not be required where the proponent demonstrates one or more of the following:*

   Not applicable

3. *Public access sites shall be connected to a barrier free route of travel and shall include facilities based on criteria within the Americans with Disabilities Act Accessibility Guidelines.*

   The existing public access will be upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

4. *Public access shall include provisions for protecting adjacent properties from trespass and other possible adverse impacts to neighboring properties.*

   The site will be fenced off to screen and provide security for the PFAS equipment. However, there will be no changes to the existing public access. The Applicant proposes a 5-foot wide concrete sidewalk along the east side of the site/west side of SE Cramer Ln to provide additional accessibility to the shoreline area.

5. *A sign indicating the public's right of access to shoreline areas shall be installed and maintained in conspicuous locations.*

   A sign indicating the public's right to access the shoreline area will be installed and maintained in a conspicuous location.

6. *Required public access shall be developed at the time of occupancy of the use or activity.*

   The sidewalk will be constructed concurrently with the proposed project.

7. *Public access shall consist of a dedication of land or a physical improvement in the form of a walkway, trail, bikeway, corridor, viewpoint, park, deck, observation tower, pier, boat launching ramp, dock or pier area, or other area 43 Camas Shoreline Master Program serving as a means of view and/or physical approach to public waters and may include interpretive centers and displays.*

   The Applicant proposes a 5-foot wide concrete sidewalk along the east side of the site/west side of Cramer Lane to provide additional accessibility to the existing pathway along the greenway. This standard will be met.

8. *Public access easements and permit conditions shall be recorded on the deed of title and/or on the face of a plat or short plat as a condition running contemporaneous with the authorized land use, as a minimum. Said recording with the County Auditor's Office shall occur at the time of permit approval.*

   The City of Camas owns the property, so an easement will not be required.

2.5 5.6 Restoration

The Project will not impact the existing shoreline or critical areas, so no restoration is proposed.

2.6 5.7 Site Planning and Development

2.6.1 5.7.1 General

1. *Land disturbing activities such as grading and cut/fill shall be conducted in such a way as to minimize impacts to soils and native vegetation.*

   To ensure minimal disruption to the shoreline, the Applicant will submit an Erosion Control plan to the City for approval, implement the approved erosion control measures (BMPs) before grading begins, and limit grading activities within the shoreline jurisdiction to the greatest extent possible.

2. *Impervious surfaces shall be minimized to the extent feasible so as not to jeopardize public safety.*

   Impervious surfaces created by the development will include:

   - Removal of the existing Well 4 building (Well 4 has been previously decommissioned);
   - Replace the existing generator and expand the existing generator pad at the existing Well 13;

- Install per- and poly-fluoroalkyl substances (PFAS) treatment equipment for the existing Well 13;
- Expand the existing Well 13 electrical room;
- Building addition for a proposed new well;
- A new driveway off E. 1st Avenue to facilitate a pump crane truck;
- Construction of a new water well and chemical room in the site's northern portion as an extension of the new electrical room built as part of Stage 1.

The Project will result in 0.07 acres of new impervious surfaces, equating to a 0.06-acre net increase within shoreline jurisdiction. To minimize Impacts within the shoreline, the Well 4 building will be removed, and within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces. This and existing stormwater collection, treatment, and detention systems will protect the facility, neighboring properties, and the shoreline.

3. *When feasible, existing transportation corridors shall be utilized.*

   The Project has existing frontage along 1st Ave and access to SE Cramer Ln.

4. *Vehicle and pedestrian circulation systems shall be designed to minimize clearing, grading, alteration of topography and natural features, and designed to accommodate wildlife movement.*

   Existing frontage access to the property from 1st Ave and SE Cramer Ln. will minimize the amount of grading and vegetation removal required on-site. For more information, see the Preliminary Plans included with the City Land Use (Appendix B – Site Plan).

5. *Parking, storage, and non-water dependent accessory structures and areas shall be located landward from the OHWM and landward of the water-oriented portions of the principal use.*

   Parking and storage will be located within the facility and unavailable for public use. All of these areas will be located landward of the OHWM.

6. *Trails and uses near the shoreline shall be landscaped or screened to provide visual and noise buffering between adjacent dissimilar uses or scenic areas, without blocking visual access to the water.*

   The water treatment facility will be fenced/walled with an 8-foot high-security palisade fence to provide security and screening for the PFAS equipment. This application does not propose landscaping or vegetative screening, as there will be no change to the existing use.

7. *Elevated walkways shall be utilized, as appropriate, to cross sensitive areas such as wetlands.*

   Not applicable; no elevated walkways are proposed.

8. *Fencing, walls, hedges, and similar features shall be designed in a manner that does not significantly interfere with wildlife movement.*

   An 8-foot high-security palisade fence will be installed around the facility's perimeter, but it will not enclose any natural areas.

9. *Exterior lighting shall be designed, shielded and operated to: a) avoid illuminating nearby properties or public areas; b) prevent glare on adjacent properties, public areas or roadways; c) prevent land and water traffic hazards; and d) reduce night sky effects to avoid impacts to fish and wildlife.*

   Proposed lighting will be limited to the street lighting required by the City Code and lighting typical of the existing PFAS treatment facility and associated infrastructure. Lights will be directed away from the shoreline and shielded to prevent light pollution.

10. *Utilities shall be located within roadway and driveway corridors and rights-of-way wherever feasible.*

    Utilities will be constructed on-site as necessary for the construction of the PFAS treatment system. A sanitary sewer connection will be made to the existing sanitary sewer manhole in SE Cramer Lane for wastewater disposal, and a connection will be made to the existing sanitary sewer line on the east side of the site for system flushing.

11. *A use locating near a legally established aquaculture enterprise, including an authorized experimental project, shall demonstrate that such use would not result in damage to or destruction of the aquaculture enterprise, or compromise its monitoring or data collection.*

    Not applicable; aquaculture is not proposed.

2.6.2 5.7.2 Clearing, Grading, Fill and Excavation

1. Clearing and grading shall be scheduled to minimize adverse impacts, including but not limited to, damage to water quality and aquatic life.

   The Project will provide appropriate erosion control. BMPs will be installed prior to site grading, which will only occur during the dry season.

2. Clearing and grading shall not result in substantial changes to surface water drainage patterns off the project site and onto adjacent properties.

   Currently, surface water drainage flows to an existing stormwater collection system on-site. Drainage patterns will continue to flow into the existing stormwater collection system following the completion of the proposed development. Additionally, to minimize Impacts within the shoreline, the Well 4 building will be removed, and within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces.

3. *Developments shall include provisions to control erosion during construction and to ensure preservation of native vegetation for bank stability.*

   The Applicant will submit an Erosion Control Plan for approval by the City and install approved erosion control BMPs before beginning site grading. The BMPs will remain in place until site construction is complete.

4. *Grading and grubbed areas shall be planted with a cover crop of native grasses until construction activities are completed.*

   All vegetation and ground disturbance that will not be replaced with impervious surfaces will be planted with a native grass seed mix until the construction activities are completed. There are currently no native grasses or other native vegetation within the impacted portion of the shoreline jurisdiction.

5. *Clearing, filling, or excavation shall not be conducted where shoreline stabilization will be necessary to protect materials placed or removed. Disturbed areas shall be stabilized immediately and revegetated with native vegetation.*

   No grading will occur in a location where shoreline stabilization will be necessary.

6. *Fills shall be permitted only in conjunction with a permitted use and shall be of the minimum size necessary to support that use. Speculative fills are prohibited.*

   No speculative fills are proposed. This standard does not apply.

7. *Soil, gravel or another substrate transported to the site for fill shall be screened and documented that it is uncontaminated. Use of polluted dredge material or materials normally disposed of at a solid waste facility is prohibited.*

   Noted.

8. *Fills shall be designed and placed to allow surface water penetration into groundwater supplies where such conditions existed prior to filling.*

   Noted.

9. *Fills must protect shoreline ecological functions, including channel migration processes.*

   Within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces. The proposed project is not located within a channel migration zone.

10. *Fill waterward of OHWM shall only be allowed as a conditional use (except for beach nourishment or enhancement projects) and then only when necessary for the following activities: to support a water-dependent or public access use; cleanup and disposal of contaminated sediments as part of an interagency environmental clean-up plan; expansion or alteration of transportation facilities of statewide significance under specific circumstances; mitigation action; and environmental restoration*.

Fill waterward of the OHWM is not proposed.

11. *Fills for beach nourishment or enhancement projects are subject to a substantial development permit. In the Columbia River, fills shall be prohibited between the OHWM and minus fifteen (-15) feet CRD, unless shallow water habitat will be created as mitigation.*

    Fills for beach nourishment or enhancement are not proposed.

12. *Excavation below the OHWM is considered dredging and subject to provisions under that section in Chapter 6.*

    No excavation will occur below the OHWM.

13. *Upon completion of construction, remaining cleared areas shall be replanted with native species as approved by the city. Replanted areas shall be maintained such that within three (3) years' time the vegetation is fully re-established.*

    Within the fenced facility and infrastructure, the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces.

14. *For the purposes of this Program, preparatory work associated with the conversion of land to non-forestry uses and/or developments shall not be considered a forest practice and shall be reviewed in accordance with the provisions for the proposed non-forestry use, the general provisions of this Program, and shall be limited to the minimum necessary to accommodate an approved use.*

    This site was not previously converted from foresty land.

2.6.3 5.7.3 Building Design

1. *Structures shall be designed to conform to natural contours and minimize disturbance to soils and native vegetation*

   The Project will conform to the natural contours and minimize disturbance to soil and native vegetation to the greatest extent practicable. Additionally, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the impact footprint will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces.

2. *Non-single-family structures shall incorporate architectural features that provide compatibility with adjacent properties, enhance views of the landscape from the water, and reduce scale to the extent possible.*

   The Project proposes to update the current water treatment facility to include a new PFAS treatment system and supporting infrastructure to address the Environmental Protection Agency's (EPA) PFAS requirements.

3. *Building surfaces on or adjacent to the water shall employ materials that minimize reflected light.*

No buildings are proposed on or adjacent to the water. Large native trees screen the proposed development from the water, meeting this standard.

4. *Façade treatments, mechanical equipment and windows in structures taller than two (2) stories, shall be designed and arranged to prevent bird collisions using the best available technology. Single-family residential structures shall be exempt from this provision.*

   While the proposed ion exchange tanks will be approximately 25 feet tall, no two-story buildings exist or are proposed on-site, so this standard does not apply.

2.7 5.8 Vegetation Conservation

1. *Removal of native vegetation shall be avoided. Where removal of native vegetation cannot be avoided, it shall be minimized to protect ecological functions.*

   No native vegetation will be removed by the project.

2. *If native vegetation removal cannot be avoided it shall be minimized and mitigated as recommended by a qualified biologist within a Critical Area Report and shall result in no net loss of shoreline functions. Lost functions may be replaced by enhancing other functions provided that no net loss in overall functions is demonstrated and habitat connectivity is maintained. Mitigation shall be provided consistent with an approved mitigation plan per Appendix C.*

   No native vegetation will be removed by the project.

3. *Clearing by hand-held equipment of invasive or non-native shoreline vegetation or plants listed on the State Noxious Weed List is permitted in shoreline locations if native vegetation is promptly re-established in the disturbed area.*

   Not applicable

4. *If non-native vegetation is to be removed, then it shall be replaced with native vegetation within the shoreline jurisdiction.*

   The project will not remove native shrubs or trees, only non-native lawn grasses. The newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rock to enhance water infiltration and reduce the environmental impact of impervious surfaces.

5. *Pruning of trees is allowed in compliance with the National Arborist Association pruning standards. Pruning must meet the following criteria:*
   a. *Removal of no more than twenty (20) percent of the limbs of any single tree may be removed; and*
   b. *No more than twenty (20) percent of canopy in a single stand of trees may be removed in a given five (5) year period without a shoreline permit.*

   No tree topping or pruning is proposed for this project.

6. *Topping trees is prohibited.*

   No tree topping or pruning is proposed for this project.

7. *If the city determines that a tree is hazardous as verified by an arborist report, then only the hazardous portion shall be removed. Complete removal should be avoided to the extent possible. The remainder of the tree shall remain to provide habitat functions and slope stability. Mitigation may be required to compensate for reduced tree surface area coverage.*

   No hazard trees have been identified on-site.

8. *Natural features such as snags, stumps, logs or uprooted trees, which do not intrude on the navigational channel or threaten or public safety, and existing structures and facilities, shall be left undisturbed.*

   Natural features within shoreline jurisdiction or critical areas will not be removed.

9. *Natural in-stream features such as snags, uprooted trees, or stumps should be left in place unless it can be demonstrated that they are not enhancing shoreline function or are a threat to public safety.*

   No features within the Lacamas Creek Shoreline will be removed.

10. *Aquatic weed control shall only occur to protect native plant communities and associated habitats or where an existing water-dependent use is restricted by the presence of weeds. Aquatic weed control shall occur in compliance with all other applicable laws and standards and shall be done by a qualified professional.*

    No aquatic weed control is proposed. This standard does not apply.

2.8 5.9 Visual Access

Visual access shall be maintained, enhanced, and preserved as appropriate on shoreline street-ends, public utility rights-of-way above and below the ordinary high water mark. Any new or expanded building or structure over thirty-five (35) feet in height above average grade level that obstructs the shoreline view of a substantial number of residences that are adjoining shorelines shall not be allowed in accordance with RCW 90.58.320.

No new buildings or additions exceeding 35 feet in height are proposed. Visual access will be maintained at the terminus of the easement for SE Cramer Lane, and access will be enhanced by the construction of a sidewalk along the west side of SE Cramer Lane to provide ADA access to an existing gravel pathway. Construction of the proposed PFAS equipment will not affect the shoreline view of residents in the general vicinity. There will be no changes to the existing public access.

2.9 5.10 Water Quality and Quantity

1. *The location, design, construction, and management of all shoreline uses and activities shall protect the quality and quantity of surface and ground water adjacent to the site.*
2. *All shoreline development shall comply with the applicable requirements of CMC Chapter 14.02 Stormwater Control.*

3. *Best management practices (BMPs) for control of erosion and sedimentation shall be implemented for all shoreline development in substantial compliance with CMC Chapter 14.06 Erosion and Sediment Control.*

   Surface and groundwater quality and quantity will be maintained by meeting the requirements of the City of Camas Stormwater Ordinance. Required stormwater plans and reports have been submitted meeting the requirements of CMC Chapter 14.02 Stormwater Control. Erosion and sedimentation control best management practices have been proposed, meeting the requirements of CMC Chapter 14.06 Erosion and Sediment Control. Please refer to the plans submitted with this application for more information regarding compliance with this section.

4. *Potentially harmful materials, including but not limited to oil, chemicals, tires, or hazardous materials, shall not be allowed to enter any body of water or wetland or to be discharged onto the land except in accordance with CMC Chapter 14.04 Illicit Discharges, dumping and Illicit Connections. Potentially harmful materials shall be maintained in a safe and leak-proof condition*

   No potentially harmful materials will enter any water body as a result of this project.

5. *Herbicides, fungicides, fertilizers, and pesticides shall not be applied within twenty-five (25) feet of a waterbody, except by a qualified professional in accordance with state and federal laws. Further, pesticides subject to the final ruling in Washington Toxics Coalition, et al., v. EPA shall not be applied within sixty (60) feet for ground applications or within three hundred (300) feet for aerial applications of the subject water bodies and shall be applied by a qualified professional in accordance with state and federal law.*

   This application does not propose the application of herbicides, pesticides, fungicides, or fertilizers within 25 feet of water.

6. *Any structure or feature in the Aquatic shoreline designation shall be constructed and/or maintained with materials that will not adversely affect water quality or aquatic plants or animals. Materials used for decking or other structural components shall be approved by applicable state agencies for contact with water to avoid discharge of pollutants.*

   No structure or feature is proposed in the Aquatic shoreline.

7. *Conveyance of any substance not composed entirely of surface and stormwater directly to water resources shall be by CMC Chapter 14.02.*

   No substance that is not composed entirely of surface and stormwater will be directly conveyed to water resources.

8. *Septic systems should be located as far landward of the shoreline and floodway as possible. Where permitted, new on-site septic systems shall be located, designed, operated, and maintained to meet all applicable water quality, utility, and health standards.*

   No septic systems are proposed. This standard does not apply.

2.10 6.3.15 Utilities Uses

These provisions apply to services and facilities that produce, convey, store, or process power, gas, wastewater, communications, and similar services and functions. On-site utility features serving a primary use, such as a water, sewer or gas line to a residence or other approved use are "accessory utilities" and shall be considered a part of the primary use.

As the existing use on site is as a municipal water well, the proposed PFAS treatment system is designed to remove PFAS and other substances from public drinking water.

1. *Whenever feasible, all utility facilities shall be located outside shoreline jurisdiction. Where distribution and transmission lines (except electrical transmission lines) must be located in the shoreline jurisdiction, they shall be located underground or within the footprint of an existing, built roadway.*

   The existing Well 13 site is currently located partially within the shoreline area. The proposed PFAS treatment system will be installed south of the existing Well 13 well and chemical building in the shoreline area. In addition, a new well and chemical building are proposed north of the proposed electrical room expansion. All distribution piping associated with the PFAS treatment system will be installed underground except where they daylight to connect to PFAS treatment system components.

2. *Where overhead electrical transmission lines must parallel the shoreline, they shall be no closer than one hundred (100) feet from OHWM unless topography or safety factors would make it unfeasible, then a shoreline conditional use permit shall be required.*

   No proposed overhead transmission lines paralleling the shoreline are proposed. This standard does not apply.

3. *Utilities shall be designed, located and installed in such a way as to preserve the natural landscape, minimize impacts to scenic views, and minimize conflicts with present and planned land and shoreline uses.*

   The Project will conform to the natural contours and minimize disturbance to soil and native vegetation to the greatest extent practicable. Additionally, the Well 4 building will be removed, and the newly created pervious surface that does not overlap with the new impact footprint will be covered by permeable river rocks to enhance water infiltration and reduce the environmental impact of impervious surfaces. There will be no changes to the existing public access, all structures within the development will be less than two stories (PFAS tanks will be 25' tall), and all other utilities will be piped underground. An eight-foot high-security palisade fence around the facility's perimeter will be installed, which will partially screen the PFAS equipment but will not enclose any natural areas.

4. *Transmission, distribution, and conveyance facilities shall be located in existing rights of way and corridors or shall cross shoreline jurisdictional areas by the shortest, most direct route feasible, unless such route would cause significant environmental damage.*

   Not applicable.

5. *Utility production and processing facilities, such as power plants and wastewater treatment facilities, or parts of those facilities that are nonwater-oriented shall not be allowed in the shoreline jurisdiction unless it can be demonstrated that no other feasible option is available and will be subject to a shoreline conditional use permit.*

   The Applicant proposes constructing a new PFAS treatment facility and associated infrastructure on the existing Well 13 (water treatment) site to address the Environmental Protection Agency's PFAS requirements. Because the existing well is currently operative and native vegetation has been previously removed from the site, the existing location is the most feasible location for accessing groundwater (near Lacamas Creek) without creating additional shoreline impacts. The Project will be subject to the conditions of a Shoreline Conditional Use Permit from the City.

6. *Stormwater control facilities, limited to detention, retention, treatment ponds, media filtration facilities, and lagoons or infiltration basins, within the shoreline jurisdiction shall only be permitted when the following provisions are met: a. The stormwater facility is designed to mimic and resemble natural wetlands and meets the standards of CMC 14.02 Stormwater and the discharge water meets state water quality standards; b. Low impact development approaches have been considered and implemented to the maximum extent feasible.*

   A stormwater control facility is not proposed. Currently, surface water drainage flows to an existing stormwater collection system on-site. Drainage patterns will continue to flow into the existing stormwater collection system following the completion of the proposed development.

7. *New and modifications to existing outfalls shall be designed and constructed to avoid impacts to existing native aquatic vegetation attached to or rooted in substrate. Diffusers or discharge points must be located offshore at a distance beyond the nearshore area to avoid impacts to those habitats.*

   There are no new or modified outfalls associated with the project.

8. *Water reclamation discharge facilities (e.g. injection wells) are prohibited in the shoreline jurisdiction, unless the discharge water meets State Department of Ecology Class A reclaimed water standards. Proponents for discharge of Class A reclaimed water in the shoreline jurisdiction shall demonstrate habitat benefits of such discharge.*

   Water reclamation is not proposed.

9. *Where allowed under this program, construction of underwater utilities or those within the wetland perimeter shall be scheduled to avoid major fish migratory runs or use construction methods that do not cause disturbance to the habitat or migration.*

   There is no proposed construction of underwater utilities.

10. *All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially detrimental to water quality shall provide automatic shut off valves.*

    No underwater pipelines are proposed.

11. *Upon completion of utility installation/maintenance projects on shorelines, banks shall, at a minimum, be restored to pre-project configuration, replanted and provided with maintenance care until the newly planted vegetation is fully established. Plantings at installation shall be at least 2" minimum caliper at breast height if trees, five-gallon size if shrubs, and ground cover shall be planted from flats at 12" spacing, unless other mitigation planting is recommended by a qualified biologist and approved by the Administrator.*

    Impacts to the bank are not proposed. All project work will occur above the top of bank of Lacamas Creek.

3. Shoreline Conditional Use

Utilities are a conditional use within the Medium Intensity shoreline designation. Based on Appendix B of the SMP, "Conditional use approval may be granted only if the applicant can demonstrate all of the following*":*

1. *The proposed use is consistent with the general intent of the Program, and the policies of the Act (RCW 90.58.020).*

   The proposed project improvements in the shoreline jurisdiction are designed to minimize impacts by entirely avoiding the riparian buffer and positioning the infrastructure as far north as possible. In addition, the project has been carefully sited to avoid all trees and shrubs within the shoreline jurisdiction. The project is in conformance with the general intent of the SMP.

2. *The proposed use will not interfere with normal public use of public shorelines;*

   No interference with the public use of the shoreline will occur. A 5-foot-wide ADA-accessible sidewalk will be constructed to upgrade the existing gravel path public access at the site.

3. *The proposed use of the site and design of the development will be compatible with the surrounding authorized uses, the Program, and the comprehensive plan;*

   The proposed project has been designed on the most landward portion of the shoreline jurisdiction, avoids the removal of trees and shrubs within the shoreline jurisdiction, and is compatible with the existing surrounding commercial and residential uses. The proposed development will enhance the public enjoyment of the shoreline by upgrading the existing public access to a 5-foot-wide ADA-accessible sidewalk.

4. *The proposed use will cause no significant adverse effects on the shoreline environment or other uses; and*

No adverse effects are anticipated from the proposed development. The proposed project improvements in the shoreline jurisdiction are designed to minimize ecological impact by excluding impacts from the riparian buffer and positioning the infrastructure as far north on the site as possible. In addition, the project has been carefully sited to avoid all trees and shrubs within the shoreline jurisdiction.

5. *That the public interest would suffer no substantial detrimental effect;*

   The public interest would suffer no substantial detrimental effect as the existing public access at the site will be upgraded through the construction of a 5-foot wide ADA-accessible sidewalk.

4. References

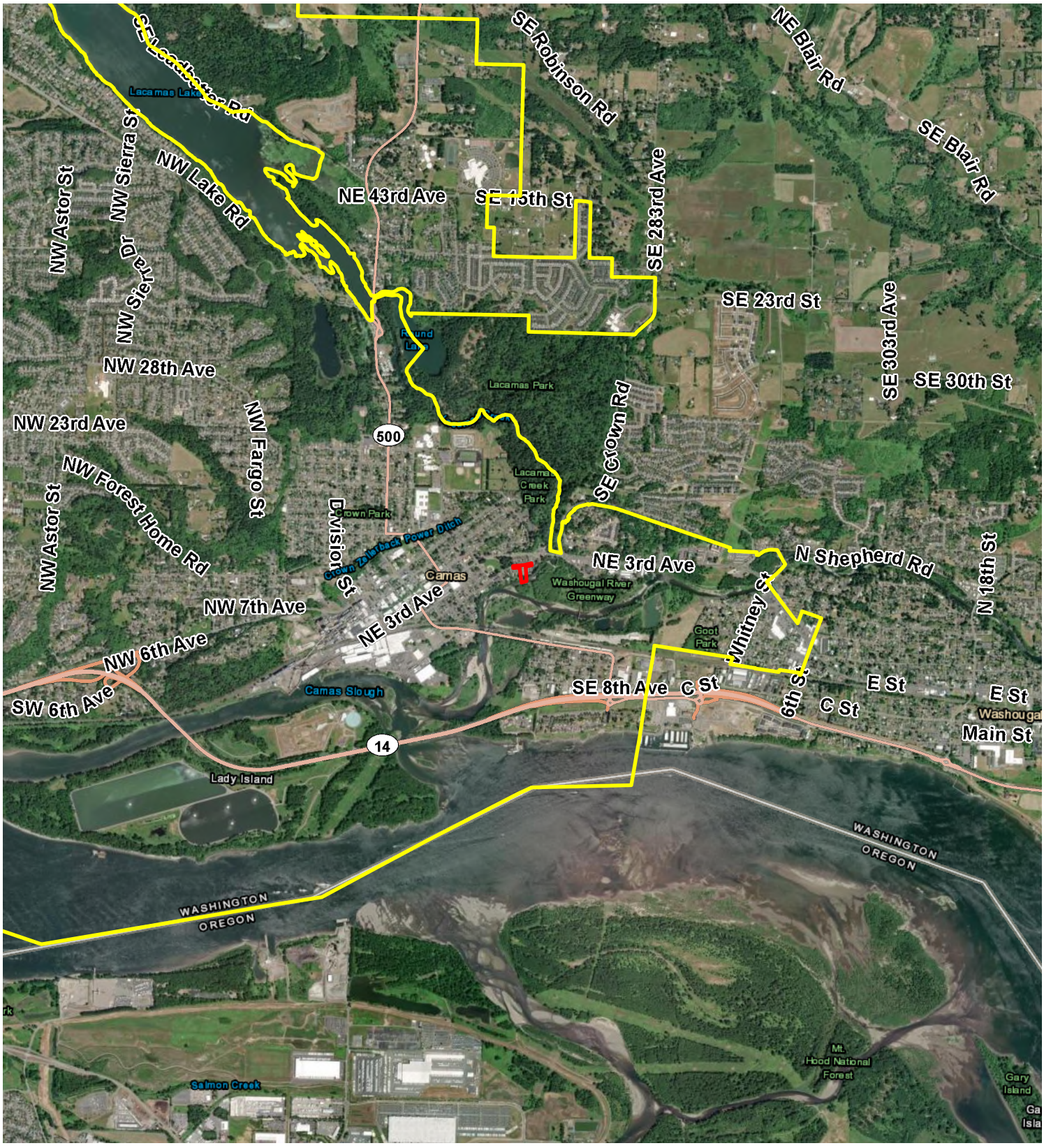
City of Camas Washington. 2024. Camas, Washington Municipal Code, Title 16 – Environment. https://library.municode.com/wa/camas/codes/code_of_ordinances?nodeId=TIT16EN.

City of Camas. 2021. Camas Shoreline Master Program. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cityofcamas.us/sites/default/files/fileattachments/community_development/page/6071/smp_2021_final.pdf.

Flounlacker, Meghan, Joy Peplinski, and Rob Charles. August 5, 2024. Meeting with Kristen Currens, Environmental Manager, and Sara Hastings, Environmental Scientist; MacKay Sposito, Meghan Tait, Wetland/Shoreland Specialist, Washington Department of Ecology; Joy Peplinski, Habitat Biologist, Washington Department of Fish and Wildlife, and Rob Charles, Utilities Manager, City of Camas.

MacKay Sposito. 2025. Shoreline Critical Areas Report. January 22, 2025.

Appendix A – Figures



Data Sources: Basemap by ESRI. City Limits by Clark County. All other data created by MacKay Sposito. 1/8/2025

Camas City Limits
PSA Boundary (1.40 acres)

PSA Location: 45.6006846, -122.4303372

N

0 ¼ ½ ¾ 1 Miles

Figure 1. Vicinity Map

Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. Contours , Top of Bank, and OHWM derived from WDNR 2013. Notes: FWHCA buffers for Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, are modified to 20 feet from the top of slopes exceeding 40% per Camas SMP 5.3.(2)(b). All other data created by MacKay Sposito. 1/22/2025

- White Oak
- Sample Point
- Contour (2 feet)
- Top of Bank
- OHWM
- Oak Canopy Dripline
- PSA Boundary
- Impervious Surfaces
- Stream Buffer (20 feet from TOB)
- Shoreline Jurisdiction (200 feet)
- Camas Biodiversity Area
- Parcel
- Flow Direction

N

0 25 50 75 100 Feet

Figure 2. Existing Conditions

Camas Well 13 PFAS Treatment Design

MacKay Sposito

Data Sources: Basemap by ESRI. Contours , Top of Bank, and OHWM derived from WDNR 2013. All other data created by MacKay Sposito. 2/27/2025
Notes: FWHCA buffers for Washougal River, lots fronting on First Avenue between SE Garfield Street and NE Third Street, are modified to 20 feet from the top of slopes exceeding 40% per Camas SMP 5.3.(2)(b)

- Proposed Design
- Stage 2 Proposed Design
- Removed Impervious Surfaces
- Existing Impervious Surfaces
- Top of Bank
- OHWM
- White Oak
- Oak Canopy Dripline
- PSA Boundary
- Shoreline Jurisdiction (200 feet)
- Stream Buffer (20 feet from TOB)
- Camas Biodiversity Area
- Contour (2 feet)
- Flow Direction

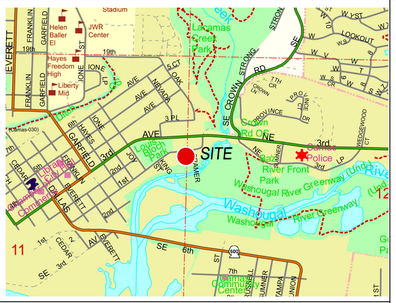
N

0 25 50 75 100 Feet

Figure 3. Proposed Conditions Camas Well 13 PFAS Treatment Design

MacKay Sposito

Appendix B – Site Plan



VICINITY MAP SEC. 11 & 12 T1N R3E W.M.
NTS

SITE PLAN NOTES

EXISTING SITE DATA

PRESENT USE:	CAMAS WELL #13
ADDRESS:	1250 E. 2ST AVENUE, CAMAS, WA 98607
EXISTING ZONING:	MULTIFAMILY RESIDENTIAL-18 (R-18)
GROSS SITE AREA:	PARCEL 90928000 IS 0.38 ACRES (16,553 SF) ACCORDING TO CLARK COUNTY GIS, 0.28 ACRES (12,269 SF) ACORDING TO SURVEY BY MACKAY SPOSITO, INC.
	PARCEL 91031000 IS 0.12 ACRES (5,227 SF) ACCORDING TO CLARK COUNTY GIS, 0.16 ACRES (6,951 SF) ACORDING TO SURVEY BY MACKAY SPOSITO, INC.
	PARCEL 91034000 IS 0.06 ACRES (2,614 SF) ACCORDING TO CLARK COUNTY GIS, 0.06 ACRES (2,755 SF) ACORDING TO SURVEY BY MACKAY SPOSITO, INC.
	THE ENTIRE SITE IS 0.50 ACRES (21,975 SF).

SURROUNDING USES WITHIN 100' OF THE SITE:
NORTH: (ACROSS E. 1ST AVENUE) CHURCH PARKING LOT ON COMMUNITY COMMERCIAL ZONED PROPERTY.
SOUTH: WASHOUGAL RIVER GREENWAY ON MULTIFAMILY RESIDENTIAL-18 PROPERTY.
EAST: SINGLE-FAMILY ATTACHED (TOWNHOME) RESIDENTIAL USES ON MULTIFAMILY RESIDENTIAL-18 PROPERTY.
WEST: SINGLE-FAMILY DETACHED RESIDENTIAL USES ON MULTIFAMILY RESIDENTIAL-18 ZONED PROPERTY.

PROPOSED SITE DATA:

PROPOSED USE:	PFAS TREATMENT FOR WELL #13 AND NEW WELL
WETLAND, STREAM, STEEP BANK BUFFER AREAS/PROTECTED AREAS, AND PLANNED ENHANCEMENT AREAS:	STREAM AND SHORELINE BUFFERS AS SHOWN
PROPOSED PRIVATE ROADS:	NONE PROPOSED
PROPOSED EASEMENTS:	TO BE SHOWN ON FUTURE PLANS AS REQUIRED
PROPOSED ON-SITE ROAD RIGHTS-OF-WAY:	NONE PROPOSED
PROPOSED PEDESTRIAN AND BICYCLE FACILITIES:	NONE PROPOSED
PROPOSED VEHICLE PARKING:	AS SHOWN/EXISTING TO REMAIN
PROPOSED BICYCLE PARKING:	NONE PROPOSED
PROPOSED LOADING ZONES:	NONE PROPOSED
PROPOSED SEPTIC SYSTEMS:	NONE PROPOSED
PROPOSED OPEN SPACE/PARK/RECREATIONAL FEATURES:	NONE PROPOSED
PROPOSED TRANSIT FACILITIES:	NONE PROPOSED
ROAD SEGMENTS IN EXCESS OF 15% ON-SITE OR WITHIN 500' OF THE SITE:	NONE KNOWN
PROPOSED SIGNS:	NONE PROPOSED AT THIS TIME
PROPOSED LIGHTING:	TO BE SHOWN ON LIGHTING PLAN
PROPOSED LOTS, TRACTS, ETC:	NONE PROPOSED
EXISTING BUILDINGS TO REMAIN:	EXISTING WELL BUILDING AS SHOWN
PROPOSED LANDSCAPING (LANDSCAPE PLAN):	TO BE SHOWN ON THE LANDSCAPE PLAN
PROPOSED BUILDINGS:	AS SHOWN
ABOVE-GROUND UTILITIES:	REFER TO CIVIL ENGINEERING PLANS
PROPOSED FENCES:	AS SHOWN

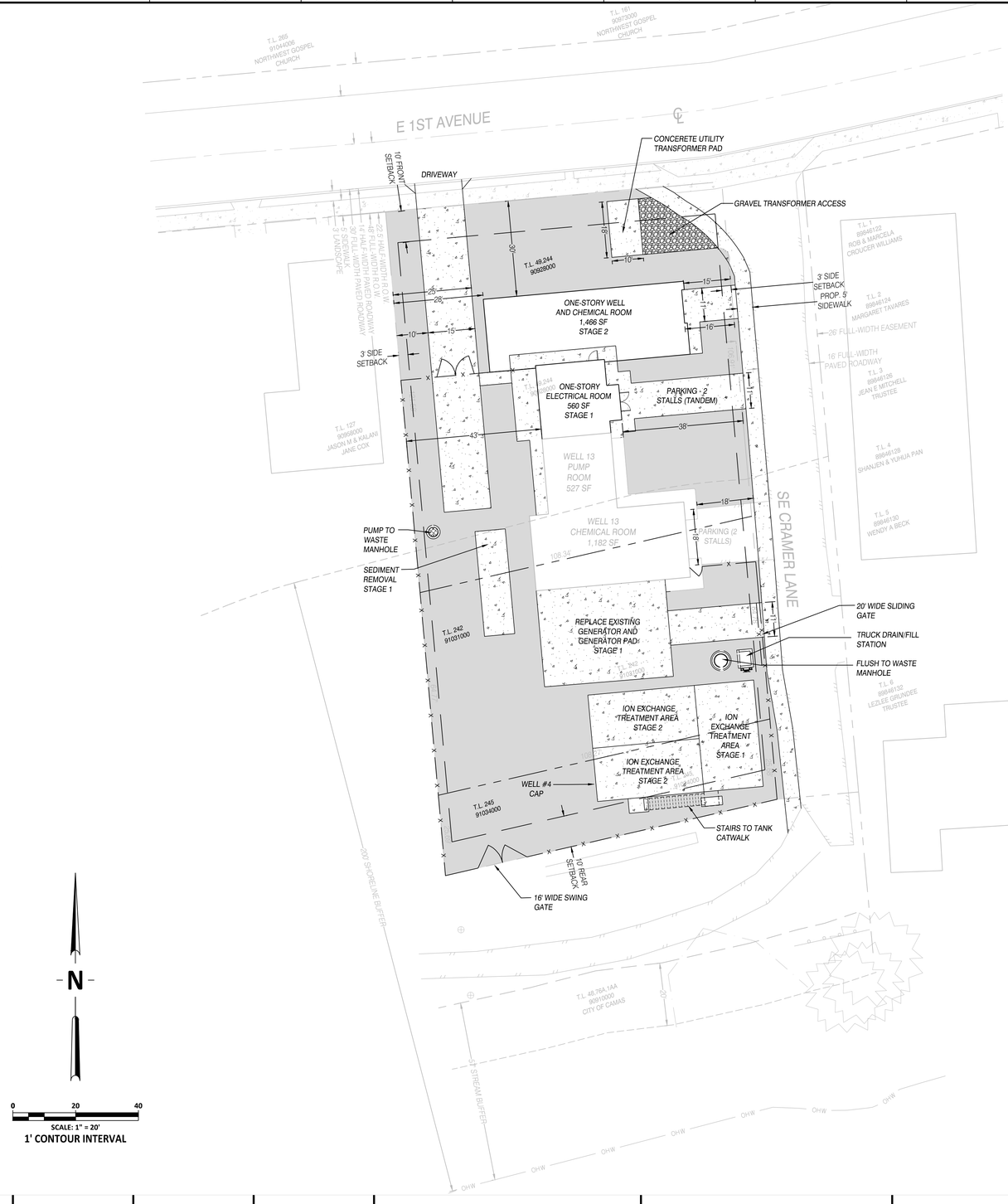
IF ANY CULTURAL OR HISTORICAL RESOURCES ARE DISCOVERED IN THE COURSE OF UNDERTAKING THE DEVELOPMENT ACTIVITY, THE DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION (DAHP) IN OLYMPIA AND CITY OF CAMAS DEVELOPMENT REVIEW SERVICES MUST BE NOTIFIED. FAILURE TO COMPLY WITH THESE STATE REQUIREMENTS MAY CONSTITUTE A CLASS C FELONY SUBJECT TO IMPRISONMENT AND/OR FINES.

SITE PLAN CALCULATIONS

TOTAL SITE AREA	21,975 SF
BUILDING AREA (INCLUDES ALL STAGES)	3,735 SF (17.0%)
LANDSCAPE AREA	10,550 SF (48.0%)
PAVED AREA (INCLUDES ALL STAGES)	7,690 SF (35.0%)

PARKING CALCULATIONS

PARKING REQUIRED	3,735 SF PUBLIC OR PRIVATE UTILITY BUILDING 1 STALL 1,000 SF GROSS FLOOR AREA 3,735 / 1,000 = 4 STALLS
PARKING PROVIDED	4 STANDARD STALLS (2 EXISTING AND 2 PROPOSED)



LEGEND

- EX. CATCH BASIN SQUARE
- EX. STORM CULVERT
- EX. STORM CLEANOUT
- EX. SANITARY MANHOLE
- EX. WATER VALVE
- EX. WATER METER
- EX. BLOWOFF
- EX. FIRE HYDRANT
- EX. HOSE BIB
- EX. GAS VALVE
- EX. UTILITY POLE
- EX. UTILITY POLE WITH DOWN WIRE
- EX. GUY ANCHOR
- EX. ELECTRIC BOX
- EX. ELECTRIC METER
- EX. ELECTRIC TRANSFORMER
- EX. FENCE POST (NO WIRE)
- EX. SIGN
- EX. BOLLARD
- EX. TREE-CONIFER
- EX. TREE-DECIDUOUS
- EX. TREE-CLUMP
- EX. CONCRETE SURFACE
- EX. GRAVEL SURFACE
- PROP. CONCRETE SURFACE
- PROP. GRAVEL SURFACE
- PROP. LANDSCAPE AREA
- EX. BUILDING-FOOTPRINT
- NEW BUILDING FOOTPRINT
- FUTURE BUILDING FOOTPRINT/CONCRETE PAD
- PROP. FENCE
- EX. OFF-SITE BUILDING
- BOUNDARY
- ADJACENT TAX LOTS
- EX. EASEMENT AS NOTED
- CONTOUR
- EX. CURB-VERTICAL
- EX. FENCE-WIRE
- EX. FENCE-WOOD
- EX. OREGON WHITE OAK DRIPLINE
- EX. ORDINARY HIGH WATER MARK (OHWM)
- EX. 150' STREAM BUFFER
- EX. 200' SHORELINE BUFFER
- EX. LANDSCAPE
- EX. ASPHALT
- EX. SIDEWALK
- EX. GRAVEL
- EX. GUARDRAIL
- EX. SANITARY SEWER
- EX. STORM SEWER
- EX. WATER
- EX. ELECTRICAL (OH)
- EX. ELECTRICAL (UG)
- EX. GAS
- EX. COMMUNICATIONS (MISC...)
- EX. COMMUNICATIONS (TV)

REV	DATE	BY	DESCRIPTION
			INTERMEDIATE DESIGN SUBMITTAL NOT FOR CONSTRUCTION

DESIGNED CAROLLO
DRAWN MRO
CHECKED MRO
DATE FEBRUARY 2025

MacKay Sposito — ENERGY PUBLIC WORKS LAND DEVELOPMENT — www.mackaysposito.com

carollo®

City of Camas WASHINGTON

CITY OF CAMAS

CAMAS PFAS EVALUATION & WELL 13 TREATMENT

SITE PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 203101
DRAWING NO. SP1.0
SHEET NO. OF 15

City of Camas PFAS Treatment Equipment Well 13 (CUP25-1002)
Index of Exhibits

Exhibit No.	Title/Description	Document Date
1	Pre-application Notes	1/7/25
2	Narrative	3/10/25
3	Title Report	2/21/24
4	GIS Packet	6/13/24
5	Lighting Specifications	7/8/24
6	Lighting Plan	
7	Landscape Plan	12/2024
8	Preliminary Utility Plan	12/2024
9	Preliminary Grading Plan	
10	Critical Areas Report	1/22/25
11	Site Plans	2/2025
12	Existing Conditions Plan	2/2025
13	Preliminary Stormwater Plan & Preliminary Technical Report (PTIR)	2/20/25
14	Adjacent Site Photos	2/25/25
15	Engineering Estimate	2/26/25
16	Color and Material Sample-Elevations and Materials	2/27/25
17	Building Elevation-Architectural Plans	2/27/25
18	Preliminary Geotechnical Report	3/2025
19	Mailing Labels	3/10/25
20	Palisade Fence Information	3/10/25
21	SEPA Checklist	3/5/25
22	Technically Complete Letter	3/25/25
23	Notice of Application	4/10/25
24	Affidavit of Mailing Notice of Application	4/9/25
25	SEPA Determination of Non-Significance	4/17/25
26	SEPA Distribution Packet	4/17/25
27	Affidavit of Mailing SEPA Determination of Non-Significance	4/16/25
28	Department of Archaeology & Historic Preservation Comment	4/23/25
29	Department of Ecology Comment	4/30/25
30	Development Sign	4/15/25
31	Notice of Public Hearing	5/15/25
32	Affidavit of Mailing Notice of Public Hearing	5/14/25
33	Shoreline Narrative	5/22/25