King County

Department of Local Services-Permitting
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Shoreline Substantial Development Permit Report and Decision

Date of Transmittal: August 4, 2023

SUBJECT: Fall City Wastewater Project – Large Onsite Sewage System (LOSS)

File No: SHOR23-0003

Date of Application: March 16, 2023

Applicant: Department of Local Services
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Project Location: The proposed project elements are located as follows: 1) Replacement of existing septic tanks: up to 46 parcels within the Fall City Business District, in Sections 14 and 15, Township 24N, Range 7E; 2) Pre-treatment facility: parcel outside the Fall City Business District: 4212 34th Pl SE, Fall City, 98024, Parcel # 6730700090, in Section 14, Township 24N, Range 7E; 3) Drainfield: Bernard Memorial Park (4188 Preston-Fall City Road SE, Fall City, WA 98024), Parcel #1424079050, in Sections 14 and 15, Township 24N, Range 7E.

Project Proposal: This wastewater project is primarily a repair project, to replace existing failing septic tank systems on up to 46 parcels in the Fall City Business District (FCBD) with a new decentralized treatment Large Onsite Sewage System (LOSS) and subsurface irrigation reuse/disposal system. The existing lack of adequate wastewater infrastructure limits residents' ability to develop and use their properties and comprises a significant health and environmental hazard.

Request: Shoreline Substantial Development Permit (SSDP)

Water Body: Snoqualmie and Raging Rivers

Shoreline of Statewide Significance: Yes, WAC173-18-210: http://apps.leg.wa.gov/wac/default.aspx?cite=173-18-210

Shoreline Environment: High Intensity Shoreline Environment Designation

BACKGROUND:

The Fall City Business District (FCBD) comprises 62 parcels and a mixture of residential, commercial, mixed use, and vacant properties. Currently, all wastewater produced within the district is disposed of by individual, onsite sewage systems, many of which are too small and lack the capacity to support the current wastewater demand. Some parcels have only a septic tank that drains directly through sandy soils and into the groundwater before ending up in the Snoqualmie River without treatment provided by an

appropriately configured drain field. As of February 2016, King County Public Health estimated that only 14 systems of the 50 parcels with permanent structures were at one time "approved" systems. Due to the lack of adequate and conforming wastewater infrastructure, property and business owners have limited ability to develop and use their land. However, the state of the remaining existing systems continues to pose a risk to public health and environmental hazard. The solution is to construct a decentralized onsite wastewater management system for the district.

Prior to the issuance of this Shoreline Substantial Development Permit (SSDP) report and decision, the complete written record contained in the subject file was reviewed. The record includes the applicant's submittal, notification forms, pertinent information included by Department of Local Services-Permitting (Permitting) staff and all correspondence and comments in response to the proposal.

FINDINGS:

1. The criteria for authorizing shoreline substantial development permits, as set forth in King County Code 21A.25 are incorporated into the findings by this reference. The SSDP is being sought to replace existing failing and nonconforming septic tank systems in the FCBD and to connect them to a new decentralized large onsite sewer system (LOSS) comprised of membrane treatment unit and a subsurface irrigation drain field. The proposed LOSS will be constructed with clearing, grading, and excavation activities within Shoreline Jurisdiction of the Snoqualmie and Raging Rivers. The proposal is an allowed shoreline use through a Shoreline Substantial Development Permit (SSDP).

2. The purpose of the SSDP request is to obtain consistency with the Shoreline Management Act of 1971 (RCW 90.58) and the King County Shoreline Master Program (KCSMP), including relevant regulations.

3. King County Department of Local Services – Permitting Division (Permitting), as lead agency under the State Environmental Policy Act (SEPA), issued a Determination of Non-Significance (DNS) on August 4, 2023, utilizing the Optional SEPA DNS/MDNS Process pursuant to Washington Administrative Code (WAC) 197-11-355. This determination was based on the review of the environmental checklist and other pertinent documents, resulting in the conclusion that the requirements for environmental mitigation have been adequately addressed in the development regulations and comprehensive plans adopted under Chapter 36.70A RCW and in other applicable local, state, or federal laws or rules, as provided by RCW 42.21C.240 and WAC 197-11-158. The County's Comprehensive Plan and Municipal Code include provisions designed to avoid and minimize environmental impacts through design. When impacts are unavoidable, specific mitigation is prescribed by applicable codes and designed to offset impacts. Project-specific conditions of approval may be applied in conjunction with the preliminary subdivision recommendation described herein.

4. The project application was received on March 16, 2023. Plan set dated April 2023 is Attachment B to this Report and Decision.

5. The project will need to be reviewed to comply with the County's Flood Hazard regulations in KCC 21A.24. The River and Floodplain Management Section of the County Department of Natural Resources and Parks will review and determine that the project meets the no rise, compensatory storage, and base flood depth and velocity criteria of KCC 21A.24. A Floodplain Development Permit must be obtained prior to the approval of the final Grading Permit. This

permit is contingent upon the successful approval of both the Floodplain Development and Grading permits.

6. A cultural resources inventory, including background research and subsequent field surveys, was conducted to identify unknown cultural resources and to assess the landscape for its potential to contain additional cultural resources within the Project Area. The field survey included pedestrian, subsurface, and built environment survey, as well as archaeological monitoring during soil survey. There were no archaeological resources, and three National Register of Historic Places (NRHP)-eligible historic-aged properties were identified during the background research. While this study recommends only one property as potentially eligible for the NRHP, the planned construction for this Project will have no adverse effect to the resource. Archaeological resources were not observed during the pedestrian survey or in the 121 shovel test pits excavated for the subsurface survey. In addition, cultural materials were not encountered during the archaeological monitoring of the soil log trench excavations or the archaeological test trenches. The lack of findings warrants no further archaeological fieldwork for the duration of the Project. An Inadvertent Discovery Plan is recommended to account for unanticipated discoveries during construction activities.

7. Soil evaluation was conducted at potential LOSS locations. The applicant provided a soil evaluation memorandum which summarizes the results of the soil evaluations and discusses the feasibility as candidate for a potential community LOSS.

8. The Snoqualmie and Raging Rivers are adjacent to the project site. Both rivers are classified as Type S aquatic areas (Shoreline of the State) by King County's critical area code, KCC 21A.24. KCC 21A.24 is adopted into the SMP by reference per KCC 20.12.200. Type S aquatic areas have a 165-foot (ft) aquatic area buffer extending landward of the ordinary high-water mark (OHWM) plus an additional 15-ft building setback (BSBL).

9. The proposed project is within the High Intensity Shoreline Environment Designation (SED). The purpose of the High Intensity SED is to provide for high intensity water-oriented commercial and industrial uses pursuant to KCC 21A.25.060(C)(1). The proposed shoreline use is a "Utility facility" as described in KCC 21A.25.100(B). Utility facilities are permitted within the High Intensity SED and subject to the following standards in KCC 21A.25.260.

10. The project has elements that will overlap the following critical areas: aquatic buffer area, flood hazard area, seismic hazard area and critical aquifer recharge area. The project will also take place partially within jurisdictional shoreline. Only applicable elements of each policy and code within the King County Comprehensive Plan, K.C.C. 21A.24, and K.C.C. 21A.25, that are relevant to these critical area overlaps, are included in the following narrative.

    Applicable policies from the County's Shoreline Master Program found in Chapter 6 of the Comprehensive Plan include:

    High Intensity Shoreline Environment Management Policies:

    S-501 *A shoreline may be designated High Intensity if the shoreland is characterized by high intensity development or uses or is zoned Neighborhood Business (NB), Commercial Business (CB), Regional Business (RB), Office (O), or Industrial (I), and:*

a. The shoreland does not contain limitations on urban uses, such as geological hazards or flood hazards; and
b. The shoreline does not provide important shoreline ecological processes and functions that would be significantly compromised by high intensity residential, commercial, or industrial use.

S-502 In the High Intensity Shoreline Environment, King County shall give priority to nonresidential land uses that are water-dependent or water-related.

S-503 King County shall discourage non-water-oriented, non-residential land uses in the High Intensity Shoreline Environment. Shoreline mixed-use developments that include and support water dependent uses may be allowed. King County should allow non-water-oriented land uses in the High Intensity Shoreline Environment only in limited situations and only if they do not conflict with or limit opportunities for water-dependent uses or are located on sites where there is no direct access to the shoreline.

S-504 Prior to allowing expansion of a high intensity non-water-oriented use in the shoreline environment, King County shall determine that there is no feasible alternative for locating the expansion outside of the shoreline jurisdiction.

S-505 King County should require visual or physical public shoreline access to be provided whenever feasible in the High Intensity Shoreline Environment.

S-506 King County shall protect the aesthetic character of the shoreline in the High Intensity Shoreline Environment through development regulations, including sign controls, development siting criteria, screening requirements and architectural standards, landscaping requirements and maintenance of natural vegetation.

S-507 King County shall require that the scale and intensity of new uses and development within the High Intensity Environment is compatible with, and protects or enhances, the existing character of the area.

COMMENT: The project is consistent with these management policies as listed above as it will replace existing failing septic tank systems in the FCBD with a new decentralized treatment LOSS and subsurface irrigation reuse/disposal system. The existing lack of adequate wastewater infrastructure limits residents' ability to develop and use their properties and comprises a significant health and environmental hazard. After construction, temporarily disturbed ground in the private parcels and Bernard Park will be restored to pre-construction conditions. Bernard Park's existing grassy habitat will be replaced. The applicant has provided sufficient analysis demonstrating the compliance with sequencing requirements that there is no feasible alternative for locating the expansion outside of the shoreline jurisdiction. All the features would be buried underground; therefore, no visual or physical public shoreline access would be compromised. The proposed system is in the best of public interest in supporting of residents and business owners within the district.

S-601 *King County shall ensure that new uses, development and redevelopment within the shoreline jurisdiction do not cause a net loss of shoreline ecological processes and functions.*
COMMENT: This project will not cause a net loss and will improve shoreline ecological processes and functions. Only a portion of the project will fall within shoreline jurisdiction. There are no permanent, adverse impacts to shorelines from the proposed project. At the septic

site replacements, similar landscaping and gravel will be planted or placed over the fill to restore any temporary impacts. No mitigation will be necessary because vegetated surface will be the same after construction. Restoration of the disturbed areas will restore the original functions and values in the buffer that were present prior to construction.

Applicable regulations from the King County Code (KCC 21A.24, and 21A.25) are as follows:

21A.25.080. Sequence of mitigation measures – priority. *A. Mitigation measures shall be applied in the following sequence of steps listed in order or priority, with subsection A.1. of this section being top priority:*

1. *Avoiding the impact altogether by not taking a certain action or parts of an action;*

COMMENT: Only actions necessary to complete the project will be taken.

2. *Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;*

COMMENT: Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts.

3. *Rectifying the impact by repairing, rehabilitating or restoring the affected environment;*

COMMENT: All areas disturbed by the project will be restored to pre-construction or better condition.

4. *Reducing or eliminating the impact over time by preservation and maintenance operations;*

COMMENT: Maintenance and operation of the system will have no additional impacts over time.

5. *Compensating for the impact by replacing, enhancing or providing substitute resources or environments; and*

COMMENT: There are no permanent impacts requiring compensation.

6. *Monitoring the impact and the compensation projects and taking appropriate corrective measures.*

COMMENT: Restored vegetation will be monitored for establishment and development. If grass seed does not satisfactorily reestablish, the County or contractor will take remedial action and reassess the following growing season.

B. In determining appropriate mitigation measures applicable to shoreline development, lower priority measures shall be applied only where higher priority measures are determined to be infeasible or inapplicable.

COMMENT: The mitigation measures' priorities will be followed as stipulated in KCC 21A.25. 080.

C. Mitigation shall be designed to:

1. *Achieve no net loss of ecological functions for each new development;*

COMMENT: Restoration to pre-construction or better conditions will result in a no net loss of ecological function.

2. *Not require mitigation in excess of that necessary to assure that the development will result in no net loss of shoreline ecological functions; and*

COMMENT: Only mitigation required to restore pre-construction or better conditions will be applied.

3. *Not result in a significant adverse impact on other shoreline ecological functions.*

COMMENT: There will no loss of shoreline ecological functions.

D. When compensatory measures are appropriate under the mitigation priority sequence in subsection A. of this section, preferential consideration shall be given to measures that replace the impacted functions directly and in the immediate vicinity of the impact. The department may approve alternative compensatory mitigation within the watershed if the mitigation addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive resource management plans applicable to the area of impact. The department may require appropriate safeguards, terms or conditions as necessary to ensure no net loss of shoreline ecological functions as conditions of approval for compensatory mitigation measures.

COMMENT: Compensatory mitigation is not required.

21A.25.160. Shoreline modification. *B. Shoreline modification table.*

COMMENT: The shoreline environment is High Intensity and applicable activities are fill and excavation.

C.4. Fill: Fill meets the standards specified in K.C.C. 21A.25.190. A. B. C. Excavation, dredging, dredge material disposal and filling. A conditional use permit as specified in K.C.C. 21A.44.100 Shoreline conditional use, will not be required.

C.6. Excavation: Fill meets the standards specified in K.C.C. 21A.25.190. A. B. C. Excavation, dredging, dredge material disposal and filling. A conditional use permit as specified in K.C.C. 21A.44.100 Shoreline conditional use, will not be required.

21A.25.190. Excavation, dredging, dredge material disposal and filling. *Excavation, dredging, dredge material disposal and filling may be permitted only as follows:*

A. *Fill or excavation landward of the ordinary high water mark shall be subject to K.C.C. chapters 16.82 and 21A.24;*

COMMENT: The fill and excavation meet the applicable sections of K.C.C 16.82 Clearing and grubbing, and K.C.C. 21A.24 Critical Areas.

B. *Fill may be permitted below the ordinary high water mark only:*
   1. When necessary to support a water dependent use;
   2. To provide for public access;
   3. When necessary to mitigate conditions that endanger public safety, including flood risk reduction projects;
   4. To allow for cleanup and disposal of contaminated sediments as part of an interagency environmental cleanup plan;

5. To allow for the disposal of dredged material considered suitable under, and conducted in accordance with, the dredged material management program of the Washington state Department of Natural Resources;
6. For expansion or alteration of transportation or utility facilities currently located on the shoreline and then only upon demonstration that alternatives to fill are not feasible; or
7. As part of mitigation actions, environmental restoration projects and habitat enhancement projects;

COMMENT: There will be no fill below the ordinary high water mark.

C. Fill or excavations shall be permitted only when technical information demonstrates water circulation, littoral drift, aquatic life and water quality will not be substantially impaired and that the fill or excavation will not obstruct the flow of the ordinary high water, flood waters or cutoff or isolate hydrolic features from each other;

COMMENT: There is no in-water or work that would affect flows or water quality.

***21A.25.260. New utility facilities and repair and replacement of existing utility facilities**. New utility facilities and repair and replacement of existing utility facilities may be permitted subject to the general requirements of this chapter, as follows:*

A. To the maximum extent practical, new utility and transmission facilities shall:

1. Avoid disturbance of unique and fragile areas;

COMMENT: No unique or fragile areas will be disturbed.

2. Avoid disturbance of wildlife spawning, nesting and rearing areas;

COMMENT: These resources will not be disturbed.

3. Overhead utility facilities shall not be permitted in public parks, monuments, scenic recreation or historic areas;

COMMENT: Not applicable.

4. Avoid changing groundwater patterns and hyporheic flows that support streams and wetlands;

COMMENT: Groundwater patterns and hyporheic flows will not be changed.

5. Not be located within the Natural shoreline unless the utility is low-intensity; and

COMMENT: Project is not within the natural shoreline.

6. Avoid locating new utility and transmission facilities in tidelands or in or adjacent to the Maury Island aquatic reserve;

COMMENT: Not applicable.

B. New utility distribution and transmission facilities shall be designed to:

1. Be located outside the shoreline jurisdiction where feasible;

COMMENT: Five replacement septic tanks, associated piping, a bore pit, and part of the drain field will be with the shorelands. The ground surface will be restored to pre-disturbance conditions.

2. Be located within existing rights of way and utility corridors where feasible;

COMMENT: Existing ROWs will not be used to the extent possible.

3. Minimize visual impact;
COMMENT: There will be minimal visual impacts; almost all project features are below ground, and surfaces will be restored to pre-existing conditions.

4. Harmonize with or enhance the surroundings;
COMMENT: The project will harmonize with the existing surroundings conditions.

5. Not create a need for shoreline protection; and
COMMENT: Shoreline protection will not be required.

6. To the maximum extent practical, use natural screening;
COMMENT: Screening will not be required.

C. To the maximum extent practical the construction, repair, replacement and maintenance of utility facilities shall:
1. Maximize the preservation of natural beauty and the conservation of resources;
COMMENT: Natural resources will be preserved.

2. Minimize scarring of the landscape;
COMMENT: Soil surface will be restored.

3. Minimize siltation and erosion;
COMMENT: Appropriate BMPs will be installed.

4. Protect trees, shrubs, grasses, natural features and topsoil from drainage; and
COMMENT: These features will be protected using BMPs.

5. Avoid disruption of critical aquatic and wildlife stages;
COMMENT: Activities will occur in the 165-foot aquatic buffer of the Snoqualmie River. There are no permanent impacts.

D. Rehabilitation of areas disturbed by the construction, repair, replacement or maintenance of utility facilities shall:
1. Be accomplished as rapidly as possible to minimize soil erosion and to maintain plant and wildlife habitats; and
COMMENT: Rehabilitation will be completed as soon as practicable after construction.

2. Use plantings compatible with the native vegetation;
COMMENT: Vegetation will match existing residential/park vegetation.

E. Solid waste transfer stations shall only be permitted within the High Intensity shoreline environment; and
COMMENT: not applicable.

F. Utility production and processing facilities, such as power plants and sewage treatment plants, are not allowed within the shoreline jurisdiction.
COMMENT: The pre-treatment facility is located outside of Shoreline Jurisdiction.

21A.24.045 Allowed alterations. Certain critical area alterations applicable to this project are allowed in aquatic areas as described in 21A.24.045.C. These include: 1) Construction of a new residential utility service distribution line (32, 60), 2) Maintenance, repair or replacement of utility corridor or utility facility (32, 34, 36), and 3) Construction of a new onsite sewage disposal system or well (63).
COMMENT: Project features taking place in the aquatic buffer are allowed alterations.

Alteration conditions applicable to the allowed alteration include 32. *Allowed in an existing roadway if conducted consistent with the regional road maintenance guidelines.*
COMMENT: Project construction will follow regional road maintenance guidelines.

Alteration conditions applicable to the allowed alteration include 33. *Allowed outside the roadway if:*
a. the alterations will not subject the critical area to an increased risk of landslide or erosion
b. vegetation removal is the minimum necessary to locate the utility or construct the corridor
COMMENT: The project will install appropriate erosion controls. Clearing will be restricted to the minimum necessary for project installation.

Alteration conditions applicable to the allowed alteration include 34. *Limited to the pipelines, cables, wires and support structures of utility facilities within utility corridors if:*
a. there is no alternative location with less adverse impact on the critical area and critical area buffer.
COMMENT: Utilities are located where needed for operational purposes. The tanks requiring replacement are within aquatic buffer and thus must be replaced at those locations. An alternatives analysis identified potential sites for the project drain field. The site chosen at Bernard Park was based on analysis of what would create the least adverse impact to critical areas and based on a series of community meetings with FCBD property owners. The Bernard Park site and treatment type was chosen based on the advantages, disadvantages, environmental concerns, permitting, expandability, capital costs, and operations and maintenance costs of each alternative.

b. new utility corridors meet all of the following to the maximum extent practical:
(1) are not located over habitat used for salmonid rearing or spawning or by a species listed as endangered or threatened by the state or federal government unless the department determines that there is no other feasible crossing site
(2) the mean annual flow rate is less than twenty cubic feet per second
(3) paralleling the channel or following a down-valley route near the channel is avoided
COMMENT: All are met. No salmonid habitat is impacted.

c. to the maximum extent practical utility corridors are located so that:
(1) the width is the minimized.
COMMENT: The project will use the narrowest trench needed for construction.

(2) the removal of trees greater than twelve inches diameter at breast height is minimized.
COMMENT: No tree removal will occur in critical areas.

(3) an additional, contiguous and undisturbed critical area buffer, equal in area to the disturbed critical area buffer area including any allowed maintenance roads, is provided to protect the critical area.

COMMENT: No permanent impacts will occur within aquatic buffer. The buffer habitat is currently disturbed habitat. Temporarily disturbed lawn will be replaced with lawn.

d. to the maximum extent practical, access for maintenance is at limited access points into the critical area buffer rather than by a parallel maintenance road. If a parallel maintenance road is necessary, the following standards are met.
COMMENT: No maintenance road will be placed in critical areas. The project's permanent features are designed to avoid the aquatic buffer.

e. the utility corridor or facility will not adversely impact the overall critical area hydrology or diminish flood storage capacity.
COMMENT: No effect on hydrology or floodway elevations will occur from the project. The project is intended to improve water treatment and thus may have a positive effect on local groundwater quality.

f. the construction occurs during approval periods for instream work.
COMMENT: No instream work will occur.

g. the utility corridor serves multiple purposes and properties to the maximum extent practical.
COMMENT: No utility corridor will be placed in critical areas.

h. bridges or other construction techniques that do not disturb the critical areas are used to the maximum extent practical.
COMMENT: Disturbance will be temporary and short-term; construction has been designed to avoid as much aquatic buffer as possible.

i. bored, drilled or other trenchless crossing is laterally constructed at least four feet below the maximum depth of scour for the base flood.
j. bridge piers or abutments for bridge crossing are not placed within the FEMA floodway or the ordinary high water mark.
COMMENT: No crossings are involved.

k. open trenching is only used during low flow periods or only within aquatic areas when they are dry. The department may approve open trenching of type S or F aquatic areas only if there is not a feasible alternative and equivalent or greater environmental protection can be achieved;
COMMENT: Trenching in the aquatic area will not be used during periods of flooding.

l. minor communication facilities may collocate on existing utility facilities if:
COMMENT: Communication facilities will not be constructed.

Alteration conditions applicable to the allowed alteration include 36. *Allowed for onsite private individual utility service connections or private or public utilities if the disturbed area is not expanded and no hazardous substances, pesticides or fertilizers are applied.*
COMMENT: There will be no expansion of permanently disturbed areas. No hazardous substances, pesticides, or fertilizers will be applied.

Alteration conditions applicable to the allowed alteration include 63. *Not allowed in the severe channel migration zone, there is no alternative location with less adverse impact on the critical area and buffer and clearing is minimized to the maximum extent practical.*

COMMENT: There are no project activities in the severe channel migration zone.

21A.24.125 Avoiding impacts to critical areas. Project planning and design followed the guidance in this section to minimize and avoid impacts to critical areas and buffers. *21A.24.125 A. An applicant for a development proposal or alteration, shall apply the following sequential measures, which appear in order of priority, to avoid impacts to critical areas and critical area buffers:*
1. Avoiding the impact or hazard by not taking a certain action.
COMMENT: Only required elements are included.

2. Minimizing the impact or hazard by:
a. limiting the degree or magnitude of the action with appropriate technology.
COMMENT: Up to date technology will be used for construction. Project is intended to update outdated sewer system elements.

b. taking affirmative steps, such as project redesign, relocation or timing.
COMMENT: Construction locations related to tank replacements are dictated by existing facilities. The pre-treatment facility was relocated from proposed locations to be positioned on the selected parcel outside of mapped 100-year floodplain and Shoreline Jurisdiction. The drain field was positioned on the Bernard Park parcel to avoid any permanent features within the aquatic buffer.

3. Rectifying the impact to critical areas by repairing, rehabilitating or restoring the affected critical area or its buffer.
COMMENT: All temporary impacts will be restored to pre-existing conditions. Temporary impacts to aquatic buffer in the drain field area will improve upon buffer habitat by replacing graveled ground with grass cover.

4. Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods.
COMMENT: Disturbed areas will be restored using engineering principles.

5. Reducing or eliminating the impact or hazard over time by preservation or maintenance operations during the life of the development proposal or alteration.
COMMENT: Maintenance will ensure restored vegetation is healthy and well-established. Project plans require the contractor engineer to restore disturbed areas with topsoil and seeding, coordinate with owner for irrigation and lawn establishment outside the drain field, and provide field quality control at the drain field and treatment area by monitoring for satisfactory reseeding.

6. Compensating for the adverse impact by enhancing critical areas and their buffers or creating substitute critical areas and their buffers.
COMMENT: No adverse impacts will occur to floodplain or aquatic buffer that require compensatory mitigation.

7. Monitoring the impact, hazard or success of required mitigation and taking remedial action.
COMMENT: Restored vegetation will be monitored for establishment and development. If grass seed does not satisfactorily reestablish, the engineer or contractor will take remedial action and reassess the following growing season.

21A.24.130 Mitigation and Monitoring. *A. If mitigation is required under this chapter to compensate for adverse impacts, unless otherwise provided, an applicant shall:*
1. Mitigate adverse impacts to:
a. critical areas and their buffers; and
b. the development proposal as a result of the proposed alterations on or near the critical areas; and
2. Monitor the performance of any required mitigation.
COMMENT: This project will not have any permanent adverse impacts requiring mitigation. There are limited temporary impacts that will occur during construction, but restoration activities will serve as mitigation for those impacts. Section 21A.24.130 therefore does not apply to this project.

21A.24.365 Aquatic areas – development standards and alterations. The following development standards apply to development proposals and alterations on sites containing aquatic areas or their buffers:
A. Unless allowed as an alteration exception under K.C.C. 21A.24.070, only the alterations identified in K.C.C. 21A.24.045 are allowed in aquatic areas and aquatic area buffers.
COMMENT: The project uses are allowed in aquatic area buffers.

B. Grading for allowed alterations in aquatic area buffers is only allowed from May 1 to October 1. This period may be modified when the department determines it is necessary along marine shorelines to protect critical forage fish and salmonid migration or as provided in K.C.C. 16.82.095.
COMMENT: Grading time restrictions will be followed to the extent practicable. The Temporary Erosion Control Plan requires stockpiled soil to be covered if left in place for more than 24 hours.

C. The moisture-holding capacity of the topsoil layer on all areas of the site not covered by impervious surfaces should be maintained by:
1. Minimizing soil compaction.
COMMENT: Project will minimize soil compaction by limiting construction equipment usage to identified areas.

2. Reestablishing natural soil structure and the capacity to infiltrate.
COMMENT: Compaction reduction, such as subsoiling, will be used if needed.

D. New structures within an aquatic area buffer should be sited to avoid the creation of future hazard trees and to minimize the impact on groundwater movement.
COMMENT: Project facilities will not interfere with groundwater movement. No structures will be built in aquatic buffers.

E. To the maximum extent practical:
1. The soil duff layer should not be disturbed, but if disturbed, should be redistributed to other areas of the project site where feasible;
2. A spatial connection should be provided between vegetation within and outside the aquatic area buffer to prevent creation of wind throw hazards; and
3. Hazard trees should be retained in aquatic area buffers and either topped or pushed over toward the aquatic area; and

COMMENT: Current area to be disturbed in aquatic buffer is seeded lawn or gravel. There is no duff layer being disturbed.

F. If a restoration, enhancement or mitigation project proposes to place large woody debris waterward of the ordinary high water mark of a Type S aquatic area, the applicant shall consider the potential for recreational hazards in project design.
COMMENT: No woody debris waterward of the ordinary high water mark is being proposed.

21A.24.380 Aquatic areas – specific mitigation requirements. *A. Mitigation measures must achieve equivalent or greater aquatic area functions including, but not limited to:*

1. Habitat complexity, connectivity and other biological functions;
2. Seasonal hydrological dynamics, water storage capacity and water quality; and
3. Geomorphic and habitat processes and functions;

COMMENT: There will be no adverse impacts to the aquatic buffer that require mitigation. Temporary impacts will be restored. Gravel being replaced with grass cover will improve habitat and water quality filtering functions at the drain field where work overlaps the aquatic buffer. There will be no change in water storage within the aquatic area or floodplain. Groundwater quality connected to the Snoqualmie and raging rivers will improve with the project improving aquatic habitat functions.

B. To the maximum extent practical, permanent alterations that require restoration or enhancement of the altered aquatic area, aquatic area buffer or another aquatic area or aquatic area buffer must consider the following design factors, as applicable to the function being mitigated:

...
5. Similar vegetation species diversity, size and densities in the channel, sea bed or lake bottom and on the riparian bank or buffer;
COMMENT: Vegetation will be replaced to match surrounding conditions.

21A.24.250 Zero-rise floodway – development standards and alterations. The following development standards apply to floodplain development and alterations on sites within the zero-rise floodway:
B. Floodplain development shall not increase the base flood elevation. The applicant shall perform an analysis to demonstrate that here will be no increase in the base flood elevation in accordance with Section 4.4.2 of the King County Surface Water Design Manual. The director may make an exception if appropriate legal documents are prepared and recorded in which all property owners affected by the increased flood elevations consent to the impacts on their property;
COMMENT: All floodplain elevations will be restored to pre-development conditions.

D. When post or piling foundation construction techniques are not used, a critical areas report is required in accordance with K.C.C. 21A.24.110 demonstrating that the proposal will not increase the base flood elevation;
COMMENT: The report was prepared describing no increase to base flood elevation.

E. During the flood season from September 30 to May 1 the following are not allowed in the zero-rise floodway;

2. Staging or stockpiling of equipment, materials or substances that the director determines may be hazardous to the public health, safety or welfare except for those used for agricultural activities and domestic household use;
COMMENT: These will not be stockpiled in the zero-rise floodway.

G. New and replacement infrastructure or utilities are only allowed if:
1. The department determines that a feasible alternative site is not available; and
2. A waiver is granted by the Seattle-King County department of public health for new on-site sewage disposal facilities;
COMMENT: Project will meet King County and Department of Health permitting requirements.

21A.24.271 Floodplain development permit. Before initiating any new floodplain development, the person proposing the development shall obtain a floodplain development permit from King County. Exceptions to other permit requirements do not apply to floodplain development. The applicant shall ensure that all necessary permits have been obtained from those federal, state or local government agencies from which prior approval is required.
COMMENT: The floodplain permit will be obtained prior to approval of the construction permit.

21A.24.290 Seismic hazard areas - development standards and alterations. The following development standards apply to development proposals and alterations on sites containing seismic hazard areas:
A. The department may approve alterations to seismic hazard areas only if:
1. The evaluation of site-specific subsurface conditions shows that the proposed development site is not located in a seismic hazard area; or
2. The applicant implements appropriate engineering design based on the best available engineering and geological practices that either eliminates or minimizes the risk of structural damage or injury resulting from seismically induced settlement or soil liquefaction; and
B. The department may waive or reduce engineering study and design requirements for alterations in seismic hazard areas for:
1. Mobile homes;
2. Additions or alterations that do not increase occupancy or significantly affect the risk of structural damage or injury; and
3. One story buildings with less than two-thousand-five hundreds square feet of floor area or roof area, whichever is greater, and that are not dwelling units or used as places of employment or public assembly.
COMMENT: No occupied above-ground structures will be constructed in seismic hazard areas as part of the project. An approximately 500 square foot machine room associated with the treatment facility will not be occupied.

21A.24.316 Critical aquifer recharge areas - development standards. The following development standards apply to development proposals and alterations on sites containing critical aquifer recharge areas:
B. Except as otherwise provided in subsection H. of this section, the following new development proposals and alterations are not allowed on a site located in a category II critical aquifer recharge area:
9. On lots smaller than one acre, an on-site septic system, unless:
a. the system is approved by the Washington state Department of Health and has been listed by the Washington state Department of Health as meeting treatment standard N as provided in WAC chapter 426-272A; or

b. the Seattle-King County department of public health determines that the systems required under subsection B.9.a. of this section will not function on the site.
COMMENT: The project will be approved by the Washington State Department of Health.

OTHER CONSIDERATIONS:

1. The subject SSDP Notice of Application (NOA) describing the proposal was posted on the subject property on April 10, 2023; published in the Seattle Times on April 12, 2023, and the Snoqualmie Valley Record on April 14, 2023. The public notice describing the SSDP proposal was mailed to property owners within a 500-foot radius of the subject property on April 12, 2023. The Department of Local Services received several supporting comments from the public.

2. The subject SSDP application will be implemented through a grading permit, a floodplain review permit and a building permit from Permitting.

CONCLUSIONS:

1. The proposed LOSS is permitted within the High Intensity SED.

2. The application and supporting documentation for the SSDP provide a sufficient level of information from which to establish conditions to ensure that the proposed project will be compatible with the surrounding environment and meet the goals and regulations of the Shoreline Management Act and King County Shoreline Master Program.

3. The applicant has provided sufficient information to support the proposed project design as the most favorable for limiting adverse impacts to the environment.

4. Provided the conditions listed below are implemented, granting of this permit will comply with the Shoreline Management Act and the King County Shoreline Master Program.

5. The approval of the LOSS, as designed and conditioned, is in the public interest as it will provide benefit to the residents and business owners within FCBD.

ACTION:

APPROVE Shoreline Substantial Development Permit No. SHOR23-0003 subject to the following conditions:

1. Nothing in this permit shall be construed as excusing the applicant from compliance with any federal, state, or local statutes, ordinances, or regulations applicable to this project other than the permit requirements of the Shoreline Management Act of 1971.

2. This permit may be rescinded pursuant to the Shoreline Management Act of 1971 in the event the permittee fails to comply with any conditions thereof.

3. Construction pursuant to this permit may not begin or be authorized until twenty-one (21) days from the date of filing the final order of King County with the Department of Ecology or the Attorney General; or until all review proceedings initiated within twenty-one (21) days from the date of such filing have been terminated.

4. TIME REQUIREMENTS OF THE PERMIT (WAC 173-27-090). The following requirements shall apply to all permits:

    a. Upon a finding of good cause, based on the requirements and circumstances of the project proposed and consistent with the policy and provisions of the master program and the act, local government may adopt appropriate time limits as a part of action on a substantial development permit and local government, with the approval of the department, may adopt appropriate time limits as a part of action on a conditional use or variance permit: "Good cause based on the requirements and circumstances of the project," shall mean that the time limits established are reasonably related to the time actually necessary to perform the development on the ground and complete the project that is being permitted, and/or are necessary for the protection of shoreline resources.

    b. Where neither local government nor the department include specific provisions establishing time limits on a permit as a part of action on the permit, the following time limits shall apply:

        i. Construction shall be commenced or, where no construction is involved, the use or activity shall be commenced within two years of the effective date of a shoreline permit. Provided, that local government may authorize a single extension for a period not to exceed one year based on reasonable factors, if a request for extension has been filed before the expiration date and notice of the proposed extension is given to parties of record and the department.

        ii. Authorization to conduct development activities shall terminate five years after the effective date of a shoreline permit. Provided, that local government may authorize a single extension for a period not to exceed one year based on reasonable factors, if a request for extension has been filed before the expiration date and notice of the proposed extension is given to parties of record and the department.

        iii. The effective date of a shoreline permit shall be the date of the last action required on the shoreline permit and all other government permits and approvals that authorize the development to proceed, including all administrative and legal actions on any such permit or approval. It is the responsibility of the applicant to inform the local government of the pendency of other permit applications filed with agencies other than the local government and of any related administrative and legal actions on any permit or approval. If no notice of the pendency of other permits or approvals is given to the local government prior to the date established by the shoreline permit or the provisions of this section, the expiration of a permit shall be based on the shoreline permit.

        iv. When permit approval is based on conditions, such conditions shall be satisfied prior to occupancy or use of a structure or prior to commencement of a nonstructural activity: Provided, that an alternative compliance limit may be specified in the permit.

        v. Revisions to permits under WAC 173-27-100 may be authorized after original permit authorization has expired under subsection (ii) of this section: Provided, that this procedure shall not be used to extend the original permit time requirements or to authorize substantial development after the time limits of the original permit.

vi. Local government shall notify the department in writing of any change to the effective date of a permit, as authorized by this section, with an explanation of the basis for approval of the change. Any change to the time limits of a permit other than those authorized by this section shall require a new permit application.

5. Construction shall occur in general conformance to the project plans and information provided by the applicant on plans dated April 2023, and following, except as modified by conditions of approval contained herein or as otherwise approved by Permitting.

6. Any substantive changes to the approved shoreline plans may require the applicant to obtain a new shoreline permit or a revision to this shoreline permit pursuant to WAC 173-27-100.

7. This project shall be constructed in a manner consistent with the King County Shoreline Master Program and regulations.

8. Erosion and sedimentation controls and Best Management Practices as found in the King County Surface Water Design Manual shall be implemented and maintained during construction of this project.

9. The project shall be constructed and operate in conformance with the King County Surface Design Manual and KCC Title 9. Permitting shall review the project for conformance prior to issuance of a grading permit.

10. The project shall be constructed and operate in conformance with KCC Title 16, KCC 21A.24, and KCC 21A.25. Permitting shall review the project for conformance prior to issuance of a grading permit.

11. A Floodplain Development Permit must be obtained prior to the approval of the final Grading Permit.

12. All human-made debris from the project within the construction zone shall be removed and disposed of at a location licensed for such disposal.

13. A copy of the approved plans shall be kept onsite at all times during construction.

14. The applicant shall provide an Inadvertent Discovery Plan prior to the approval of the final Grading Permit.

15. This project requires approval from other governmental agencies, including but not limited to, any conditions of a Large Onsite Sewage System Approval and Operating Permit from Washington State Department of Health, or National Pollutant Discharge Elimination System Construction Stormwater General Permit, shall be considered conditions of the grading permit for this project.

NOTE: This decision may be appealed to the State Shoreline Hearings Board. Information on appeal procedures may be obtained from the Shoreline Hearings Board at (360) 664-9160 or the Washington State Department of Ecology Shoreline Appeals Coordinator at (360) 407-6528. Requests for review by the Hearings Board must be received by the Shoreline Hearings Board within twenty-one (21) days of the "date of filing." "Date of filing" of a local government final decision involving approval or denial of a substantial development permit is the date of actual receipt by the department of a local government's final decision on the permit.

Ty Peterson, Product line Manager - Commercial

Digitally signed by Ty Peterson, Product line Manager - Commercial
DN: C=US, E=ty.peterson@kingcounty.gov, O="King County, WA", OU=Department of Local Services - Permitting, CN="Ty Peterson, Product line Manager - Commercial"
Date: 2023.08.04 08:23:16-07'00'

Ty Peterson, Commercial Product Line Manager
King County Department of Local Services-Permitting

8/4/2023
Date of signature

ATTACHMENTS:

Attachment A – Parties and Persons of Interest
Attachment B – Plan Set dated April 2023

TRANSMITTED to the Parties and Persons of Interest listed in Attachment A

ATTACHMENT A

TRANSMITTED TO THE FOLLOWING PARTIES OF RECORD FOR SHOR23-0003:

Shorelands & Environmental Assistance Program, Department of Ecology
3190 160th Ave SE, Bellevue WA 98008-5452

Office of the Attorney General, Temple of Justice Ecology Division
PO Box 40117 Olympia WA 98504-0117

Ty Peterson, KC Permitting Commercial Product Line Manager

Greg Goforth, KC Permitting Environmental Planner, Residential Product Line

John Scanlon, KC Permitting Senior Engineer, Commercial Product Line

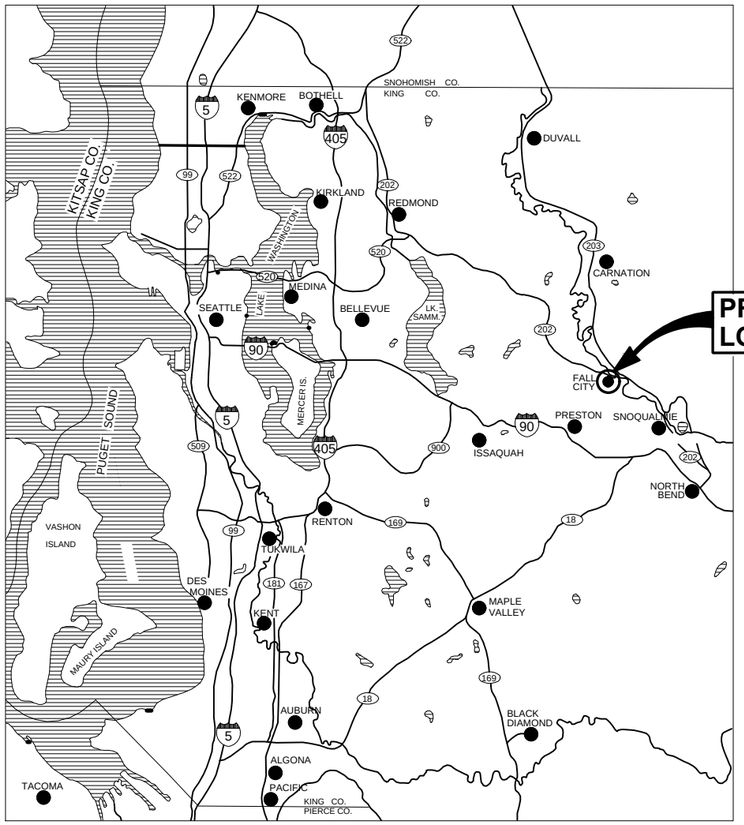
Tracy Cui, Project/Program Manager IV, Commercial Product Line

Jeff Wilson, KC Department of Local Services, Applicant

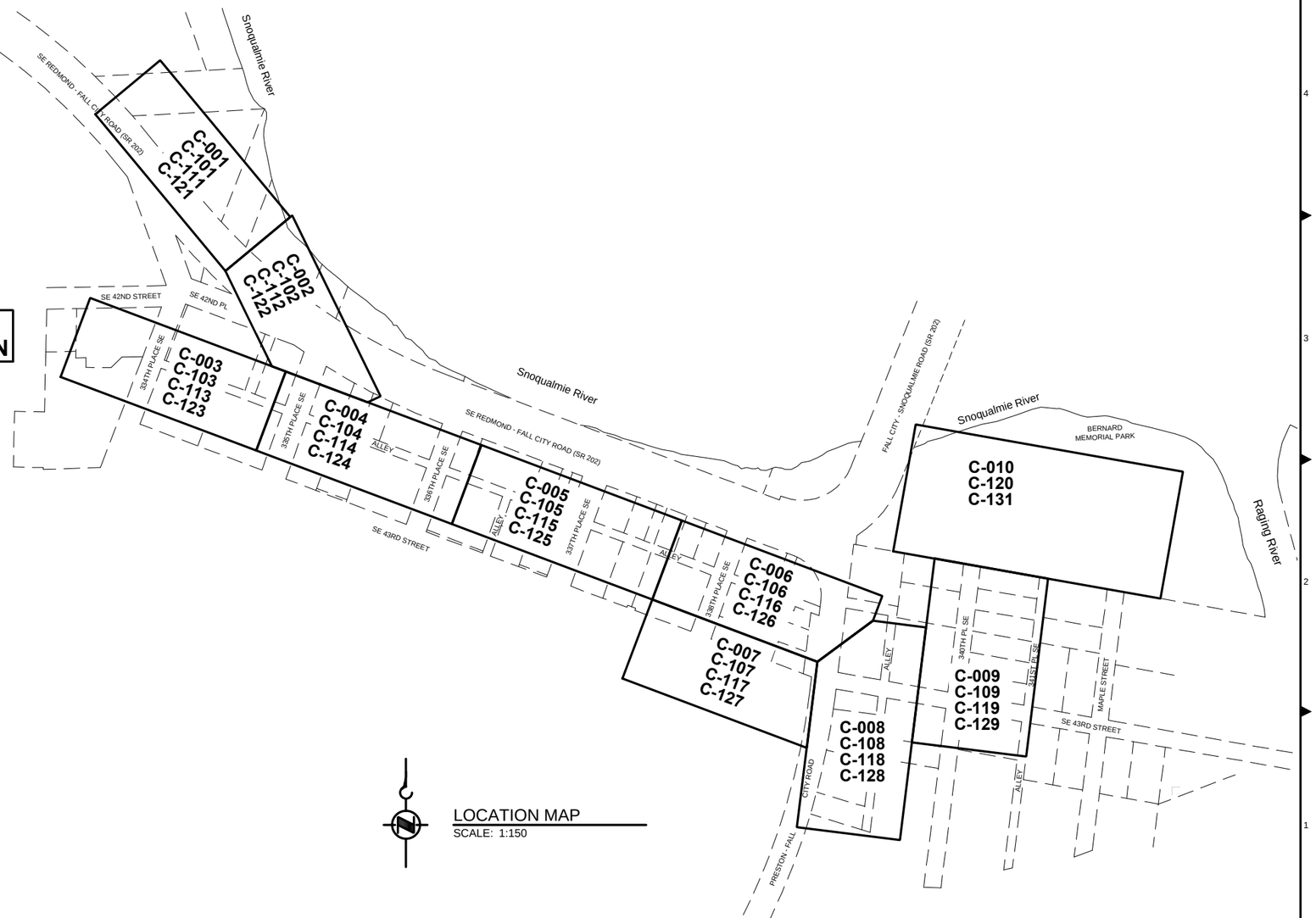
Full Name	E-mail	Phone 1	Organization	Address Line 1	Address Line 2	City	State	Zip Code
Ralph Bell		4256520126		PO Box 117		Fall City	WA	98024
Kelly Coughlin	kelly@snovalley.org	4258886362	SnoValley Chamber of Commerce	PO Box 357		North Bend	WA	98045
Todd Gray	toddgray@tulaliptribes-nsn.gov	3607164620	The Tulalip Tribes				WA	
Kirk Harris			Fall City Metropolitan Park District	PO Box 1180		Fall City	WA	98024
Teresa Kluver	tkluver@comcast.net	4254431115		32803 SE 44th Street		Fall City	WA	98024
Kurt Nelson	knelson@tulaliptribes-nsn.gov		The Tulalip Tribes				WA	
Charlotte Noel	october57rain@yahoo.com	4252137888		31929 SE 44th Street		Fall City	WA	98024
Martin Wheeler				4489 334th Place SE	PO Box 116	Fall City	WA	98024

Attachment B

KING COUNTY
2021 FALL CITY WASTEWATER PROJECT
FALL CITY, WASHINGTON
PROJECT NUMBER: KC000126



VICINITY MAP
SCALE: NONE



LOCATION MAP
SCALE: 1:150

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: NONE
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

COVER SHEET
VICINITY AND LOCATION MAPS

DATE: APRIL 2023
DRAWING NO: **G-001**
SHT NO 1 / TOTAL 56 | REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Mar 30, 2023-09:23:09pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg
IMAGES:

SHT NO.	DWG NO.	TITLE
GENERAL		
1	G-001	COVER SHEET, VICINITY AND LOCATION MAPS
2	G-002	DRAWING INDEX
3	G-003	CIVIL GENERAL NOTES, LEGEND AND SYMBOLS
CIVIL		
4	C-001	EXISTING CONDITION 1
S	C-002	EXISTING CONDITION 2
6	C-003	EXISTING CONDITION 3
7	C-004	EXISTING CONDITION 4
8	C-00S	EXISTING CONDITION S
9	C-006	EXISTING CONDITION 6
10	C-007	EXISTING CONDITION 7
11	C-008	EXISTING CONDITION 8
12	C-009	EXISTING CONDITION 9
13	C-010	EXISTING CONDITION 10
14	C-101	TRAFFIC CONTROL PLAN 1
1S	C-102	TRAFFIC CONTROL PLAN 2
16	C-103	TRAFFIC CONTROL PLAN 3
17	C-104	TRAFFIC CONTROL PLAN 4
18	C-10S	TRAFFIC CONTROL PLAN S
19	C-106	TRAFFIC CONTROL PLAN 6
20	C-107	TRAFFIC CONTROL PLAN 7
21	C-108	TRAFFIC CONTROL PLAN 8
22	C-109	TRAFFIC CONTROL PLAN 9
23	C-111	SITE PREPARATION AND TESC PLAN 1
24	C-112	SITE PREPARATION AND TESC PLAN 2
2S	C-113	SITE PREPARATION AND TESC PLAN 3
26	C-114	SITE PREPARATION AND TESC PLAN 4
27	C-11S	SITE PREPARATION AND TESC PLAN S
28	C-116	SITE PREPARATION AND TESC PLAN 6
29	C-117	SITE PREPARATION AND TESC PLAN 7
30	C-118	SITE PREPARATION AND TESC PLAN 8
31	C-119	SITE PREPARATION AND TESC PLAN 9
32	C-120	SITE PREPARATION AND TESC PLAN 10
33	C-121	CONVEYANCE PLAN AND PROFILE 1
34	C-122	CONVEYANCE PLAN AND PROFILE 2
3S	C-123	CONVEYANCE PLAN AND PROFILE 3
36	C-124	CONVEYANCE PLAN AND PROFILE 4
37	C-12S	CONVEYANCE PLAN AND PROFILE S
38	C-126	CONVEYANCE PLAN AND PROFILE 6
39	C-127	CONVEYANCE PLAN AND PROFILE 7
40	C-128	CONVEYANCE PLAN AND PROFILE 8
41	C-129	CONVEYANCE PLAN AND PROFILE 9
42	C-131	DRAINFIELD SITE PLAN
43	C-132	BERNARD MEMORIAL PARK RESTORATON PLAN
44	C-133	DRAINFIELD PLAN AND SECTIONS
4S	C-134	DRAINFIELD PROFILES
46	C-1S1	PRETREATMENT PLAN
47	C-401	DETAILS - PRELOS 1000 TANKS
48	C-402	DETAILS - PRELOS 1S00 TANKS
49	C-403	DETAILS - OTHER TANKS
S0	C-411	DETAILS - DOSING PUMP CHAMBER
S1	C-412	DETAILS - SURGE TANK WITH PUMP CHAMBER
S2	C-431	DETAILS - CONVEYANCE 1
S3	C-432	DETAILS - CONVEYANCE 2
54	C-433	DETAILS - CONVEYANCE 3
SS	C-434	DETAILS - CONVEYANCE 4
S6	C-441	DETAILS - DRAINFIELD

SHT NO.	DWG NO.	TITLE
PACKAGED TREATMENT SYSTEM		
1	KC-001	FLOW SHEET
2	KC-002	LAYOUT STRUCTURE DRAWING - 1
3	KC-003	NOT USED
4	KC-004	CONSTRUCTION DRAWING
5	KC-005	EQUIPMENT ROOM RAYOUT - 1
6	KC-006	EQUIPMENT ROOM RAYOUT - 2
7	KC-007	EQUIPMENT ROOM RAYOUT - 3
8	KC-008	PIPING WORK DRAWING - 1
9	KC-009	PIPING WORK DRAWING - 2
10	KC-010	WIRING WORK DRAWING
11	KC-011	CONTROL PANEL DRAWING - 1
12	KC-012	CONTROL PANEL DRAWING - 2
13	KC-013	CONTROL PANEL DRAWING - 3
14	KC-014	CONTROL PANEL DRAWING - 4

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: NONE
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DRAWING INDEX

DATE: APRIL 2023
DRAWING NO: **G-002**
SHT NO 2 / TOTAL 56 | REV NO:

REFERENCE 1" 0

NOTES:

1. THE APPROVAL OF THE ON-SITE SEWAGE DISPOSAL DESIGN IS NOT A PERMIT TO CLEAR THE PARCEL. A SEPARATE PERMIT MAY BE REQUIRED FROM THE COUNTY TO CLEAR ANY PORTION OF THE PARCEL.
2. SENSITIVE AREAS MAY BE PRESENT NEAR THE DRAIN FIELD AREA THAT MAY EFFECT THE INSTALLATION OF THE DRAIN FIELD. SEPARATE PERMITS MAY BE REQUIRED FROM THE COUNTY FOR SENSITIVE AREA ISSUES.
3. EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE DESIGNER ASSUMES NO RESPONSIBILITY FOR UTILITIES SHOWN, OR NOT SHOWN IN THEIR PROPER LOCATION.
4. BUILDINGS, SOIL LOGS, AND OTHER SITE FEATURES ARE SHOWN FOR REFERENCE AND ARE NOT SURVEYED. ALL ELEVATIONS ARE BASED ON FIELD MEASUREMENTS AND CONDITIONS MAY CHANGE BASED ON CONSTRUCTION ACTIVITY. THIS PLAN DOES NOT REPRESENT AN ACTUAL FIELD SURVEY AND IS FOR SEPTIC DESIGN PURPOSES ONLY.
5. CALL 811 TWO WORKING DAYS BEFORE YOU DIG OR VISIT HTTP://WWW.CALLBEFOREYOUDIG.ORG
6. CONTRACTOR TO NOTIFY ENGINEER PRIOR TO PLACEMENT OF TANK OR UNIT IF ENCOUNTERS GROUNDWATER OR EVIDENCE OF SEASONAL GROUNDWATER DURING EXCAVATION FOR BURIED TANKAGE.

MATERIALS:

1. THE SEWER CONNECTIONS FROM STRUCTURES TO SEPTIC TANKS SHALL BE MIN. 4-INCH DIAMETER ASTM D3034 SDR-35 PVC.
2. CLASS 200 PVC SHALL MEET THE REQUIREMENTS OF ASTM D2241 SDR-21 PVC.
3. SCHEDULE 40 & SCHEDULE 80 PVC SHALL MEET THE REQUIREMENTS OF ASTM D1785.
4. ALL TANK INLET/OUTLET GASKETS SHALL CONSIST OF A RUBBERIZED MATERIAL THAT IS CAST INTO THE TANK WALL, MUST BE ABLE TO WITHSTAND VIBRATION AND/OR SETTLING, RESISTANT TO SEWER GASSES, AND CAPABLE OF ACCEPTING A NON-CORROSIVE CLAMP AND SCREW TO SECURE THE CONNECTING PIPE.
5. THE SEALANT BETWEEN TANK RIM AND LID, AND BETWEEN THE TANK LID AND RISER MUST BE ABLE TO PROVIDE A WATERTIGHT SEAL REGARDLESS OF WEATHER CONDITIONS OR TEMPERATURE DURING SEALANT APPLICATION.
6. TANK RISERS SHALL BE PVC, WATERTIGHT, AND HAVE A SOLID LOCKING LID. ELECTRICAL AND EFFLUENT PIPES THAT EXIT THE RISER MUST USE A RUBBERIZED GASKET WITH A WATERTIGHT SEAL THAT MUST BE ABLE TO WITHSTAND VIBRATION AND/OR SETTLING AND RESISTANT TO SEWER GASSES.
7. ALL VALVE BOXES SHALL BE NON-CONCRETE (POLYPROPELENE, HDPE, ETC) AND HAVE RISERS TO FINISHED GRADE. VALVE BOXES SHALL BE SET AND LEVELED ON A PEA GRAVEL BASE UNLESS OTHERWISE NOTED.
8. ALL MATERIALS AND MECHANICAL/ELECTRICAL COMPONENTS SHALL BE RATED FOR USE IN WASTEWATER APPLICATIONS.
9. JUNCTION BOXES, CONDUITS AND FITTINGS INSTALLED IN THE SEPTIC TANKS MUST BE OF A NONCORROSIVE TYPE, INSTALLED TO PREVENT THE ENTRANCE OF GASES OR VAPORS.
10. ALL ELECTRICAL COMPONENTS MUST BE APPROVED BY UNDERWRITERS LABORATORY (UL) OR EQUAL.
11. SUBSTITUTION OF ANY PARTS LISTED MUST HAVE THE APPROVAL OF THE DESIGNER.
12. SEE INDIVIDUAL DETAILS FOR MATERIALS NOT LISTED HERE.
13. TRACER WIRE SHALL BE 12 GAUGE INSULATED SOLID COPPER WIRE.

TRENCHES:

THE GEOTEXTILE (FILTER FABRIC) SHALL BE NON-WOVEN, FREE OF ANY CHEMICAL TREATMENT OR COATING WHICH REDUCES PERMEABILITY, INERT TO CHEMICALS COMMONLY FOUND IN SOIL, AND MEET OR EXCEED THE "MINIMUM AVERAGE ROLL VALUES" LISTED IN TABLE 3, "GEOTEXTILE SPECIFICATIONS" OF THE LATEST EDITION OF THE WSDOH RECOMMENDED STANDARDS AND GUIDELINES FOR DOSING GRAVITY SYSTEMS.

DRAIN ROCK SHALL BE WASHED GRAVEL OR CRUSHED ROCK RANGING IN SIZE FROM THREE-QUARTERS INCH TO TWO AND ONE-HALF INCHES, AND CONTAINING NO MORE THAN TWO PERCENT BY WEIGHT PASSING A US NO. 8 SIEVE AND NO MORE THAN ONE PERCENT BY WEIGHT PASSING A US NO. 200 SIEVE.

DRIP:

ALL DRIP LINE COMPONENTS (HEADWORKS, AIR/VACUUM VALVES, ETC.) ARE TO BE MANUFACTURED BY GEOFLOW. USE GEOFLOW DRIP LINE PART NUMBER WFP C16-2-12 (1/2 GPH, 12" ORIFICE SPACING, 16MM).

1. IF STAMPED APPROVED BY THE DOH AND MAY ONLY BE INSTALLED BY A DOH CERTIFIED INSTALLER.
2. ALL WORK SHALL CONFORM TO DOH STANDARDS AND GUIDELINES. STANDARDS AND GUIDELINES NOT SPECIFIED BY THE DOH SHALL CONFORM TO THE WASHINGTON ADMINISTRATIVE CODE (WAC) CONCERNING ON-SITE SEPTIC SYSTEMS (WAC 246-272A) AND THE LATEST EDITION OF THE WASHINGTON STATE DEPARTMENT OF HEALTH (WSDOH) RECOMMENDED STANDARDS AND GUIDELINES FOR PRESSURE DISTRIBUTION SYSTEMS AND SUBSURFACE DRIP SYSTEMS.
3. A COPY OF THE APPROVED PLAN SET SHALL BE KEPT AT THE JOB SITE AT ALL TIMES.
4. ELECTRICAL COMPONENTS AND WIRING SHALL COMPLY WITH REQUIREMENTS OF WAC 296-46B-501 AS NECESSARY.
5. APPROXIMATE VOLUME OF CLEAN SANDY LOAM FILL REQUIRED: 122 CUBIC YARDS.
6. STOCKPILE BACKFILL AND CONSTRUCTION MATERIALS ADJACENT TO PROPOSED DRAIN FIELD BUT NOT IN THE RESERVE DRAIN FIELD AREA.
7. A PRESSURE TEST WITH SATISFACTORY RESULTS SHALL BE COMPLETED IN THE PRESENCE OF THE DESIGNER PRIOR TO BACKFILLING OVER THE SEPTIC TANKS, TRANSPORT LINE TRENCHES AND THE DRAIN FIELD.
8. INSTALL CLEANOUTS EVERY 50' ALONG GRAVITY PIPE RUNS AND AT ANGLE POINTS.
9. ALL VALVES AND FILTERS SHALL BE READILY ACCESSIBLE FOR INSPECTION AND SERVICING.
10. CHANGES IN TANK CONFIGURATION OR LOCATION MUST BE APPROVED BY THE DESIGNER OR DESIGN MAY BE INVALID.
11. IF THE DRAIN FIELD SOIL IS DISTURBED PRIOR TO INSTALLATION, THE DESIGN MAY BE VOID.
12. ANY CUTS INTRODUCED WITHIN 50' OF THE DRAIN FIELD AREA MAY VOID THE DESIGN.
13. TREES AND/OR STUMPS GREATER THAN 18" IN DIAMETER, WHEN MEASURED 2 FEET ABOVE GRADE, MAY BE CUT AT GROUND LEVEL OR BURNED IN PLACE TO AVOID DISTURBING THE SOIL. IF TREES ARE TO BE REMOVED, LEAVE STUMPS AND ROOTS IN THE GROUND. MOW OTHER VEGETATION TO GROUND SURFACE.
14. MAINTAIN 10FT SETBACK FROM ALL WATER/IRRIGATION LINES AND ANY SEPTIC COMPONENTS. EXISTING IRRIGATION AND WATER LINES SHALL BE REMOVED OR RELOCATED AS NECESSARY. PERPENDICULAR CROSSINGS ARE ALLOWED. SEE SEWER/WATER CROSSING DETAIL FOR PROPER METHOD OF CROSSING.
15. WHERE CONDUIT IS INSTALLED BETWEEN THE PUMPING CHAMBER AND THE CONTROL PANEL, MOTOR DISCONNECT, OR POWER SOURCE, AN APPROVED SEALING METHOD MUST BE INSTALLED TO PREVENT THE MIGRATION OF GASES OR VAPORS FROM THE PUMPING CHAMBER, AND MUST REMAIN ACCESSIBLE.
16. WIRE SPLICES IN JUNCTION BOXES INSTALLED IN PUMPING CHAMBERS MUST BE SUITABLE FOR WET LOCATIONS.
17. FLOOR DRAINS SHALL NOT BE CONNECTED TO THE SEPTIC SYSTEM. DRAINS FROM ANY COMMERCIALLY MADE TUB, SHOWER, BASIN, SINK, OR TOILET ARE NOT CONSIDERED FLOOR DRAINS.
18. NO ROOF, FOOTING, OR SURFACE DRAINS SHALL BE CONNECTED TO THE SEPTIC SYSTEM.
19. FOOTING DRAINS WILL NOT BE ALLOWED WITHIN 30' DOWN SLOPE OF THE DRAIN FIELD. STORM WATER DISPERSION OR INFILTRATION TRENCHES ARE NOT ALLOWED WITHIN 100' UPHILL OF DRAIN FIELD OR 30' DOWN SLOPE OF THE DRAIN FIELD. DIRECT ALL STORM WATER RUNOFF (ROOF, FOOTING, ETC.) AWAY FROM THE DRAIN FIELD AND TANKS.
20. DETAILS SHOWN ARE SCHEMATIC. SEE PLAN VIEW FOR ACTUAL CONFIGURATION.
21. TRACER WIRE SHALL BE USED UNDER THE TRANSPORT LINES BETWEEN THE DOSING TANK OUTLET AND DISTRIBUTION MANIFOLDS. TRACER WIRE SHALL EXTEND UP INSIDE OF ALL VALVE BOXES AND AROUND CLEANOUTS
22. THIS DESIGN DOES NOT INCLUDE INSTALLATION INSPECTIONS OR AS-BUILT DRAWINGS.

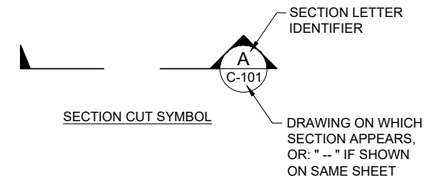
LINETYPE

EXISTING	PROPOSED	
		RIGHT-OF WAY LINE
		PROPERTY LINE
SS	SS	SEWER LINE
SD	SD	STORM SEWER LINE
W	W	WATER LINE
OP	OP	OVERHEAD POWER LINE
P	P	UNDERGROUND POWER LINE
OT	OT	OVERHEAD COMMUNICATION LINE
G	G	GAS LINE
		WOOD FENCE
		CHAIN LINK FENCE
T	T	TELEPHONE LINE

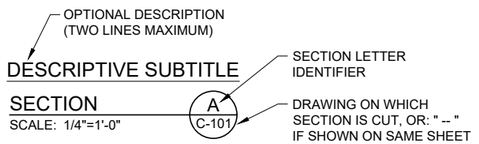
SYMBOLS

EXISTING	PROPOSED	
		CONTROL POINT
WM	WM	WATER METER
WV	WV	WATER VALVE
		IRRIGATION BOX
		IRRIGATION VALVE
		GAS VALVE
C	C	COMMUNICATION MANHOLE
		CATCH BASIN
		ELECTRIC METER
S	S	SEPTIC SEWER LID
CO	CO	CLEANOUT
		POWER POLE
		POWER POLE W/LUMINAIRE
		GUY ANCHOR
TELE PED	TELE PED	TELEPHONE PEDESTAL
		BOLLARDS
		MONUMENT IN CASE
		SIGN
		DECIDUOUS TREE W/DRIPLINE
		CONIFEROUS TREE W/DRIPLINE

GENERAL SYMBOLS



SECTION IDENTIFICATION ON DRAWING WHERE SECTION IS CUT



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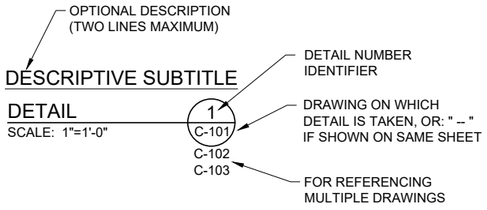

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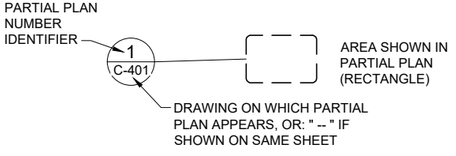
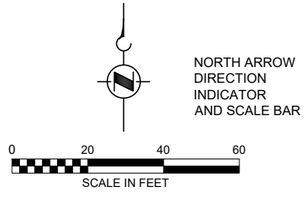


DETAIL IDENTIFICATION ON DRAWING WHERE DETAIL IS TAKEN



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CIVIL GENERAL NOTES, LEGEND AND SYMBOLS

DATE: APRIL 2023
DRAWING NO: G-003
SHT NO 3 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 11, 2023-04:49:28pm By TAKESHA
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; W3Y05400-G-001.dwg
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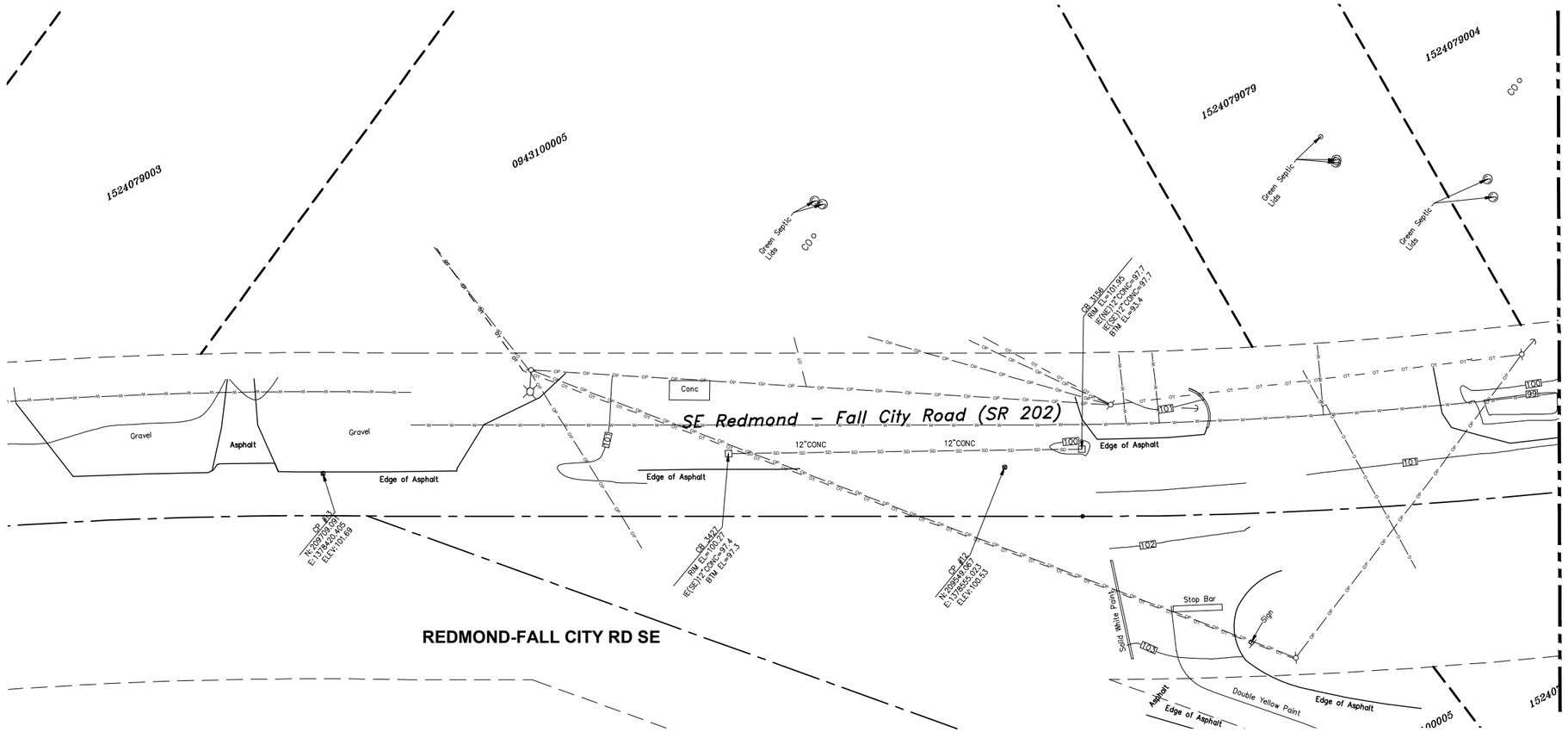


NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
   HORIZONTAL: NAD 83/11
4. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM COUNTY GIS MAPS. THERE IS MINIMAL INFORMATION AVAILABLE REGARDING MONUMENTATION TO PROPERLY ROTATE THE LOTS.

BM #151
DESIGNATION: GP17202-56
MON ID: 615
2" BRASS DISK CEMENTED INTO A DRILL HOLE IN THE SIDEWALK, NEAR THE EXPANSION JOINT AND LEVEL WITH CONCRETE SURFACE. IT IS LOCATED 1.5 METERS @ 290 DEGREES FRO THE WESTERN CONCRETE BARRIER, 1.5 METERS @ 255 DEGREES FROM THE NW CORNER OF A CATCH BASIN AND 8.8 METERS @ 25 DEGREES FROM THE SOUTH END OF CONCRETE RAIL.
N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

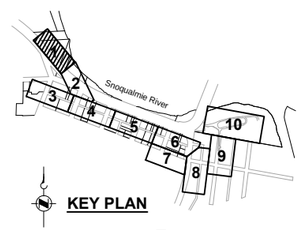
0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- OVERHEAD COMMUNICATION LINE
- GAS LINE
- WOOD FENCE
- CHAIN LINK FENCE
- TELEPHONE LINE

SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
- CLEANOUT
- POWER POLE
- POWER POLE W/LUMINAIRE
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER
STATE OF WASHINGTON
20118394
REGISTERED
PROFESSIONAL LAND SURVEYOR

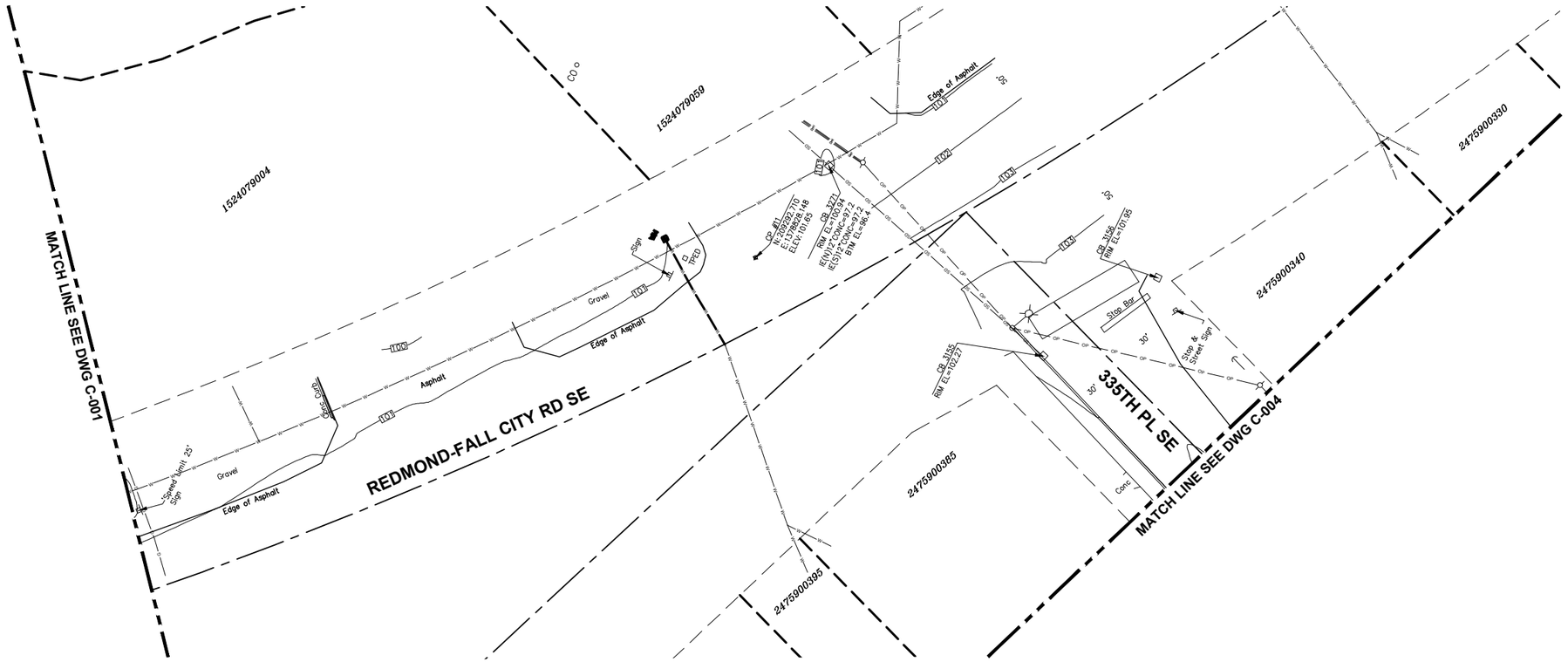
DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 1

DATE: APRIL 2023
DRAWING NO: C-001
SHT NO 4 / TOTAL 56
REV NO:



NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
   HORIZONTAL: NAD 83/11
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BM #151
DESIGNATION: GP17202-56
MON ID: 615
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N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- OVERHEAD COMMUNICATION LINE
- GAS LINE
- WOOD FENCE
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SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
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- POWER POLE
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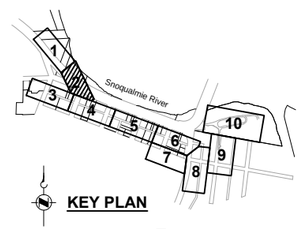
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER
STATE OF WASHINGTON
20118394
REGISTERED
PROFESSIONAL LAND SURVEYOR

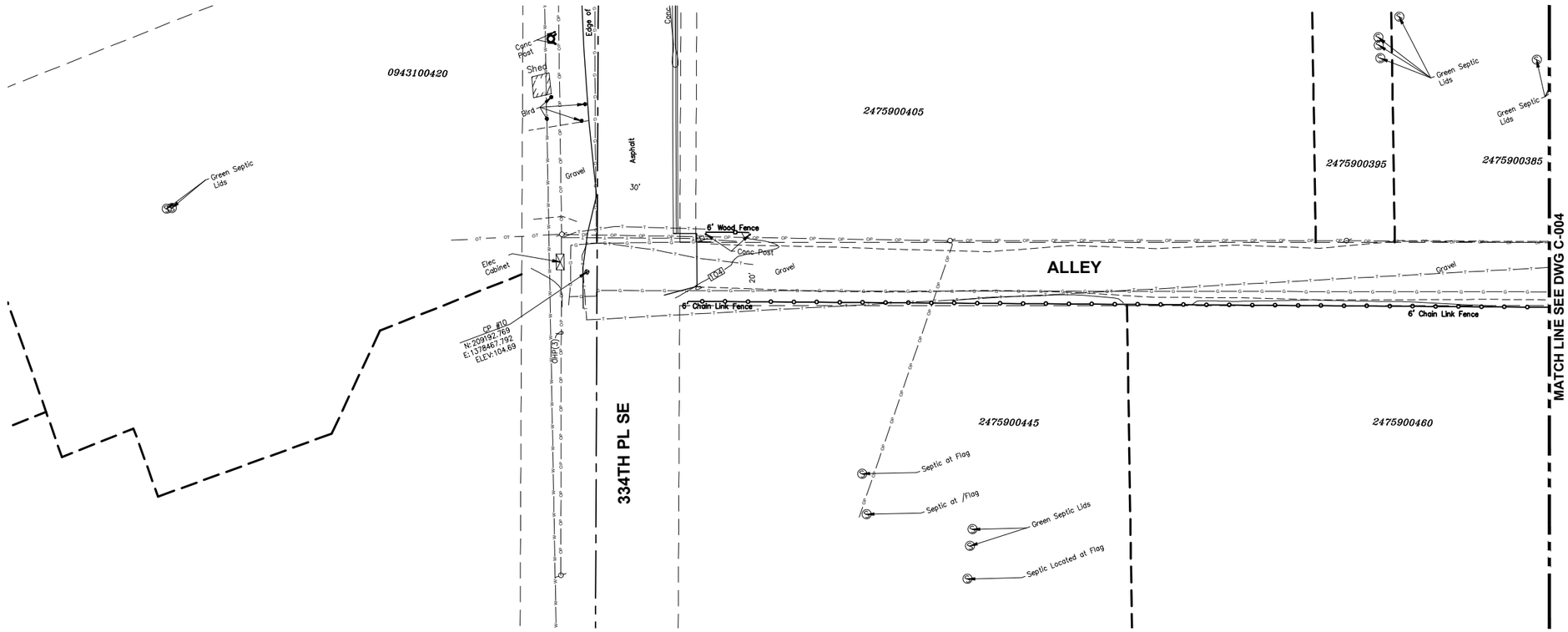
DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 2

DATE: APRIL 2023
DRAWING NO: **C-002**
SHT NO 5 / TOTAL 56
REV NO:



NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
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BM #151
DESIGNATION: GP17202-56
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N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
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SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
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- ELECTRIC METER
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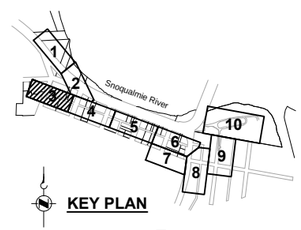
- POWER POLE
- POWER POLE W/LUMINAIRE
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER — STATE OF WASHINGTON — 20118394 — REGISTERED PROFESSIONAL LAND SURVEYOR

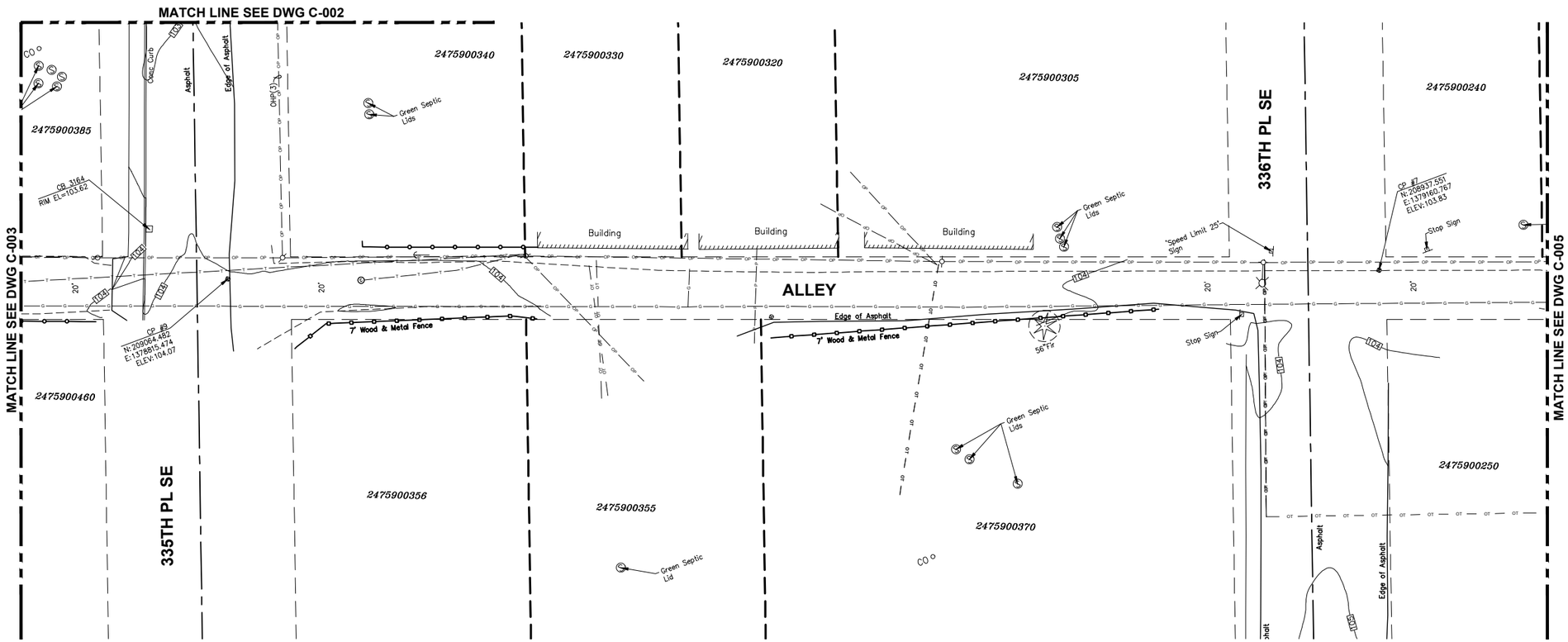
DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 3

DATE: APRIL 2023
DRAWING NO: C-003
SHT NO 6 / TOTAL 56 REV NO:



NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
   HORIZONTAL: NAD 83/11
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BM #151
DESIGNATION: GP17202-56
MON ID: 615
2" BRASS DISK CEMENTED INTO A DRILL HOLE IN THE SIDEWALK, NEAR THE EXPANSION JOINT AND LEVEL WITH CONCRETE SURFACE. IT IS LOCATED 1.5 METERS @ 290 DEGREES FRO THE WESTERN CONCRETE BARRIER, 1.5 METERS @ 255 DEGREES FROM THE NW CORNER OF A CATCH BASIN AND 8.8 METERS @ 25 DEGREES FROM THE SOUTH END OF CONCRETE RAIL.
N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
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SYMBOLS

- CONTROL POINT
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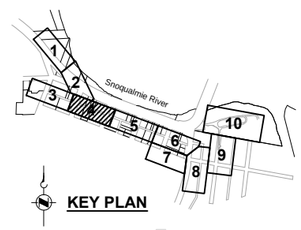

KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER — STATE OF WASHINGTON — 20118394 — REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 4

DATE: APRIL 2023
DRAWING NO: C-004
SHT NO 7 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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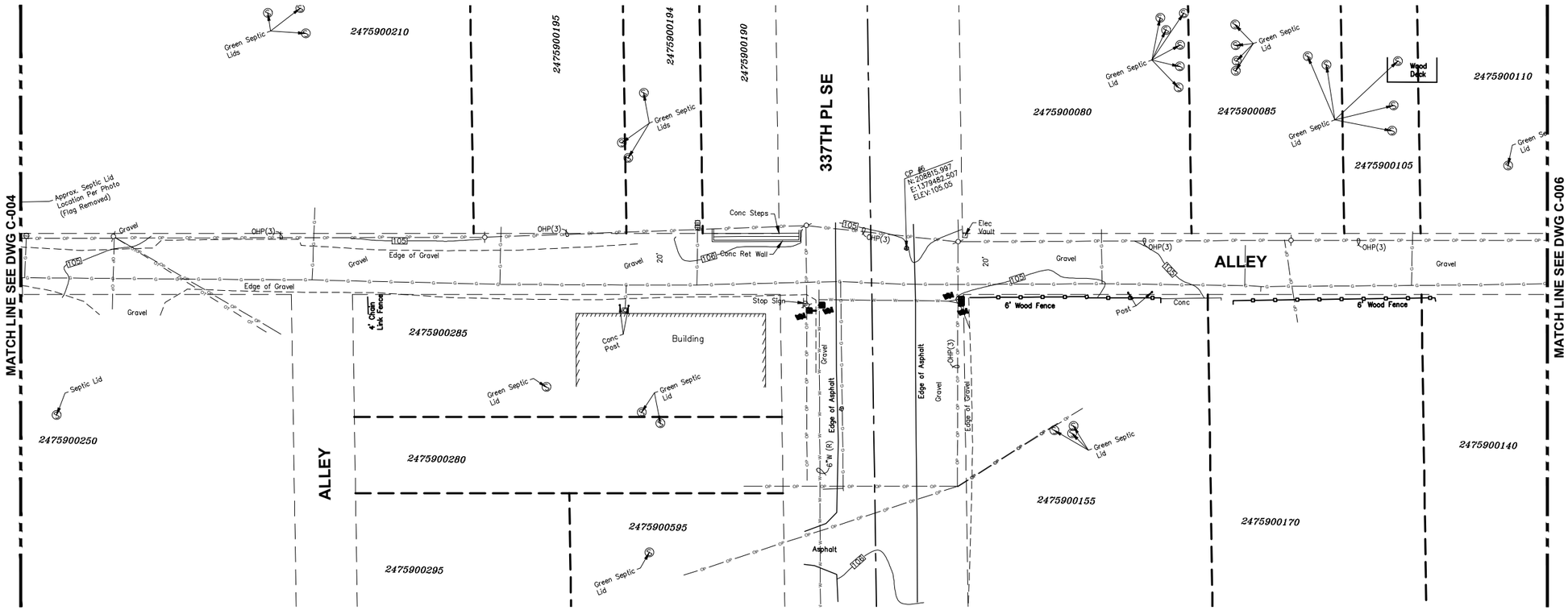
PLOTTED: Apr 13, 2023-02:27:44pm By dyang1
XREFS: W3Y05400_Border.dwg, Fall City_Survey Basemap.dwg
IMAGES:



NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
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BM #151
DESIGNATION: GP17202-56
MON ID: 615
2" BRASS DISK CEMENTED INTO A DRILL HOLE IN THE SIDEWALK, NEAR THE EXPANSION JOINT AND LEVEL WITH CONCRETE SURFACE. IT IS LOCATED 1.5 METERS @ 290 DEGREES FRO THE WESTERN CONCRETE BARRIER, 1.5 METERS @ 255 DEGREES FROM THE NW CORNER OF A CATCH BASIN AND 8.8 METERS @ 25 DEGREES FROM THE SOUTH END OF CONCRETE RAIL.
N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
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SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
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- POWER POLE
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- GUY ANCHOR
- TELEPHONE PEDESTAL
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- MONUMENT IN CASE
- SIGN
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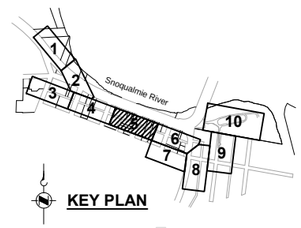

KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MITCHELL — STATE OF WASHINGTON — 20118394 — REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 5

DATE: APRIL 2023
DRAWING NO: C-005
SHT NO 8 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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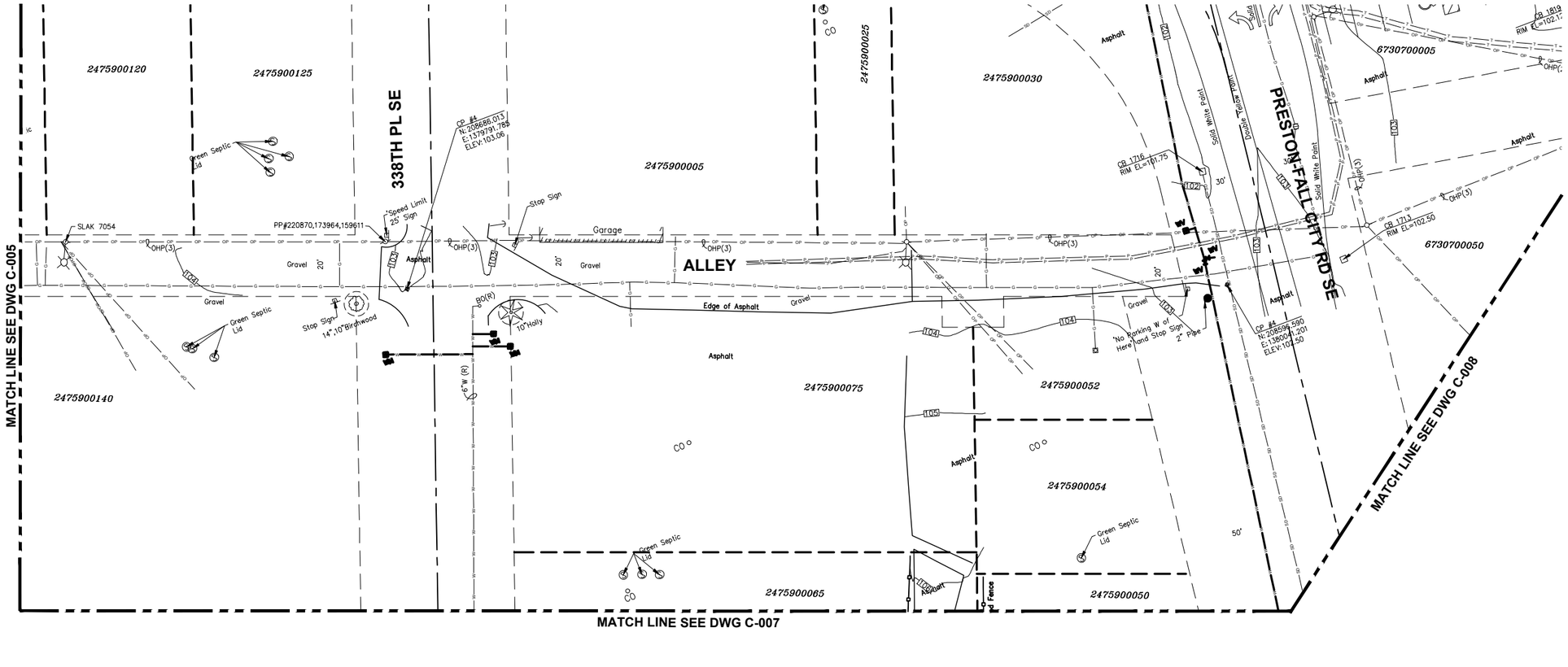

NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
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BM #151
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N: 208908.778
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SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
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SYMBOLS

- CONTROL POINT
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- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
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- POWER POLE
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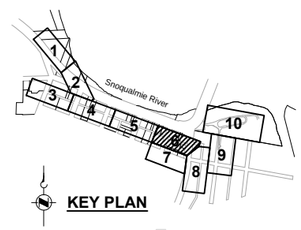
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER — STATE OF WASHINGTON — 20118394 — REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 6

DATE: APRIL 2023
DRAWING NO: C-006
SHT NO 9 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 13, 2023-02:50:59pm By dyang1
XREFS: W3Y05400_Border.dwg, Fall City_Survey Basemap.dwg
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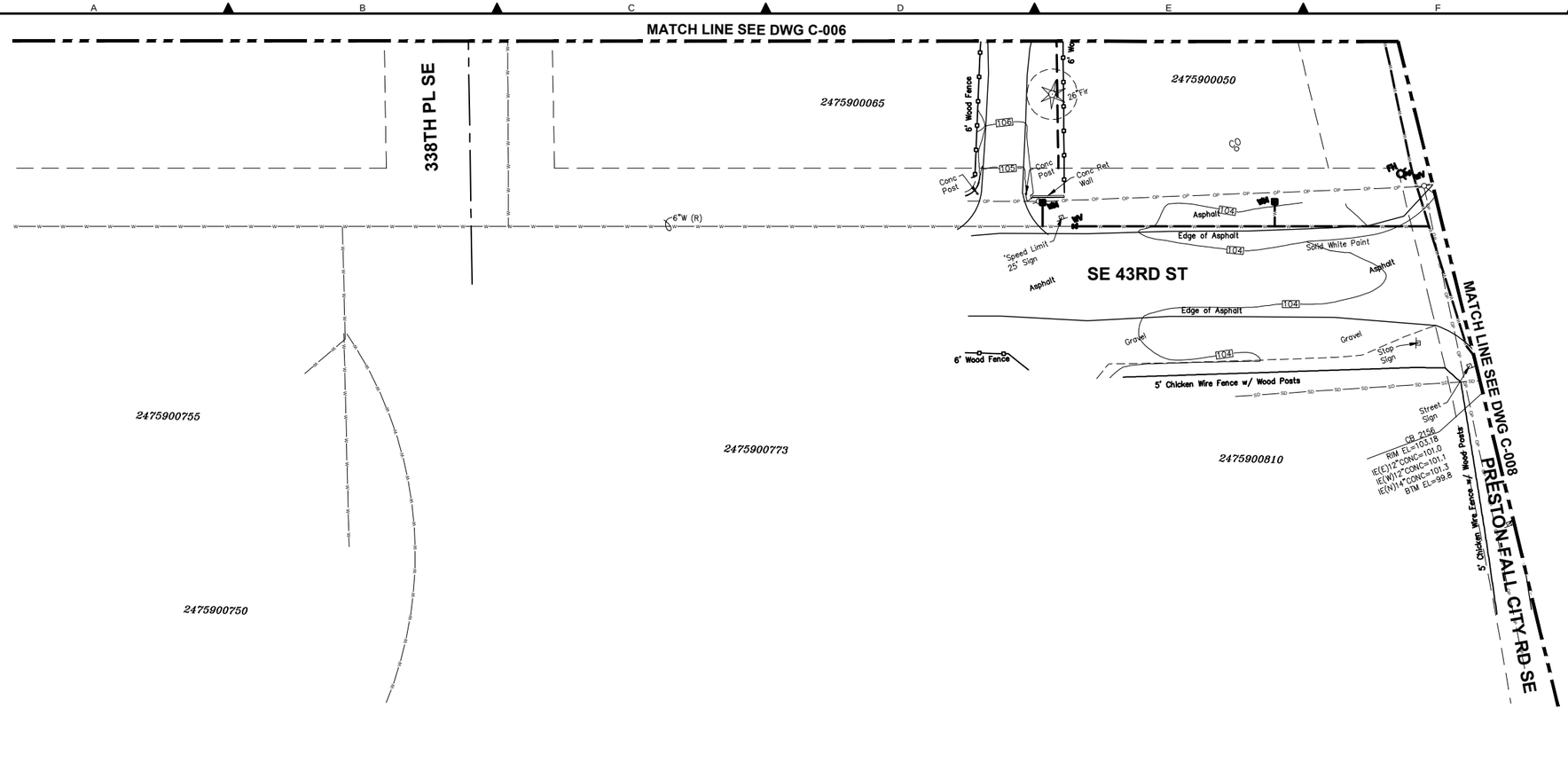


NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
   HORIZONTAL: NAD 83/11
4. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM COUNTY GIS MAPS. THERE IS MINIMAL INFORMATION AVAILABLE REGARDING MONUMENTATION TO PROPERLY ROTATE THE LOTS.

BM #151
DESIGNATION: GP17202-56
MON ID: 615
2" BRASS DISK CEMENTED INTO A DRILL HOLE IN THE SIDEWALK, NEAR THE EXPANSION JOINT AND LEVEL WITH CONCRETE SURFACE. IT IS LOCATED 1.5 METERS @ 290 DEGREES FRO THE WESTERN CONCRETE BARRIER, 1.5 METERS @ 255 DEGREES FROM THE NW CORNER OF A CATCH BASIN AND 8.8 METERS @ 25 DEGREES FROM THE SOUTH END OF CONCRETE RAIL.
N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

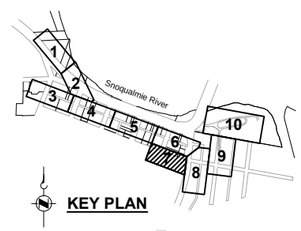
0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- OVERHEAD COMMUNICATION LINE
- GAS LINE
- WOOD FENCE
- CHAIN LINK FENCE
- TELEPHONE LINE

SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
- CLEANOUT
- POWER POLE
- POWER POLE W/LUMINAIRE
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MITCHELL
STATE OF WASHINGTON
20118394
REGISTERED
PROFESSIONAL LAND SURVEYOR

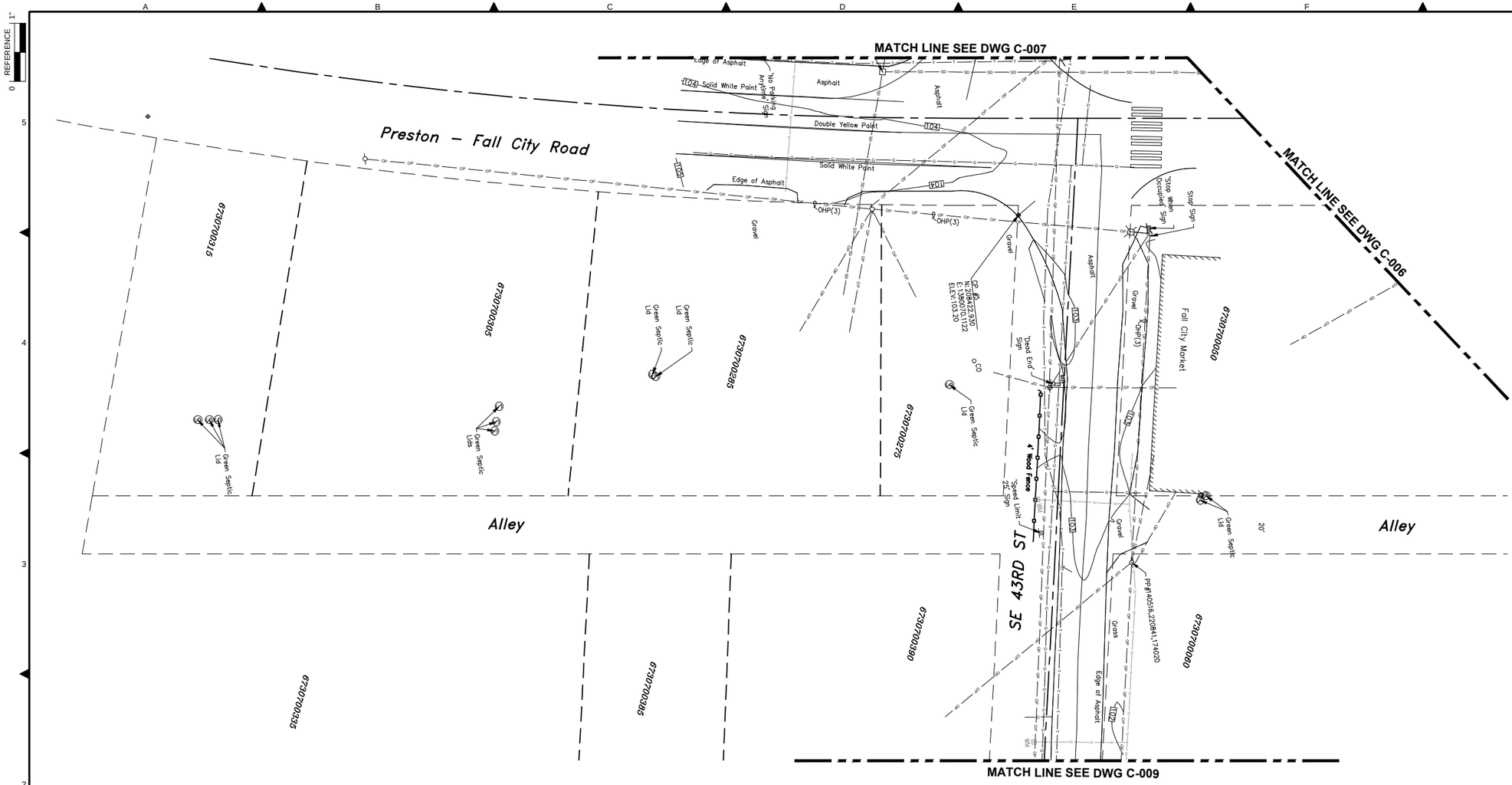
DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 7

DATE: APRIL 2023
DRAWING NO: C-007
SHT NO 10 / TOTAL 56
REV NO:



NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
   HORIZONTAL: NAD 83/11
4. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM COUNTY GIS MAPS. THERE IS MINIMAL INFORMATION AVAILABLE REGARDING MONUMENTATION TO PROPERLY ROTATE THE LOTS.

BM #151
DESIGNATION: GP17202-56
MON ID: 615
2" BRASS DISK CEMENTED INTO A DRILL HOLE IN THE SIDEWALK, NEAR THE EXPANSION JOINT AND LEVEL WITH CONCRETE SURFACE. IT IS LOCATED 1.5 METERS @ 290 DEGREES FRO THE WESTERN CONCRETE BARRIER, 1.5 METERS @ 255 DEGREES FROM THE NW CORNER OF A CATCH BASIN AND 8.8 METERS @ 25 DEGREES FROM THE SOUTH END OF CONCRETE RAIL.
N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

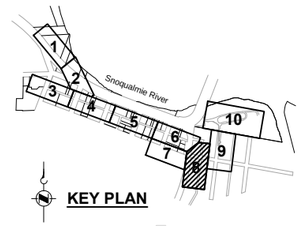
0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- OVERHEAD COMMUNICATION LINE
- GAS LINE
- WOOD FENCE
- CHAIN LINK FENCE
- TELEPHONE LINE

SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
- CLEANOUT
- POWER POLE
- POWER POLE W/LUMINAIRE
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER
STATE OF WASHINGTON
20118394
REGISTERED
PROFESSIONAL LAND SURVEYOR

DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 8

DATE: APRIL 2023
DRAWING NO: C-008
SHT NO 11 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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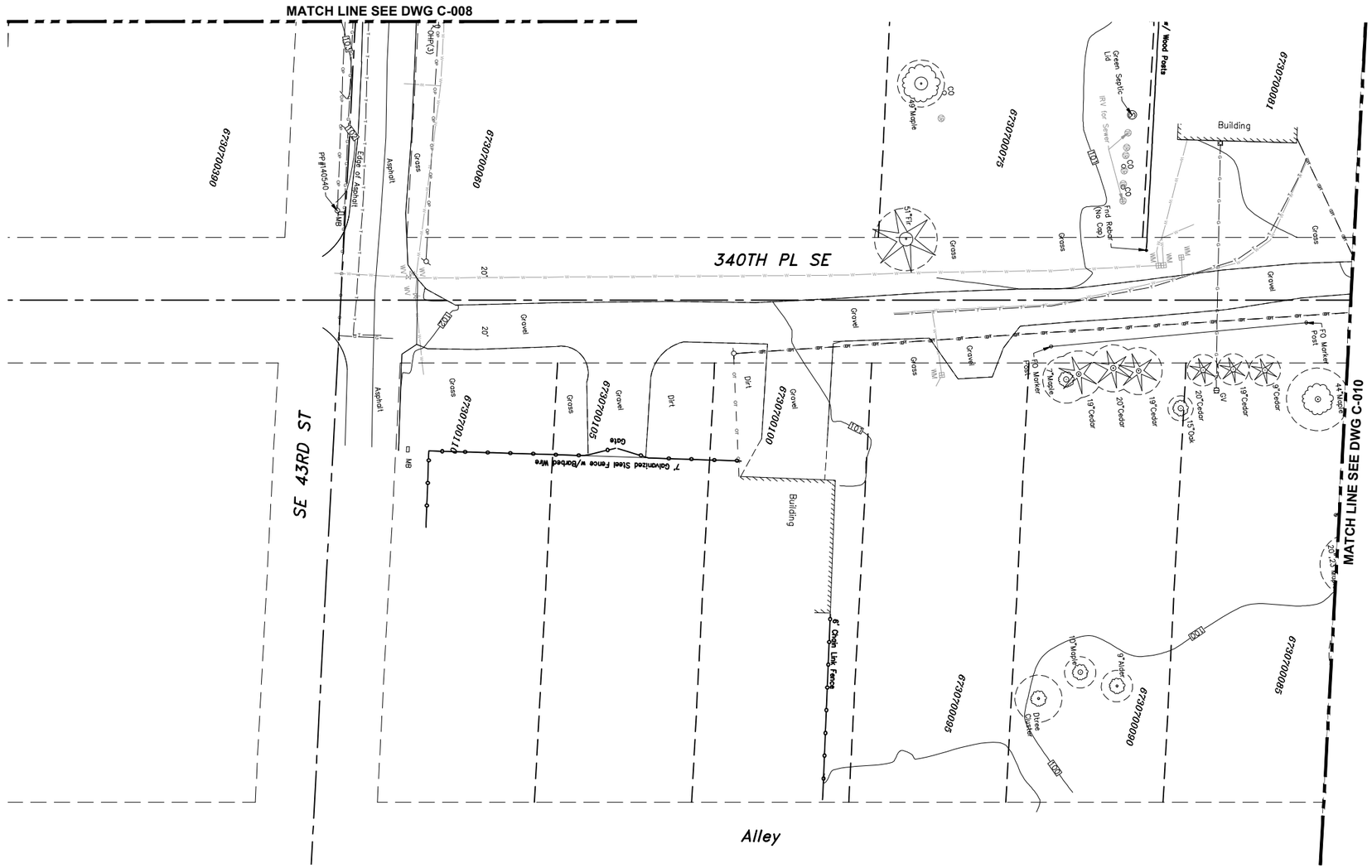
PLOTTED: Apr 13, 2023-02:49:59pm By dyang1
XREFS: W3Y05400_Border.dwg, Fall City_Survey Basemap.dwg
IMAGES:



NOTES

1. DATE OF SURVEY: JULY 26 THROUGH AUGUST 24, 2022
2. EQUIPMENT USED: LEICA TS16
3. DATUM: VERTICAL: KC METRO DATUM
   HORIZONTAL: NAD 83/11
4. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM COUNTY GIS MAPS. THERE IS MINIMAL INFORMATION AVAILABLE REGARDING MONUMENTATION TO PROPERLY ROTATE THE LOTS.

BM #151
DESIGNATION: GP17202-56
MON ID: 615
2" BRASS DISK CEMENTED INTO A DRILL HOLE IN THE SIDEWALK, NEAR THE EXPANSION JOINT AND LEVEL WITH CONCRETE SURFACE. IT IS LOCATED 1.5 METERS @ 290 DEGREES FRO THE WESTERN CONCRETE BARRIER, 1.5 METERS @ 255 DEGREES FROM THE NW CORNER OF A CATCH BASIN AND 8.8 METERS @ 25 DEGREES FROM THE SOUTH END OF CONCRETE RAIL.
N: 208908.778
E: 1380123.798
ELEV:104.327
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 06.1

MON #150
DESIGNATION:KC NEAL
MON ID: 5215
N: 209787.960
E: 1380151.767
ELEV:94.760
SCALE: 0.9999
COMB FACTOR: 0.9999
CONV ANGLE: -0 47 05.9

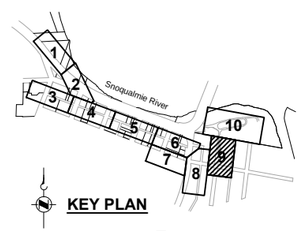
0 20 40 60
SCALE IN FEET

LEGEND

- RIGHT-OF WAY LINE
- PROPERTY LINE
- SEWER LINE
- STORM SEWER LINE
- WATER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- OVERHEAD COMMUNICATION LINE
- GAS LINE
- WOOD FENCE
- CHAIN LINK FENCE
- TELEPHONE LINE

SYMBOLS

- CONTROL POINT
- WATER METER
- WATER VALVE
- IRRIGATION BOX
- IRRIGATION VALVE
- GAS VALVE
- COMMUNICATION MANHOLE
- CATCH BASIN
- ELECTRIC METER
- SEPTIC SEWER LID
- CLEANOUT
- POWER POLE
- POWER POLE W/LUMINAIRE
- GUY ANCHOR
- TELEPHONE PEDESTAL
- BOLLARDS
- MONUMENT IN CASE
- SIGN
- DECIDUOUS TREE W/DRIPLINE
- CONIFEROUS TREE W/DRIPLINE



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

RONNIE JOANN MILLER — STATE OF WASHINGTON — 20118394 — REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED/DRAWN: Q. AL ALI	SCALE: 1"=20'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 9

DATE: APRIL 2023
DRAWING NO: **C-009**
SHT NO 12 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 13, 2023-02:49:32pm By dyang1
XREFS: W3Y05400_Border.dwg, Fall City_Survey Basemap.dwg
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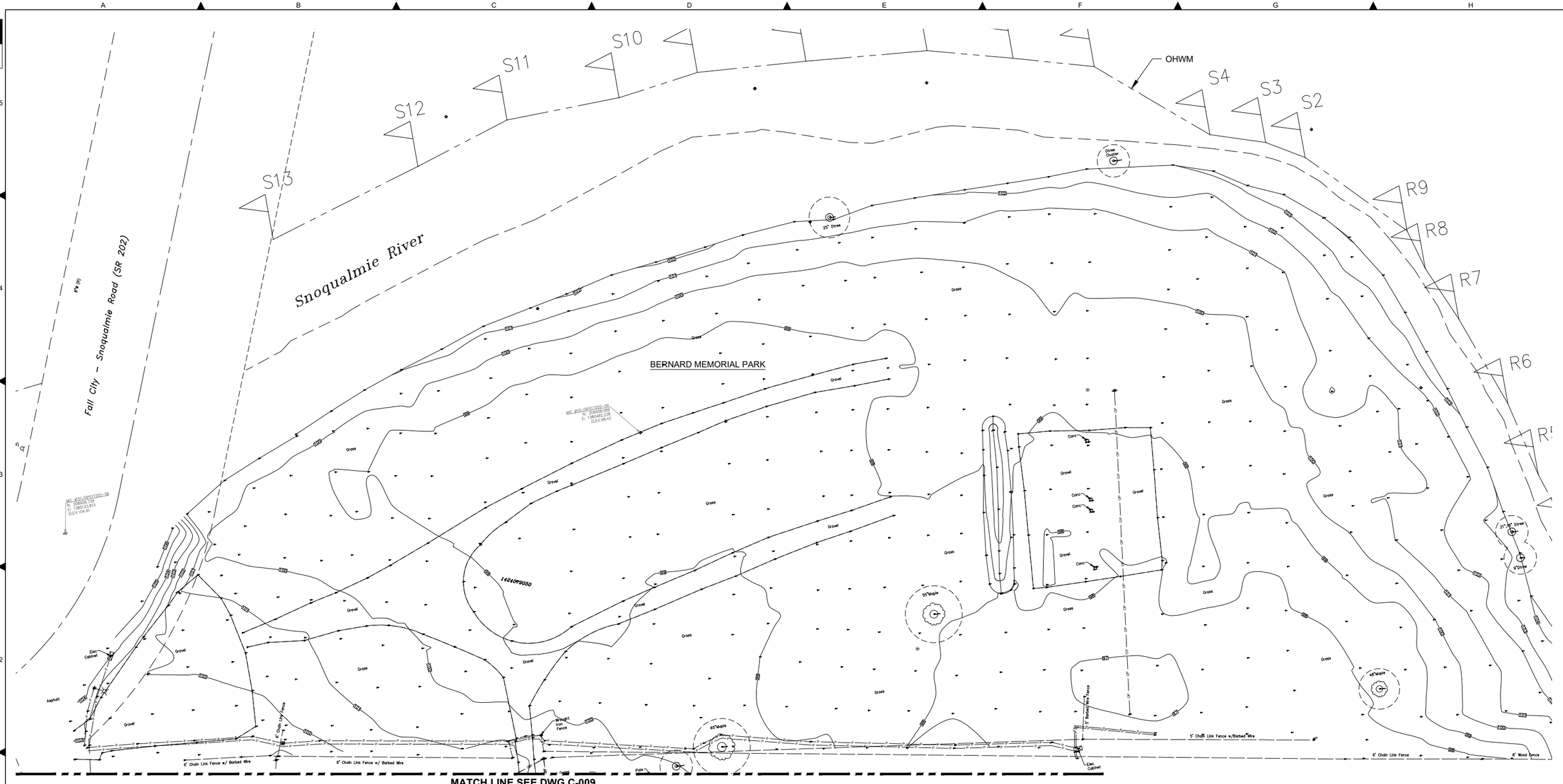
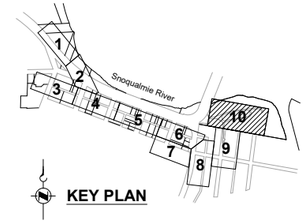


GENERAL NOTES

1. SEE C-009 FOR LEGEND
2. SEE C-009 FOR SYMBOLS
3. SEE C-009 FOR SURVEY NOTES AND DATA

0 30 60 90
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
True NORTH

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

HONORABLE JOANN MILLER STATE OF WASHINGTON 20118394 REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=30'
DESIGN ENGINEER: R. MILLER	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EXISTING CONDITION 10

DATE: APRIL 2023
DRAWING NO: C-010
SHT NO / TOTAL: 13 / 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 14, 2023-07:46:14pm By TAKESHA
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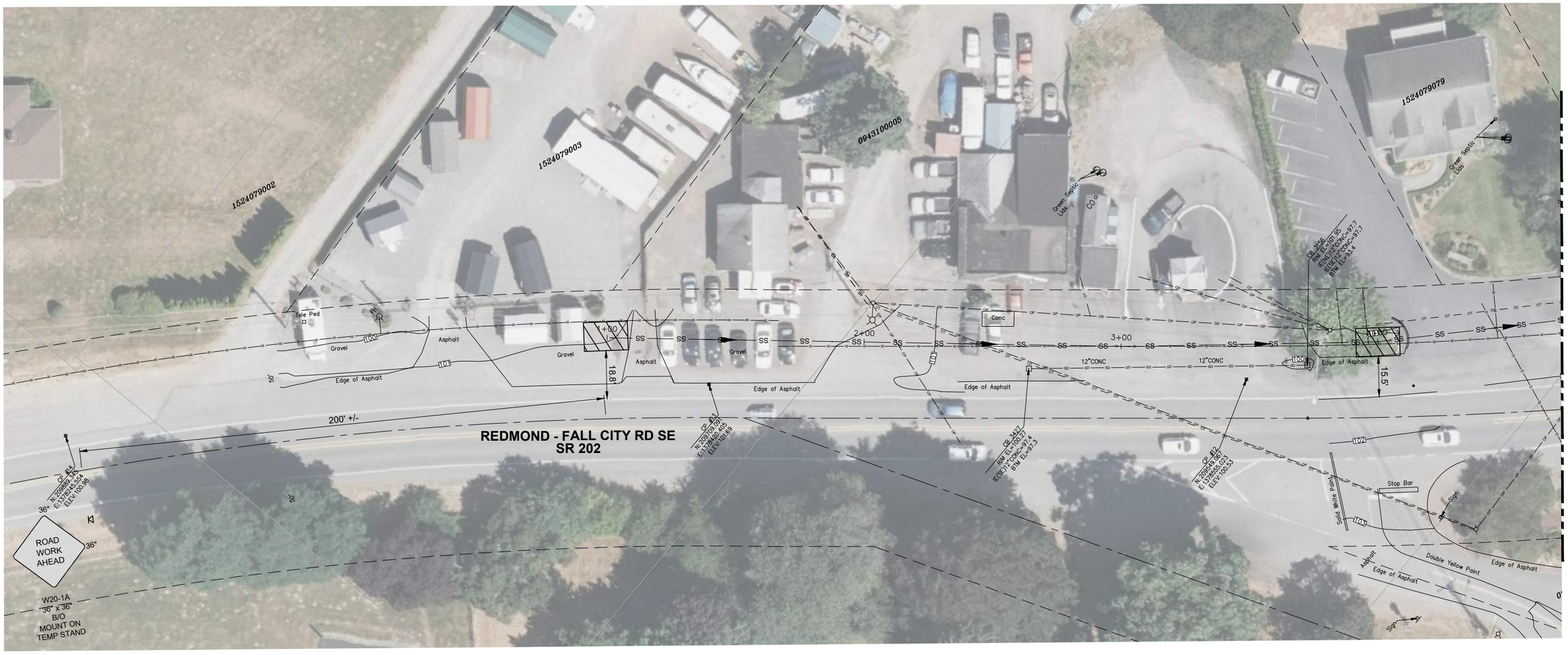


MATCH LINE SEE DWG C-102

NOTES

1. SR 202 POSTED SPEED LIMIT 30 MPH
2. EXCAVATIONS TO BE BACKFILLED OR COVERED DURING NON-WORK HOURS. WORK HOURS ARE TO BE DICTATED BY THE PERMIT.
3. PROVIDE BUFFER AREA WHEN SPACE ALLOWS.
4. FLAGGING STATIONS SHALL BE ILLUMINATED AT NIGHT.
5. PROVIDE ADDITIONAL PROTECTION TO SAFEGUARD WORK AREA OUTSIDE OF CLEAR ZONE AS NECESSARY.
6. KEEP CLEAR ZONE FREE OF MATERIALS, WORKERS AND FIXED OBJECTS. OTHERWISE PROVIDE TRAFFIC DELINEATION (TRAFFIC SAFETY DRUMS) BETWEEN WORK AREA AND EDGE OF TRAVELED WAY.

LEGEND

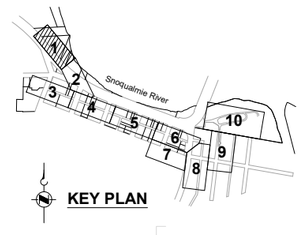
- WORK ZONE OR CLOSED AREA
- CONSTRUCTION SIGN - CLASS B
- TRAFFIC SAFETY DRUM WITH TYPE C STEADY BURN LIGHTS

SIGN SPACING = X		
FREEWAYS & EXPRESSWAYS	55 / 70 MPH	1500' ±
URBAN ARTERIALS	35 / 40 MPH	350' ±
URBAN ARTERIALS RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' ±
URBAN STREETS	25 MPH OR LESS	100' ±
ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS. SPACING MAY BE REDUCED IN URBAN AREAS, 30 MPH OR LESS, TO FIT ROADWAY CONDITIONS.		

WORK AREA CLEAR ZONE (FEET)	
POSTED SPEED	DISTANCE FROM TRAVELED WAY
35 MPH OR LESS	10
40 MPH	15
45 TO 50 MPH	20

CHANNELIZATION DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/65	40	80
35/45	30	60
25/30	20	40

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 39842 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 1

DATE: APRIL 2023
DRAWING NO: **C-101**
SHT NO 14 / TOTAL 56 | REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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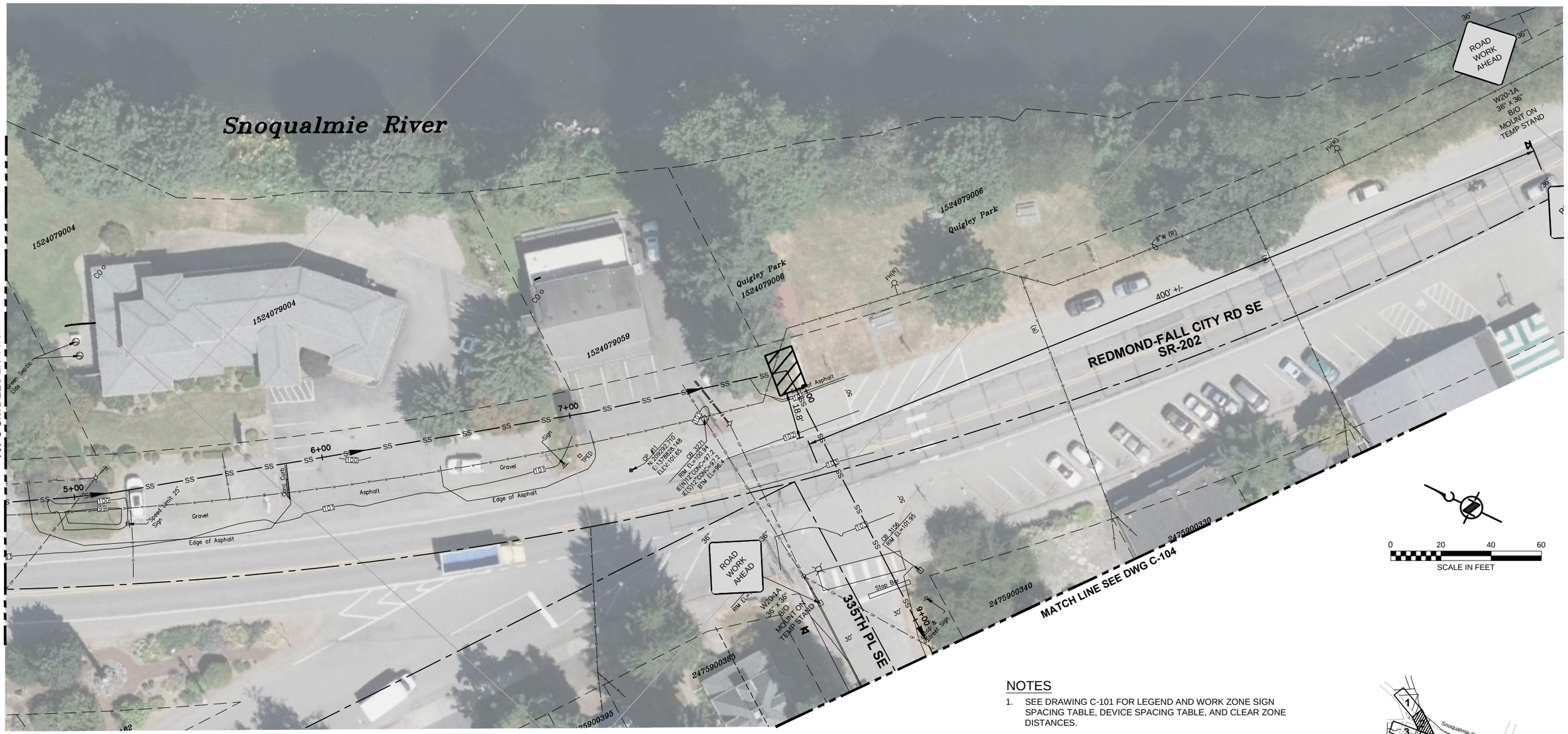
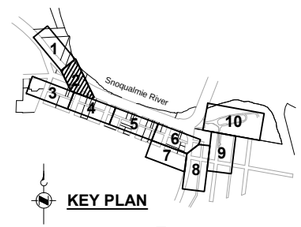
PLOTTED: Apr 13, 2023-01:39:05pm By TAKESHA
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; W3Y05400-G-001.dwg; Fall City_TCP.dwg; Fall City_Civil.dwg
IMAGES:



0 20 40 60
SCALE IN FEET

NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. SR 202 POSTED SPEED LIMIT 30 MPH
3. EXCAVATIONS TO BE BACKFILLED OR COVERED DURING NON-WORK HOURS. WORK HOURS ARE TO BE DICTATED BY THE PERMIT.
4. PROVIDE BUFFER AREA WHEN SPACE ALLOWS.
5. FLAGGING STATIONS SHALL BE ILLUMINATED AT NIGHT.
6. PROVIDE ADDITIONAL PROTECTION TO SAFEGUARD WORK AREA OUTSIDE OF CLEAR ZONE AS NECESSARY.
7. KEEP CLEAR ZONE FREE OF MATERIALS, WORKERS AND FIXED OBJECTS. OTHERWISE PROVIDE TRAFFIC DELINEATION (TRAFFIC SAFETY DRUMS) BETWEEN WORK AREA AND EDGE OF TRAVELED WAY.



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 19642 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 2

DATE: APRIL 2023
DRAWING NO: C-102
SHT NO 15 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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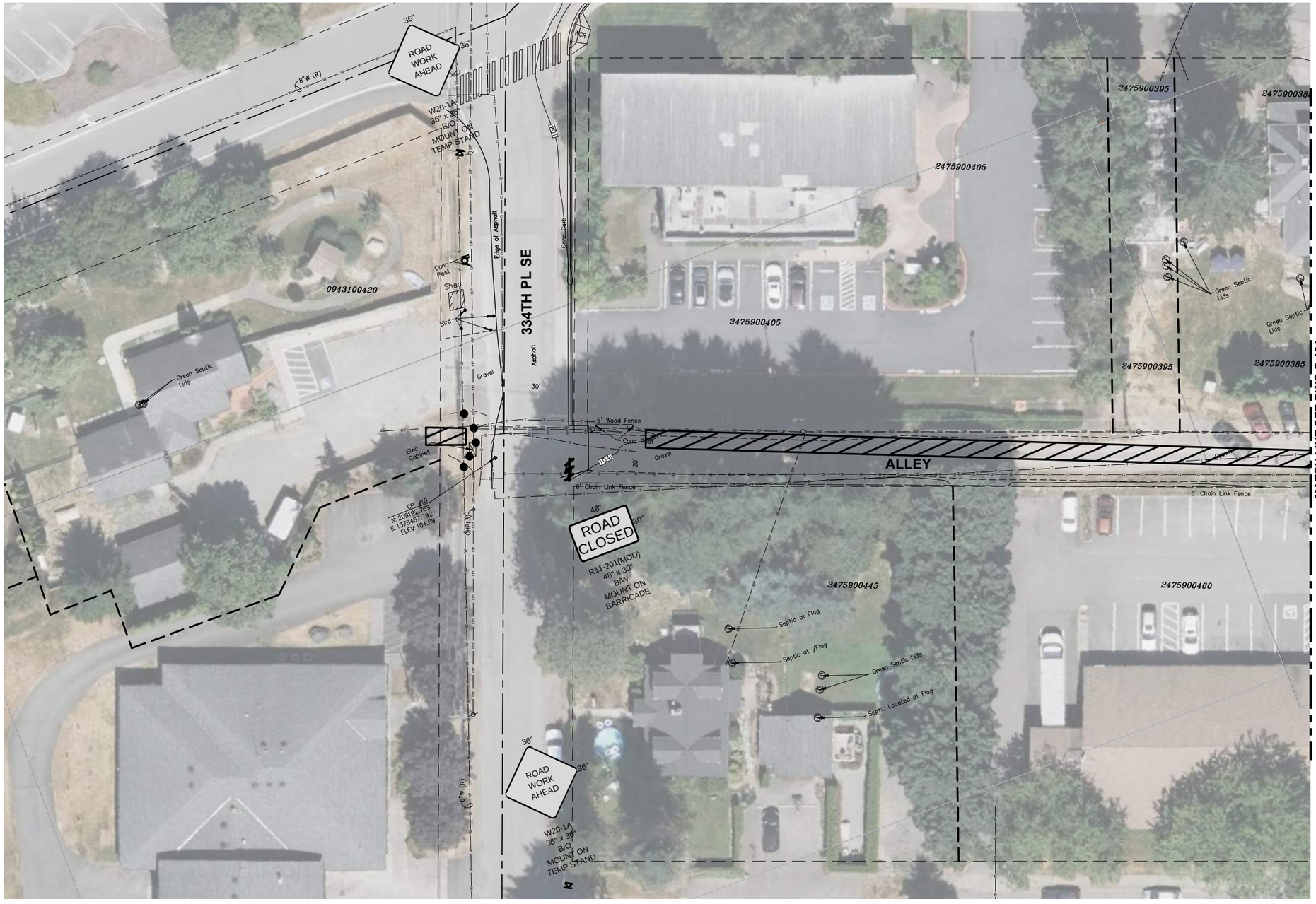
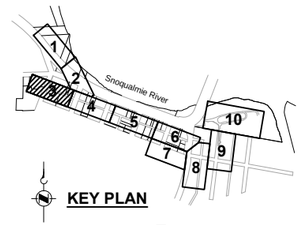
PLOTTED: Mar 30, 2023-08:30:39pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; Fall City_TCP.dwg; Fall City_Civil.dwg
IMAGES:

REFERENCE 0 1"



NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
3. WORK SHALL BE SCHEDULED TO ALLOW ALLEY ACCESS FOR TRASH REMOVAL SERVICES.
4. HOURS OF OPERATION SHALL BE AS STATED IN THE PERMIT.
5. EXCAVATIONS TO BE BACKFILLED OR COVERED DURING NON-WORK HOURS.
6. KEEP CLEAR ZONE FREE OF MATERIALS, WORKERS AND FIXED OBJECTS. OTHERWISE PROVIDE TRAFFIC DELINEATION BETWEEN WORK AREA AND EDGE OF TRAVELED WAY.



KEY PLAN

0 20 40 60
SCALE IN FEET

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING STATE OF WASHINGTON 39842 REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 3

DATE: APRIL 2023
DRAWING NO: C-103
SHT NO 16 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Mar 30, 2023-08:29:57pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; Fall City_TCP.dwg
IMAGES:

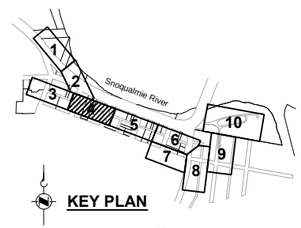
MATCH LINE SEE DWG C-102

MATCH LINE SEE DWG C-103

MATCH LINE SEE DWG C-105

NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
3. WORK SHALL BE SCHEDULED TO ALLOW ALLEY ACCESS FOR TRASH REMOVAL SERVICES.
4. HOURS OF OPERATION SHALL BE AS STATED IN THE PERMIT.
5. EXCAVATIONS TO BE BACKFILLED OR COVERED DURING NON-WORK HOURS.
6. KEEP CLEAR ZONE FREE OF MATERIALS, WORKERS AND FIXED OBJECTS. OTHERWISE PROVIDE TRAFFIC DELINEATION BETWEEN WORK AREA AND EDGE OF TRAVELED WAY.



KEY PLAN

0 20 40 60

SCALE IN FEET

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 19842 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 4

DATE: APRIL 2023
DRAWING NO: C-104
SHT NO 17 / TOTAL 56 REV NO:

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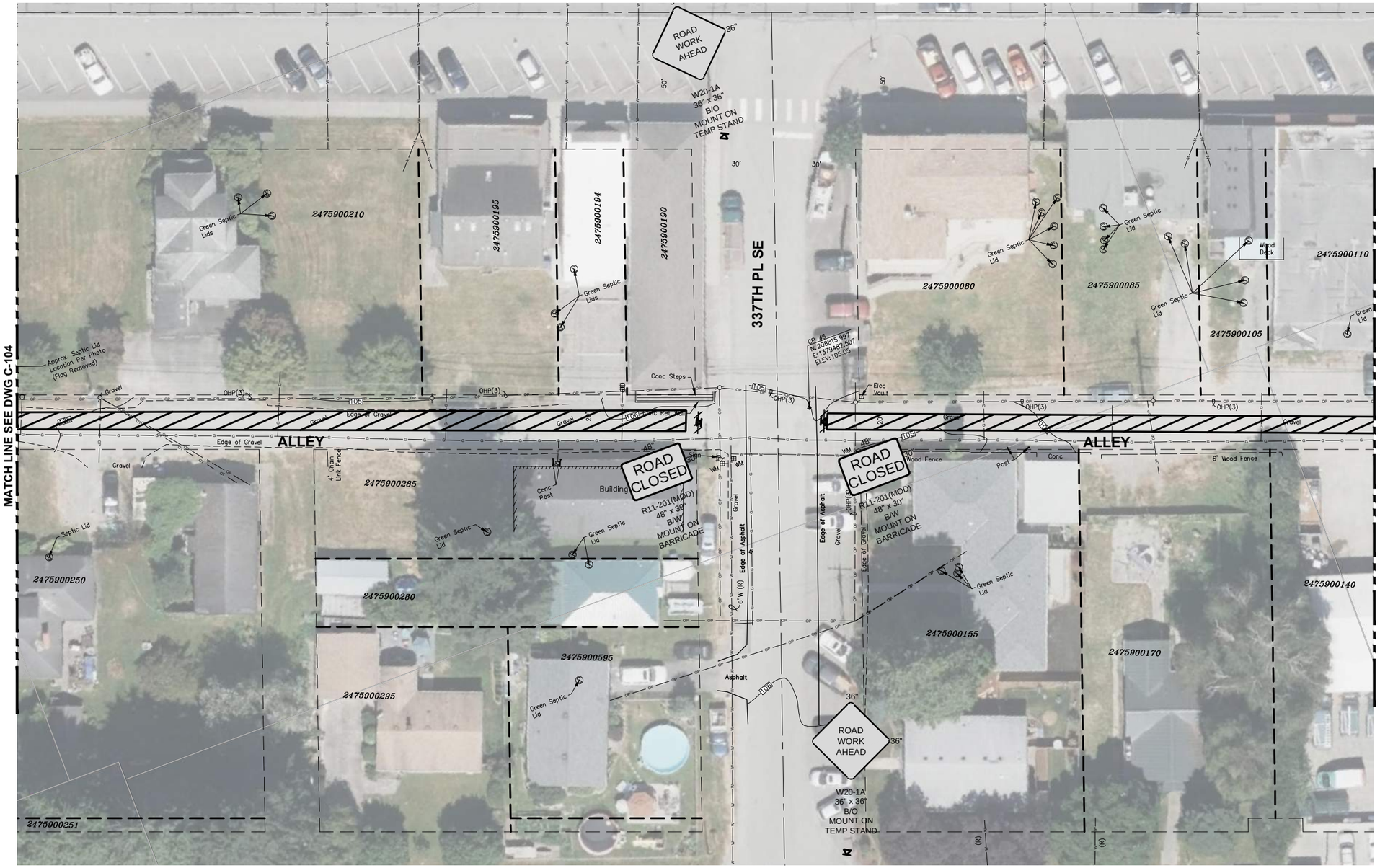
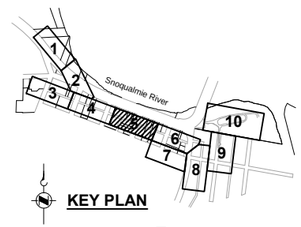


NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
3. WORK SHALL BE SCHEDULED TO ALLOW ALLEY ACCESS FOR TRASH REMOVAL SERVICES.
4. HOURS OF OPERATION SHALL BE AS STATED IN THE PERMIT.
5. EXCAVATIONS TO BE BACKFILLED OR COVERED DURING NON-WORK HOURS.
6. KEEP CLEAR ZONE FREE OF MATERIALS, WORKERS AND FIXED OBJECTS. OTHERWISE PROVIDE TRAFFIC DELINEATION BETWEEN WORK AREA AND EDGE OF TRAVELED WAY.



KEY PLAN

0 20 40 60
SCALE IN FEET

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 39842 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 5

DATE: APRIL 2023
DRAWING NO: C-105
SHT NO 18 / TOTAL 56
REV NO:

NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
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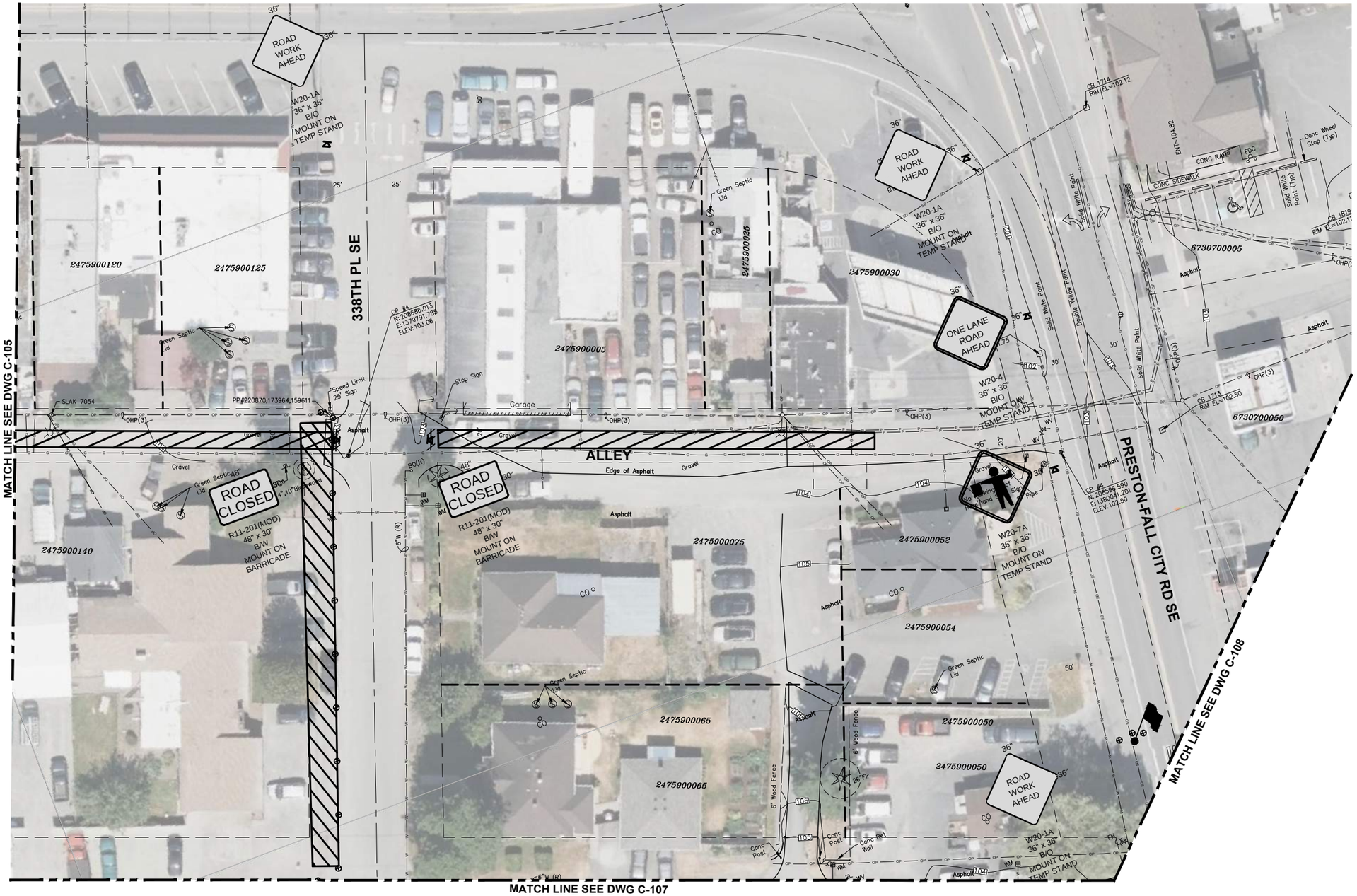
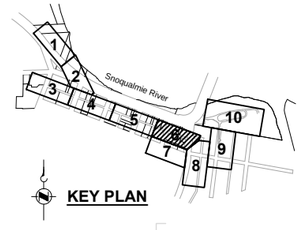
4. HOURS OF OPERATION SHALL BE AS STATED IN THE PERMIT.
5. EXCAVATIONS TO BE BACKFILLED OR COVERED DURING NON-WORK HOURS.
6. KEEP CLEAR ZONE FREE OF MATERIALS, WORKERS AND FIXED OBJECTS. OTHERWISE PROVIDE TRAFFIC DELINEATION BETWEEN WORK AREA AND EDGE OF TRAVELED WAY.
7. PROVIDE FLAGGING OPERATION ON SE 43RD AND PRESTON-FALL CITY ROAD TO COMPLETE TRENCHLESS OPERATION AS NEEDED.





NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 39842 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 6

DATE: APRIL 2023
DRAWING NO: **C-106**
SHT NO 19 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Mar 30, 2023-08:53:24pm By dyang1
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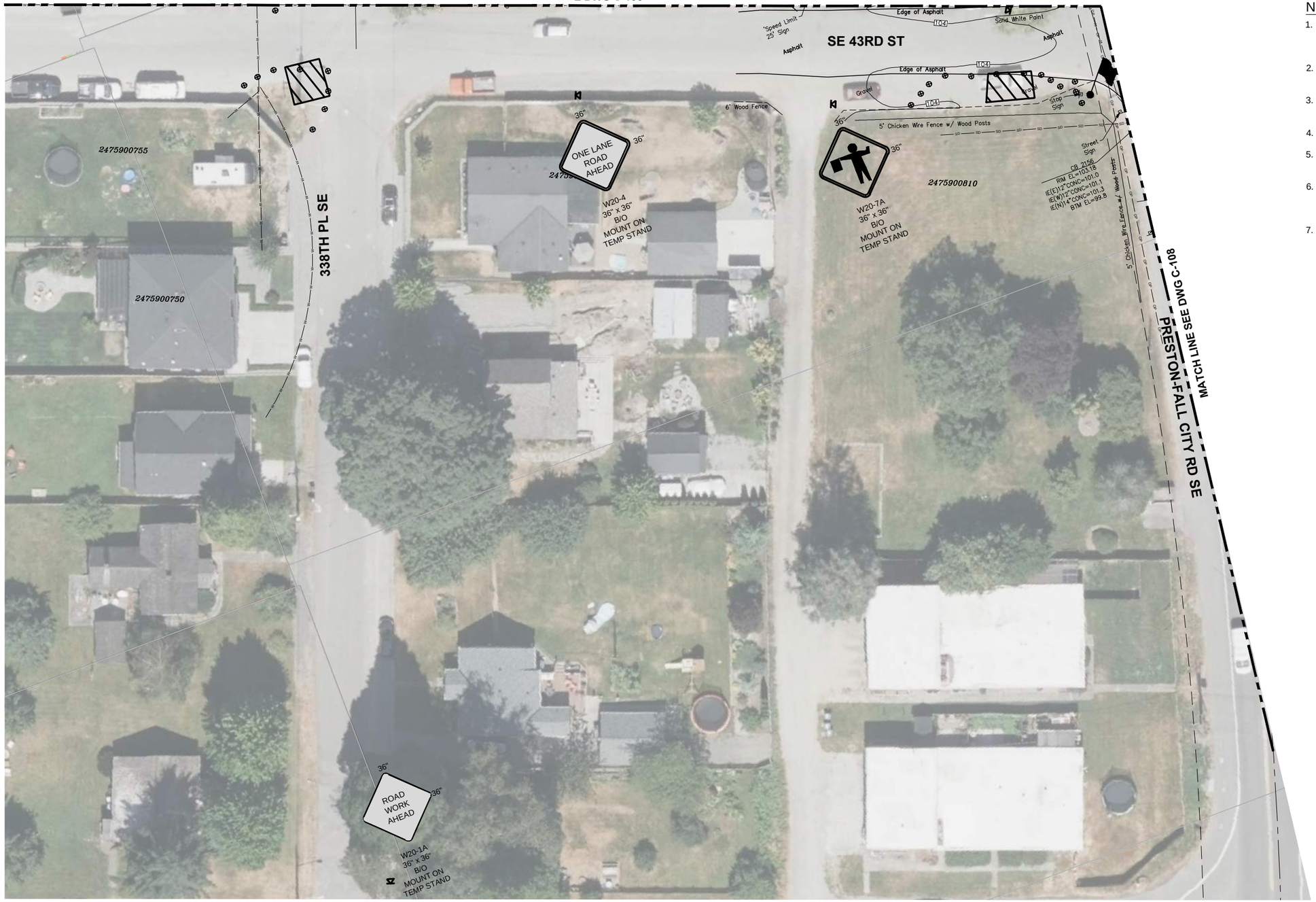
IMAGES:

MATCH LINE SEE DWG C-106



NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
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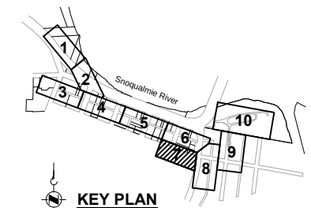
7. PROVIDE FLAGGING OPERATION ON SE 43RD AND PRESTON-FALL CITY ROAD TO COMPLETE TRENCHLESS OPERATION AS NEEDED.



KEY PLAN

0 20 40 60
SCALE IN FEET

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 39842 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 7

DATE: APRIL 2023
DRAWING NO: **C-107**
SHT NO 20 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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IMAGES:

NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
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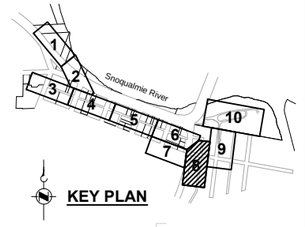
7. PROVIDE FLAGGING OPERATION ON SE 43RD AND PRESTON-FALL CITY ROAD TO COMPLETE TRENCHLESS OPERATION AS NEEDED.



0 20 40 60
SCALE IN FEET

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 39842 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: B. DEARING	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 8

DATE: APRIL 2023
DRAWING NO: **C-108**
SHT NO 21 / TOTAL 56
REV NO:

NOTES

1. SEE DRAWING C-101 FOR LEGEND AND WORK ZONE SIGN SPACING TABLE, DEVICE SPACING TABLE, AND CLEAR ZONE DISTANCES.
2. WHEN WORK WILL IMPACT A PROPERTY ENTRANCE, COORDINATE ACCESS WITH PROPERTY OWNERS.
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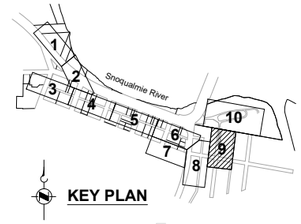

KEY PLAN

0 20 40 60
SCALE IN FEET

REFERENCE 1"
0 5

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN GENE DEARING — STATE OF WASHINGTON — 39842 — REGISTERED PROFESSIONAL ENGINEER

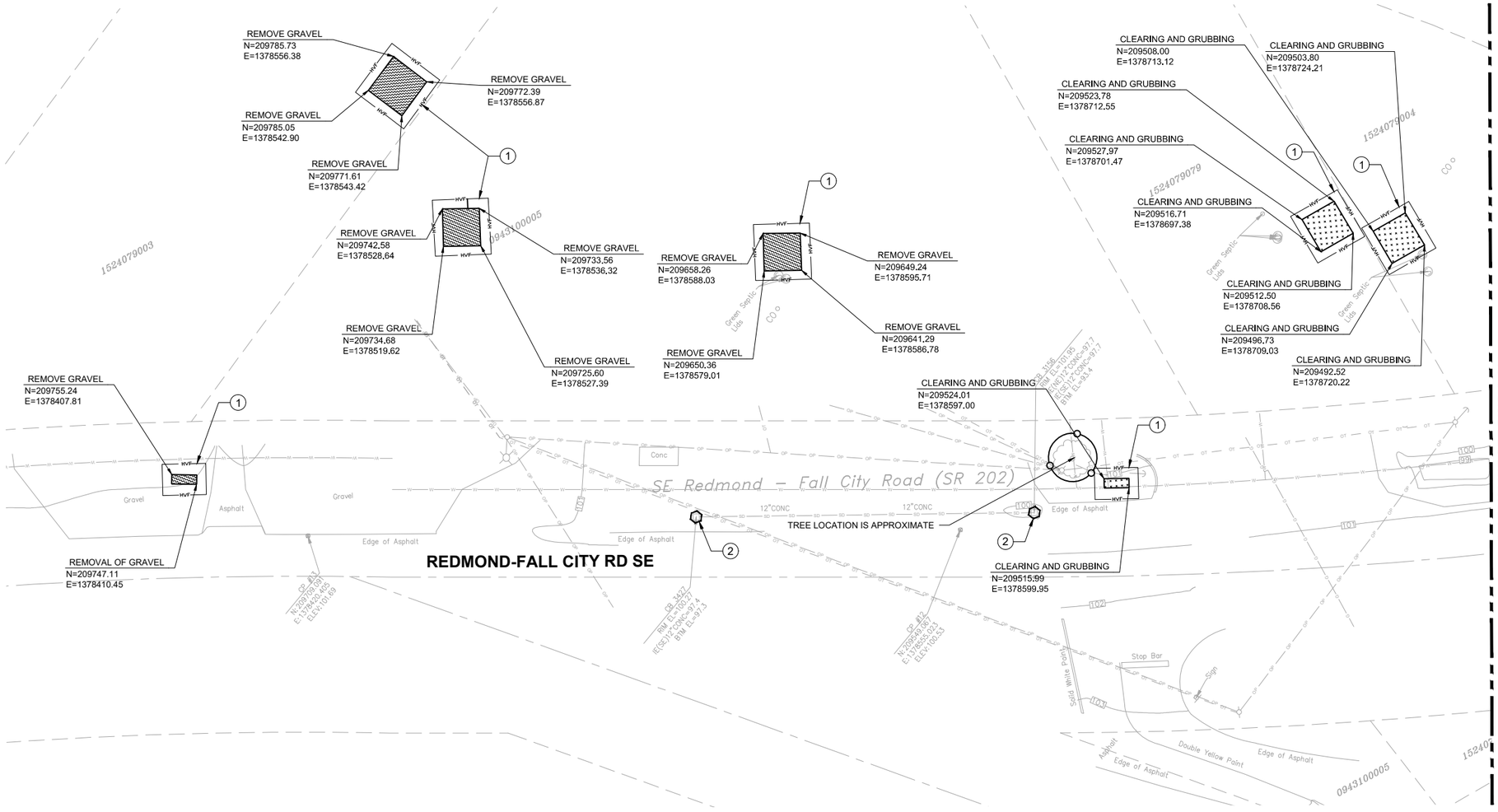
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'		
DESIGN ENGINEER: B. DEARING	WORK ORDER:		
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126		
	CONTRACT NO:		

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

TRAFFIC CONTROL PLAN 9

DATE: APRIL 2023
DRAWING NO: **C-109**
SHT NO 22 / TOTAL 56 | REV NO:



NOTES

1. THE TESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS. LOCATIONS MAYBE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE INSPECTOR.
2. A COPY OF THE APPROVED EROSION CONTROL PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE
4. CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED BY THE CONTRACTOR.
5. THE ENGINEER HAS THE AUTHORITY TO HALT CONSTRUCTION IF EROSION CONTROLS ARE NOT MAINTAINED PROPERLY OR IF A VIOLATION HAS NOT BEEN CORRECTED. THE CONTRACTOR SHALL BEAR ALL RISK AND ALL COSTS OF ANY WORK DELAYS CAUSED BY THESE ACTIONS.
6. COORDINATE WITH PROPERTY OWNER FOR LOCATION OF EXCAVATED MATERIAL STOCK PILE. STOCK PILE TO REMAIN MORE THAN 24 HOURS NEED TO BE COVERED.

KEY NOTES

1. INSTALL HIGH VISIBILITY FENCE PER WSDOT STD PLAN I-10.10-01
2. INSTALL ABOVE GROUND INLET PROTECTION PER WSDOT STD PLAN I-40.10-00
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-02
4. SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.
5. REMOVE TREE
6. REMOVE FENCE

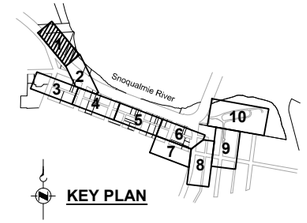
TESC SYMBOLS

- CATCH BASIN INSERT
- TREE REMOVAL
- TREE PROTECTION
- HVF — HIGH VISIBILITY FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY CONSTRUCTION ACCESS EASEMENT

DEMOLITION SYMBOLS

- EXISTING ASPHALT TO BE REMOVED
- EXISTING GRAVEL TO BE REMOVED
- CLEARING AND GRUBBING
- REMOVE 4" OF TOP SOIL
- CLEARING AND GRUBBING LIMITS
- XX — REMOVE FENCE
- SAW CUT PAVEMENT, FULL DEPTH

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 14271 — REGISTERED PROFESSIONAL ENGINEER

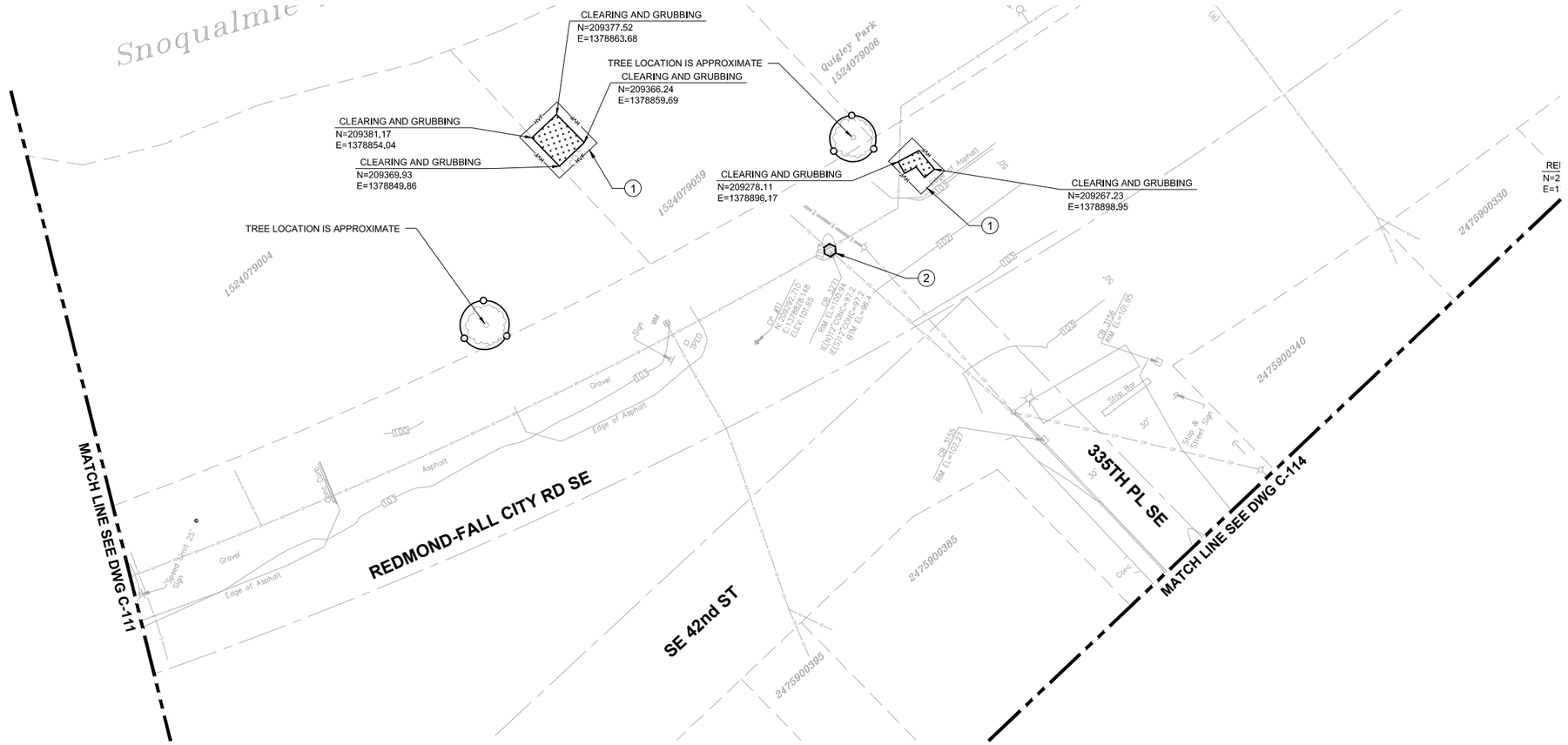
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 1

DATE: APRIL 2023
DRAWING NO: C-111
SHT NO 23 / TOTAL 56 | REV NO:



NOTES

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2. A COPY OF THE APPROVED EROSION CONTROL PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE
4. CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED BY THE CONTRACTOR.
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6. COORDINATE WITH PROPERTY OWNER FOR LOCATION OF EXCAVATED MATERIAL STOCK PILE. STOCK PILE TO REMAIN MORE THAN 24 HOURS NEED TO BE COVERED.

KEY NOTES

1. INSTALL HIGH VISIBILITY FENCE PER WSDOT STD PLAN I-10.10-01
2. INSTALL ABOVE GROUND INLET PROTECTION PER WSDOT STD PLAN I-40.10-00
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-02
4. SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.
5. REMOVE TREE
6. REMOVE FENCE

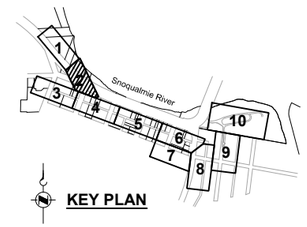
TESC SYMBOLS

- CATCH BASIN INSERT
- TREE REMOVAL
- TREE PROTECTION
- HVF — HIGH VISIBILITY FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY CONSTRUCTION ACCESS EASEMENT

DEMOLITION SYMBOLS

- EXISTING ASPHALT TO BE REMOVED
- EXISTING GRAVEL TO BE REMOVED
- CLEARING AND GRUBBING
- REMOVE 4" OF TOP SOIL
- CLEARING AND GRUBBING LIMITS
- XX — REMOVE FENCE
- SAW CUT PAVEMENT, FULL DEPTH

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SLUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

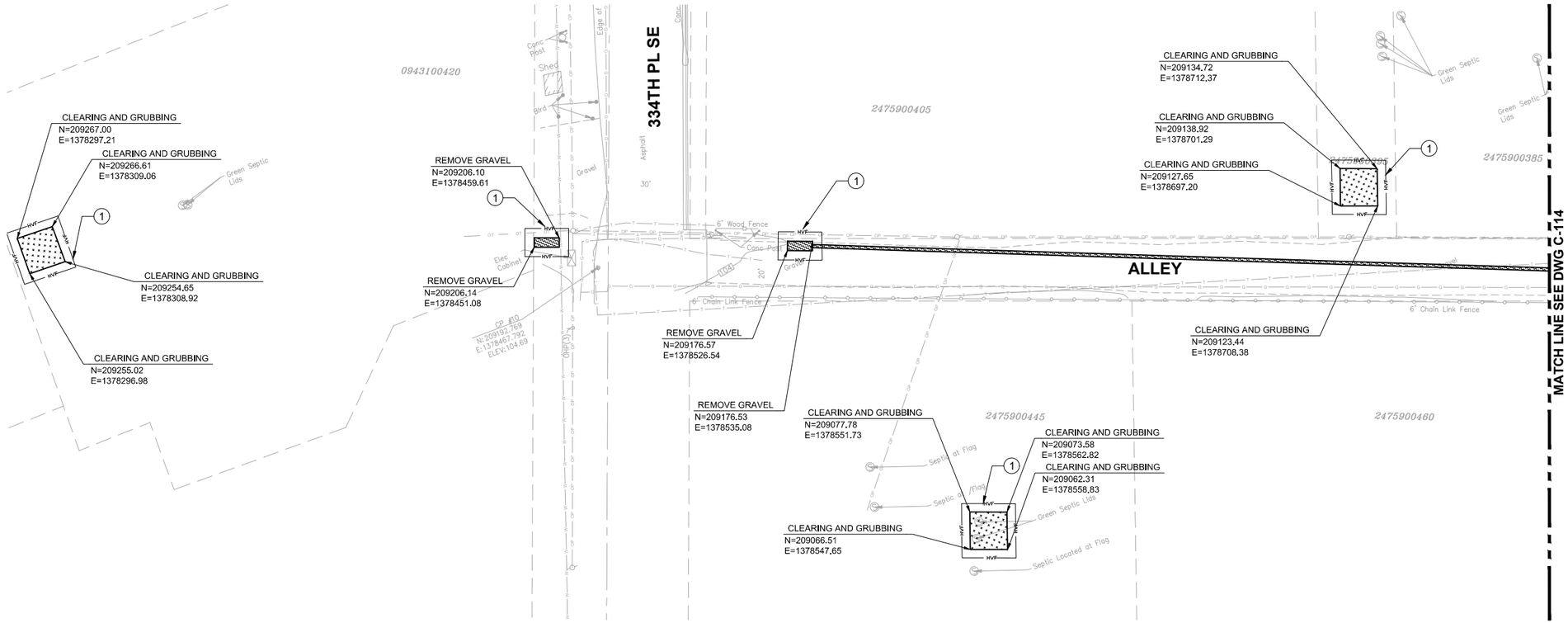
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 2

DATE: APRIL 2023
DRAWING NO: C-112
SHT NO 24 / TOTAL 56 | REV NO:



NOTES

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6. COORDINATE WITH PROPERTY OWNER FOR LOCATION OF EXCAVATED MATERIAL STOCK PILE. STOCK PILE TO REMAIN MORE THAN 24 HOURS NEED TO BE COVERED.

KEY NOTES

1. INSTALL HIGH VISIBILITY FENCE PER WSDOT STD PLAN I-10.10-01
2. INSTALL ABOVE GROUND INLET PROTECTION PER WSDOT STD PLAN I-40.10-00
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-02
4. SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.
5. REMOVE TREE
6. REMOVE FENCE

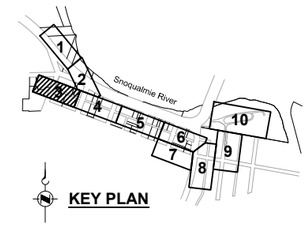
TESC SYMBOLS

- CATCH BASIN INSERT
- TREE REMOVAL
- TREE PROTECTION
- HVF — HIGH VISIBILITY FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY CONSTRUCTION ACCESS EASEMENT

DEMOLITION SYMBOLS

- EXISTING ASPHALT TO BE REMOVED
- EXISTING GRAVEL TO BE REMOVED
- CLEARING AND GRUBBING
- REMOVE 4" OF TOP SOIL
- CLEARING AND GRUBBING LIMITS
- XX — REMOVE FENCE
- SAW CUT PAVEMENT, FULL DEPTH

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'		
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:		
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126		
	CONTRACT NO:		

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 3

DATE: APRIL 2023
DRAWING NO: C-113
SHT NO 25 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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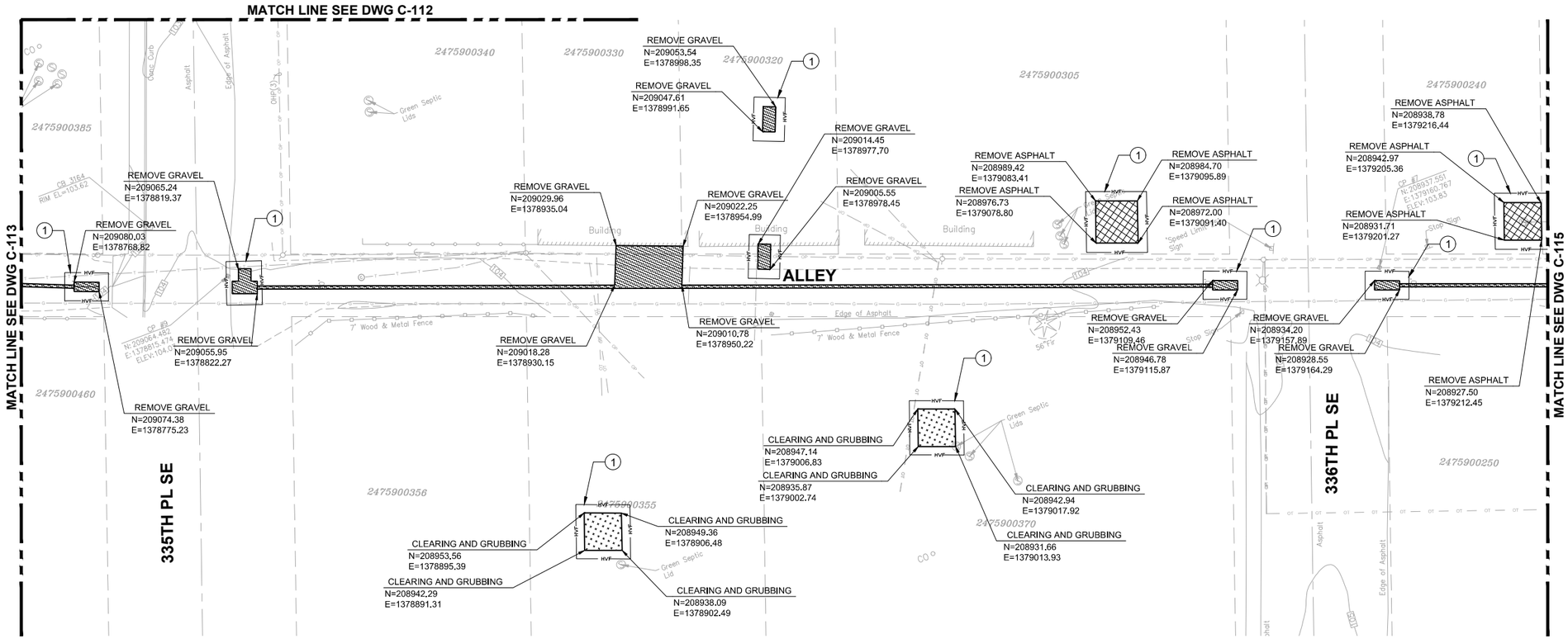
PLOTTED: Apr 03, 2023-07:00:34pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; Fall City_TESC.dwg
IMAGES:



NOTES

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KEY NOTES

(1) INSTALL HIGH VISIBILITY FENCE PER WSDOT STD PLAN I-10.10-01

(2) INSTALL ABOVE GROUND INLET PROTECTION PER WSDOT STD PLAN I-40.10-00

(3) INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-02

(4) SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.

(5) REMOVE TREE

(6) REMOVE FENCE

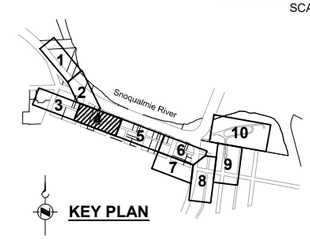
TESC SYMBOLS

- CATCH BASIN INSERT
- TREE REMOVAL
- TREE PROTECTION
- HVF — HIGH VISIBILITY FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY CONSTRUCTION ACCESS EASEMENT

DEMOLITION SYMBOLS

- EXISTING ASPHALT TO BE REMOVED
- EXISTING GRAVEL TO BE REMOVED
- CLEARING AND GRUBBING
- REMOVE 4" OF TOP SOIL
- CLEARING AND GRUBBING LIMITS
- XX — REMOVE FENCE
- SAW CUT PAVEMENT, FULL DEPTH

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELLE STUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

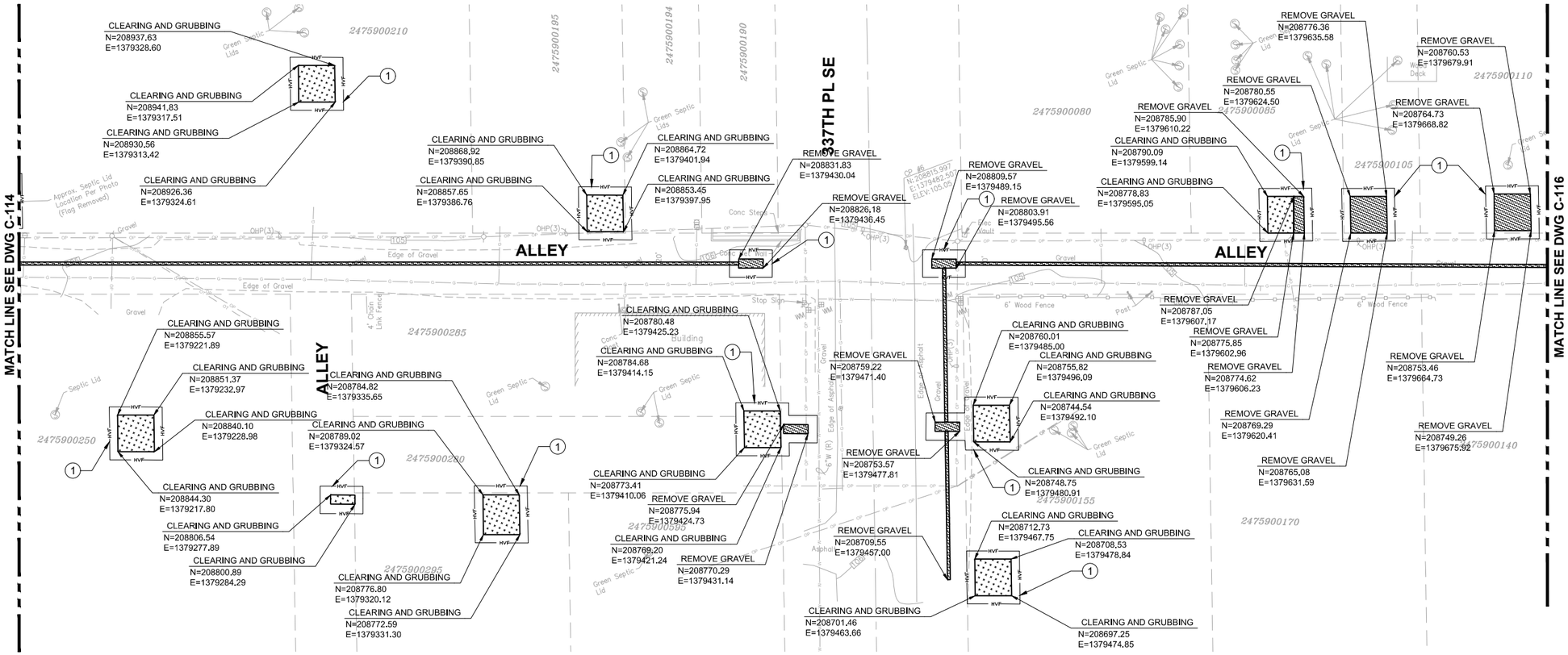
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 4

DATE: APRIL 2023
DRAWING NO: C-114
SHT NO 26 / TOTAL 56
REV NO:



NOTES

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2. A COPY OF THE APPROVED EROSION CONTROL PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE
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6. COORDINATE WITH PROPERTY OWNER FOR LOCATION OF EXCAVATED MATERIAL STOCK PILE. STOCK PILE TO REMAIN MORE THAN 24 HOURS NEED TO BE COVERED.

KEY NOTES

(1) INSTALL HIGH VISIBILITY FENCE PER WSDOT STD PLAN I-10.10-01

(2) INSTALL ABOVE GROUND INLET PROTECTION PER WSDOT STD PLAN I-40.10-00

(3) INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-02

(4) SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.

(5) REMOVE TREE

(6) REMOVE FENCE

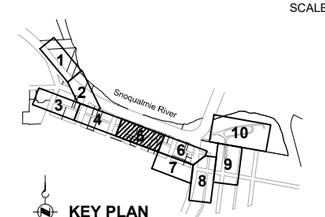
TESC SYMBOLS

- CATCH BASIN INSERT
- TREE REMOVAL
- TREE PROTECTION
- HVF — HIGH VISIBILITY FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY CONSTRUCTION ACCESS EASEMENT

DEMOLITION SYMBOLS

- EXISTING ASPHALT TO BE REMOVED
- EXISTING GRAVEL TO BE REMOVED
- CLEARING AND GRUBBING
- REMOVE 4" OF TOP SOIL
- CLEARING AND GRUBBING LIMITS
- XX — REMOVE FENCE
- SAW CUT PAVEMENT, FULL DEPTH

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE STUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

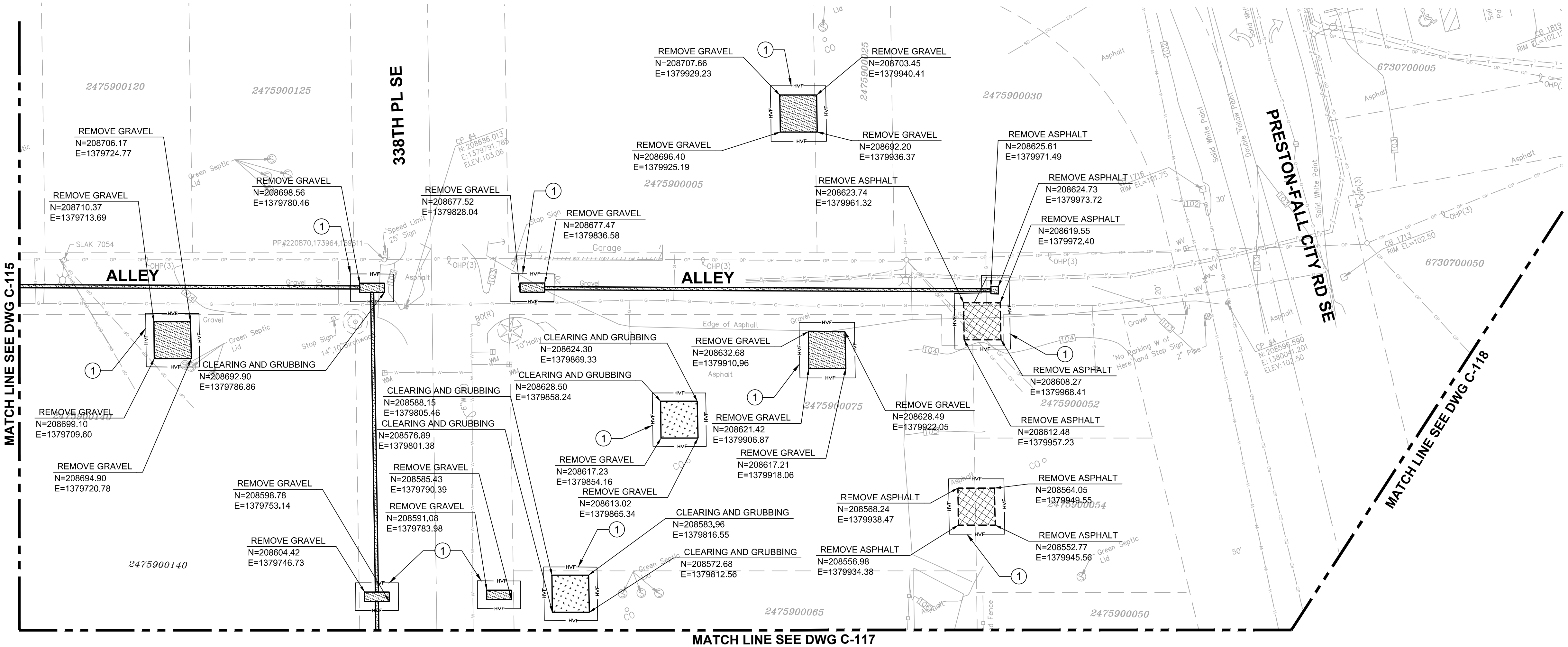
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 5

DATE: APRIL 2023
DRAWING NO: C-115
SHT NO 27 / TOTAL 56
REV NO:



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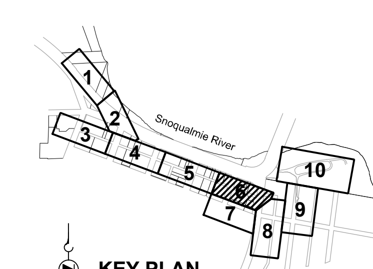
(4) SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.

(5) REMOVE TREE

(6) REMOVE FENCE

0 20 40 60
SCALE IN FEET



KEY PLAN

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NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELLE SHUCK, STATE OF WASHINGTON, 44271, REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 6

DATE: APRIL 2023
DRAWING NO: C-116
SHT NO 28 / TOTAL 56
REV NO:

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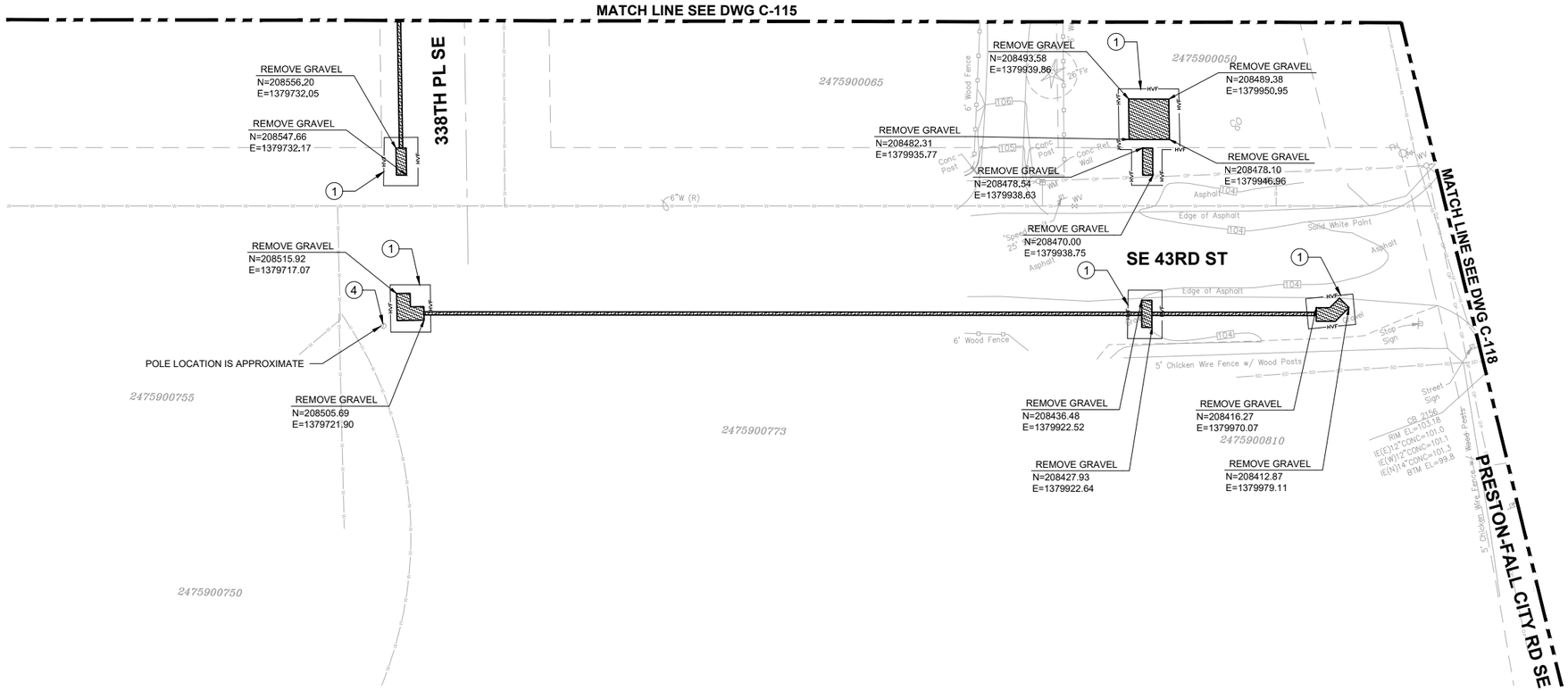
IMAGES:



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2. INSTALL ABOVE GROUND INLET PROTECTION PER WSDOT STD PLAN I-40.10-00
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-02
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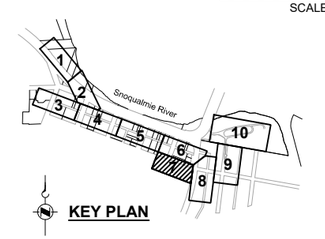
0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
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BRIAN ODELLE STUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

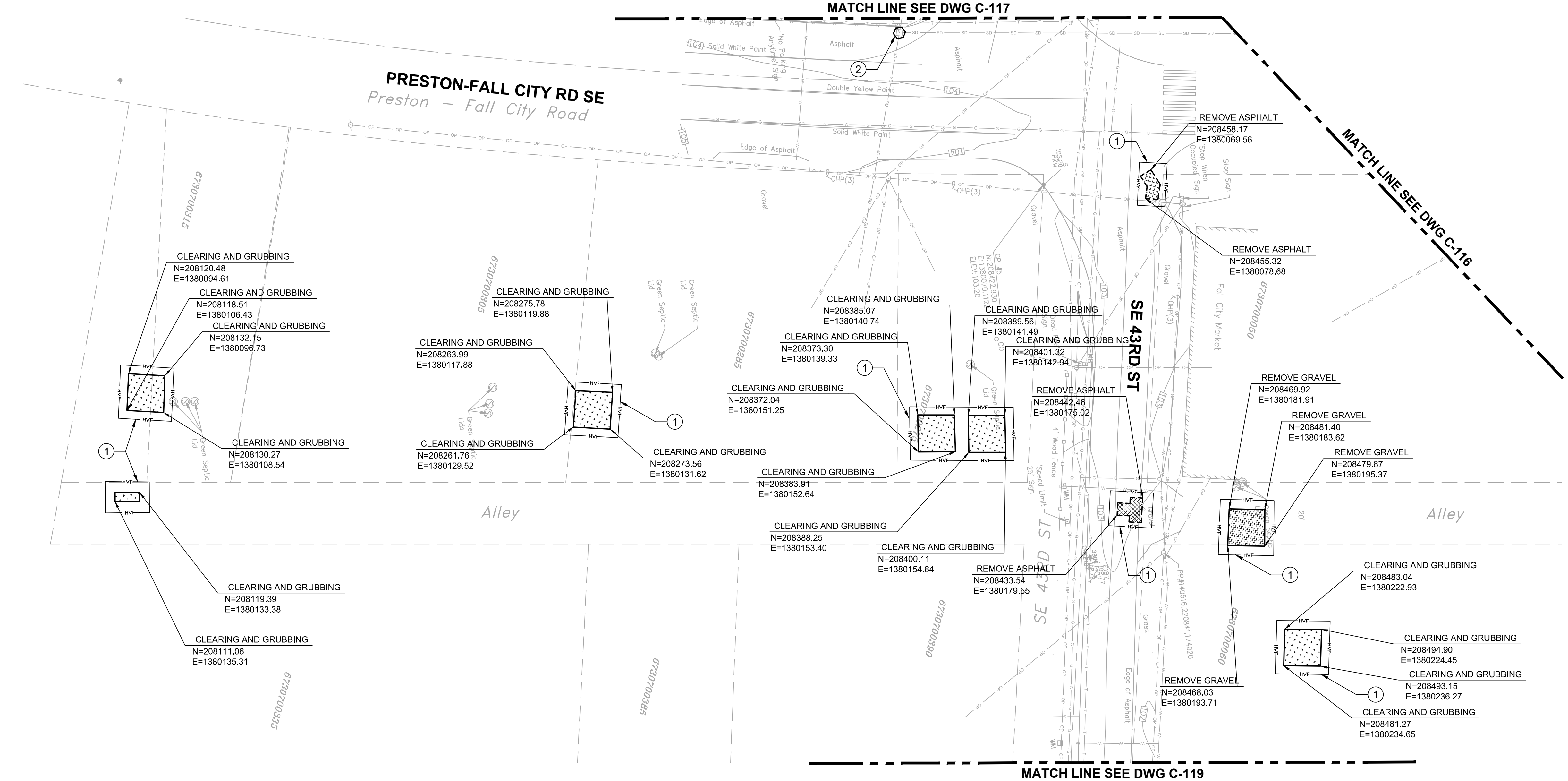
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 7

DATE: APRIL 2023
DRAWING NO: C-117
SHT NO 29 / TOTAL 56
REV NO:



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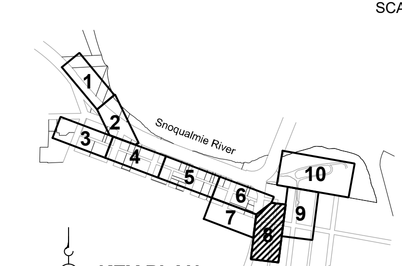
(4) SUPPORT UTILITY POLE IN PLACE PER UTILITY OWNER REQUIREMENTS.

(5) REMOVE TREE

(6) REMOVE FENCE

0 20 40 60
SCALE IN FEET



KEY PLAN

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IMAGES:

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

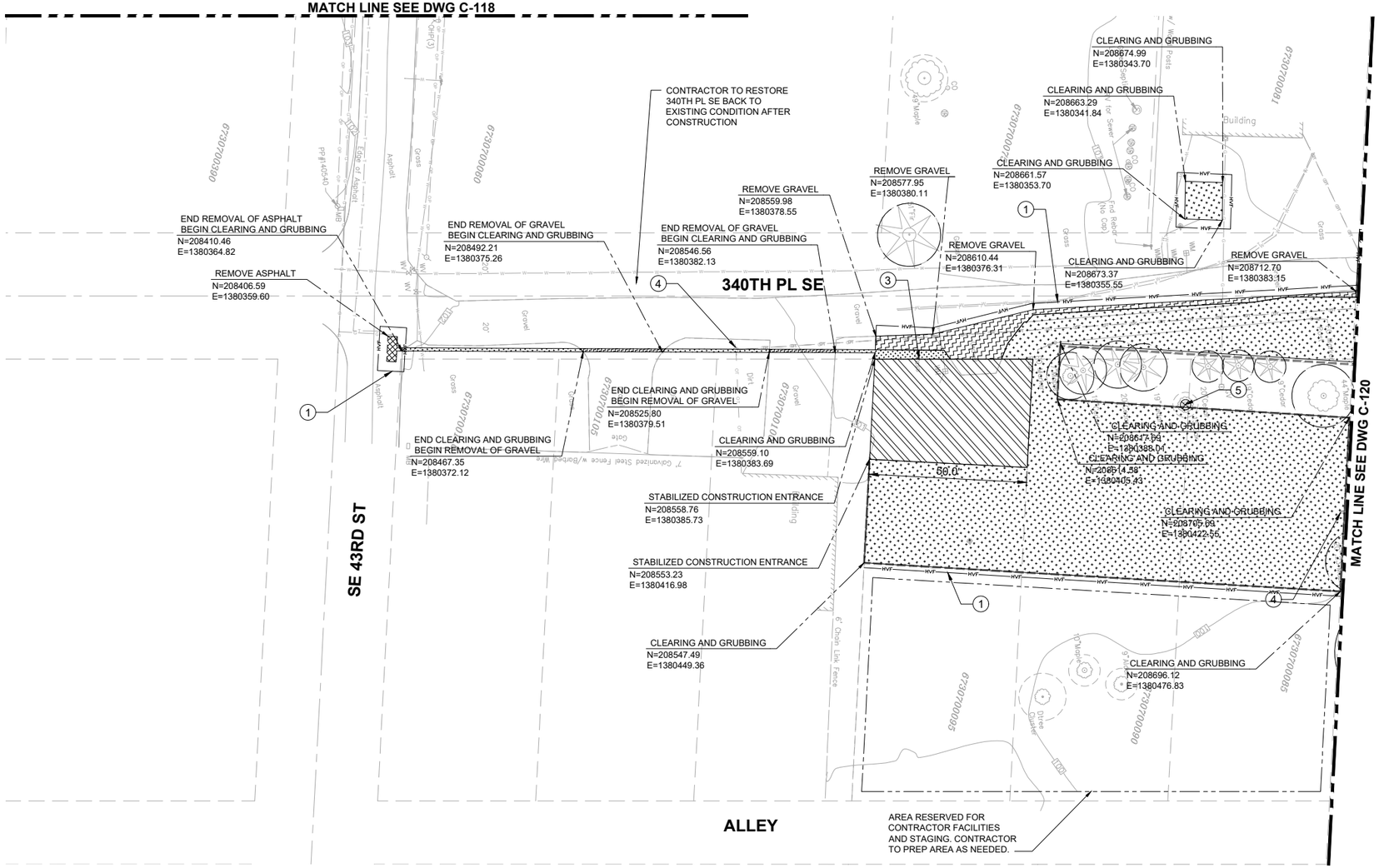
DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 8

DATE: APRIL 2023
DRAWING NO: **C-118**
SHT NO 30 / TOTAL 56
REV NO:



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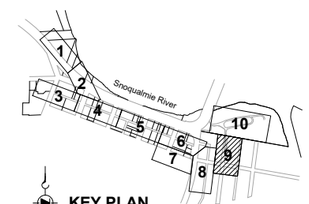
0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE STUCK
STATE OF WASHINGTON
44271
REGISTERED
PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: H:1"=20'
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 9

DATE: APRIL 2023
DRAWING NO: C-119
SHT NO 31 / TOTAL 56
REV NO:

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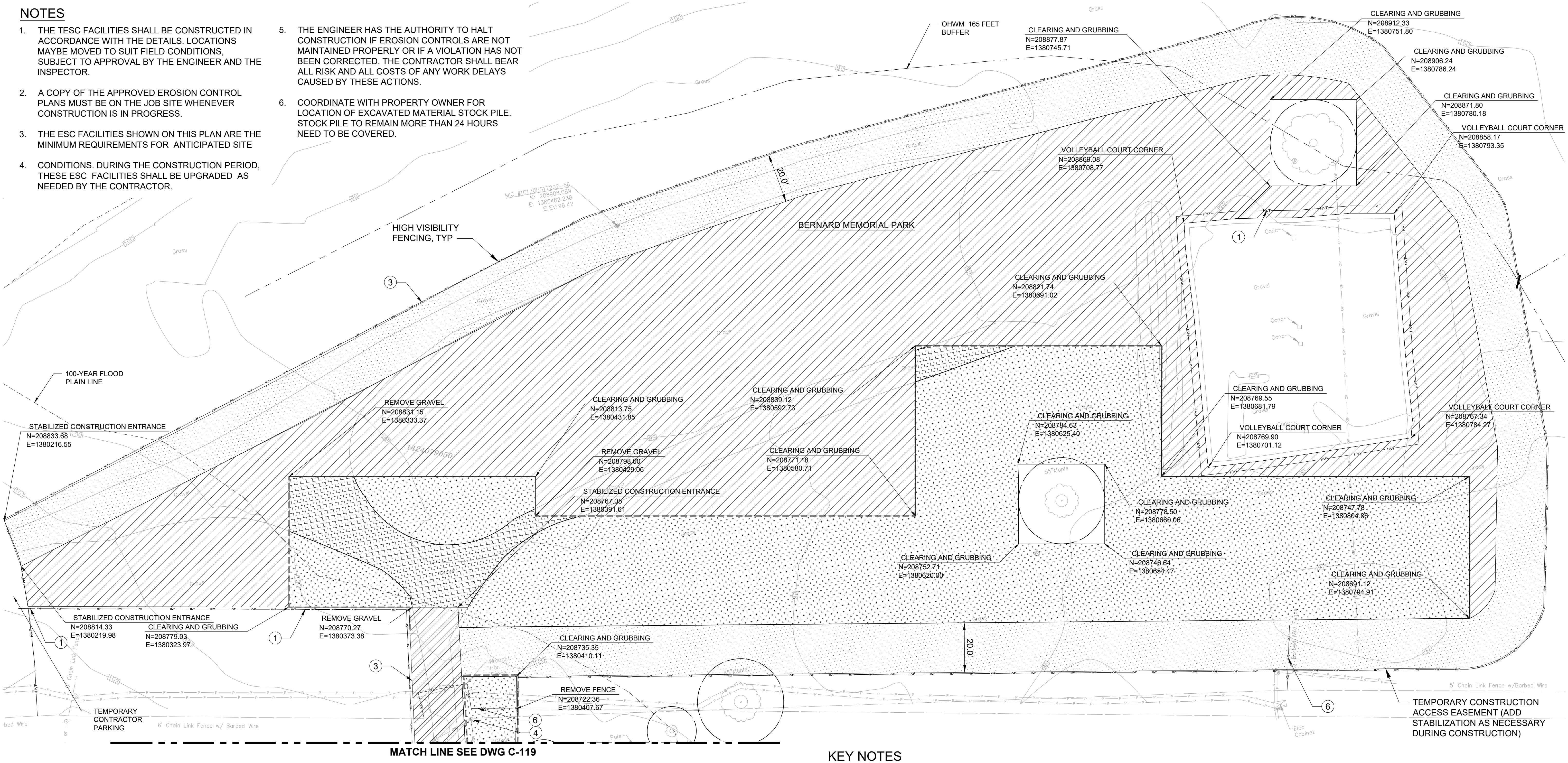

TESC SYMBOLS

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KEY NOTES

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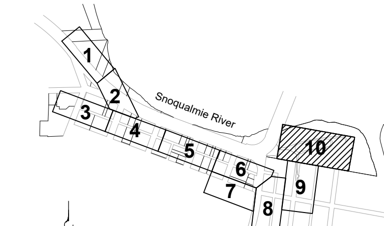
6. REMOVE FENCE

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELLE SHUCK, STATE OF WASHINGTON, 44271, REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: 1"=20'
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	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

SITE PREPARATION AND TESC PLAN 10

DATE: APRIL 2023
DRAWING NO: **C-120**
SHT NO 32 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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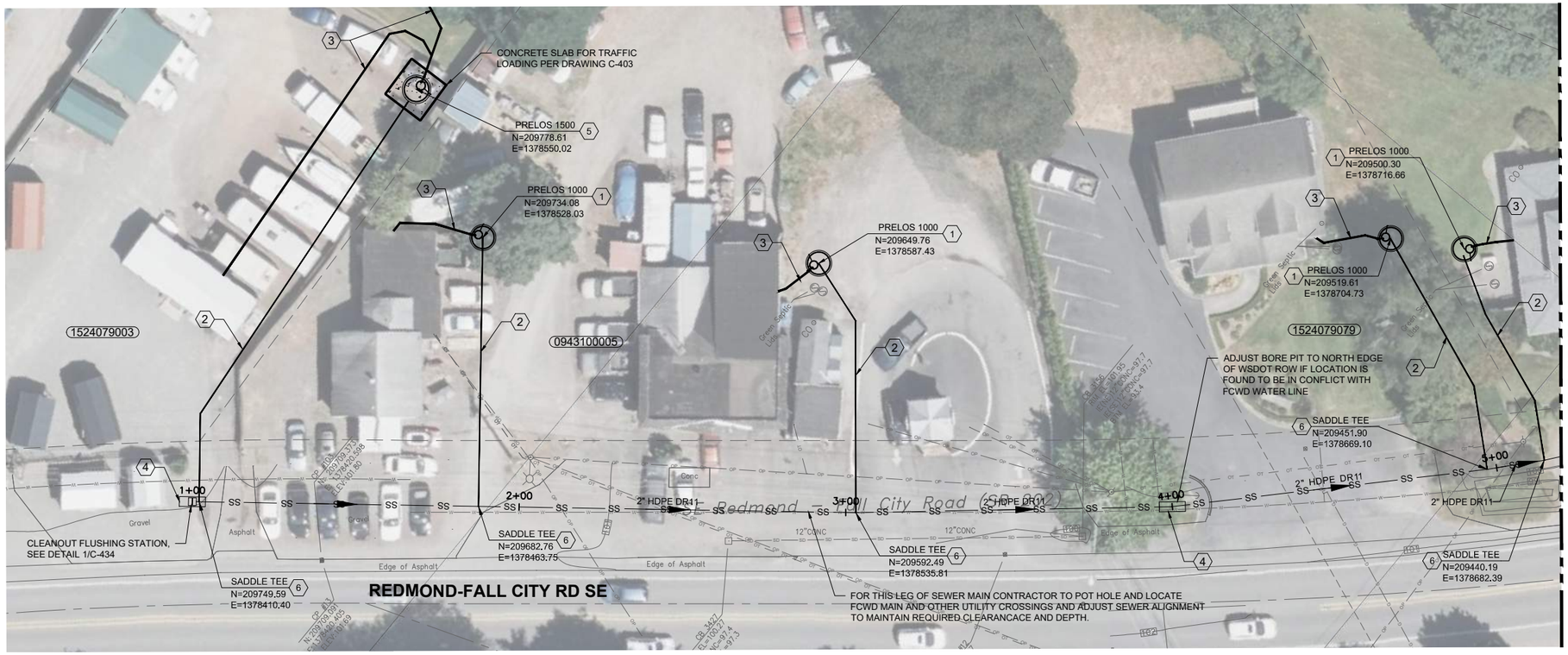


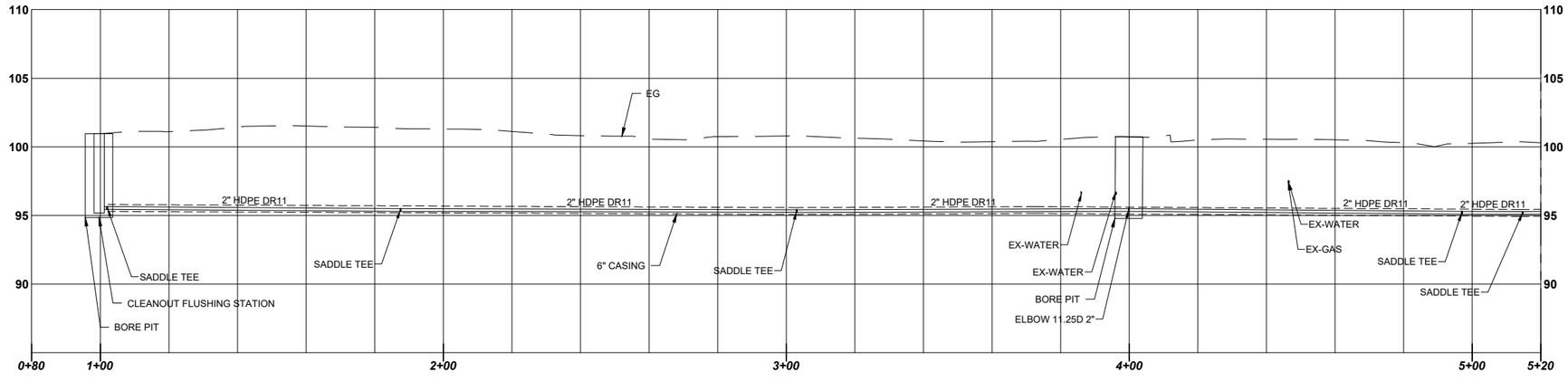
MATCH LINE STA 5+20.00 SEE DWG C-122

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS.
3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
9. ELECTRICAL WIRING TO CONTROL PANEL PROVIDED BY PROPERTY OWNER.
10. PRIOR TO CONNECTION TO SEWER MAIN, SERVICE LINES TO BE PRESSURE TESTED PER SPEC SECTION 33 05 01B.
11. AFTER CONNECTION TO NEW SYSTEM IS COMPLETE, PUMP OUT EXISTING TANK AND DECOMMISSION BY FILLING WITH SPOILS FROM EXCAVATION OF PRELOS TANK (IF SUITABLE) OR BACKFILL WITH PEA GRAVEL.
12. FOR TRENCHLESS SECTION SEAL HDPE CASING PIPE WITH NONSHRINK GROUT.
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.
14. RESTORE POTHOLES PER WSDOT OPEN TRENCH DETAIL FOR POTHOLE.
15. RESTORE BORE PITS PER WSDOT OPEN TRENCH DETAIL FOR BORE PIT.

PLAN

SCALE: 1"=20'



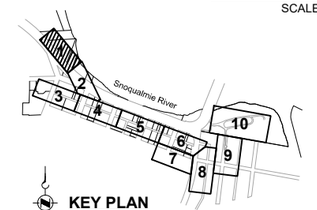
PROFILE

SCALE: V: 1"=5', H: 1"=20'

KEY NOTES

1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECIEVING PIT
5. INSTALL PRELOS 1500 GAL PER DRAWING C-402
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK STATE OF WASHINGTON 24271 REGISTERED PROFESSIONAL ENGINEER

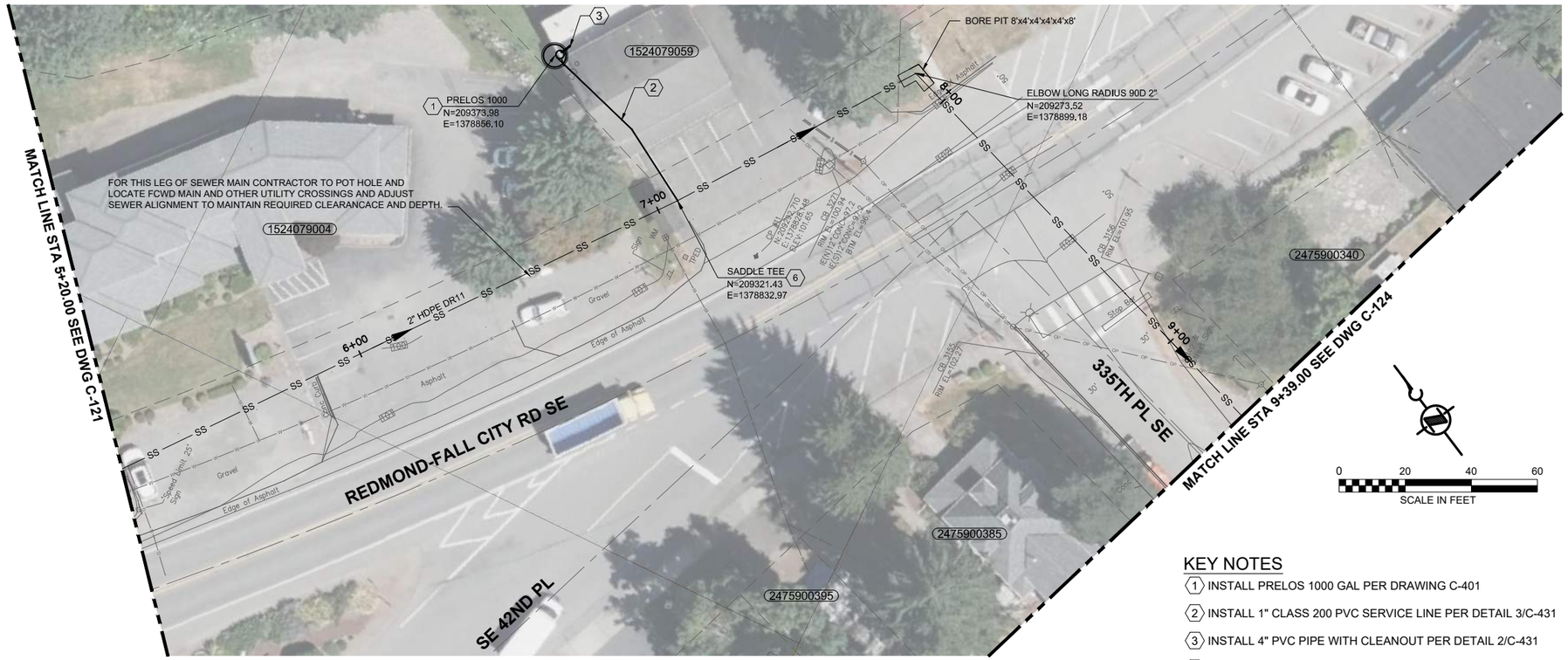
DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 1

DATE: APRIL 2023
DRAWING NO: C-121
SHT NO 33 / TOTAL 56
REV NO:



PLAN
SCALE: 1"=20'

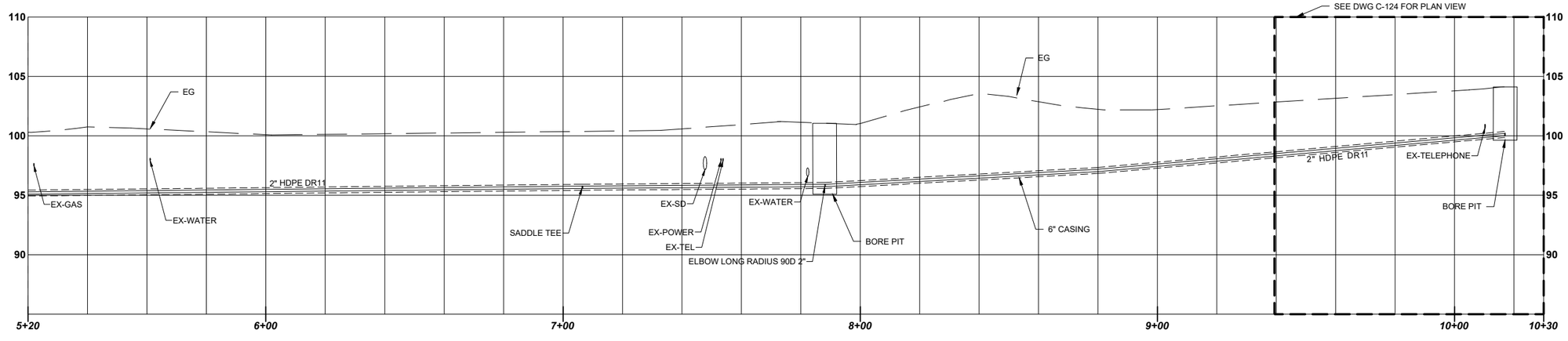
0 20 40 60
SCALE IN FEET

KEY NOTES

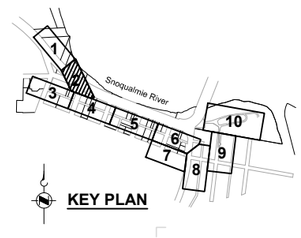
1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS.
3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
9. ELECTRICAL WIRING TO CONTROL PANEL PROVIDED BY PROPERTY OWNER.
10. PRIOR TO CONNECTION TO SEWER MAIN, SERVICE LINES TO BE PRESSURE TESTED PER SPEC SECTION 33 05 01B.
11. AFTER CONNECTION TO NEW SYSTEM IS COMPLETE, PUMP OUT EXISTING TANK AND DECOMMISSION BY FILLING WITH SPOILS FROM EXCAVATION OF PRELOS TANK (IF SUITABLE) OR BACKFILL WITH PEA GRAVEL.
12. FOR TRENCHLESS SECTION SEAL HDPE CASING PIPE WITH NONSHRINK GROUT.
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.
14. RESTORE POTHOLES PER WSDOT OPEN TRENCH DETAIL FOR POTHOLE.
15. RESTORE BORE PITS PER WSDOT OPEN TRENCH DETAIL FOR BORE PIT.



PROFILE
SCALE: V: 1"=5', H: 1"=20'



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK STATE OF WASHINGTON 24271 REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'		
DESIGN ENGINEER: B. SHUCK	WORK ORDER:		
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126		
	CONTRACT NO:		

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 2

DATE: APRIL 2023
DRAWING NO: C-122
SHT NO 34 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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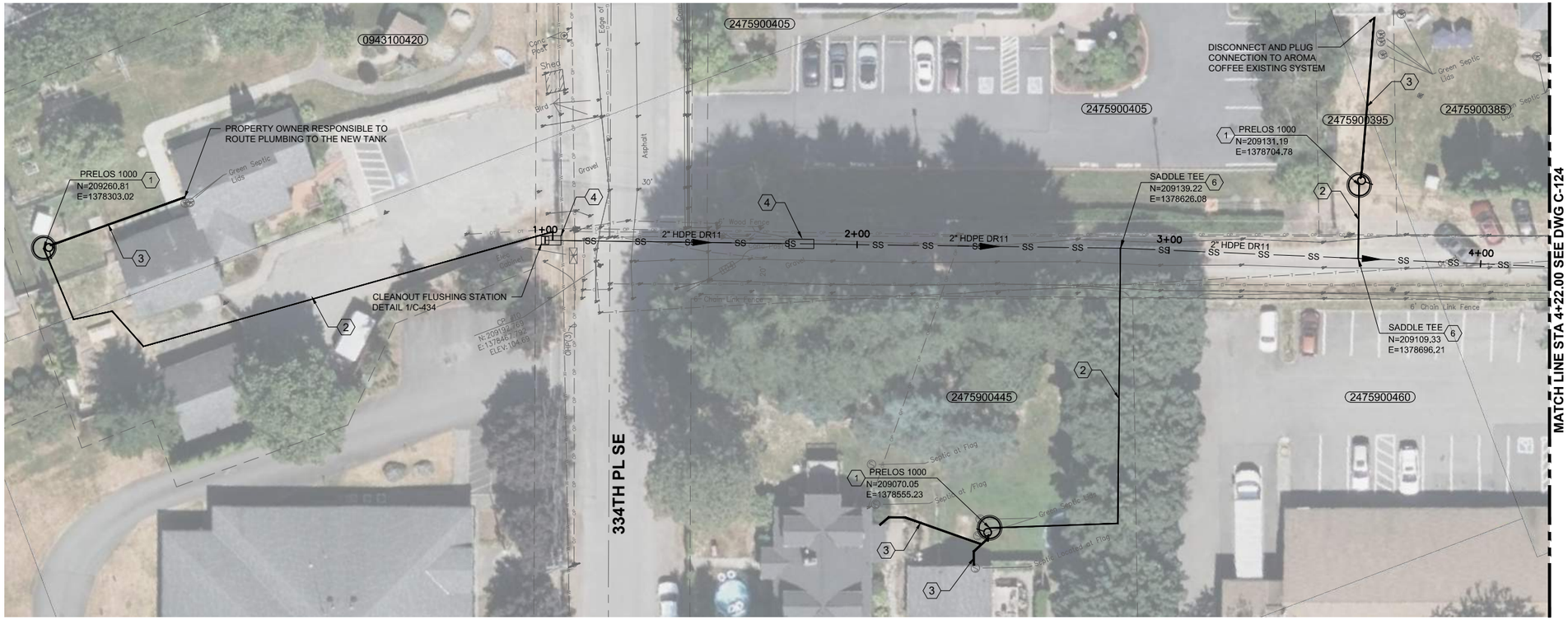
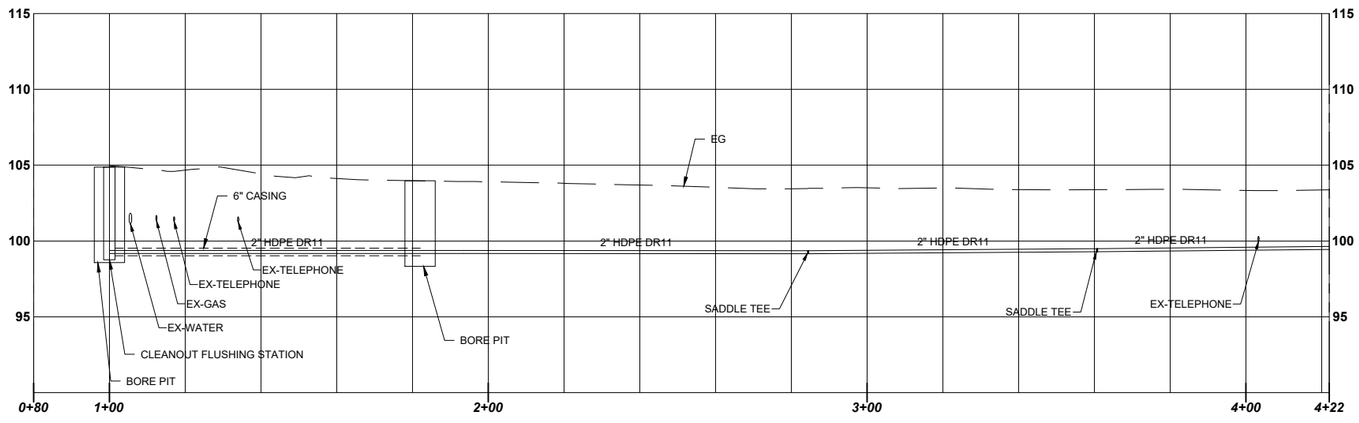
PLOTTED: Apr 03, 2023-12:59:26pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; Fall City_Civil.dwg
IMAGES:



PLAN
SCALE: 1"=20'



PROFILE
SCALE: V: 1"=5', H: 1"=20'

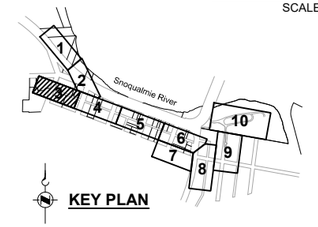
NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS.
3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
9. ELECTRICAL WIRING TO CONTROL PANEL PROVIDED BY PROPERTY OWNER.
10. PRIOR TO CONNECTION TO SEWER MAIN, SERVICE LINES TO BE PRESSURE TESTED PER SPEC SECTION 33 05 01B.
11. AFTER CONNECTION TO NEW SYSTEM IS COMPLETE, PUMP OUT EXISTING TANK AND DECOMMISSION BY FILLING WITH SPOILS FROM EXCAVATION OF PRELOS TANK (IF SUITABLE) OR BACKFILL WITH PEA GRAVEL.
12. FOR TRENCHLESS SECTION SEAL HDPE CASING PIPE WITH NONSHRINK GROUT.
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.

KEY NOTES

1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECIEVING PIT
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK STATE OF WASHINGTON 24271 REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 2

DATE: APRIL 2023
DRAWING NO: C-123
SHT NO 35 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 03, 2023-01:00:55pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; Fall City_Civil.dwg
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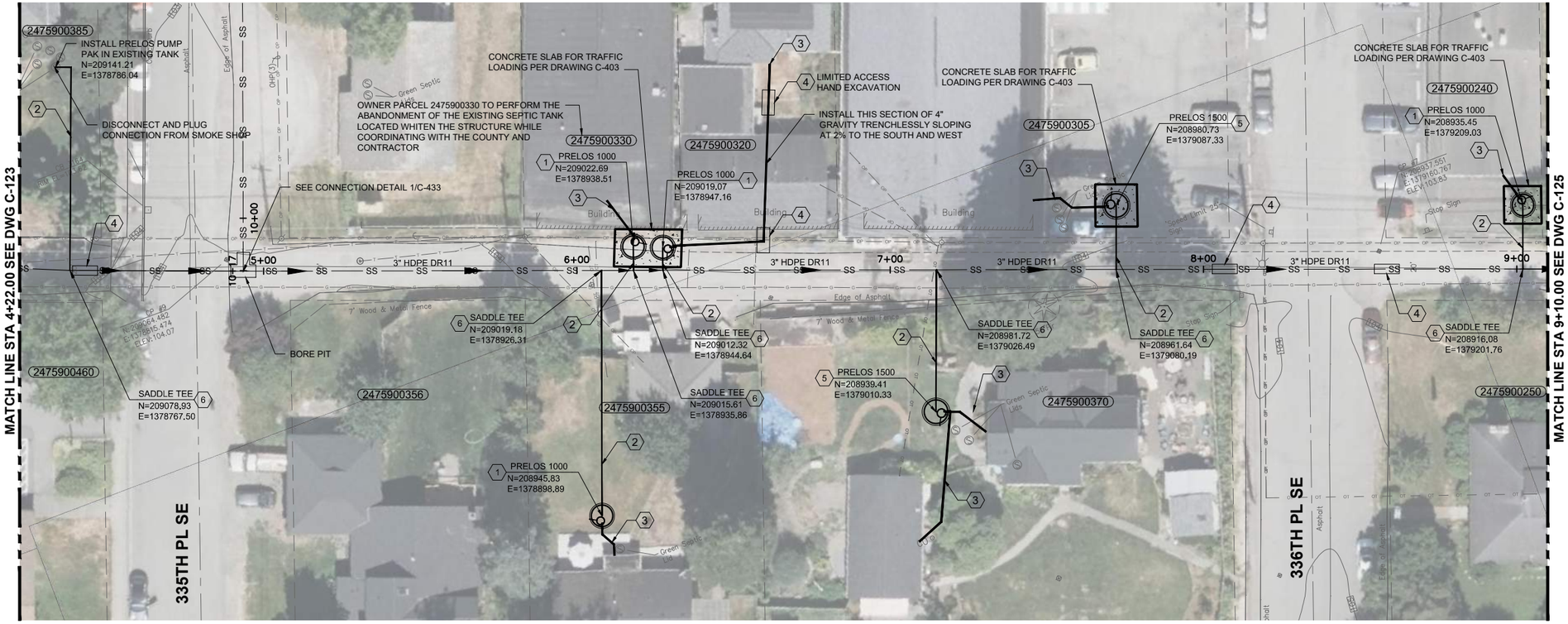
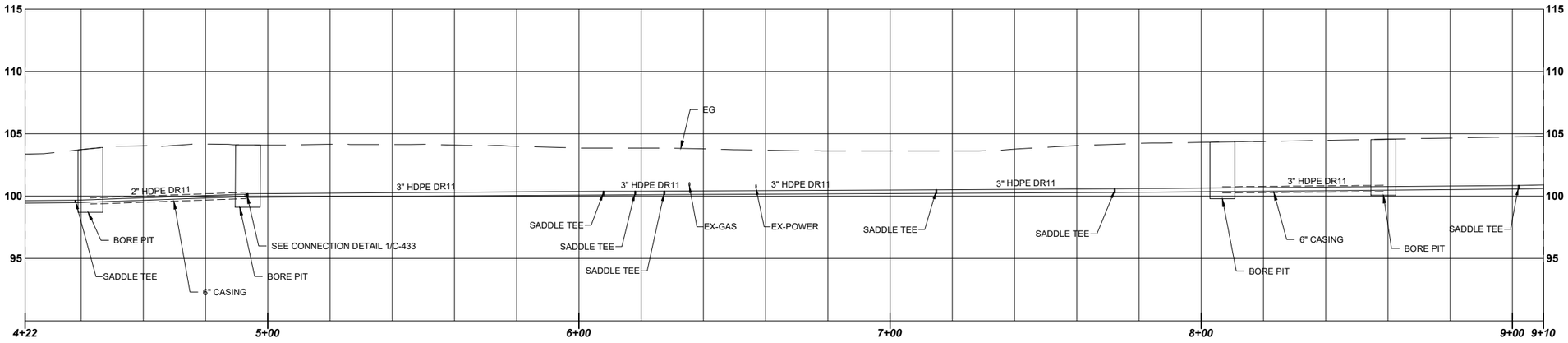


PLAN
SCALE: 1"=20'



PROFILE
SCALE: V: 1"=5', H: 1"=20'

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS
3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
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10. PRIOR TO CONNECTION TO SEWER MAIN, SERVICE LINES TO BE PRESSURE TESTED PER SPEC SECTION 33 05 01B.
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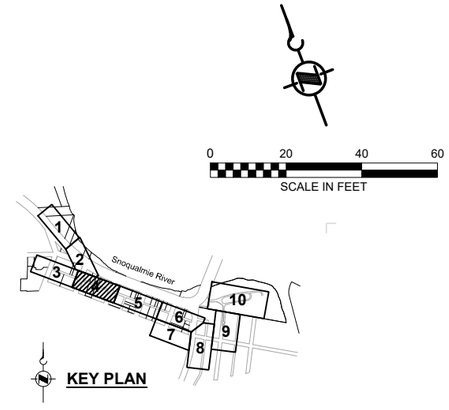
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.

KEY NOTES

1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/ RECEIVING PIT
5. INSTALL PRELOS 1500 GAL PER DRAWING C-402
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 4

DATE: APRIL 2023
DRAWING NO: C-124
SHT NO 36 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 03, 2023-01:02:53pm By dyang1
XREFS: W3Y05400_Border.dwg; Fall City_Survey Basemap.dwg; Fall City_Civil.dwg
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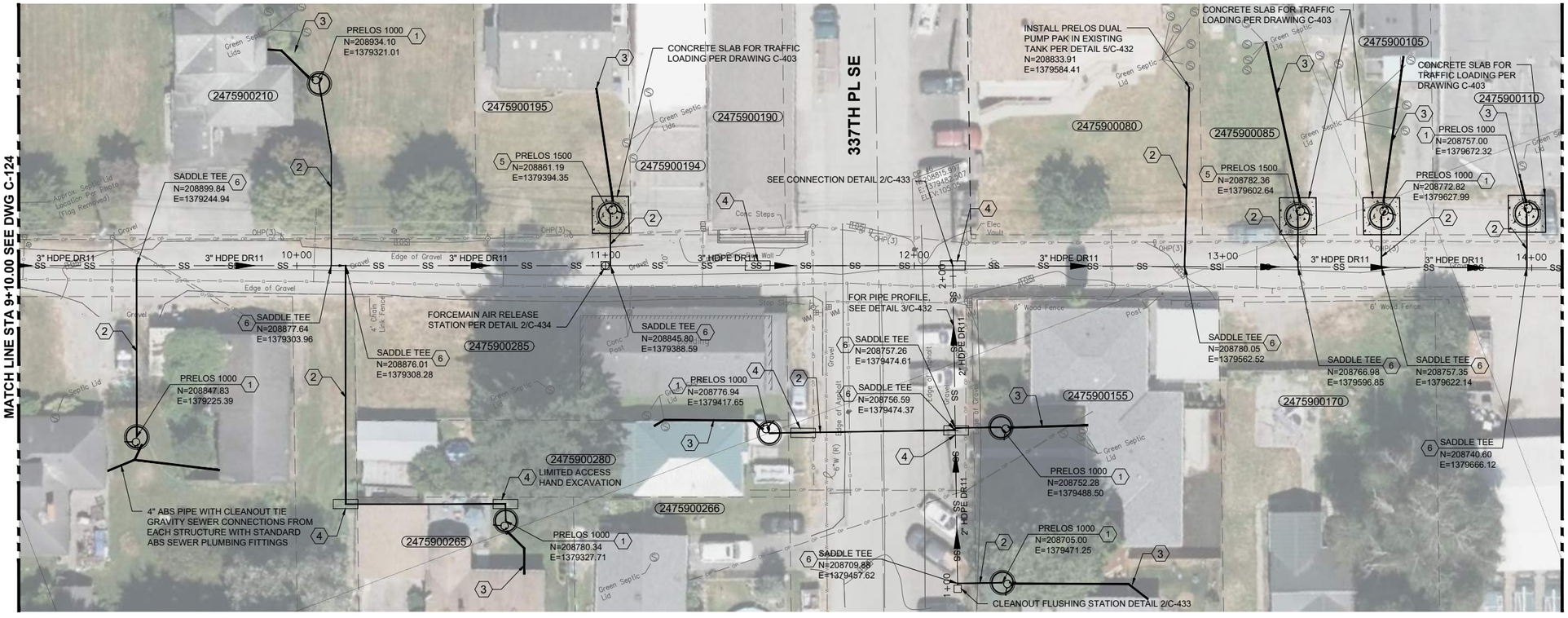

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
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3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
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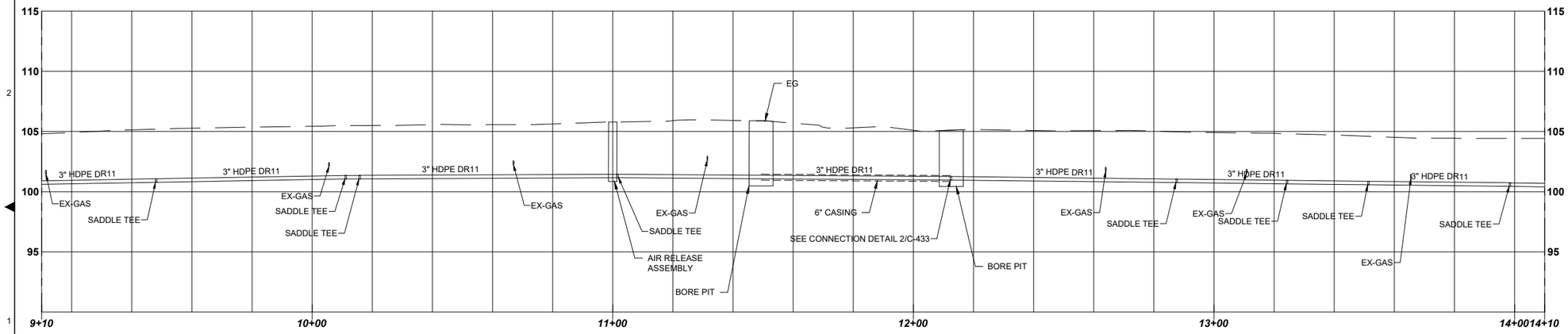
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.

PLAN
SCALE: 1"=20'

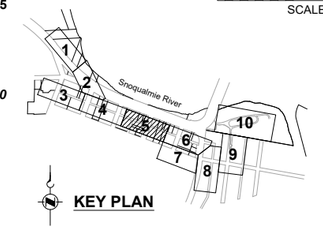


PROFILE
SCALE: V: 1"=5', H: 1"=20'

KEY NOTES

1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECEIVING PIT
5. INSTALL PRELOS 1500 GAL PER DRAWING C-402
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

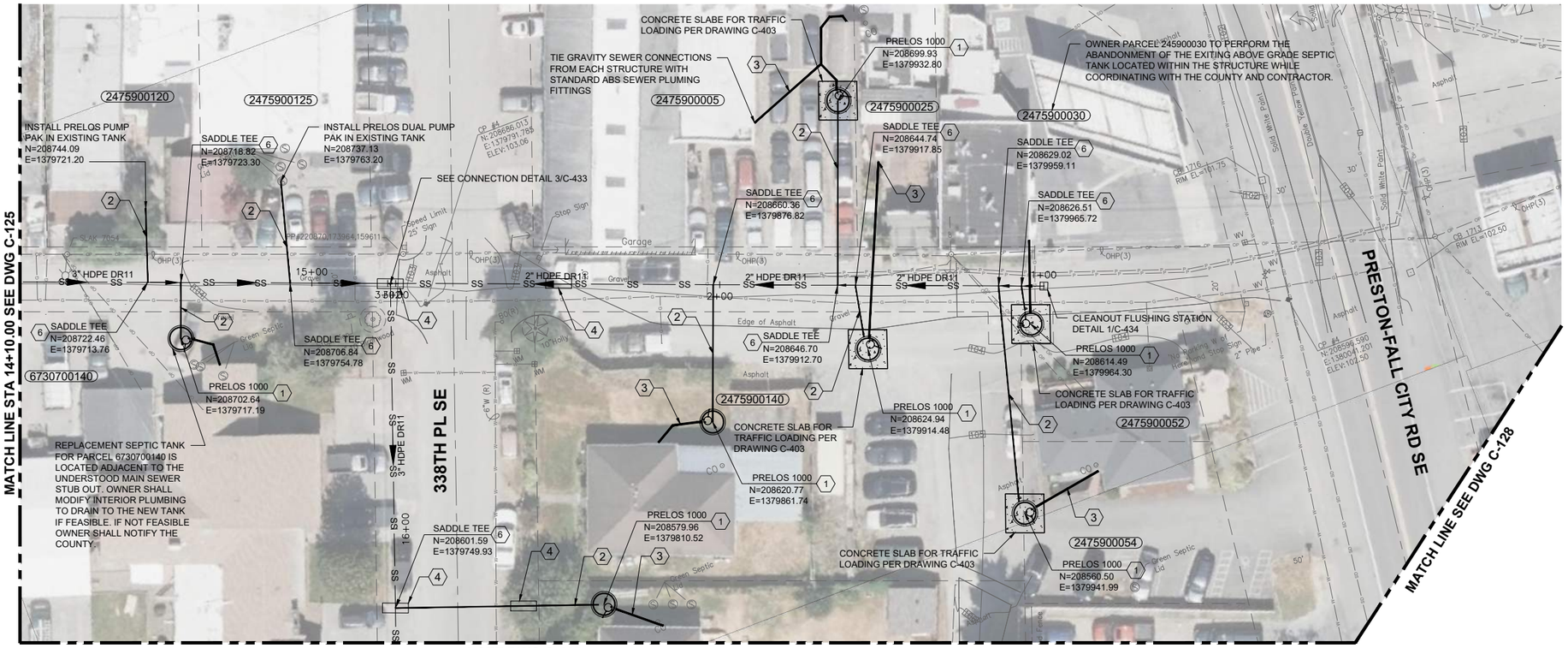
PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

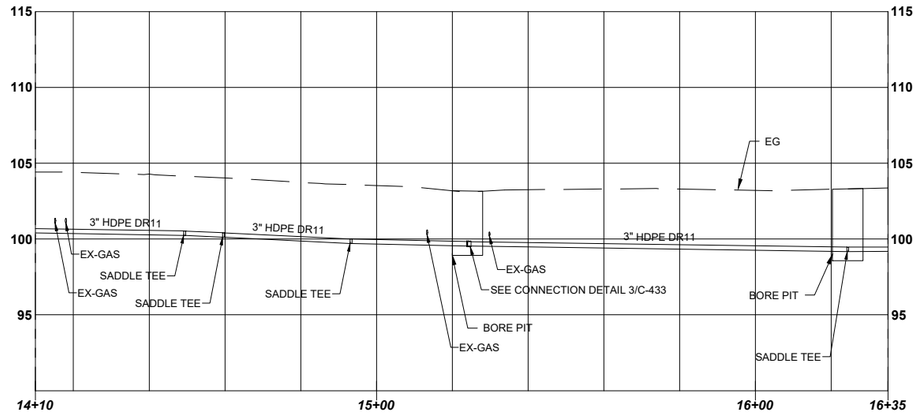
DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'	DEPARTMENT OF NATURAL RESOURCES & PARKS WASTEWATER TREATMENT DIVISION 2021 FALL CITY WASTEWATER	DATE: APRIL 2023
DESIGN ENGINEER: B. SHUCK	WORK ORDER:		DRAWING NO: C-125
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126		SHT NO 37 / TOTAL 56 — REV NO:
	CONTRACT NO:		

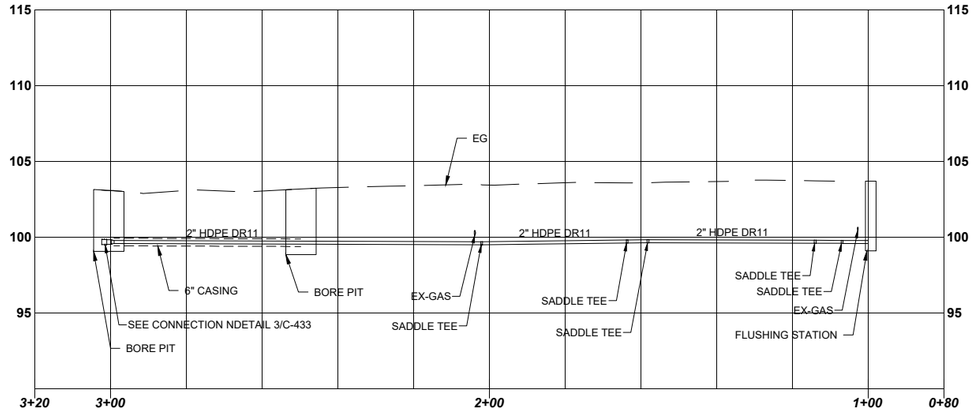
King County

CONVEYANCE PLAN AND PROFILE 5



PLAN
SCALE: 1"=20'





PROFILE
SCALE: V: 1"=5', H: 1"=20'

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS.
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4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
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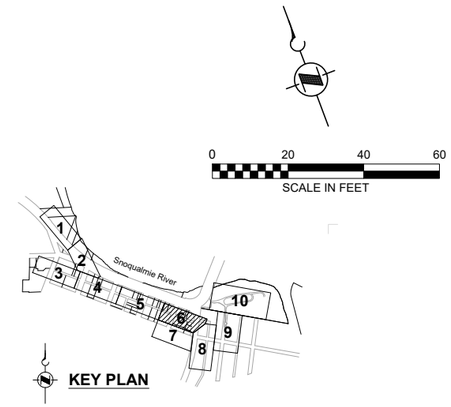
12. FOR TRENCHLESS SECTION SEAL HDPE CASING PIPE WITH NONSHRINK GROUT.
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.

KEY NOTES

1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECEIVING PIT
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 14277 — REGISTERED PROFESSIONAL ENGINEER

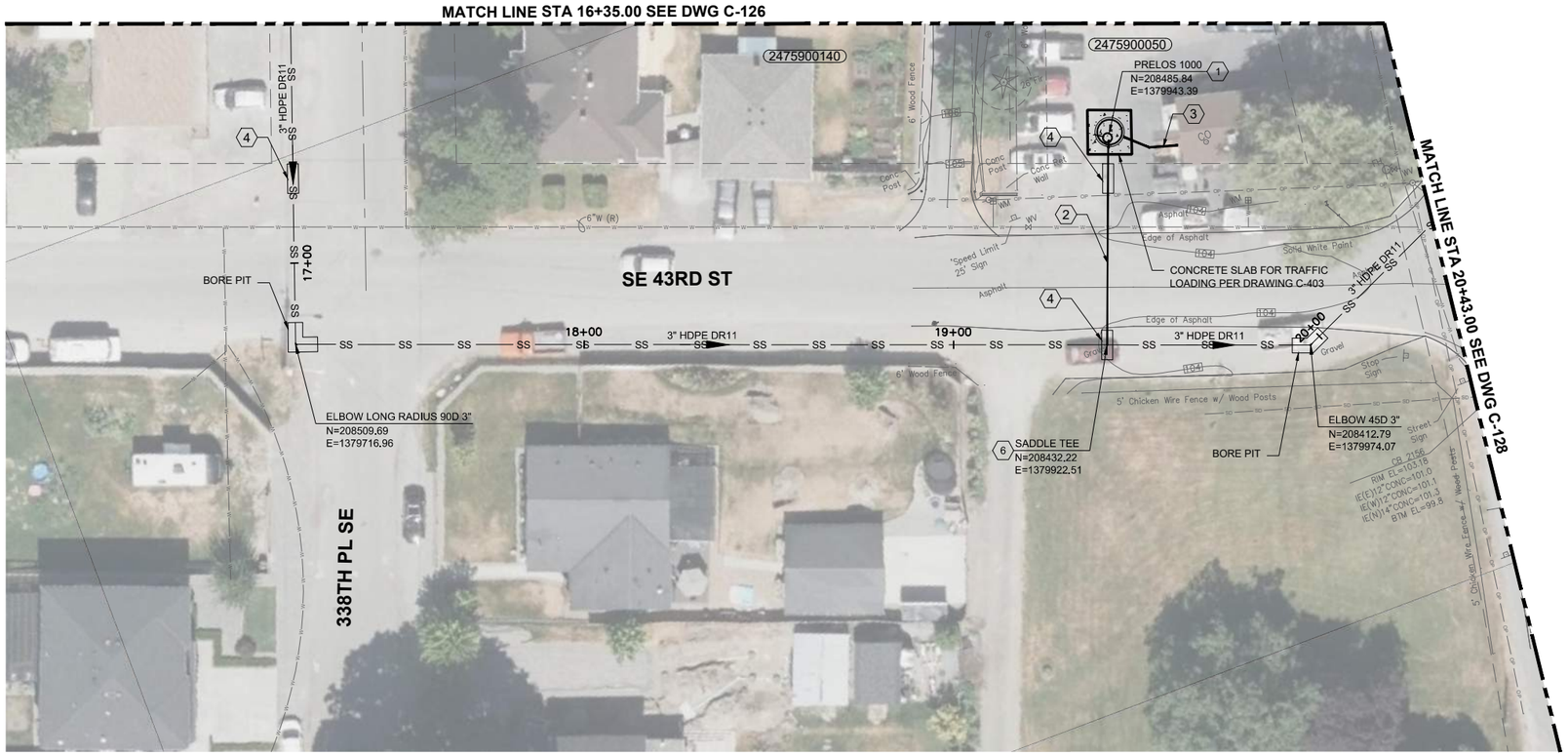
DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

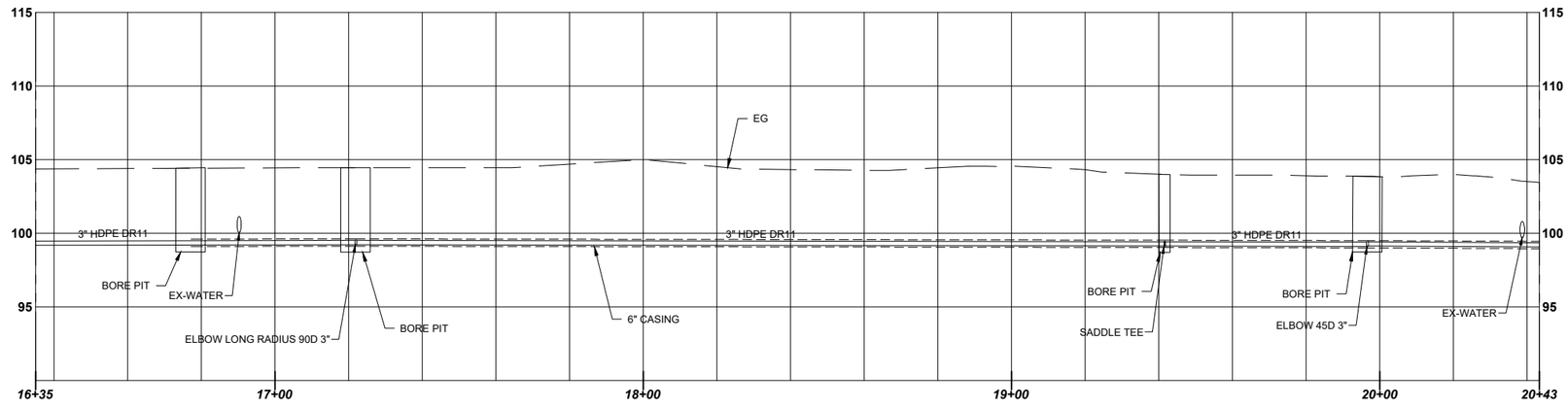
DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 6

DATE: APRIL 2023
DRAWING NO: C-126
SHT NO 38 / TOTAL 56
REV NO:



PLAN
SCALE: 1"=20'



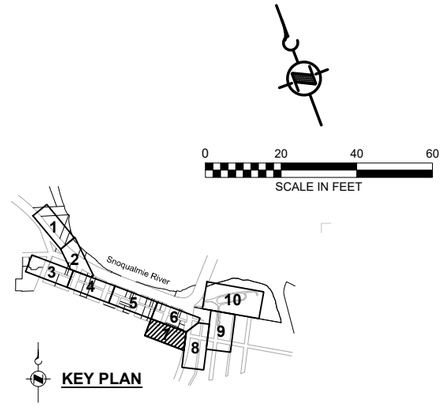
PROFILE
SCALE: V: 1"=5', H: 1"=20'

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS.
3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
9. ELECTRICAL WIRING TO CONTROL PANEL PROVIDED BY PROPERTY OWNER.
10. PRIOR TO CONNECTION TO SEWER MAIN, SERVICE LINES TO BE PRESSURE TESTED PER SPEC SECTION 33 05 01B.
11. AFTER CONNECTION TO NEW SYSTEM IS COMPLETE, PUMP OUT EXISTING TANK AND DECOMMISSION BY FILLING WITH SPOILS FROM EXCAVATION OF PRELOS TANK (IF SUITABLE) OR BACKFILL WITH PEA GRAVEL.
12. FOR TRENCHLESS SECTION SEAL HDPE CASING PIPE WITH NONSHRINK GROUT.
13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.

KEY NOTES

1. INSTALL PRELOS 1000 GAL PER DRAWING C-401
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECEIVING PIT
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

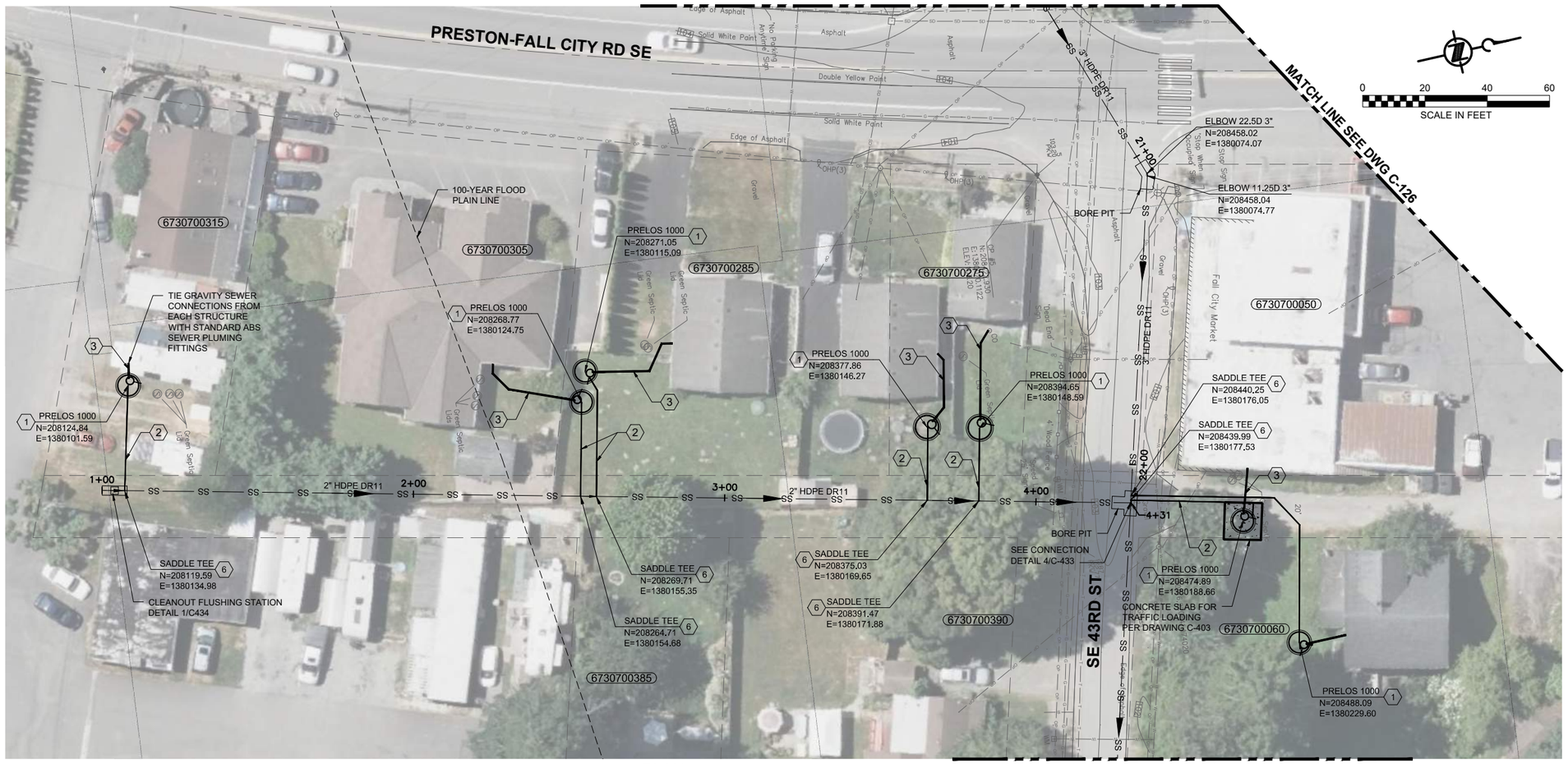
DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 7

DATE: APRIL 2023
DRAWING NO: C-127
SHT NO 39 / TOTAL 56
REV NO:



NOTES

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2. SEWER MAIN LINE TO MAINTAIN 4 FEET OF DEPTH AND DEFLECT BELOW EXISTING UTILITIES AS NECESSARY TO AVOID HIGHPOINTS.
3. LISTED PIPE LENGTHS ARE ALL HORIZONTAL FROM CENTERLINE TO CENTERLINE OF FITTINGS, STRUCTURES, AND CHANGE IN SLOPE.
4. ALL SEWER TRENCH SECTIONS PER DETAIL 4/C-432.
5. CONTRACTOR TO USE NECESSARY STANDARD PVC FITTINGS TO CONNECT SERVICE LINE TO SEPTIC TANK DISCHARGE AS REQUIRED.
6. CONSTRUCT ALL SERVICE LINE CONNECTIONS PER DRAWING C-431.
7. 4" PVC GRAVITY SEWER FROM BUILDING TO PRELOS TO BE FIELD LOCATED. PLAN ALIGNMENT IS APPROXIMATE FOR BIDDING PURPOSES ONLY.
8. SLOPE GRAVITY PIPE AT 2% FROM STRUCTURE/CONNECTION TO PRELOS TANK. SET DEPTH OF PRELOS TANK ACCORDING TO THE ELEVATION OF THIS CONNECTION.
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13. FOR TRENCHLESS ALIGNMENTS POTHOLE ALL EXISTING UTILITY CROSSINGS ALONG SEWER ALIGNMENT PRIOR TO COMMENCING TRENCHLESS WORK.

KEY NOTES

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2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
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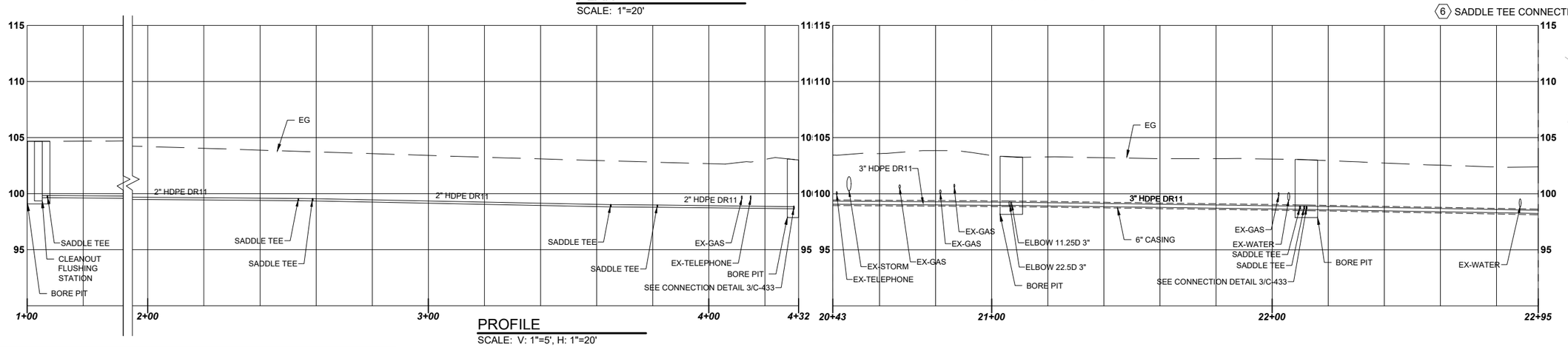
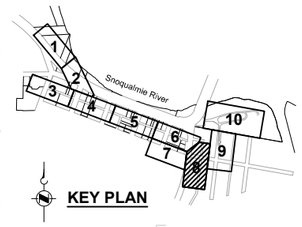
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECEIVING PIT
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431

PLAN
SCALE: 1"=20'



PROFILE
SCALE: V: 1"=5', H: 1"=20'



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 14371 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 8

DATE: APRIL 2023
DRAWING NO: **C-128**
SHT NO 40 / TOTAL 56 | REV NO:

PLAN
SCALE: 1"=20'

0 20 40 60
SCALE IN FEET

NOTES

1. THE RIGHT-OF-WAY AND PROPERTY INFORMATION WAS DEVELOPED FROM FIELD SURVEY. UTILITY LOCATIONS, COUNTY GIS MAPS. CONTRACTOR TO CONFIRM THE LOCATION OF ALL DESIGN COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
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KEY NOTES

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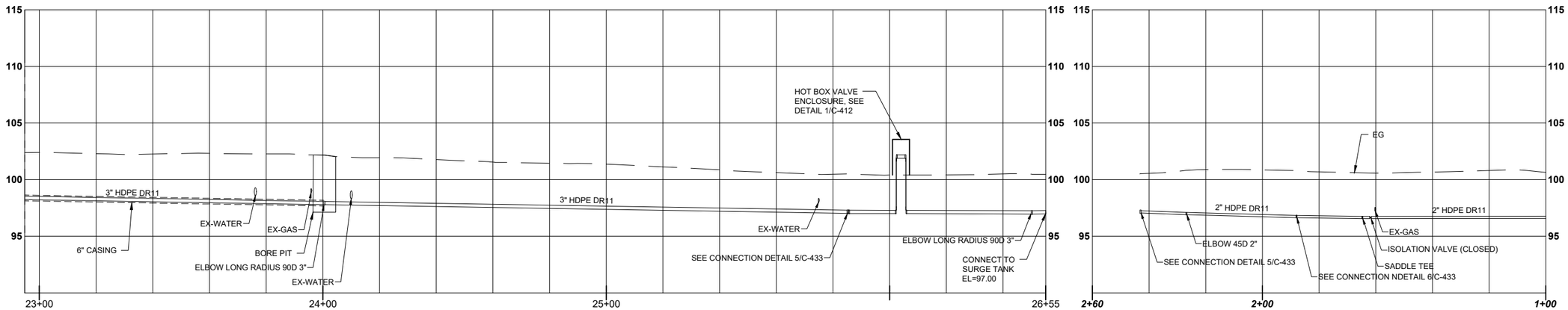
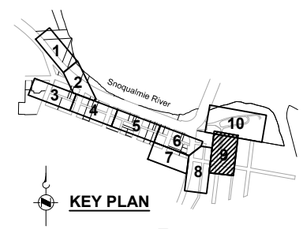
2. INSTALL 1" CLASS 200 PVC SERVICE LINE PER DETAIL 3/C-431
3. INSTALL 4" PVC PIPE WITH CLEANOUT PER DETAIL 2/C-431
4. CONSTRUCT 3'x8' TRENCHLESS LAUNCH/RECEIVING PIT
5. INSTALL PRELOS 1500 GAL PER DRAWING C-402
6. SADDLE TEE CONNECTION PER DETAIL 5/C-431



PROFILE
SCALE: V: 1"=5', H: 1"=20'



NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

ERYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: Q. AL ALI	SCALE: H:1"=20', V:1"=5'
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONVEYANCE PLAN AND PROFILE 9

DATE: APRIL 2023
DRAWING NO: C-129
SHT NO 41 / TOTAL 56 | REV NO:

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MATCH LINE, SEE DWG C-129

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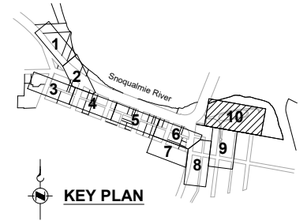
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DAVID R. JENSEN — STATE OF WASHINGTON — 28765 — REGISTERED PROFESSIONAL ENGINEER

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DRAINFIELD SITE PLAN

DATE: APRIL 2023
DRAWING NO: **C-131**
SHT NO 42 / TOTAL 56 | REV NO:

NOTES

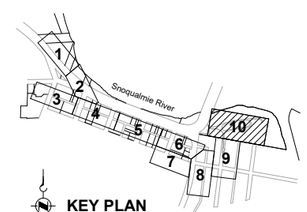
1. RESTORE THE AREA WITH TOP SOIL AND SEEDING PER SPECIFICATION SECTION 32 92 00.
2. CONTRACTOR TO COORDINATE WITH THE OWNER FOR IRRIGATION AND LAWN ESTABLISHMENT. FOR THE AREA OUTSIDE OF THE DRAINFIELD.
3. RESTORE DRAINFIELD AREA IN ACCORDANCE WITH SHEET C-131 AND SPECIFICATION SECTION 32 92 00

LEGEND

DRAINFIELD RESTORATION AREA

RESTORATION AREA

0 20 40 60
SCALE IN FEET



KEY PLAN

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELL E SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

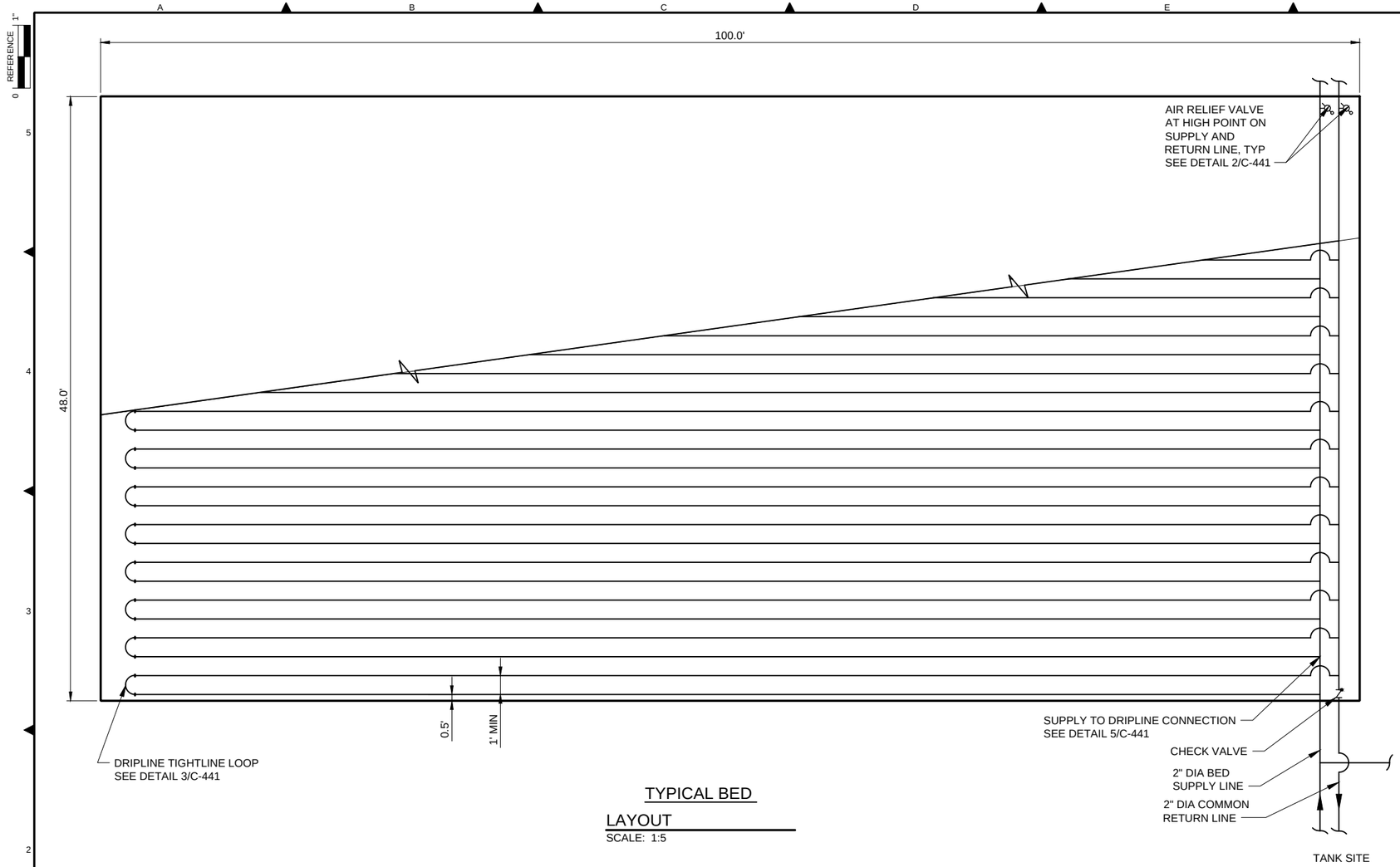
DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

BERNARD MEMORIAL PARK RESTORATION PLAN

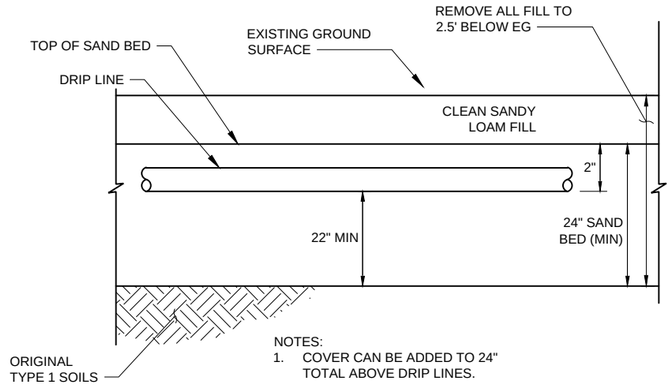
DATE: APRIL 2023
DRAWING NO: C-132
SHT NO 43 / TOTAL 56
REV NO:



TYPICAL BED

LAYOUT

SCALE: 1:5

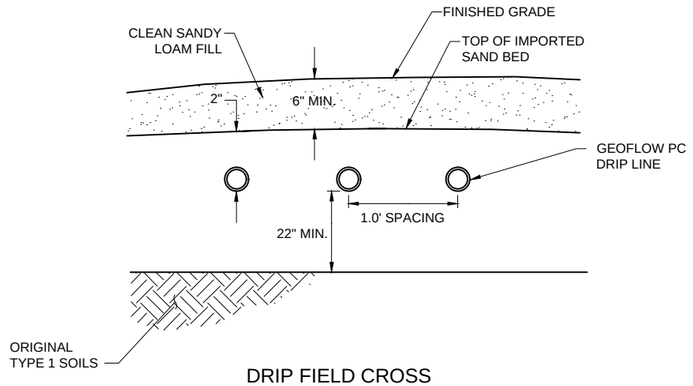


NOTES:
1. COVER CAN BE ADDED TO 24" TOTAL ABOVE DRIP LINES.

DRIP BED

SECTION A

SCALE: NTS



DRIP FIELD CROSS

SECTION B

SCALE: NTS

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING

INFORMATION ONLY

100% REVIEW

DAVID R. JENSEN — STATE OF WASHINGTON — 28705 — REGISTERED PROFESSIONAL ENGINEER

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

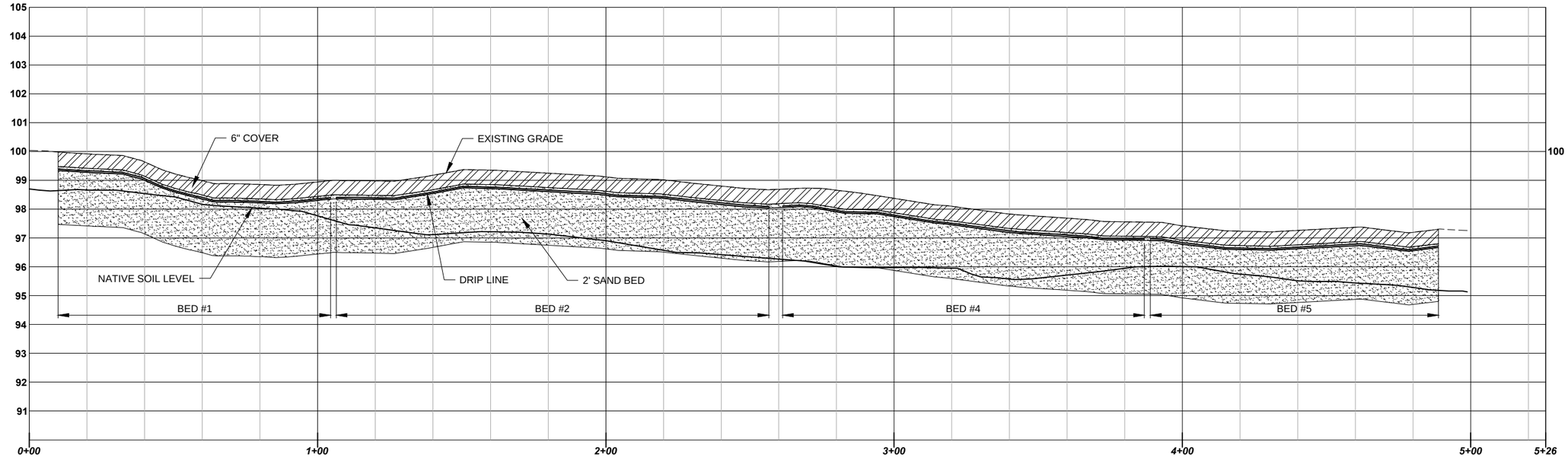
DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DRAINFIELD PLAN AND SECTIONS

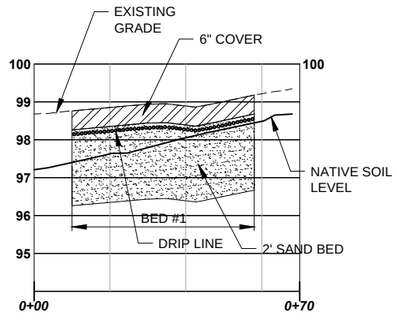
DATE: APRIL 2023

DRAWING NO: C-133

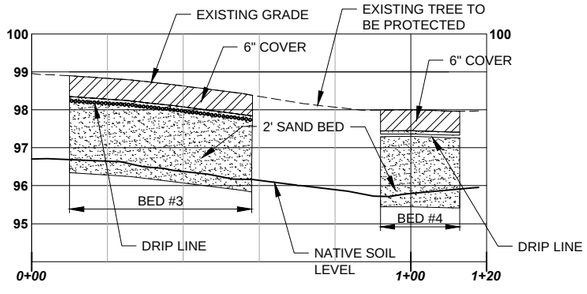
SHT NO 44 / TOTAL 56 | REV NO:



SECTION A C-131
SCALE: H: 1"=20'-0"
V: 1"=2'-0"



SECTION B C-131
SCALE: H: 1"=20'-0"
V: 1"=2'-0"



SECTION C C-131
SCALE: H: 1"=20'-0"
V: 1"=2'-0"

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DAVID R. JENSEN — STATE OF WASHINGTON — 28105 — REGISTERED PROFESSIONAL ENGINEER

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DRAINFIELD PROFILES

DATE: APRIL 2023
DRAWING NO: **C-134**
SHT NO 45 / TOTAL 56 | REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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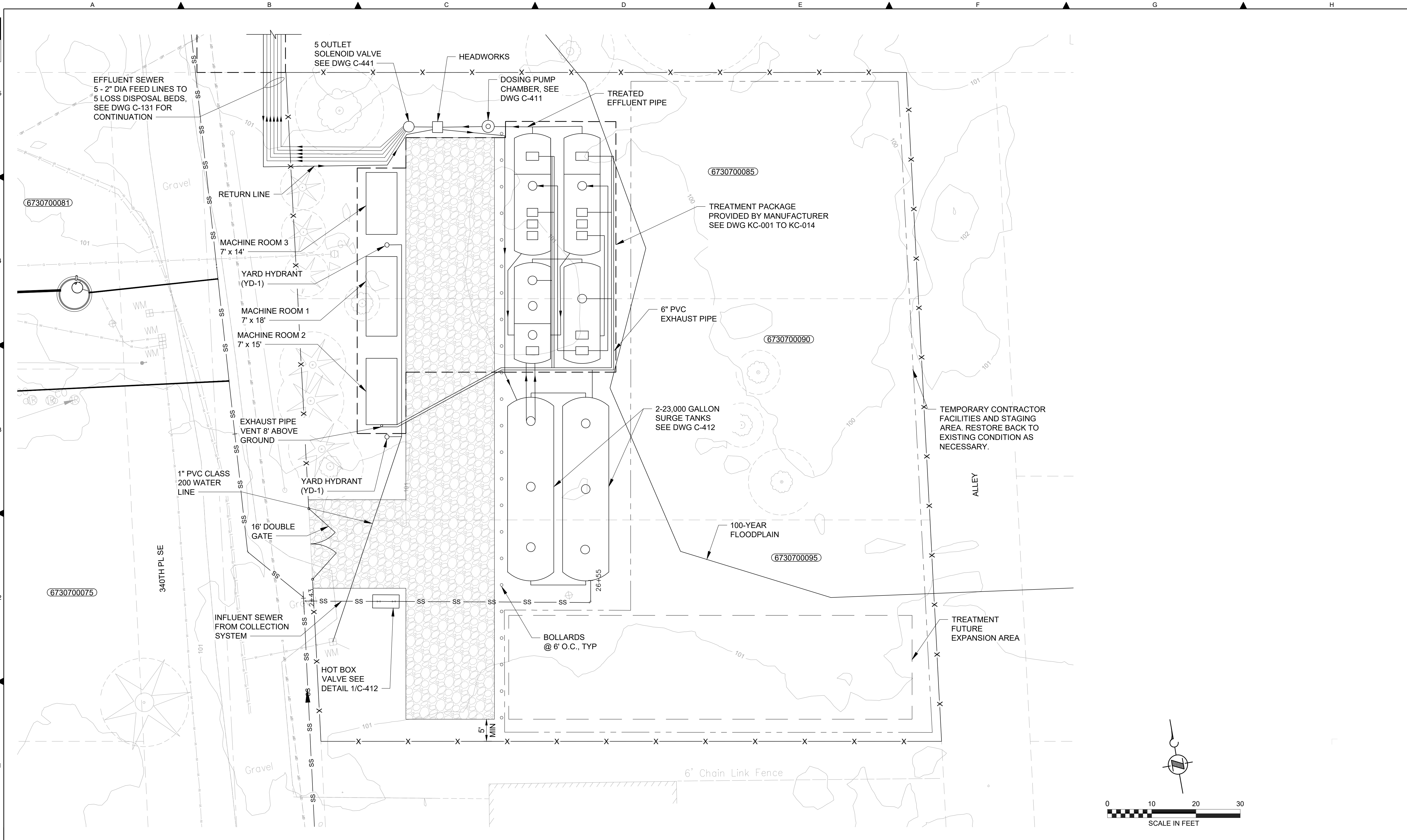


NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELLE SHUCK, STATE OF WASHINGTON, 44271, REGISTERED PROFESSIONAL ENGINEER

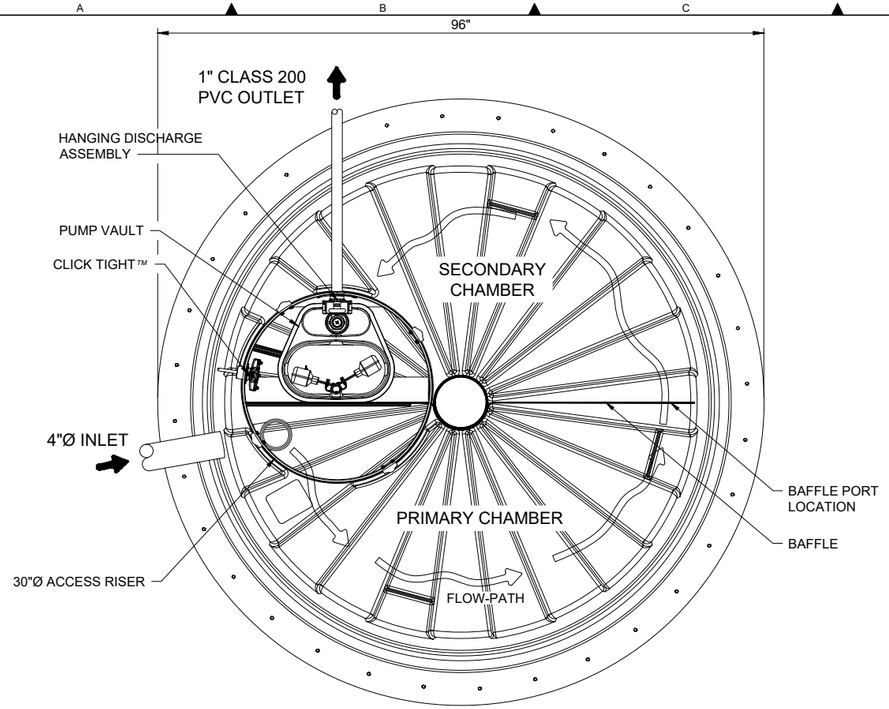
DESIGNED/DRAWN: J. YANG	SCALE: 1"=10'-0"
DESIGN ENGINEER: B. SHUCK	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

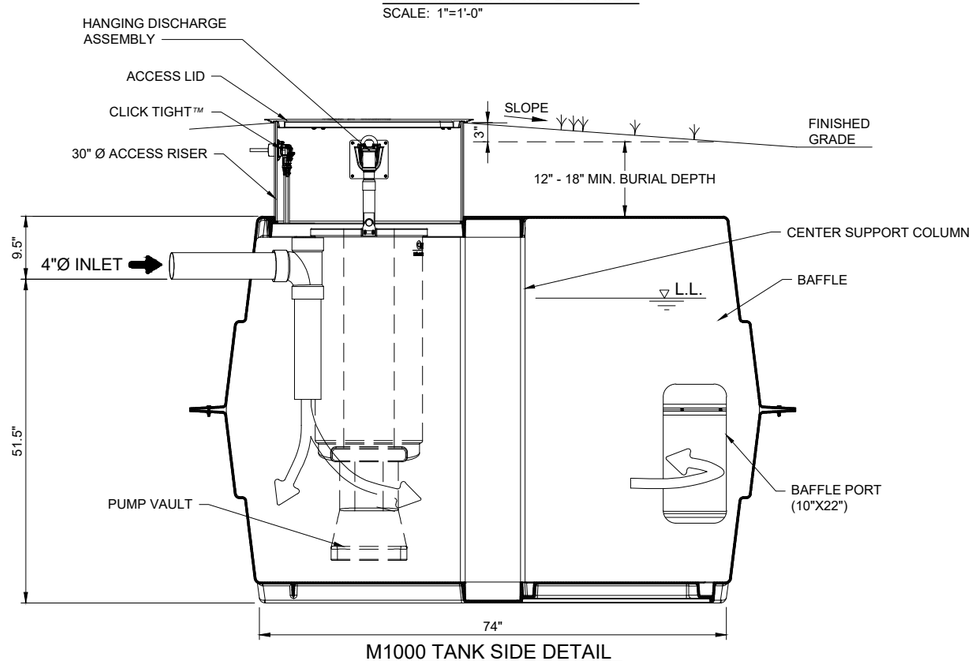
PRETREATMENT PLAN

DATE: APRIL 2023
DRAWING NO: **C-151**
SHT NO 46 / TOTAL 56 REV NO:



M1000 TANK TOP DETAIL

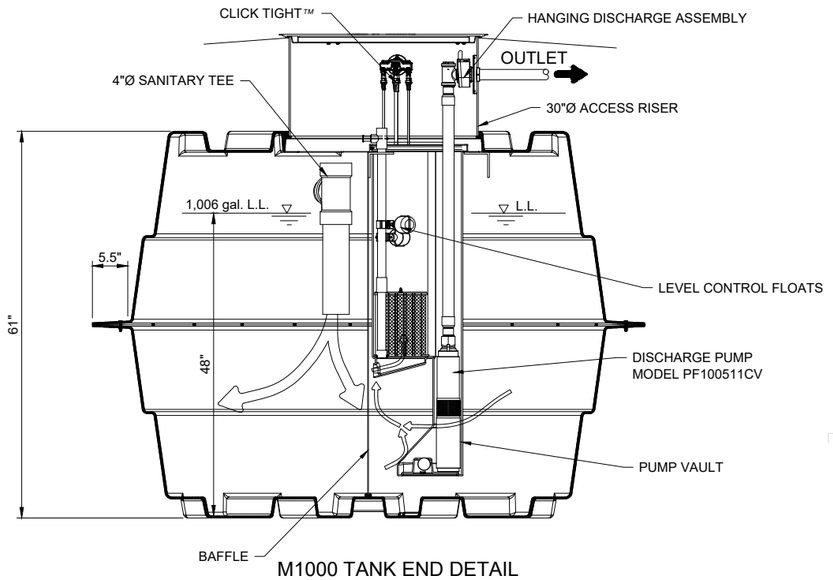
SCALE: 1"=1'-0"



M1000 TANK SIDE DETAIL

SCALE: 1"=1'-0"

Inside Height Inches	*Total Gallons*
60	1217
54	1124
48	1006
42	881
36	744
30	601
24	460
18	324
12	200
6	83
0	0



M1000 TANK END DETAIL

SCALE: 1"=1'-0"

General Notes:

TANK VOLUMES: TOTAL VOLUME: 1223 GAL±
OPERATING VOLUME: 1006 GAL± @ 48"
UNIT VOLUME AT TYPICAL OPERATING DEPTH : 20 GAL./IN.±

LOADS: TOP = 500 PSF MINIMUM
LATERAL LOAD = 62.4 PCF, EFP
CONCENTRATED WHEEL LOAD = 2500 LB.
THE SEPTIC TANK SHALL BE CAPABLE OF WITHSTANDING LONG-TERM HYDROSTATIC LOADING, IN ADDITION TO THE SOIL LOADING, DUE TO A WATER TABLE MAINTAINED AT GROUND SURFACE.
SOIL BEARING = 1000 PSF (RE-EVALUATE SUPPORT BASE IF SOIL BEARING IS LESS OR UNEQUAL)

METHOD OF CALCUATIONS:
1. TANKS SHALL BE ANALYZED USING STRENGTH DESIGN METHODS AND FINITE ELEMENT ANALYSIS FOR BURIED STRUCTURES.
2. CALCULATIONS SHALL ADDRESS THE FOLLOWING:
   - STRENGTH
   - BUCKLING
   - DEFLECTION OF 0.5 - 1% OF THE TANK DIAMETER, BASED ON SERVICE LOAD (INCLUDING LONG-TERM DEFLECTION LAG)
   - BUOYANCY
3. PERFORMANCE TESTING SHALL INCLUDE VACUUM TESTING FOLLOWED BY A HYDROSTATIC TEST.

MATERIAL: RESIN: POLYDICYCLOPENTADIENE

THE PROPERTIES LISTED HERE ALONG WITH THE MINIMUM THICKNESS AS SHOWN IN THE DETAILS ARE CONSIDERED DESIGN MINIMUMS THAT MUST BE MAINTAINED DURING THE MANUFACTURING OF THE TANKS. THE PRIMARY STRENGTH PROPERTIES ARE LISTED BELOW:

Property	DCPD
Flexural modulus E_f	274,000 psi
Tensile strength F_t	6,700 psi
Flexural strength F_b	10,500 psi

Property	DCPD
Compressive strength F_c	9,200 psi
Shear In-Plane F_s	7,180 psi
Flexural Rigidity	585 psi

POISSON RATIO = 0.400 (ANY PERMANENT METAL PART SHALL BE 300 SERIES STAINLESS STEEL.)

INSTALLATION: INSTALLATION, BEDDING, COMPACTION, ETC., SHALL BE IN "STRICT" COMPLIANCE WITH THE MANUFACTURERS STANDARDS AND STATE OR LOCAL RULES AND OR GUIDELINES. ALL TANKS SHALL BE SET LEVEL ON A MINIMUM 4 INCH THICK COMPACTED SAND OR APPROVED GRANULAR BEDDING OVERLYING A FIRM UNIFORM BASE. THE BASE SHALL BE STABLE AND UNIFORM IN ORDER TO ENSURE EQUAL BEARING ACROSS THE TANK BOTTOM. INSTALLATIONS WITH 18 INCHES OR LESS OF GROUND COVER MAY REQUIRE ADDITIONAL BUOYANCY CONSIDERATIONS AS DESCRIBED IN THE MANUFACTURERS INSTRUCTIONS. A MINIMUM COVER OF 12 INCHES IS REQUIRED OVER THE TANK IN AREAS SUBJECT TO OCCASIONAL LIGHT WHEEL LOADS. REFER TO INSTALLATION INSTRUCTIONS
DOCUMENT NIM-LOS-1.

TEST: TANKS SHALL BE TESTED AND CERTIFIED WATERTIGHT PER MANUFACTURERS RECOMMENDATIONS AND OR ANY PREVAILING RULES OR GUIDELINES, WHICHEVER IS MORE RESTRICTIVE.

TANK MARKINGS: PLACE MARKING ON THE UPPER MOST SURFACE OVER THE OUTLET.
NOMINAL LIQUID CAPACITY: 1000 GAL. ±
MAX BURIAL DEPTH: 5FT.
MAX TRAFFIC (WHEEL): 2500 LBS.
DATE MANUFACTURED:
PERMIT NO.:

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - PRELOS 1000 TANKS

DATE: APRIL 2023
DRAWING NO: C-401
SHT NO 47 / TOTAL 56 | REV NO:

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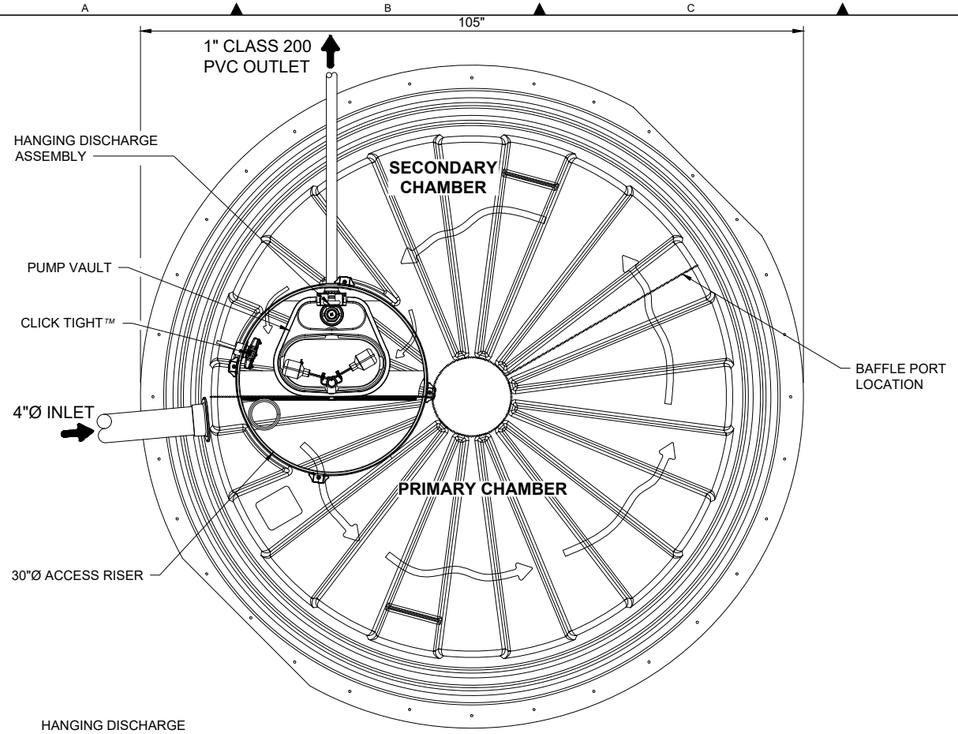
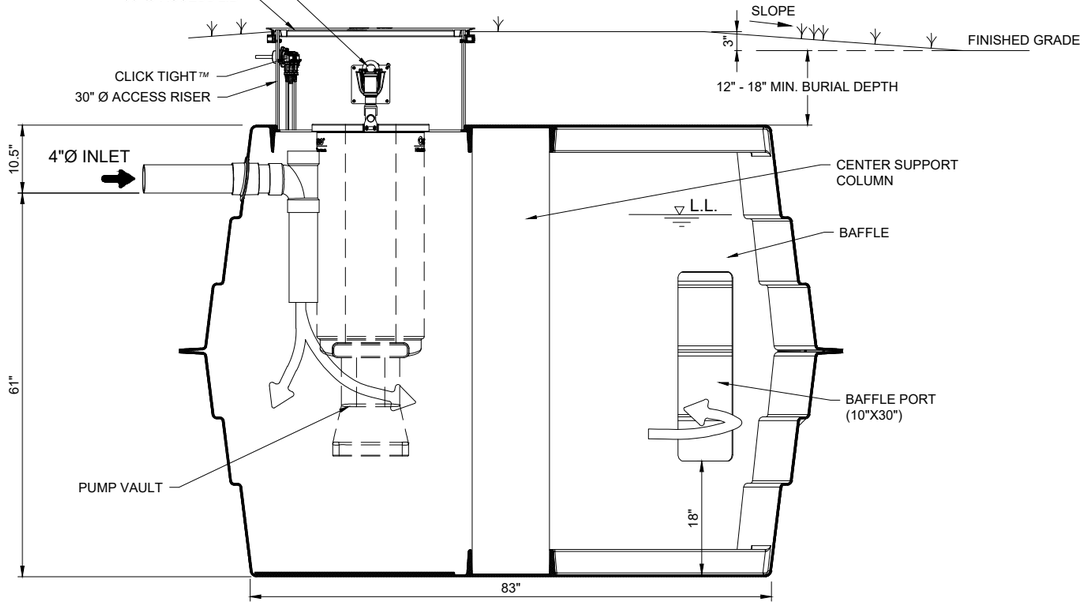


M1500 TANK TOP DETAIL

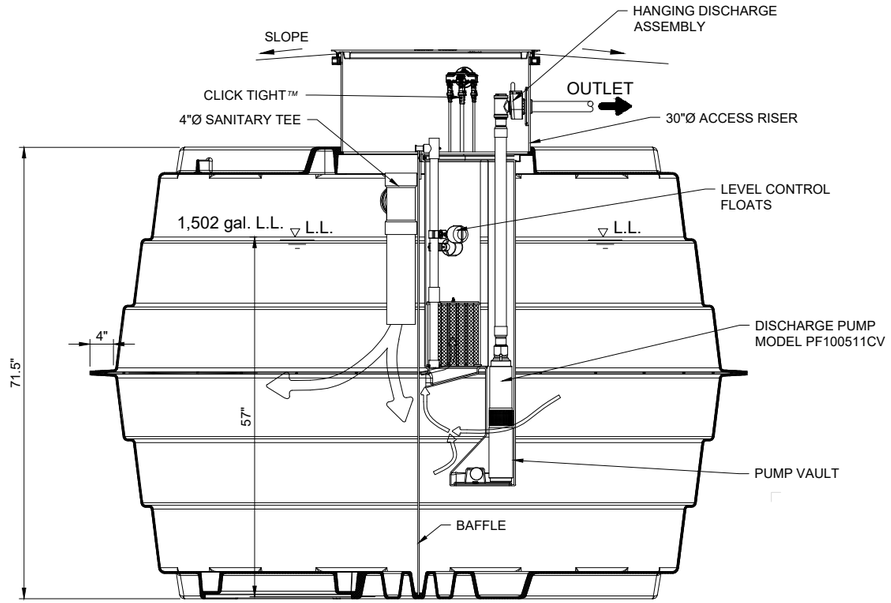
SCALE: 1"=1'-0"



M1500 TANK SIDE DETAIL

SCALE: 1"=1'-0"

Inside Height Inches	*Total Gallons*
71	1788
66	1714
60	1574
54	1425
48	1264
42	1090
36	906
30	721
24	544
18	382
12	230
6	89
0	0



M1500 TANK END DETAIL

SCALE: 1"=1'-0"

GENERAL NOTES:

TANK VOLUMES: TOTAL VOLUME: 1788 GAL±
OPERATING VOLUME: 1502 GAL± @ 57"
UNIT VOLUME AT TYPICAL OPERATING DEPTH : 25 GAL./IN.±
CHAMBER OPTIONS: 1000/500 OR 876/625

LOADS: TOP = 500 PSF MINIMUM
LATERAL LOAD = 62.4 PCF, EFP
CONCENTRATED WHEEL LOAD = 2500 LB.
THE SEPTIC TANK SHALL BE CAPABLE OF WITHSTANDING LONG-TERM HYDROSTATIC LOADING, IN ADDITION TO THE SOIL LOADING, DUE TO A WATER TABLE MAINTAINED AT GROUND SURFACE.
SOIL BEARING = 1000 PSF (RE-EVALUATE SUPPORT BASE IF SOIL BEARING IS LESS OR UNEQUAL)

METHOD OF CALCUATIONS:
1. TANKS SHALL BE ANALYZED USING STRENGTH DESIGN METHODS AND FINITE ELEMENT ANALYSIS FOR BURIED STRUCTURES.
2. CALCULATIONS SHALL ADDRESS THE FOLLOWING:
   - STRENGTH
   - BUCKLING
   - DEFLECTION OF 0.5 - 1% OF THE TANK DIAMETER, BASED ON SERVICE LOAD (INCLUDING LONG-TERM DEFLECTION LAG)
   - BUOYANCY
3. PERFORMANCE TESTING SHALL INCLUDE VACUUM TESTING FOLLOWED BY A HYDROSTATIC TEST.

MATERIAL: RESIN: POLYDICYCLOPENTADIENE

THE PROPERTIES LISTED HERE ALONG WITH THE MINIMUM THICKNESS AS SHOWN IN THE DETAILS ARE CONSIDERED DESIGN MINIMUMS THAT MUST BE MAINTAINED DURING THE MANUFACTURING OF THE TANKS. THE PRIMARY STRENGTH PROPERTIES ARE LISTED BELOW:

PROPERTY	DCPD
FLEXURAL MODULUS E f	274,000 psi
TENSILE STRENGTH F_t	6,700 psi
FLEXURAL STRENGTH F_b	10,500 psi

Property	DCPD
Compressive strength F_c	9,200 psi
Shear In-Plane F_s	7,180 psi
Flexural Rigidity	585 psi

POISSON RATIO = 0.400 (ANY PERMANENT METAL PART SHALL BE 300 SERIES STAINLESS STEEL.)

INSTALLATION: INSTALLATION, BEDDING, COMPACTION, ETC., SHALL BE IN "STRICT" COMPLIANCE WITH THE MANUFACTURERS STANDARDS AND STATE OR LOCAL RULES AND OR GUIDELINES. ALL TANKS SHALL BE SET LEVEL ON A MINIMUM 4 INCH THICK COMPACTED SAND OR APPROVED GRANULAR BEDDING OVERLYING A FIRM UNIFORM BASE. THE BASE SHALL BE STABLE AND UNIFORM IN ORDER TO ENSURE EQUAL BEARING ACROSS THE TANK BOTTOM. INSTALLATIONS WITH 18 INCHES OR LESS OF GROUND COVER MAY REQUIRE ADDITIONAL BUOYANCY CONSIDERATIONS AS DESCRIBED IN THE MANUFACTURERS INSTRUCTIONS. A MINIMUM COVER OF 12 INCHES IS REQUIRED OVER THE TANK IN AREAS SUBJECT TO OCCASIONAL LIGHT WHEEL LOADS. REFER TO INSTALLATION INSTRUCTIONS DOCUMENT NIM-LOS-1.

TEST: TANKS SHALL BE TESTED AND CERTIFIED WATERTIGHT PER MANUFACTURERS RECOMMENDATIONS AND OR ANY PREVAILING RULES OR GUIDELINES, WHICHEVER IS MORE RESTRICTIVE.

TANK MARKINGS: PLACE MARKING ON THE UPPER MOST SURFACE OVER THE OUTLET.
NOMINAL LIQUID CAPACITY: 1500 GAL. ±
MAX BURIAL DEPTH: 5FT.
MAX TRAFFIC (WHEEL): 2500 LBS.
DATE MANUFACTURED:
PERMIT NO.:

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELL SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

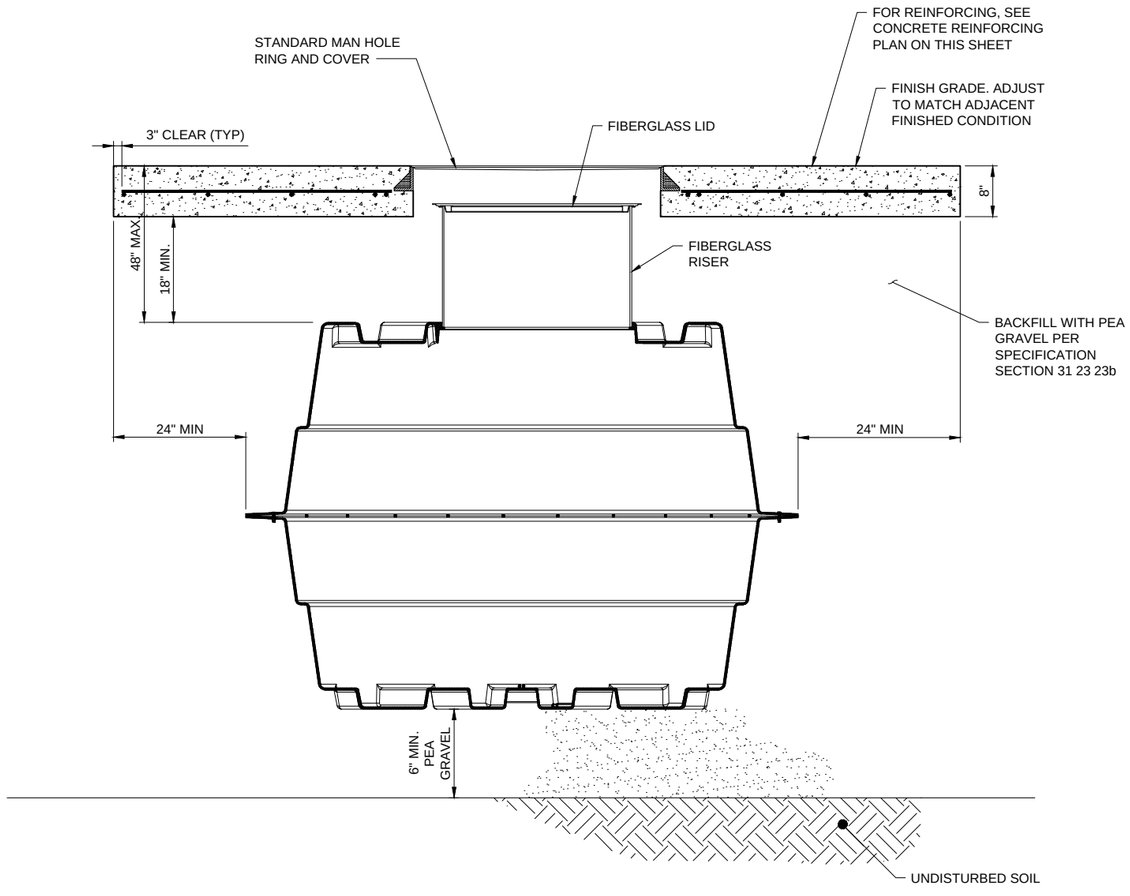
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - PRELOS
1500 TANKS

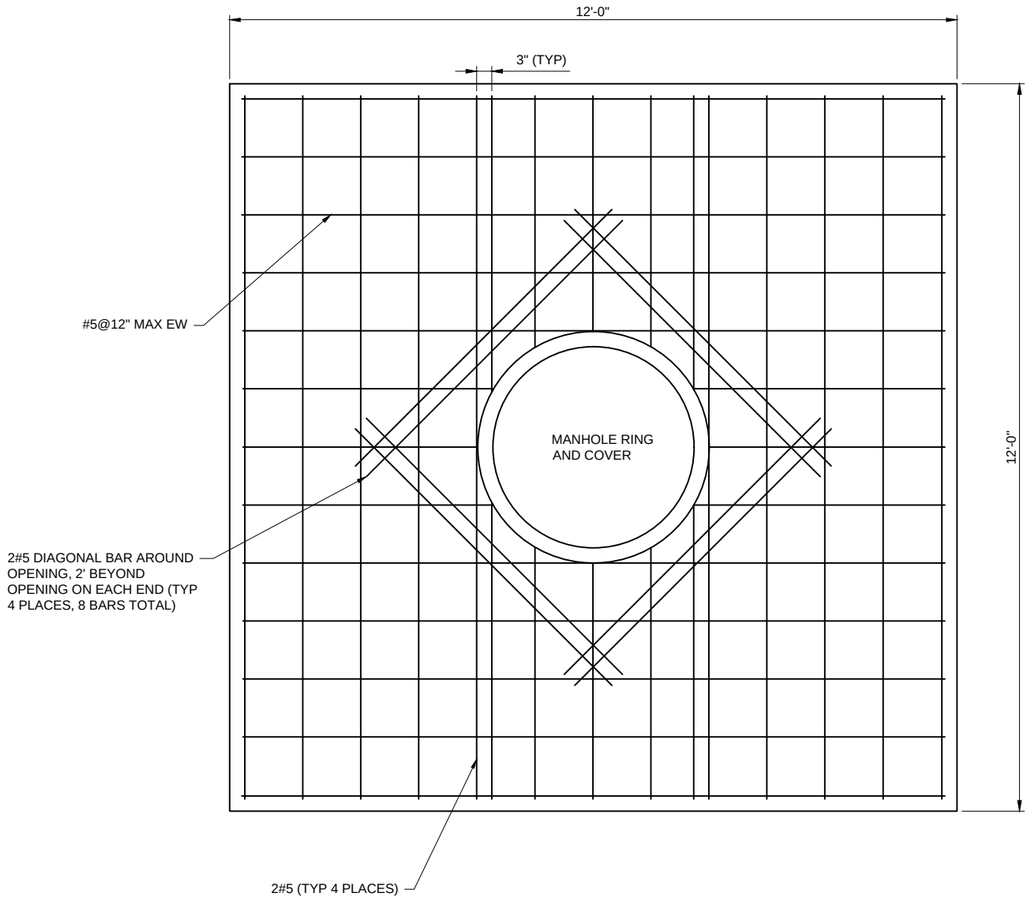
DATE: APRIL 2023
DRAWING NO: **C-402**
SHT NO 48 / TOTAL 56 | REV NO:

RISER DIA.	FIBERGLASS LID O.D.
30"	33"
24"	26"



TRAFFIC LOAD DETAIL

SCALE: 1"=1'-0"



CONCRETE REINFORCING PLAN

SCALE: NTS

NOTES:

1. THE CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. THE REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
2. ALL REINFORCING ARE CENTERED IN THE SLAB.
3. UNLESS NOTED OTHERWISE, ALL REINFORCING SHALL HAVE 3" CLEAR COVER.

NO	REVISION DESCRIPTION	BY	APVD	DATE

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PRELIMINARY ISSUE DRAWING
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BRYAN ODELLE SLUCK — STATE OF WASHINGTON — 14271 — REGISTERED PROFESSIONAL ENGINEER

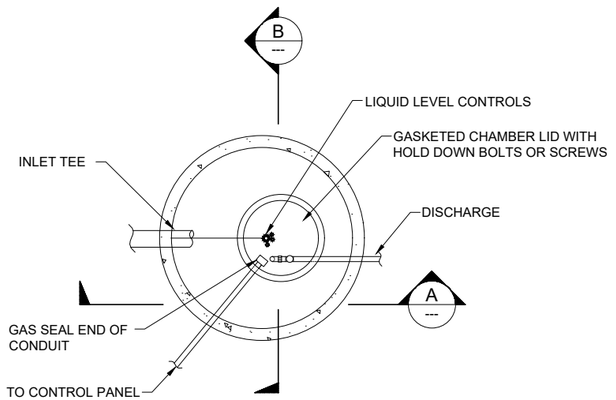
DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - OTHER TANKS

DATE: APRIL 2023
DRAWING NO: C-403
SHT NO 49 / TOTAL 56 | REV NO:

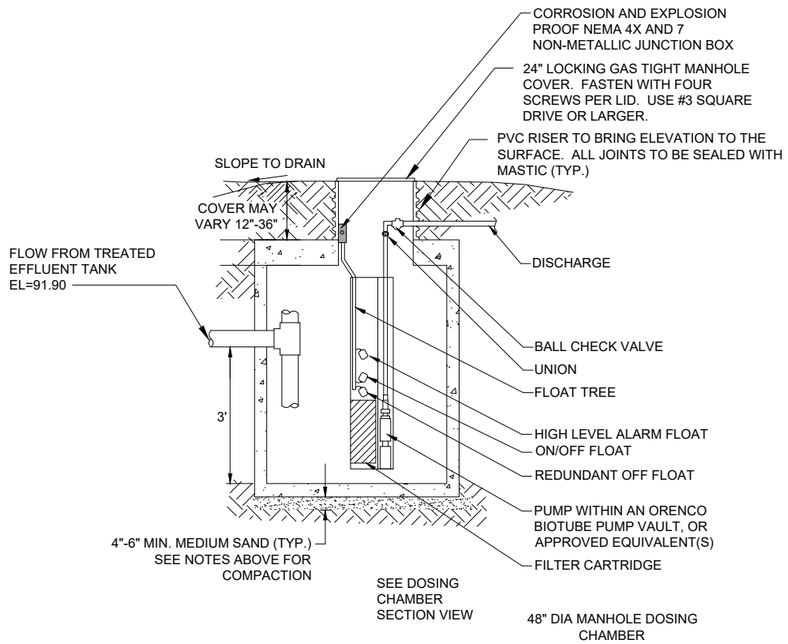


DOSING CHAMBER PLAN

SCALE: NTS

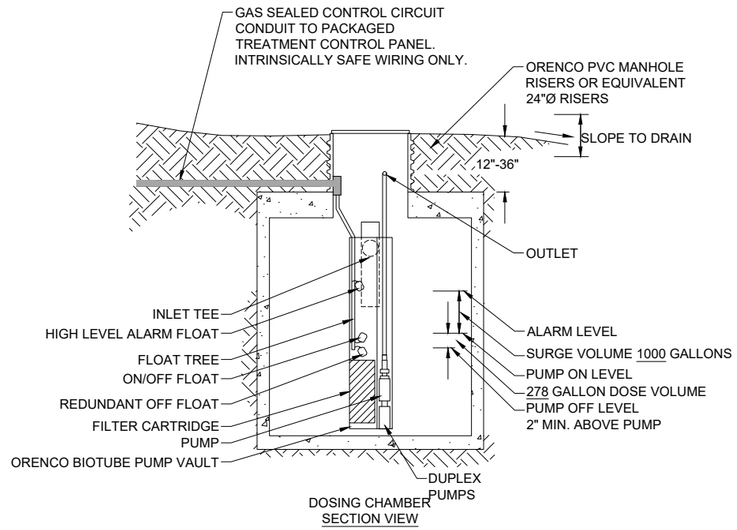
DOSING CHAMBER NOTES:

1. ALL INTERNAL TANK PIPING SHALL BE SCHEDULE 40 PVC OR BETTER. FITTINGS SHALL BE SCHEDULE 80 OR BETTER.
2. CONTROL-ALARM PANEL SHALL BE OUTDOOR APPROVED OR WEATHER PROTECTED, READILY ACCESSIBLE, TAMPER RESISTANT, AND IN DIRECT LINE OF SIGHT OF THE DOSING CHAMBER.
3. ALL ELECTRICAL WORK TO THE CONTROL PANEL MUST BE COMPLETED PRIOR TO FINAL INSPECTION. THE SYSTEM SHALL BE TESTED USING PERMANENT POWER.
4. USE GEOFLOW 1-ZONE SIMPLEX AUTOMATIC CONTROL PANEL WITH TIMER AND AUTOMATIC FLUSHING WITH SJE RHOMBUS SENSOR FLOAT MERCURY FLOATS OR EQUAL.
5. PANEL SHALL HAVE AN EVENT COUNTER, HOUR RUN METER, AND VISUAL/AUDIBLE ALARM. THE ALARM CIRCUIT SHALL BE INDEPENDENT OF THE PUMP CIRCUIT.
6. MOUNT THE CONTROL PANEL ON A NON-BEDROOM EXTERIOR WALL OR ON ITS OWN PEDESTAL APPROXIMATELY FIVE FEET HIGH ABOVE FINAL GRADE.
7. A TIMER SHALL BE USED IN CONJUNCTION WITH THE ON/OFF FLOAT TO TURN THE PUMP ON EVERY 16 MINUTES FOR 6.2 MINUTES. ACTUAL RUN TIME SHALL BE SET BY TESTING AS PER NOTE 8.
8. AT THE PRESSURE TEST THE INSTALLER SHALL VERIFY THE PUMP RUN TIME. THE PUMP RUN TIME SHALL PROVIDE A DOSE OF 278 GALLONS. THE TIMER SHALL THEN BE SET FOR THIS PUMP RUN TIME.
9. THE FOLLOWING CONDITIONS SHALL BE MET IN ORDER FOR THE PUMP TO TURN ON:
   A. THE ON/OFF FLOAT IS IN THE ON POSITION.
   B. THE TIMER IS IN THE ON CYCLE.
10. PUMP IS AN ORENCO MODEL 2x PF5050 OR EQ. SUBMERSIBLE EFFLUENT PUMPS THAT PROVIDES 53 GPM AT 260 FEET OF HEAD.
11. THIS DESIGN INCLUDES 0 FEET OF ELEVATION HEAD FROM THE PUMP TO THE DRAIN FIELD AND 400 LINEAL FEET OF TRANSPORT PIPE. EXCEEDING THESE NUMBERS WILL REQUIRE RESIZING THE PUMP.
12. THE PUMP IS INSIDE AN ORENCO BIOTUBE PUMP VAULT OR EQUIVALENT.
13. FLOATS/ PUMP CONTROL SWITCHES SHALL BE MOUNTED INDEPENDENT OF THE PUMP AND TRANSPORT LINE.
14. ALL PUMP CONTROL STRAPS SHALL BE MADE OF POLYPROPYLENE OR OTHER MATERIAL APPROVED FOR USE IN SEPTIC SYSTEMS.
15. THE SYSTEM SHALL BE EQUIPPED WITH AN AIR VACUUM RELEASE VALVE OR OTHER SUITABLE DEVICE TO AVOID SIPHONING.



48" DIA MANHOLE DOSING CHAMBER
PROFILE
PRIOR 2 x 3,000 GALLONS
SINGLE COMPARTMENT
LINKED TOP & BOTTOM

SECTION A
SCALE: NTS



DOSING CHAMBER SECTION VIEW

SECTION B
SCALE: NTS

NO	REVISION DESCRIPTION	BY	APVD	DATE

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PRELIMINARY ISSUE DRAWING
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DAVID R. JENSEN — STATE OF WASHINGTON — 26105 — REGISTERED PROFESSIONAL ENGINEER

BRIAN ODELLE SHUCK — STATE OF WASHINGTON — 14371 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - DOSING PUMP CHAMBER

DATE: APRIL 2023
DRAWING NO: C-411
SHT NO 50 / TOTAL 56
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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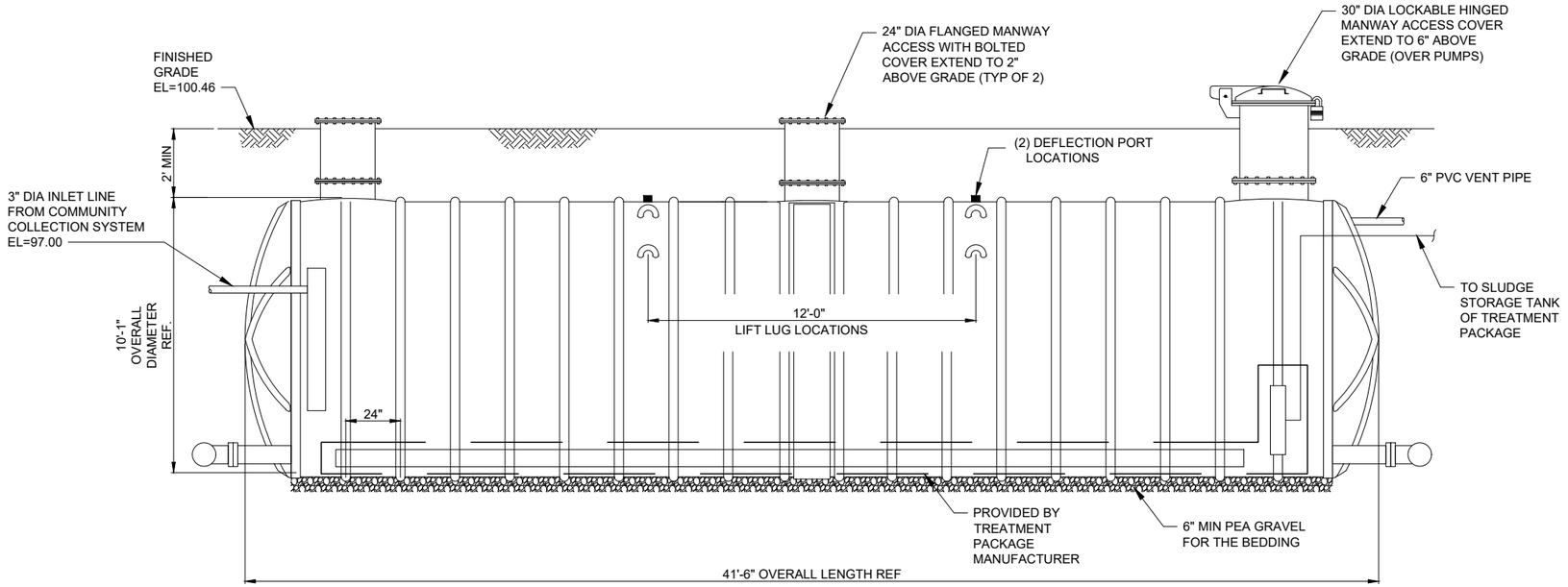
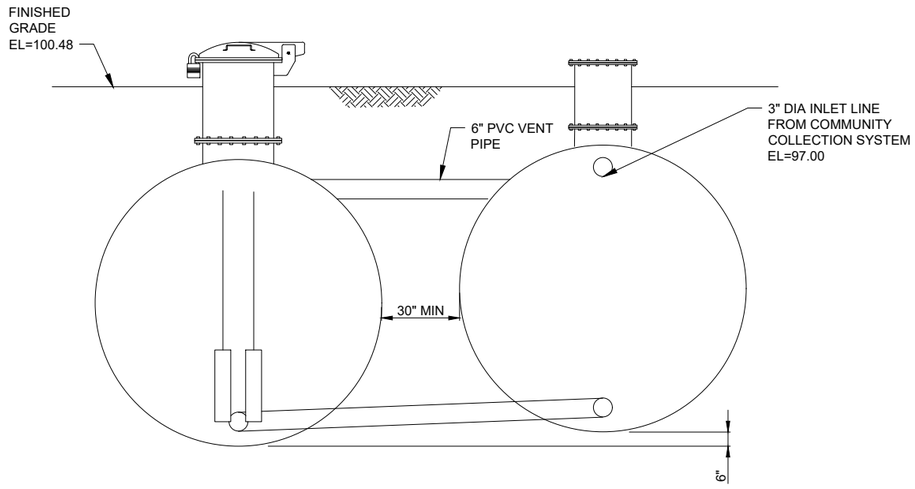


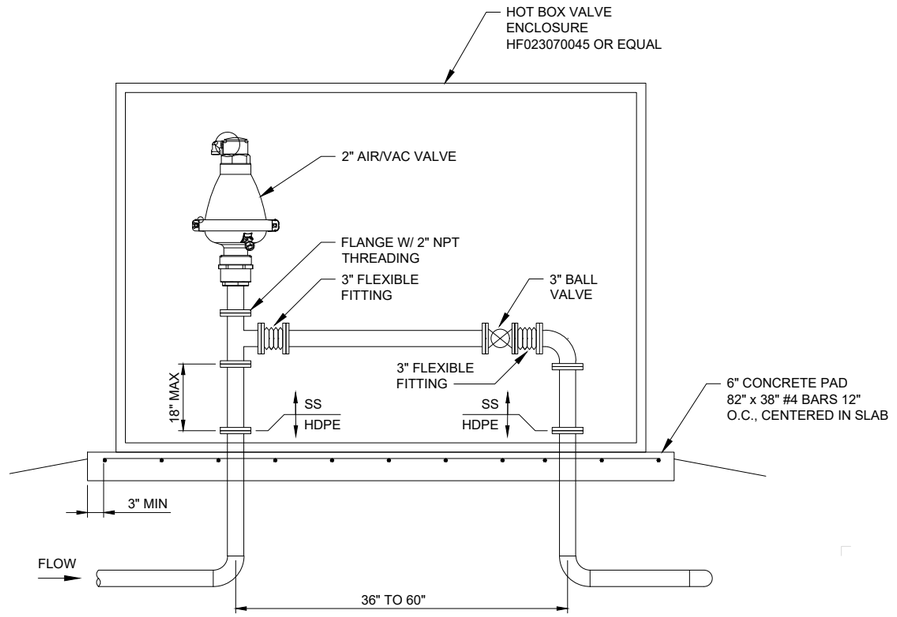
SECTION A
SCALE: NTS
151

TANK NOTES:

1. FOLLOW TANK MANUFACTURERS INSTALLATION INSTRUCTIONS.
2. TANK EXCAVATION SHALL BE LEVEL AND COMPACTED PRIOR TO PLACING BEDDING.
3. PROVIDE 6" MIN PEA GRAVEL FOR THE BEDDING BENEATH TANKS.
4. PROVIDE NATIVE SOIL BACKFILL FREE OF ROCKS >3" AS BACKFILL AROUND TANKS. MAXIMUM 10" LIFTS AND COMPACT TO 95%.
5. LOWER 18" OF COVER OVER TOP OF TANKS SHALL BE NATIVE SOIL BACKFILL FREE OF ROCKS >3". MAXIMUM 10" LIFTS. COMPACT TO 95%.
6. ALL TANKS SHALL BE ADEQUATELY VENTED. VENTING MAY BE ACCOMPLISHED BY A DIRECT SIX-INCH MINIMUM VERTICAL VENT TO THE ATMOSPHERE.
7. ALL JOINT TO BE SEALED WATER TIGHT WITH MASTIC.
8. ALL TANKS SHALL BE TESTED AND CONFIRMED WATERTIGHT.



SECTION B
SCALE: NTS
C-151



DETAIL 1
SCALE: NTS
C-151

NO	REVISION DESCRIPTION	BY	APVD	DATE

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BRIAN ODELLE STUCK — STATE OF WASHINGTON — 14271 — REGISTERED PROFESSIONAL ENGINEER

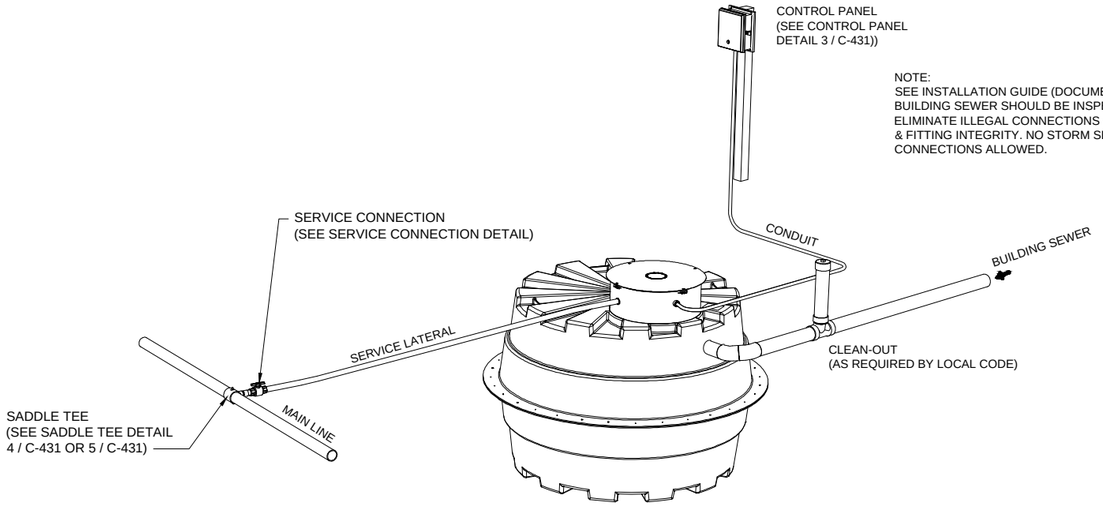
DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

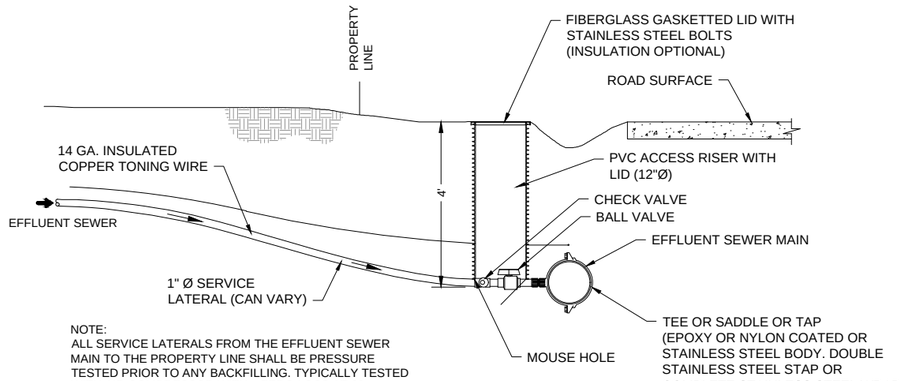
DETAILS - SURGE TANK WITH PUMP CHAMBER

DATE: APRIL 2023
DRAWING NO: C-412
SHT NO 51 / TOTAL 56
REV NO:



TYPICAL PRELOS PROCESSOR

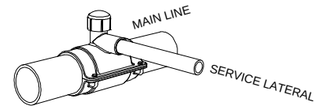
DETAIL 1 / XX
SCALE: NTS



NOTE:
ALL SERVICE LATERALS FROM THE EFFLUENT SEWER MAIN TO THE PROPERTY LINE SHALL BE PRESSURE TESTED PRIOR TO ANY BACKFILLING. TYPICALLY TESTED WITH AIR COMPRESSOR WITH ≈ ZERO LOSS AT 60 SECONDS. TYPICALLY INSTALLED BELOW FROST DEPTH. ACCESS RISERS SHALL NOT BE LOCATED IN VEHICULER TRAFFIC AREAS. ALTERNATIVE HDPE VALVE BOX AS AN OPTION FOR WARMER CLIMATES.

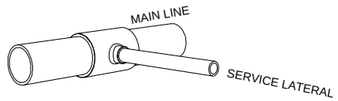
EFFLUENT SEWER SERVICE CONNECTION

DETAIL 3 / XX
SCALE: NTS



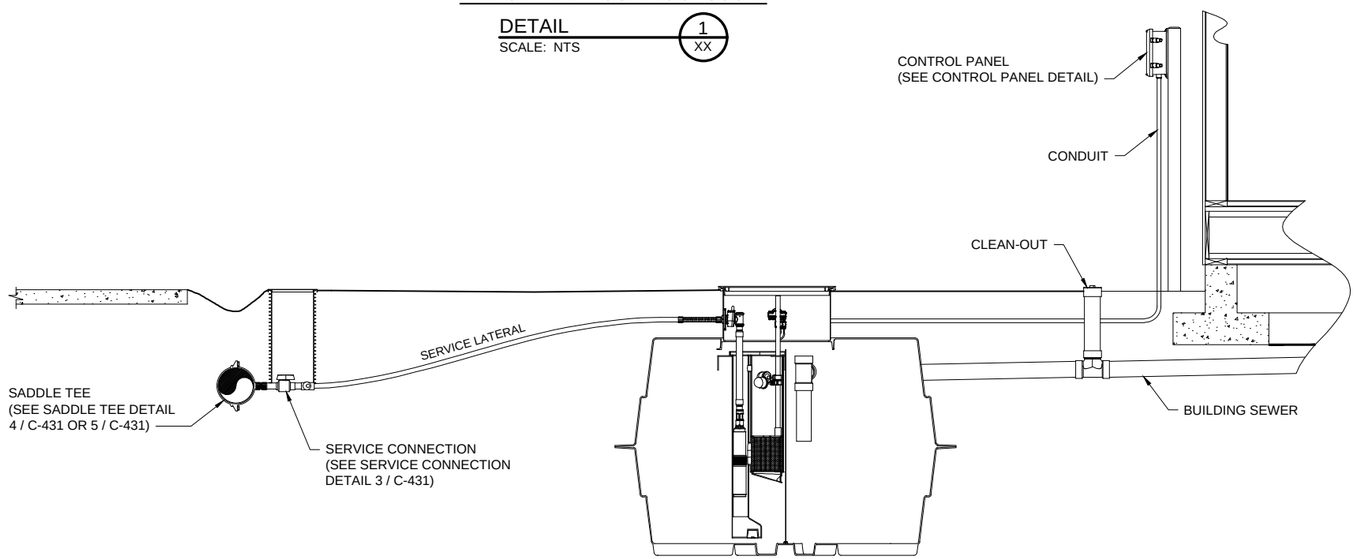
HDPE SELF-TAPPING SADDLE

DETAIL 4 / XX
SCALE: NTS



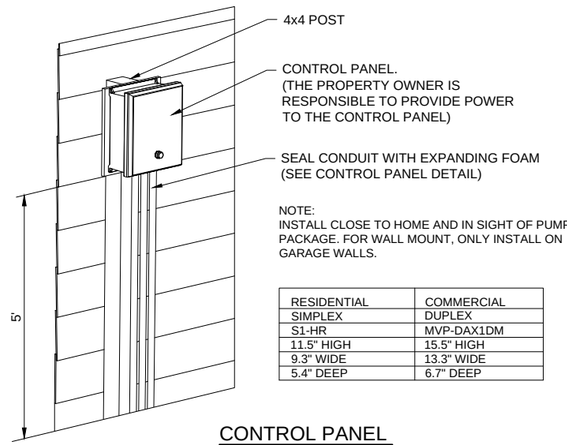
SADDLE TEE

DETAIL 5 / XX
SCALE: NTS



TYPICAL EFFLUENT SEWER PROFILE

DETAIL 2 / XX
SCALE: NTS



NOTE:
INSTALL CLOSE TO HOME AND IN SIGHT OF PUMP PACKAGE. FOR WALL MOUNT, ONLY INSTALL ON GARAGE WALLS.

RESIDENTIAL	COMMERCIAL
SIMPLEX	DUPLEX
S1-HR	MVP-DAX1DM
11.5" HIGH	15.5" HIGH
9.3" WIDE	13.3" WIDE
5.4" DEEP	6.7" DEEP

CONTROL PANEL (WALL OR 4x4 POST MOUNT)

DETAIL 1 / XX
SCALE: NTS

NO	REVISION DESCRIPTION	BY	APVD	DATE

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PRELIMINARY ISSUE DRAWING
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BRIAN ODELLE SHUCK — STATE OF WASHINGTON — 24271 — REGISTERED PROFESSIONAL ENGINEER

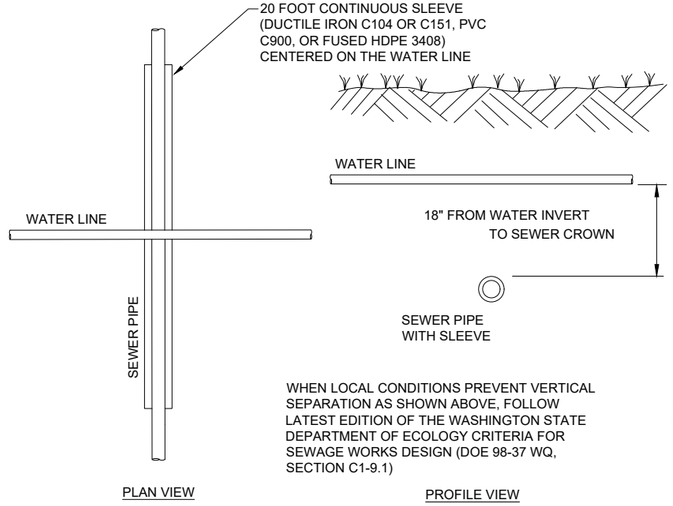
DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - CONVEYANCE 1

DATE: APRIL 2023
DRAWING NO: **C-431**
SHT NO 52 / TOTAL 56 | REV NO:

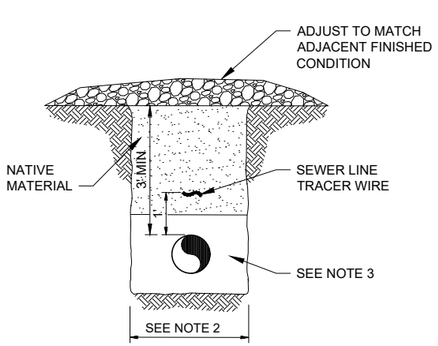


WHEN LOCAL CONDITIONS PREVENT VERTICAL SEPARATION AS SHOWN ABOVE, FOLLOW LATEST EDITION OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY CRITERIA FOR SEWAGE WORKS DESIGN (DOE 98-37 WQ, SECTION C1-9.1)

SEWER AND WATER CROSSING

DETAIL 1 / XX

SCALE: NTS



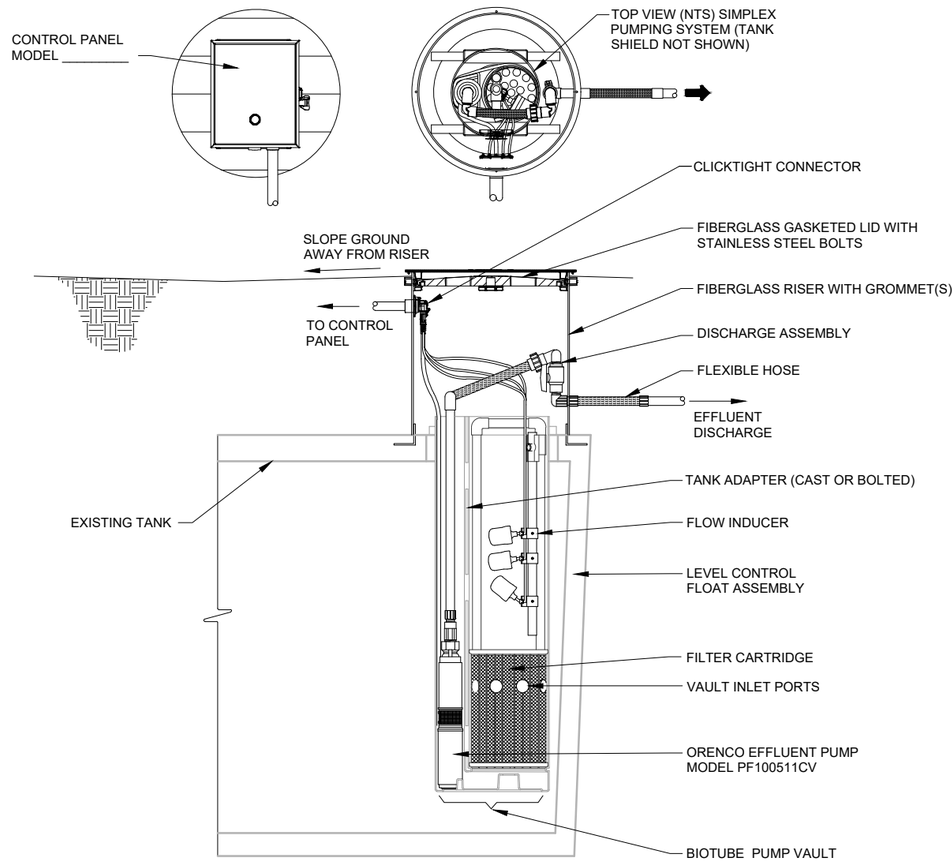
NOTES

1. PIPE MAY BE INSTALLED BY DIRECTIONAL DRILLING, TRENCHING, OR OPEN CUT AND FILL (EXCEPT AT STATE HIGHWAYS) ALL PIPE CROSSING OF STATE HIGHWAYS SHALL BE IN A STEEL CASING PLACED BY DIRECTIONAL DRILLING OR JACK AND BORE. NO OPEN CUTS OF STATE HIGHWAYS WILL BE ALLOWED.
2. MAXIMUM TRENCH WIDTH SHALL BE OUTSIDE CASING PIPE WIDTH PLUS 1 FOOT EITHER SIDE OF CASING PIPE.
3. BEDDING MATERIAL DEPTH OVER AND BENEATH PIPE CASING SHALL BE HALF THE DIAMETER OF PIPE CASING OR 6 INCHES, WHICHEVER IS LESS.

TYPICAL 1

PIPE TRENCH 4 / ---

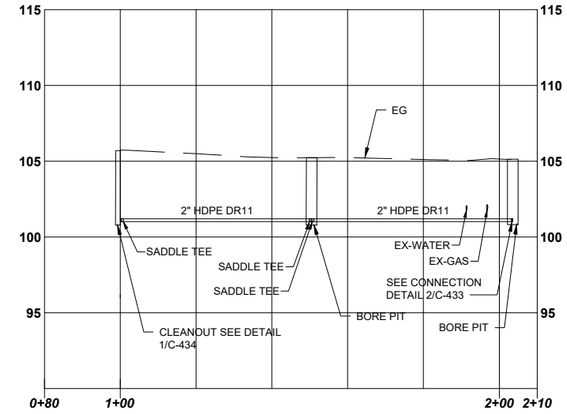
SCALE: NTS



EFFLUENT PUMPING SYSTEM
SYMPLEX W/CLICK THIGHT CONTROL SYSTEM

DETAIL 5 / XX

SCALE: NTS



CONVEYANCE SEWER PROFILE

DETAIL 3 / C-125

SCALE: V:1"=5', H:1"=20'

NO	REVISION DESCRIPTION	BY	APVD	DATE

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BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

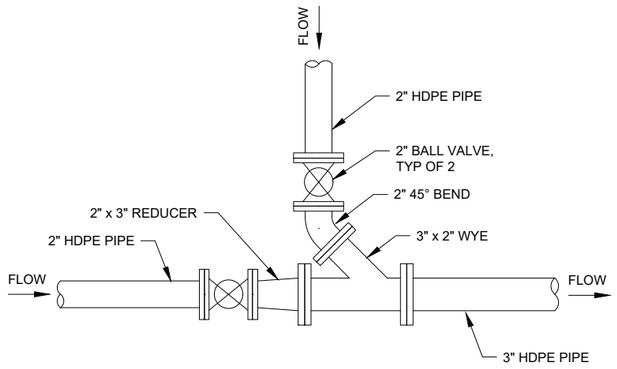
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - CONVEYANCE 2

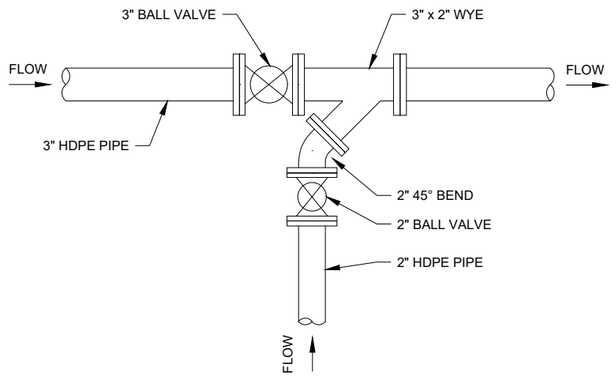
DATE: APRIL 2023
DRAWING NO: **C-432**
SHT NO 53 / TOTAL 56 | REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
C:\users\takeshia\appdata\local\bentley\projectwise\jacobs-americas-01\dms71331\W3Y05400-C-432.dwg | Layout: Layout1
PLOTTED: Apr 11, 2023-03:52:13pm By TAKESHIA
XREFS: W3Y05400_Border.dwg; Fall City_Civil.dwg
IMAGES:



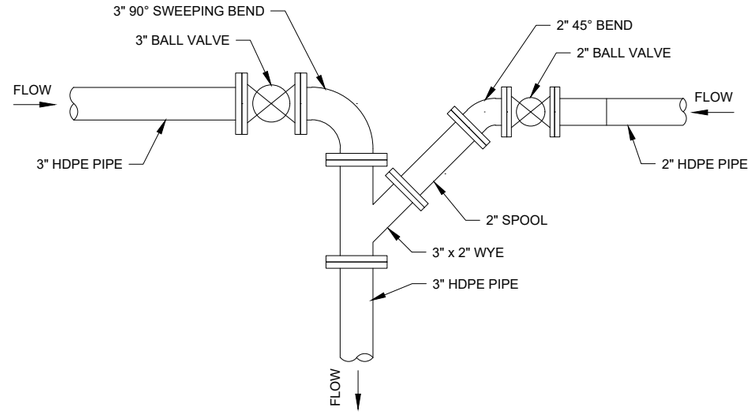
CONNECTION AT 335TH PLACE & ALLEY

DETAIL 1 / C-124
SCALE: NTS



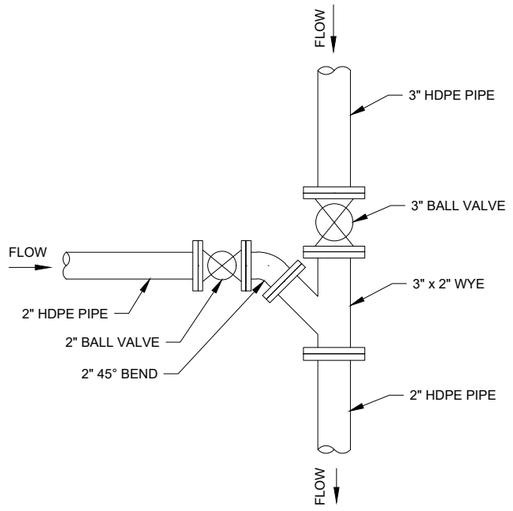
CONNECTION AT 337TH PLACE & ALLEY

DETAIL 2 / C-125
SCALE: NTS



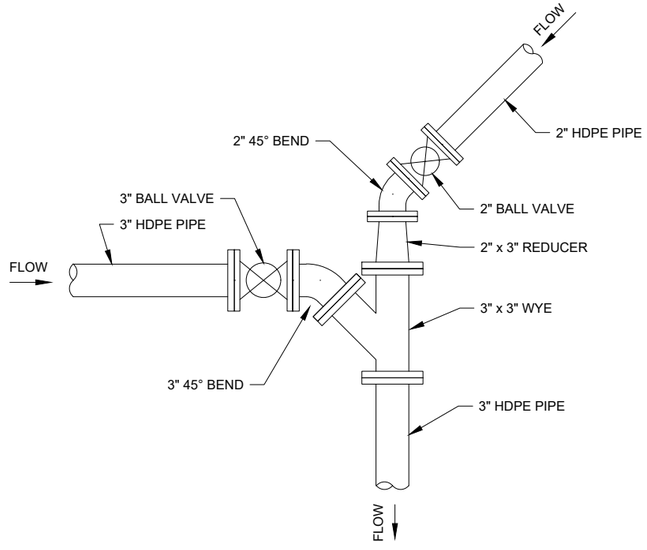
CONNECTION AT338TH PLACE & ALLEY

DETAIL 3 / C-126
SCALE: NTS



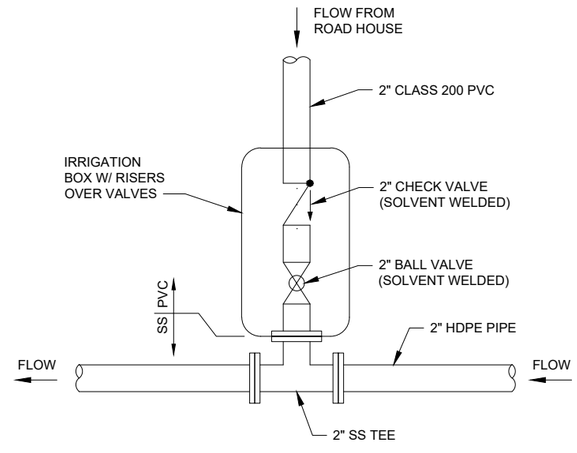
CONNECTION AT SE 43rd ST & STA 22+15

DETAIL 4 / C-128
SCALE: NTS



CONNECTION AT 340TH PL SE & TREATMENT STATION

DETAIL 5 / C-129
SCALE: NTS



CONNECTION AT 340TH PL SE & STA 1+90

DETAIL 6 / C-129
SCALE: NTS

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
C:\users\takeshia\appdata\local\bentley\projectwise\jacobs-americas-01\dms71331\W3Y05400-C-433.dwg | Layout: Layout1
PLOTTED: Apr 13, 2023-01:56:07pm By TAKESHIA
XREFS: W3Y05400_Border.dwg; Fall City_Civil.dwg
IMAGES:

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

BRIAN ODELL E. STUCK — STATE OF WASHINGTON — 44271 — REGISTERED PROFESSIONAL ENGINEER

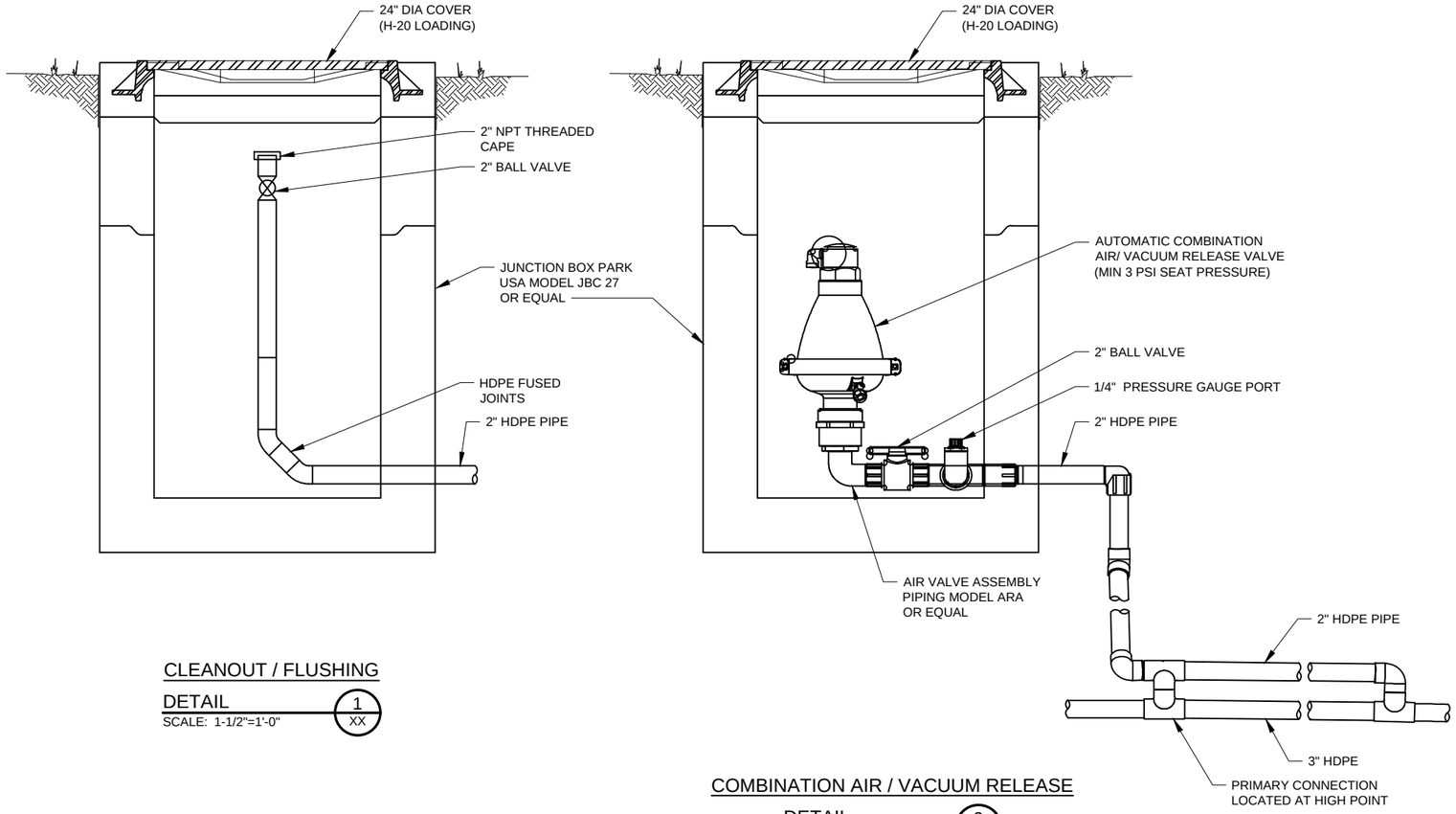
DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - CONVEYANCE 3

DATE: APRIL 2023
DRAWING NO: C-433
SHT NO 54 / TOTAL 56
REV NO:



CLEANOUT / FLUSHING

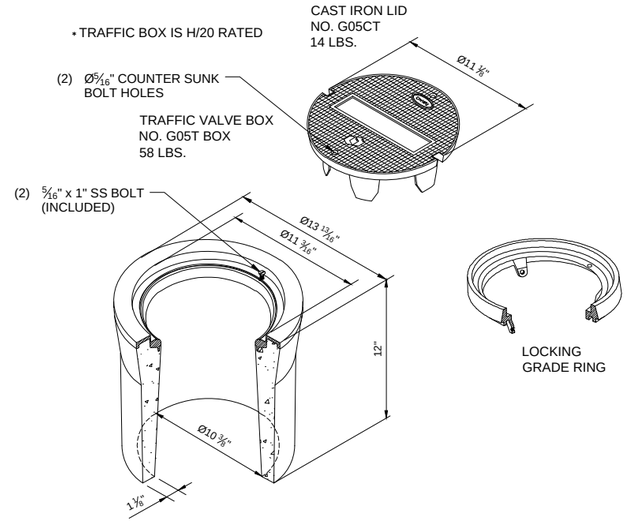
DETAIL 1 / XX

SCALE: 1-1/2"=1'-0"

COMBINATION AIR / VACUUM RELEASE

DETAIL 2 / XX

SCALE: 1-1/2"=1'-0"



THE LARGEST THROAT DIAMETER FOR AN BOX IN ITS SIZE RANGE PERMITS QUICK, EASY VALVE ADJUSTMENTS, THE LARGE THROAT ALSO MAKES THIS UNIT HIGHLY ADAPTABLE AS A SURVEY MONUMENT BOX. UNIQUE LOCKING GRADE RINGS ASSURE PERMANENCE AND QUALITY OF SURFACE GRADES WHEN STREETS ARE RE-PAVED. THE CAREFULLY ENGINEERED CAST IRON LID AND RING INCLUDES MACHINED SURFACES AND BOLTING FEATURES REDUCING THE DANGER OF LID "POP-OUT" IN HIGH TRAFFIC AREAS. BOLT DOWN RECOMMENDED FOR HIGH TRAFFIC AREAS.

TRAFFIC VALVE BOX

ISOMETRIC 3 / XX

SCALE: NTS

NO	REVISION DESCRIPTION	BY	APVD	DATE

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PRELIMINARY ISSUE DRAWING

INFORMATION ONLY

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BRYAN ODELLE SHUCK — STATE OF WASHINGTON — 44371 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

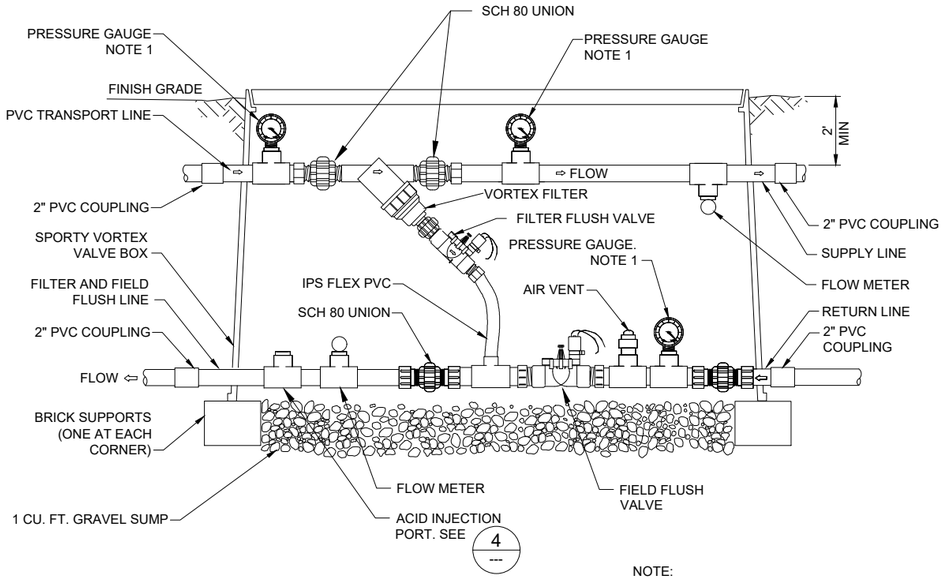
DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - CONVEYANCE 4

DATE: APRIL 2023

DRAWING NO: **C-434**

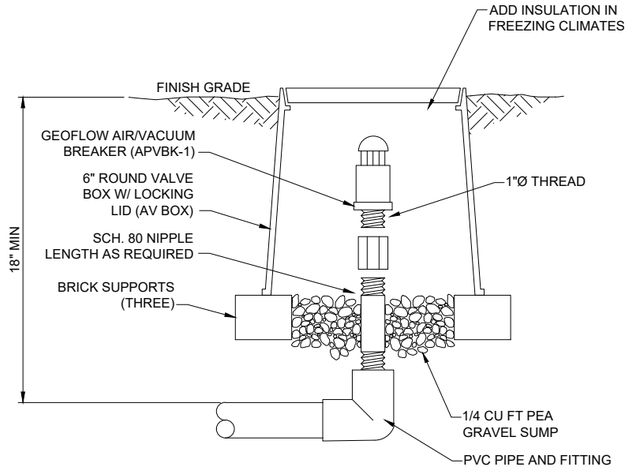
SHT NO 55 / TOTAL 56 | REV NO:



NOTE:
1. PROVIDE PERMANENT PRESSURE GAUGE OR NIPPLE FOR TEMPORARY PORTABLE PRESSURE GAUGE ATTACHMENT .

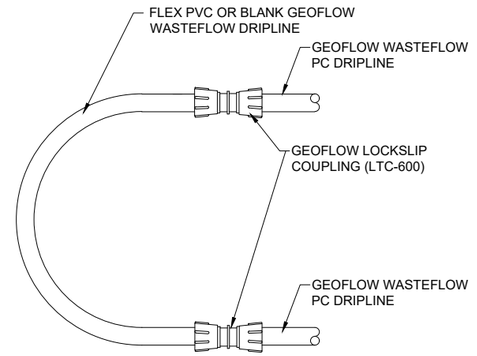
GEOFLOW HEADWORKS

DETAIL 1/XX
SCALE: NTS



1" AIR/VACCUM BREAKER

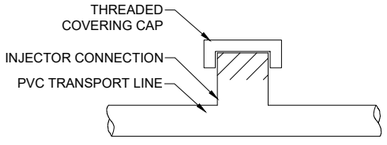
DETAIL 2/XX
SCALE: NTS



NOTES:
1. USE WHEN TIGHTLINING AROUND TREES, ROCKS, ETC., OR AT LOOPED ENDS.
2. IF USING FLEX PVC LOOP, CONNECTIONS SHALL BE GEOFLOW LOCKSLIP ADAPTER (LTSLIP-600) TO PVC COUPLING

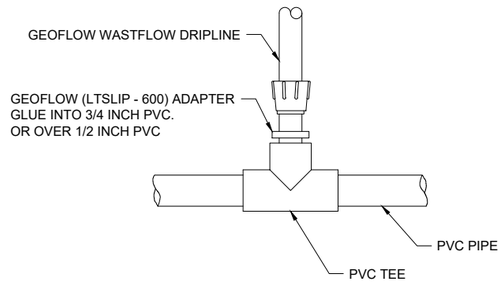
DRIPLINE TIGHTLINE

DETAIL 3/XX
SCALE: NTS



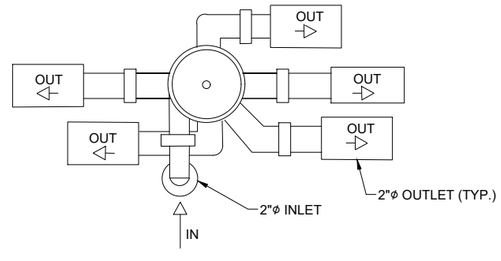
ACID INJECTION PORT

DETAIL 4/XX
SCALE: NTS



MANIFOLD CONNECTION (PVC TO ADAPTER)

DETAIL 5/XX
SCALE: NTS



DISTRIBUTION VALVE

DETAIL 6/XX
SCALE: NTS

NO	REVISION DESCRIPTION	BY	APVD	DATE

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PRELIMINARY ISSUE DRAWING
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DAVID R. JENSEN, STATE OF WASHINGTON, 28105, REGISTERED PROFESSIONAL ENGINEER

BRYAN ODELLE SHUCK, STATE OF WASHINGTON, 44271, REGISTERED PROFESSIONAL ENGINEER

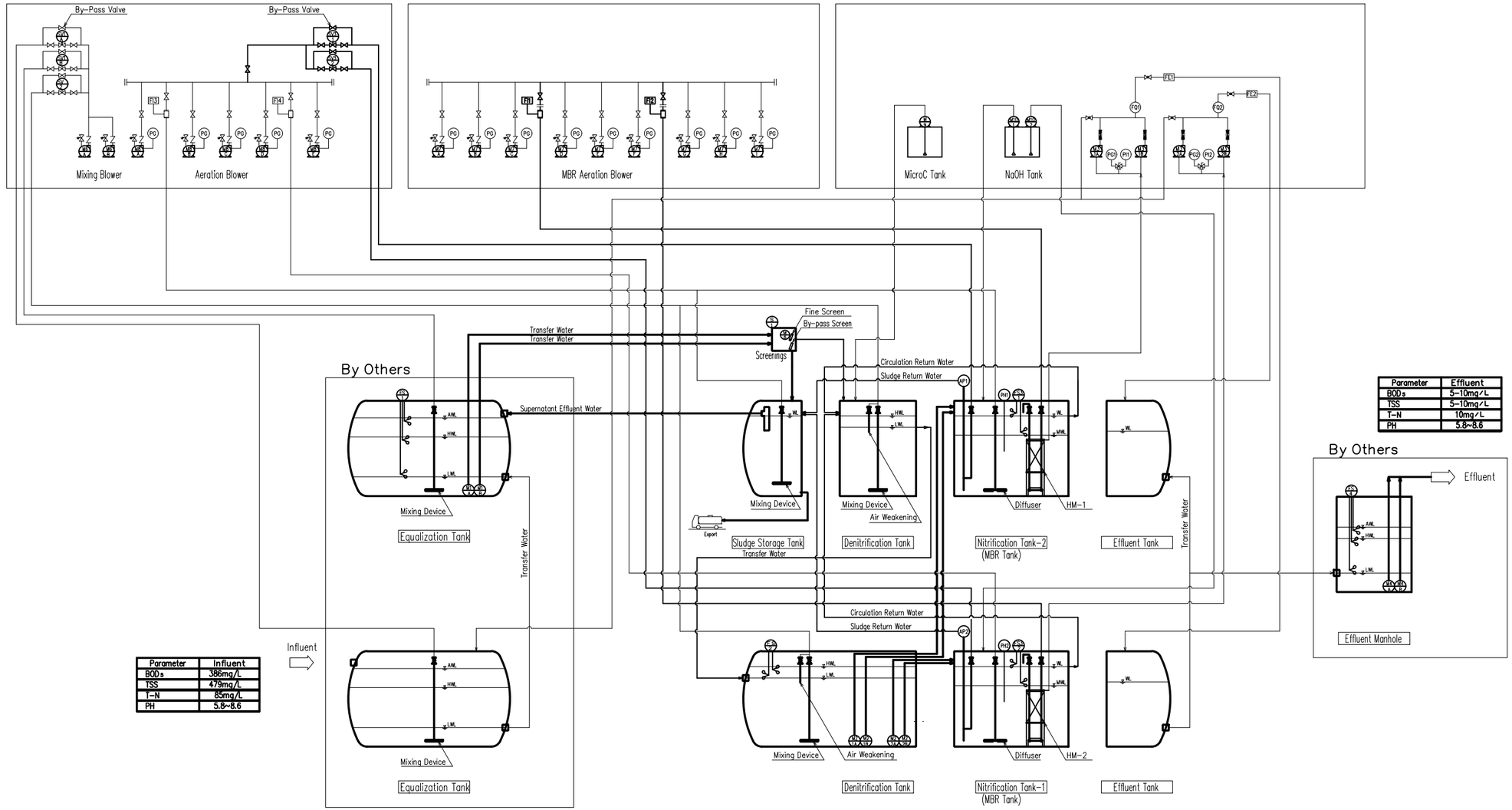
DESIGNED/DRAWN: J. YANG	SCALE: AS NOTED
DESIGN ENGINEER: A. TAKESHI	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

DETAILS - DRAINFILED

DATE: APRIL 2023
DRAWING NO: C-441
SHT NO 56 / TOTAL 56
REV NO:



Parameter	Effluent
BOD5	5-10mg/L
TSS	5-10mg/L
T-N	10mg/L
PH	5.8~8.6

Parameter	Influent
BOD5	386mg/L
TSS	479mg/L
T-N	85mg/L
PH	5.8~8.6

Symbol	Equipment Name	Symbol	Equipment Name	Symbol	Equipment Name
M-1(A·B)	Equalization Pump	FS-1	Float Switch(Equalization Tank)	SV2	Solenoid Valve(For Denitrification Mixing)
M2-1(A·B)	Circulation Pump (Ⅰ-TRAIN)	FS-2	Float Switch(Denitrification Tank)	SV3-1	Sludge Transfer Solenoid Valve (Ⅰ-TRAIN)
M2-2(A·B)	Circulation Pump (Ⅱ-TRAIN)	FS-3-1	Float Switch(MBR Tank) (Ⅰ-TRAIN)	SV3-2	Sludge Transfer Solenoid Valve (Ⅱ-TRAIN)
M3-1(A·B)	Permeate Pump (Ⅰ-TRAIN)	FS-3-2	Float Switch(MBR Tank) (Ⅱ-TRAIN)	FQ(1,2)	Water Meter (Integrated Flow)
M3-2(A·B)	Permeate Pump (Ⅱ-TRAIN)	FS-4	Float Switch(Effluent Tank)	PG(1,2)	Pressure Gauge
		HM-1	Membrane Unit (Ⅰ-TRAIN)	PI(1,2)	Vacuum pressure sensor
M-5	Fine Screen	HM-2	Membrane Unit (Ⅱ-TRAIN)	FI(1,2)	Orifio Meter(For Membrane)
M-6(A·B)	Mixing Blower	AP-1	Airlift Pump (Ⅰ-TRAIN)	FI(3,4)	Orifio Meter(For Aeration)
M-7(A~I)	MBR Aeration Blower	AP-2	Airlift Pump (Ⅱ-TRAIN)	FE(1,2)	Electromagnetic Flow Meter
M-8(A~E)	Aeration Blower	S-1	Screen Box	PH(1,2)	PH sensor
M-9	MicroC Dosing Pump		Adjustment Valve(Treated Water)		
M10-1	NaOH Dosing Pump (Ⅰ-TRAIN)	SV1-A	Solenoid Valve(For Equalization Mixing)	M-4(A·B)	Treated Water Supply Pump(By Others)
M10-2	NaOH Dosing Pump (Ⅱ-TRAIN)	SV1-B	Solenoid Valve(For Equalization Mixing)		

Fall City Flow Sheet

NO	REVISION DESCRIPTION	BY	APVD	DATE

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KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
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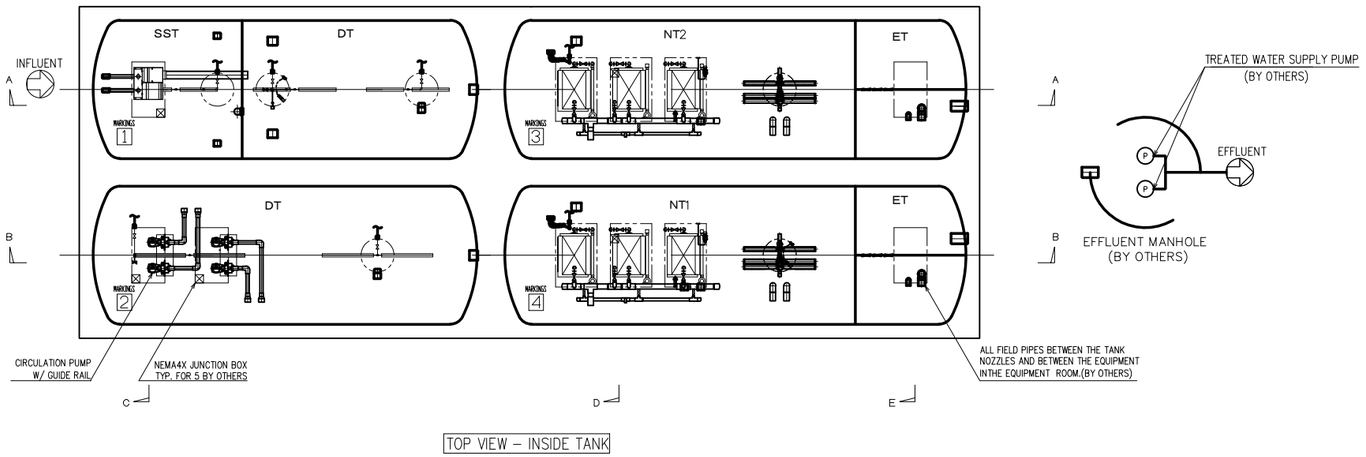
DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

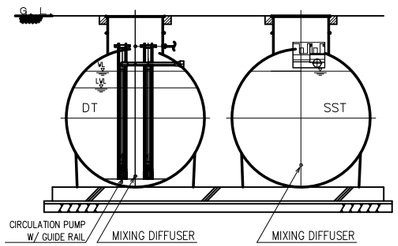
DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

FLOW SHEET

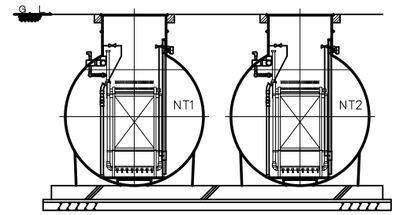
DATE: APRIL 2023
DRAWING NO: **KC-001**
SHT NO 1 / TOTAL 14
REV NO:



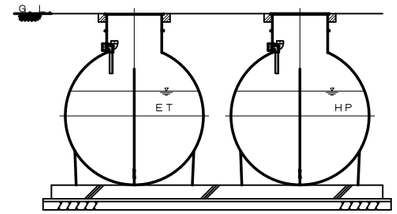
TOP VIEW – INSIDE TANK



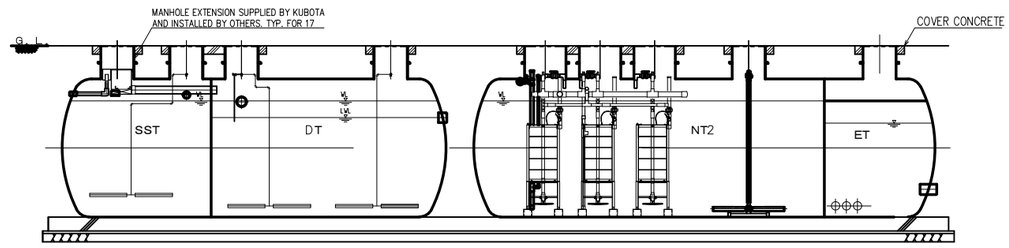
C–C SECTION



D–D SECTION



E–E SECTION



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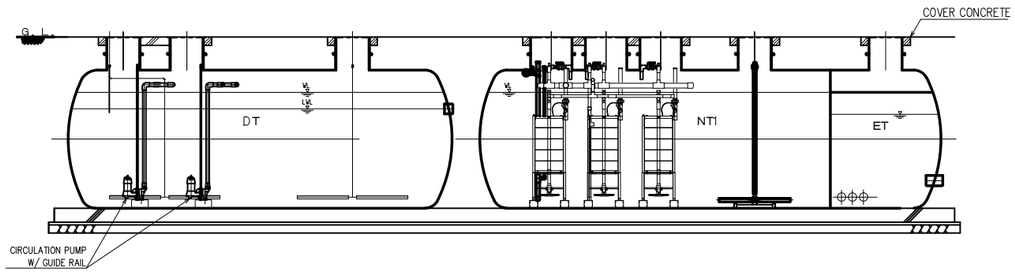

B–B SECTION

TANK NAME	
SST	SLUDGE STORAGE TANK
DT	DENITRIFICATION TANK
NT	NITRIFICATION TANK
ET	EFFLUENT TANK

MAINTENANCE ACCESS COVER		
METRIC(MM)	IMPERIAL(FT)	NO.
Φ600	Φ2.0	6
600X1000	2.0X3.25	5
750X1150	2.5X3.75	6
1.COVER IS RATED 1500K(3300LBS)		
2.MATERIAL OF COVERS ARE FRP		

TANK		WEIGHT (METRIC TON)	
NO	SIZE(L)	DRY WEIGHT	OPERATING WEIGHT
1	Φ2500X6950L	1648 KG	28288 KG
2	Φ2500X6950L	1596 KG	26718 KG
3	Φ2500X8350L	2267 KG	35456 KG
4	Φ2500X8350L	2243 KG	35432 KG

DESIGN PARAMETERS		
MODEL	KM-SC-NP-2A	
AVERAGE DAILY FLOW	89.3 m^3/day	23,600 gpd
INFLUENT BODs	34.7 kg/day	76.60 lbs/day
PARAMETER	INFLUENT	EFFLUENT
BODs	386 mg/L	5-10 mg/L
TSS	479 mg/L	5-10 mg/L
T-N	85 mg/L	10 mg/L
T-P	12 mg/L	——
O&G	105 mg/L	1 mg/L
PH	5.8~8.6	5.8~8.6
PROCESS	MEMBRANE BIO-REACTOR(MBR)	
EFFECTIVE TANK VOLUME		
AERATED SCREEN	——	——
EQUALIZATION TANK	——	——
SLUDGE STORAGE TANK	11.185 m^3	2954 gal
DENITRIFICATION TANK	40.615 m^3	10729 gal
NITRIFICATION TANK	54.498 m^3	14396 gal
EFFLUENT TANK	10.672 m^3	2819 gal
TOTAL(FRP TANK)	116.97 m^3	30900 gal

EQIPMENT LIST

EQUIPMENT NAME	QUANTITY	DIAMETER mm	DIAMETER INCH	PRESSURE m	PRESSURE PSI	CAPACITY m^3/min	CAPACITY GPM	POWER KW /HP	POWER AMPS	POWER VOLTAGE
EQUALIZATION PUMP	2	50	2"	4.0	5.8	0.20	53	0.40/0.54	5.8	115~120
CIRCULATION PUMP	4	50	2"	4.0	5.8	0.30	79	0.75/1.01	9.2	115~120
PREMEATE PUMP	4	40	1.1/2"	7.0	10.2	0.10	26	0.40/0.54	8.6	100
TREATED WATER SUPPLY PUMP	2	50	2"	20.7	30.0	0.16	42	3.73/5.0	26.2	240
FINE SCREEN	1	1MM WIDTH		–	–	14M3/H	62	0.025/0.034	0.48	100
MIXING BLOWER	2	32	1.1/4"	0.02MPA	2.9	0.65	172	0.75/1.01	9.8	100
MBR AERATION BLOWER	9	32	1.1/4"	0.02MPA	2.9	0.65	172	0.75/1.01	9.8	100
AERATION BLOWER	5	32	1.1/4"	0.03MPA	4.4	0.63	166	0.75/1.01	9.8	100
MICRO C DOSING PUMP	1	——		–	–	41ML/MIN	10.8	0.017/0.02	–	100~230
NAOH DOSING PUMP	2	——		–	–	29ML/MIN	7.7	0.017/0.02	–	100~230
MEMBRANE MODULE	FF50 X 6 UNITS : TOTALL 6 UNITS (300 MEMBRANE PLATES)									
SET FLOW RATE OF PERMEATE PUMP	47.0L/MIN/TRAIN X 2TRAIN (12.4 GPM/TRAIN X 2TRAIN)									

* FRAME OF MEINTENANCE ACCESS COVER SHALL BE GALVANIZED FINISHING
* MAINTENANCE ACCESS COVER SHALL BE BOLT LOCK TYPE WITH ODOR PREVENTION GASKET.
* INCLUDING 300MM MEINTENANCE ACCESS COVER EXTENSION UNIT.

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
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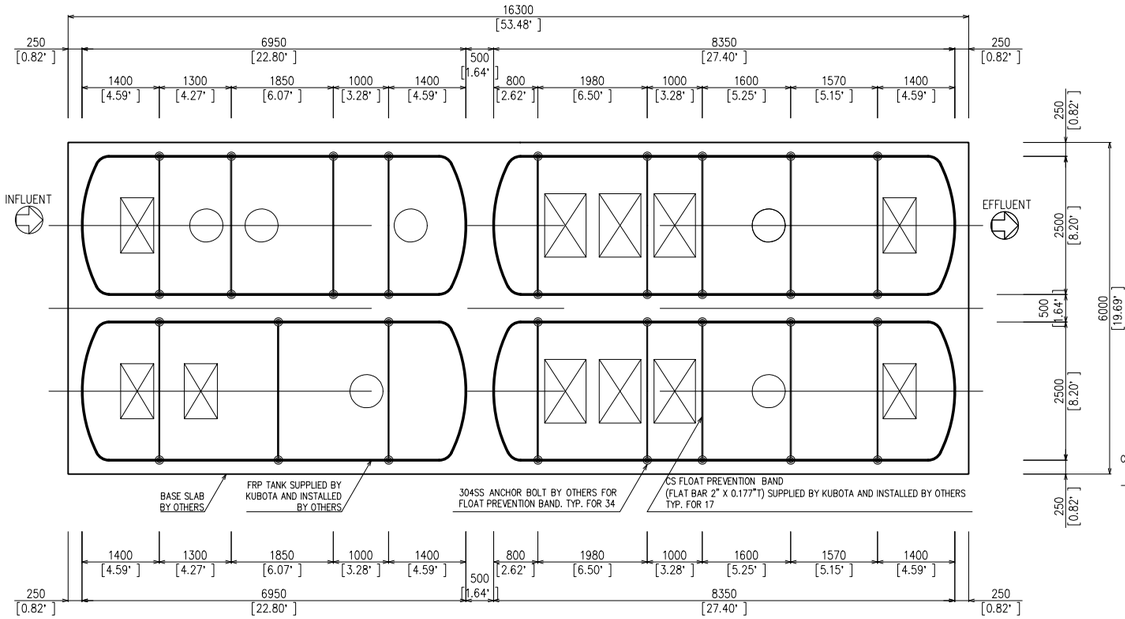
DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

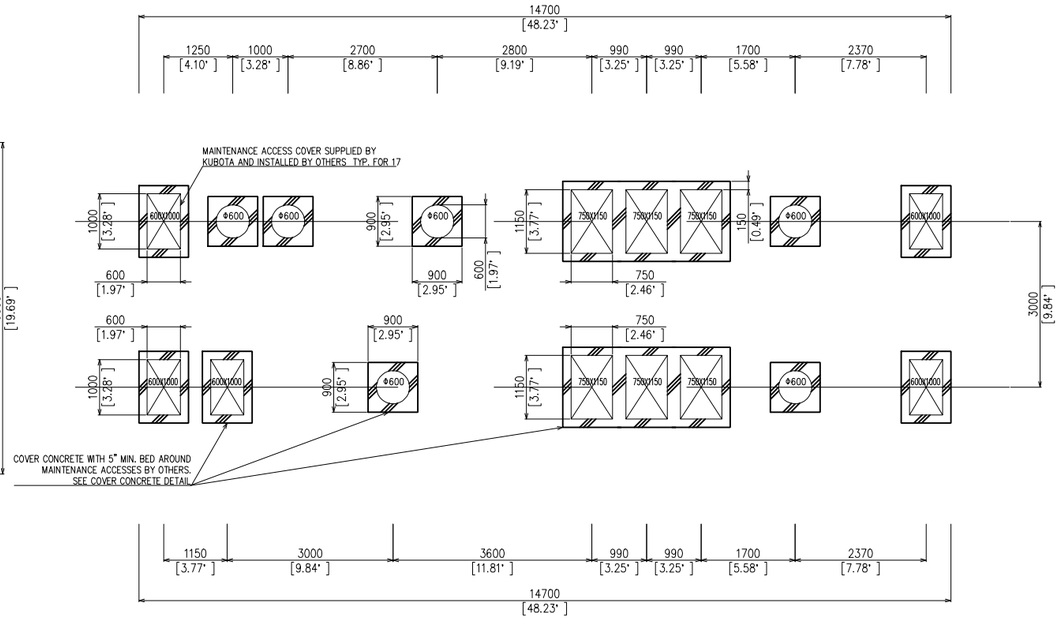
DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

LAYOUT STRUCTURE DRAWING - 1

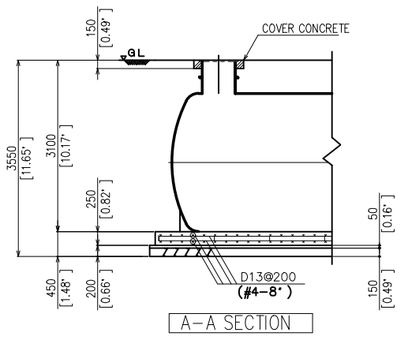
DATE: APRIL 2023
DRAWING NO: **KC-002**
SHT NO 2 / TOTAL 14 | REV NO:



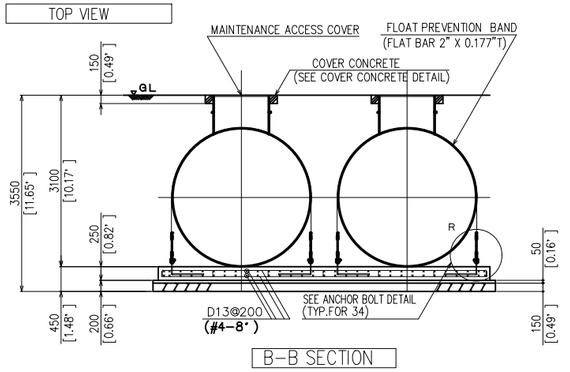
BELOW GROUND



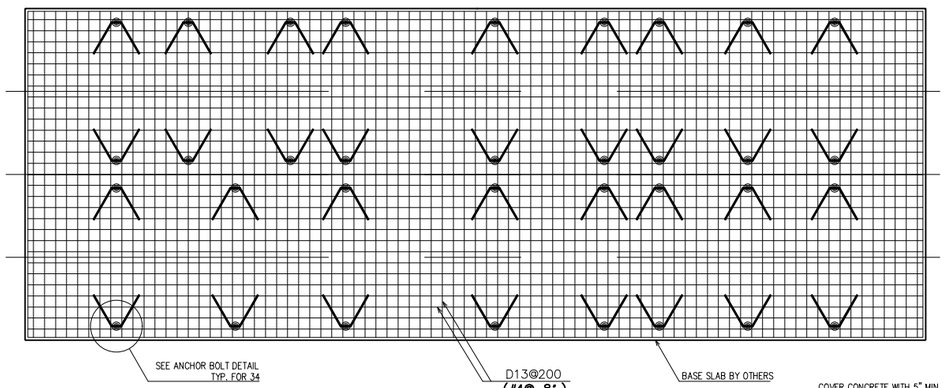
TOP VIEW



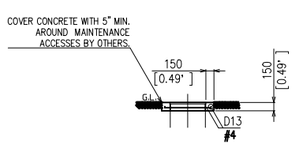
A–A SECTION



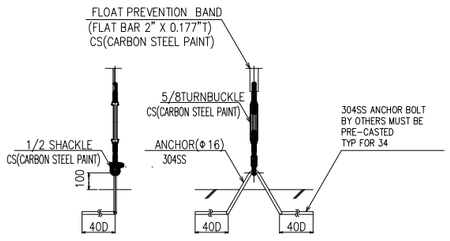
B–B SECTION



BASE PAD AND REBAR DETAIL



COVER CONCRETE DATAIL



ANCHOR BOLT DETAILL

※ ANCHOR BOLT SHALL BE INCLUDED IN CIVIL WORK .

SPECIFICATION*		
1. MATERIAL	CONCRETE	FC21N/MM ² (3046 PSI), LEAN CONCRETE
	REINFORCEMENT BAR	SD295A (JIS) UNREINFORCED CONCRETE WILL BE FC18N/MM²
2. BAR ARRANGEMENT	JOINT, ANCHORAGE LENGTH	ALL 40D
	REBAR RETAINER	D10@1000 (#3@39")
3. MIN. COVER CONCRETE	BASE SLAB	70MM(2.76")
4. SOIL BEARING CAPACITY & OTHERS	MIN. SOIL BEARING CAPACITY	50 KN/M ² MIN.
	FOR CONSTRUCTION, SOIL CONDITION AND UNDERGROUND CONDITION SHALL BE ASSESSED AND SOIL BEARING SHALL BE CONFIRMED.	
	NO LOAD TYPE	

* THE TABLE OF SPECIFICATION IS AN EXAMPLE. CONCRETE REQUIREMENT AND REBAR ARRANGEMENT MUST BE VALIDATED AND STAMPED BY A PROFESSIONAL ENGINEER.

NO	REVISION DESCRIPTION	BY	APVD	DATE

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KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

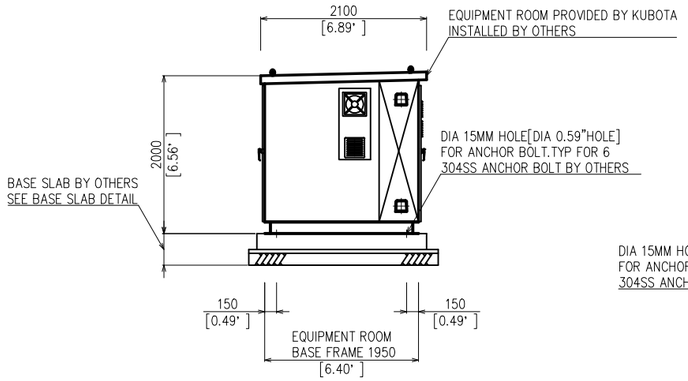
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

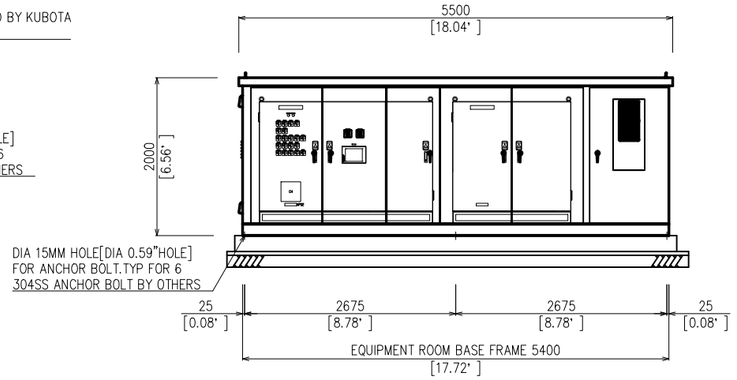
CONSTRUCTION DRAWING

DATE: APRIL 2023
DRAWING NO: **KC-004**
SHT NO 4 / TOTAL 14 | REV NO:

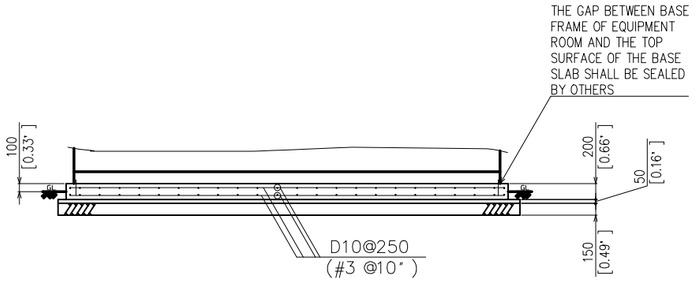
EQUIPMENT ROOM 1



SIDE VIEW OF EQUIPMENT ROOM



FRONT VIEW OF EQUIPMENT ROOM



EQUIPMENT ROOM SPECIFICATION

1. STRUCTURE	OUTDOOR TYPE
2. MATERIAL	WALL: COATED STEEL-2.3MM THICK
	BASE FRAME: COATED STEEL-150X75
3. COLOR	MUNSELL5Y7/1(IN/OUT)
4. SOUND INSULATION	GLASS WOOL 32K(25T)
SOUND INSULATION SHEET: CZ-12 : ZEON KASEI CO., LTD	

NOTE;
1. DRAWINGS FOR CONCRETE AND REBAR ARE JUST EXAMPLE. CONCRETE REQUIREMENT AND REBAR ARRANGEMENT MUST BE VALIDATED AND STAMPED BY A PROFESSIONAL ENGINEER.
2. BASE SLAB FOR EQUIPMENT ROOM IS BY OTHERS.
3. 304SS ANCHOR BOLTS TO FASTEN THE EQUIPMENT ROOM ARE BY OTHERS. EMBEDMENT DEPTH AND THE DIAMETER OF THE ANCHOR BOLTS ARE DETERMINED BY OTHERS.
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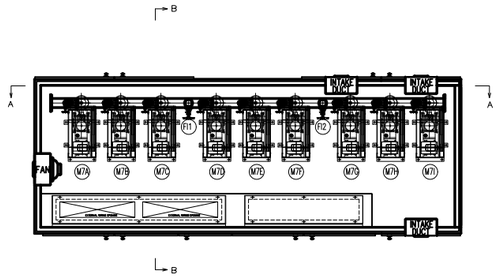
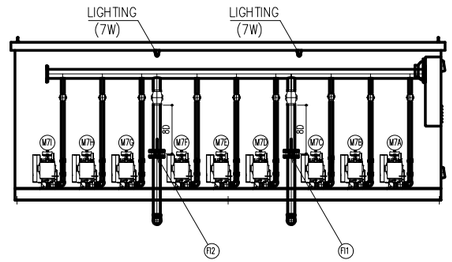
8. LIGHTNINGS ARE LOOSESHIPPED. LIGHTNENINGS ARE INSTALLED PROPERLY BY OTHERS.
9. COOLING FAN RUNS WITH THERMOSTAT.

EQUIPMENT LIST

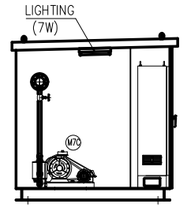
TAG	NAME	MODEL
—	CONTROL PANEL	———
M7A	MBR AERATION BLOWER A	HC-40S
M7B	MBR AERATION BLOWER B	HC-40S
M7C	MBR AERATION BLOWER C	HC-40S
M7D	MBR AERATION BLOWER D	HC-40S
M7E	MBR AERATION BLOWER E	HC-40S
M7F	MBR AERATION BLOWER F	HC-40S
M7G	MBR AERATION BLOWER G	HC-40S
M7H	MBR AERATION BLOWER H	HC-40S
M7I	MBR AERATION BLOWER I	HC-40S
FI-1	ORIFLW METER (I-TRAIN)	O-188-WC-080
FI-2	ORIFLW METER (II-TRAIN)	O-188-WC-080



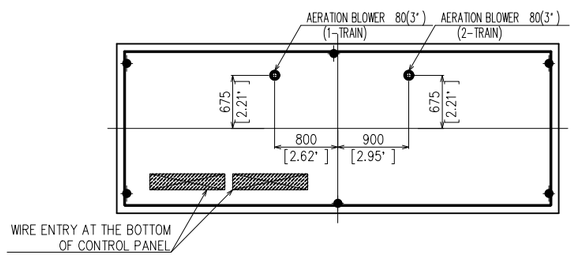
INSIDE EQUIPMENT ROOM



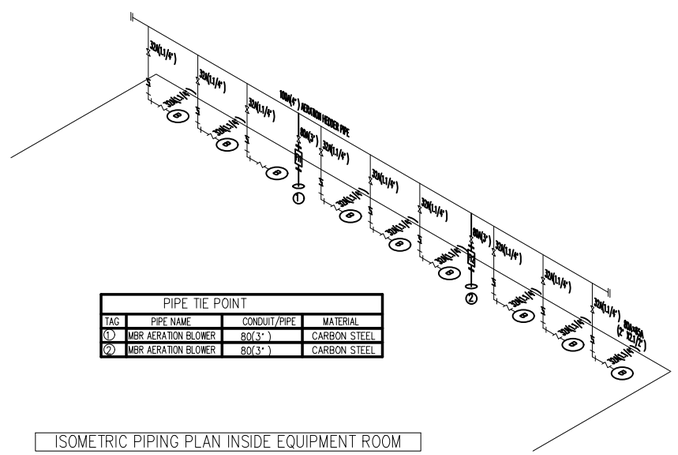
A-A SECTION



B-B SECTION



STUB UP PLAN FOR CONDUIT AND PIPE



PIPE TIE POINT

TAG	PIPE NAME	CONDUIT/PIPE	MATERIAL
①	MBR AERATION BLOWER	80(3")	CARBON STEEL
②	MBR AERATION BLOWER	80(3")	CARBON STEEL

ISOMETRIC PIPING PLAN INSIDE EQUIPMENT ROOM

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

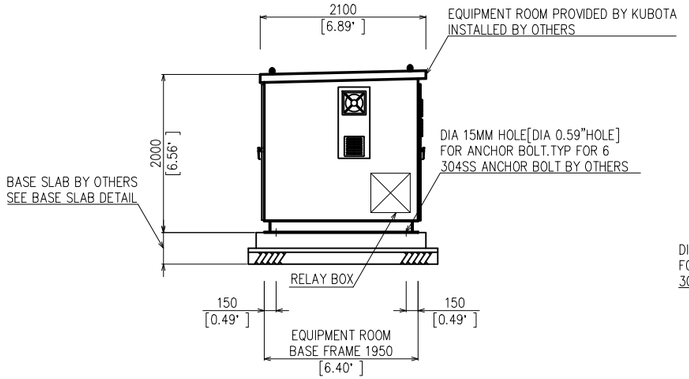
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

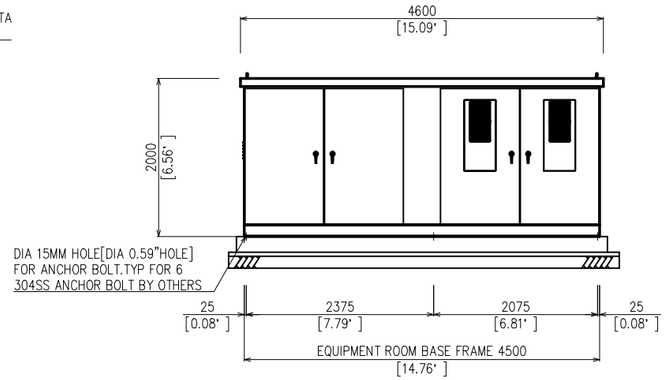
EQUIPMENT ROOM RAYOUT - 1

DATE: APRIL 2023
DRAWING NO: **KC-005**
SHT NO 5 / TOTAL 14
REV NO:

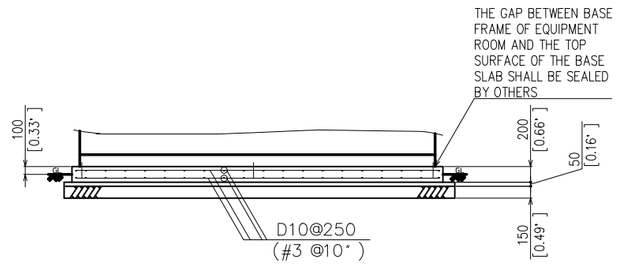
EQUIPMENT ROOM 2



SIDE VIEW OF EQUIPMENT ROOM



FRONT VIEW OF EQUIPMENT ROOM



EQUIPMENT ROOM SPECIFICATION

1. STRUCTURE	OUTDOOR TYPE	
2. MATERIAL	WALL: COATED STEEL-2.3MM THICK	
	BASE FRAME: COATED STEEL-150X75	
3. COLOR	MUNSELL5Y7/1(IN/OUT)	
4. SOUND INSULATION	GLASS WOOL 32K(25T)	
SOUND INSULATION SHEET: CZ-12: ZEON KASEI CO., LTD		

NOTE;
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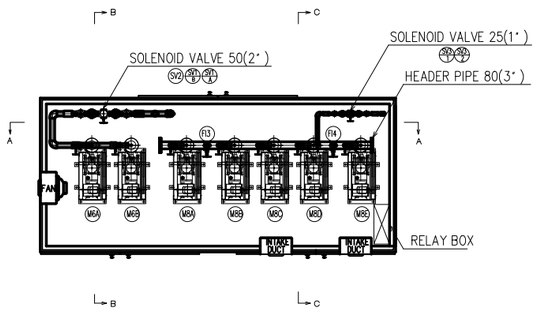
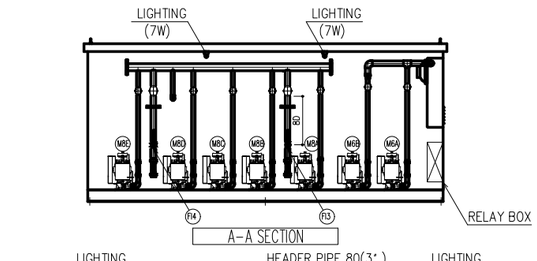
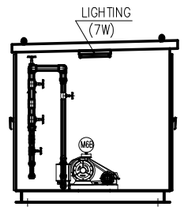


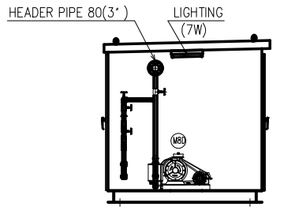
INSIDE EQUIPMENT ROOM



A-A SECTION



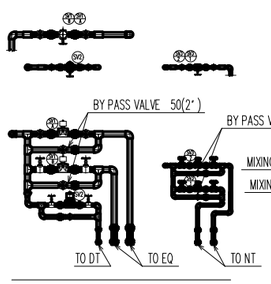
B-B SECTION



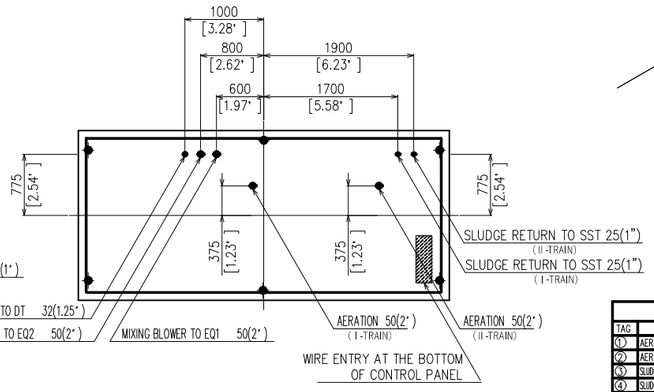
C-C SECTION

EQIPMENT LIST

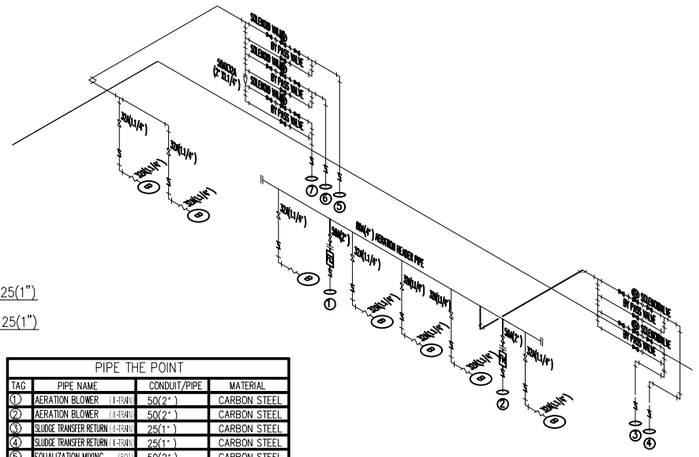
TAG	NAME	MODEL
——	CONTROL PANEL	———
M6A	MIXING BLOWER A	HC-40S
M6B	MIXING BLOWER B	HC-40S
M8A	AERATION BLOWER A	HC-40S
M8B	AERATION BLOWER B	HC-40S
M8C	AERATION BLOWER C	HC-40S
M8D	AERATION BLOWER D	HC-40S
M8E	AERATION BLOWER E	HC-40S
SV1A	SOLENOID VALVE(EQ1)	ADK21-50A-03M
SV1B	SOLENOID VALVE (EQ2)	ADK21-50A-03M
SV2	SOLENOID VALVE(DT)	ADK21-32A-03M
SV3-1	SOLENOID VALVE(NT1)	ADK11-25A-03M
SV3-2	SOLENOID VALVE(NT2)	ADK11-25A-03M
FI-3	ORIFLO METER	0-188-SC-050
FI-4	ORIFLO METER	0-188-SC-050



SOLENOID VALVE DETAIL



STUB UP PLAN FOR CONDUIT AND PIPE



PIPE THE POINT

TAG	PIPE NAME	CONDUIT/PIPE	MATERIAL
①	AERATION BLOWER (I-TRAIN)	50(2")	CARBON STEEL
②	AERATION BLOWER (II-TRAIN)	50(2")	CARBON STEEL
③	SLUDGE TRANSFER RETURN (I-TRAIN)	25(1")	CARBON STEEL
④	SLUDGE TRANSFER RETURN (II-TRAIN)	25(1")	CARBON STEEL
⑤	EQUALIZATION MIXING (EQ1)	50(2")	CARBON STEEL
⑥	EQUALIZATION MIXING (EQ2)	50(2")	CARBON STEEL
⑦	DENITRIFICATION MIXING	32(1.1/4")	CARBON STEEL

ISOMETRIC PIPING PLAN INSIDE EQUIPMENT ROOM

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DESIGNED/DRAWN: KUBOTA	SCALE: NONE		
DESIGN ENGINEER: KUBOTA	WORK ORDER:		
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126		
	CONTRACT NO:		

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

EQUIPMENT ROOM RAYOUT - 2

DATE: APRIL 2023
DRAWING NO: **KC-006**
SHT NO 6 / TOTAL 14 | REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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PLOTTED: Apr 12, 2023-05:28:52pm By ALALIQ
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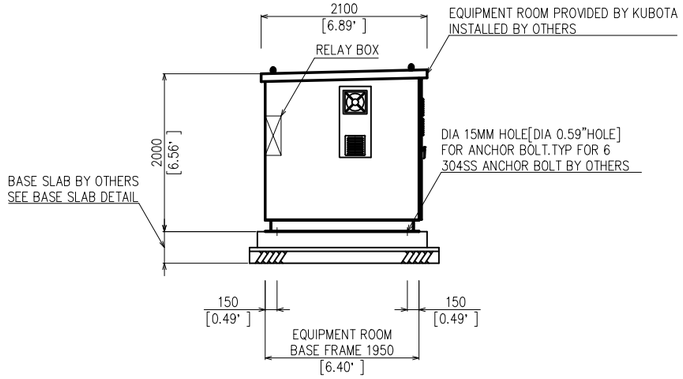
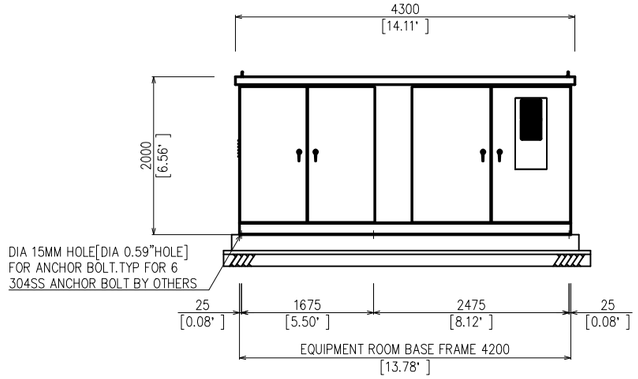
IMAGES:

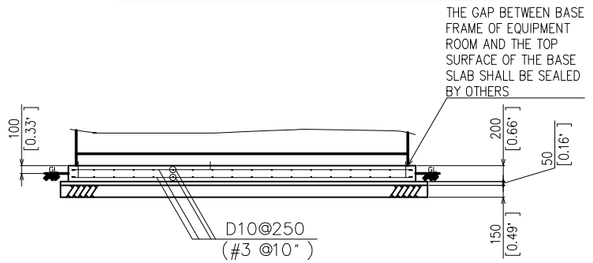
EQUIPMENT ROOM 3

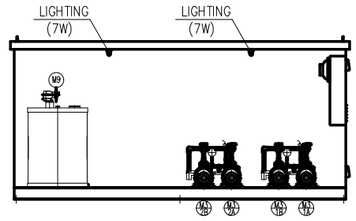


SIDE VIEW OF EQUIPMENT ROOM

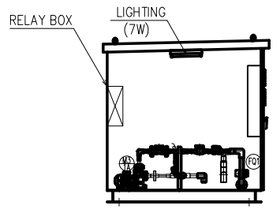


FRONT VIEW OF EQUIPMENT ROOM

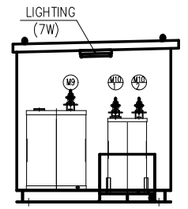




A-A SECTION



B-B SECTION



C-C SECTION

EQUIPMENT ROOM SPECIFICATION

1. STRUCTURE	OUTDOOR TYPE
2. MATERIAL	WALL: COATED STEEL-2.3MM THICK
	BASE FRAME: COATED STEEL-150X75
3. COLOR	MUNSELL5Y7/1(IN/OUT)
4. SOUND INSULATION	GLASS WOOL 32K(25T)

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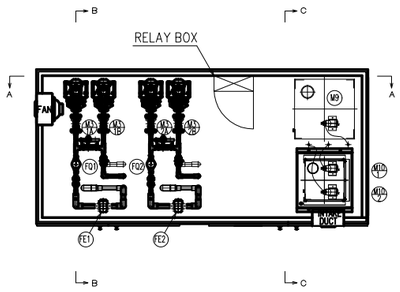
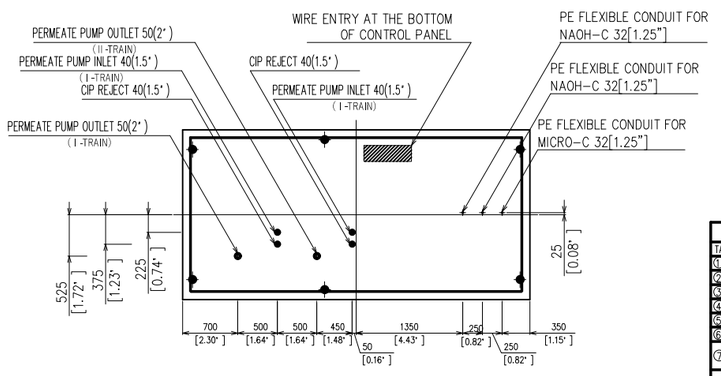
9. COOLING FAN RUNS WITH THERMOSTAT.

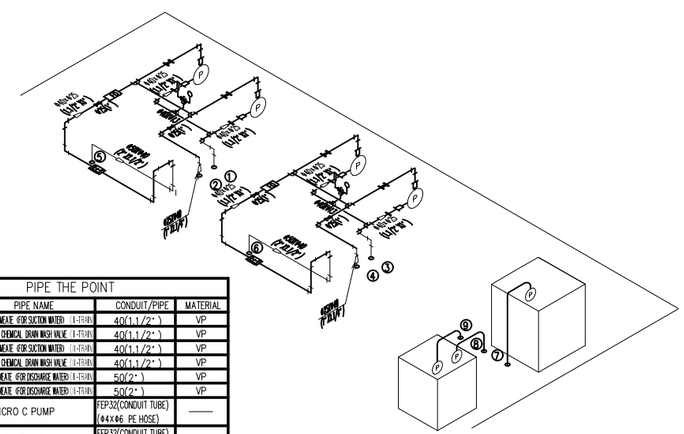
EQUIPMENT LIST

TAG	NAME		MODEL
—	CONTROL PANEL		—
M3-1A	PERMEATE PUMP A (I-TRAIN)		25PSPZ-2031B
M3-1B	PERMEATE PUMP B (I-TRAIN)		25PSPZ-2031B
M3-2A	PERMEATE PUMP A (II-TRAIN)		25PSPZ-2031B
M3-2B	PERMEATE PUMP B (II-TRAIN)		25PSPZ-2031B
M9	MICRO C	PUMP	BT4B1000
		TANK	PVC-500
M10-1	NAOH	PUMP (I-TRAIN)	BT4B1000
M10-2		PUMP (II-TRAIN)	BT4B1000
—		TANK	PVC-200
FQ1	INTEGRATING FLOWMETER (I-TRAIN)		NK-DL25
FQ2	INTEGRATING FLOWMETER (II-TRAIN)		NK-DL25
FE1	ELECTROMAGNETIC FLOWMETER (I-TRAIN)		FD-UH40G
FE2	ELECTROMAGNETIC FLOWMETER (II-TRAIN)		FD-UH40G





STUB UP PLAN FOR CONDUIT AND PIPE



PIPE THE POINT

TAG	PIPE NAME	CONDUIT/PIPE	MATERIAL
①	PERMEATE (OR SUCTION WATER) (I-TRAIN)	40(1 1/2")	VP
②	(OR CHEMICAL DRAIN WASH VALVE) (I-TRAIN)	40(1 1/2")	VP
③	PERMEATE (OR SUCTION WATER) (I-TRAIN)	40(1 1/2")	VP
④	(OR CHEMICAL DRAIN WASH VALVE) (I-TRAIN)	40(1 1/2")	VP
⑤	PERMEATE (OR DISCHARGE WATER) (I-TRAIN)	50(2")	VP
⑥	PERMEATE (OR DISCHARGE WATER) (I-TRAIN)	50(2")	VP
⑦	MICRO C PUMP	FEP32(CONDUIT TUBE) (Φ4X Φ6 PE HOSE)	—
⑧	NAOH PUMP (I-TRAIN)	FEP32(CONDUIT TUBE) (Φ4X Φ6 PE HOSE)	—
⑨	NAOH PUMP (II-TRAIN)	FEP32(CONDUIT TUBE) (Φ4X Φ6 PE HOSE)	—

ISOMETRIC PIPING PLAN INSIDE EQUIPMENT ROOM

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs

KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
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DESIGNED/DRAWN: KUBOTA	SCALE: NONE
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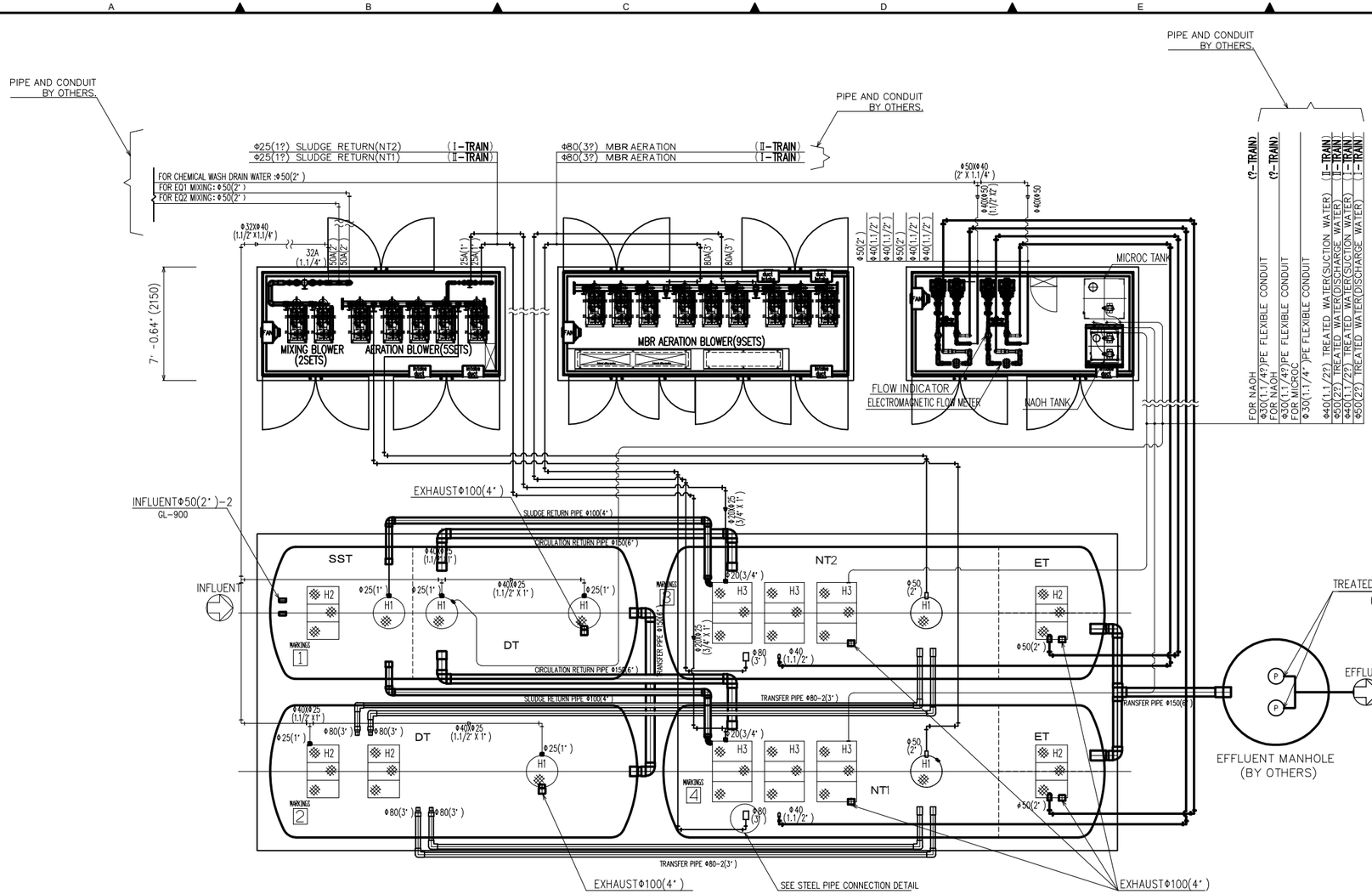
	CONTRACT NO:

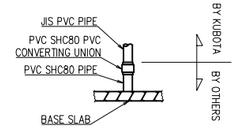
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

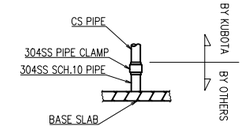
EQUIPMENT ROOM RAYOUT - 3

DATE: APRIL 2023
DRAWING NO: **KC-007**
SHT NO 7 / TOTAL 14 | REV NO:

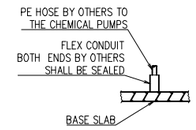




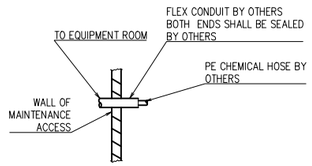
PVC PIPE CONNECTION DETAIL IN EQUIPMENT ROOM



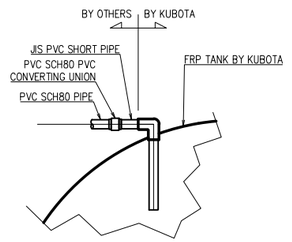
STEEL PIPE CONNECTION DETAIL IN EQUIPMENT ROOM



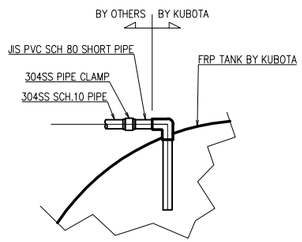
HOSE CONNECTION DETAIL IN EQUIPMENT ROOM



HOSE CONNECTION DETAIL AT FRP TANK



PVC PIPE CONNECTION DETAIL AT FRP TANK
(LIQUID PIPE)



STEEL PIPE CONNECTION DETAIL AT FRP TANK
(AIR PIPE)

FILED PIPING WORK

TANK NAME	
EQ	EQUALIZATION TANK
SST	SLUDGE STORAGE TANK
DT	DENITRIFICATION TANK
NT	NITRIFICATION TANK
ET	EFFLUENT TANK

FILED PIPE SPECIFICATION	
LIQUID	PVC SCH80
AIR ABOVE GROUND	304SS SCH10
AIR UNDER GROUND	304SS SCH10
DOSING CHEMICAL	Φ30PE HOSE WITH FLEX CONDUIT
VENT	PVC SCH80

MAINTENANCE ACCESS		
METRIC (MM)	IMPERIAL(FT)	QTY
Φ600	Φ2.0	6
600x1000	2.0x3.25	5
750x1150	2.5x3.75	6
1.ACCESS COVERS ARE RATED 1500(3300LBS)		
2.ACCESS COVERS ARE MADE OF FRP		

※THE CAULKING TREATMENT SHOULD BE PERFORMED AT THE ENTRANCE AND EXIT OF THE CHEMICAL INJECTION FLEXIBLE OUTER TUBE.

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

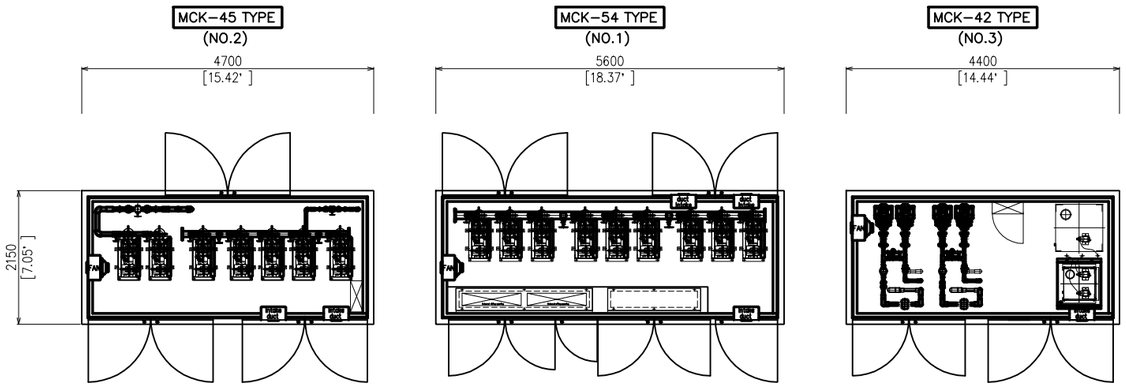
DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

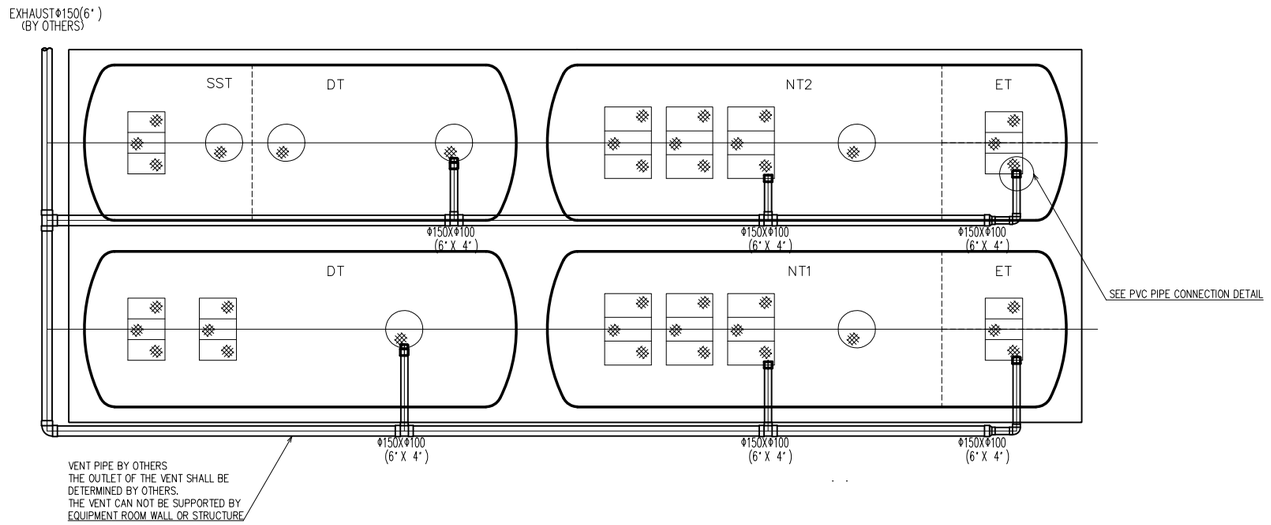
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

PIPING WORK DRAWING - 1

DATE: APRIL 2023
DRAWING NO: **KC-008**
SHT NO 8 / TOTAL 14
REV NO:





FILED EXHAUST PIPING WORK

- DETERMINE THE POSITION OF THE VENT PIPE
  CONSIDERING THE POSITION OF THE WINDOWS OF THE NEIGHBORING BUILDINGS
- HORIZONTAL VENT PIPE SHOULD BE AS SHORT AS POSSIBLE AND SLOPE DOWN TOWARD THE FRP TANK
- THE TOP HEIGHT OF THE VENT PIPE SHOULD BE AT LEAST 1M(3.28') HIGHER THAN THE EAVES OF THE BUILDING.
- ATTACH THE SUPPORT SO THAT THE VENT PIPE DOES NOT FALL DOWN DUE TO WIND,ETC.

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

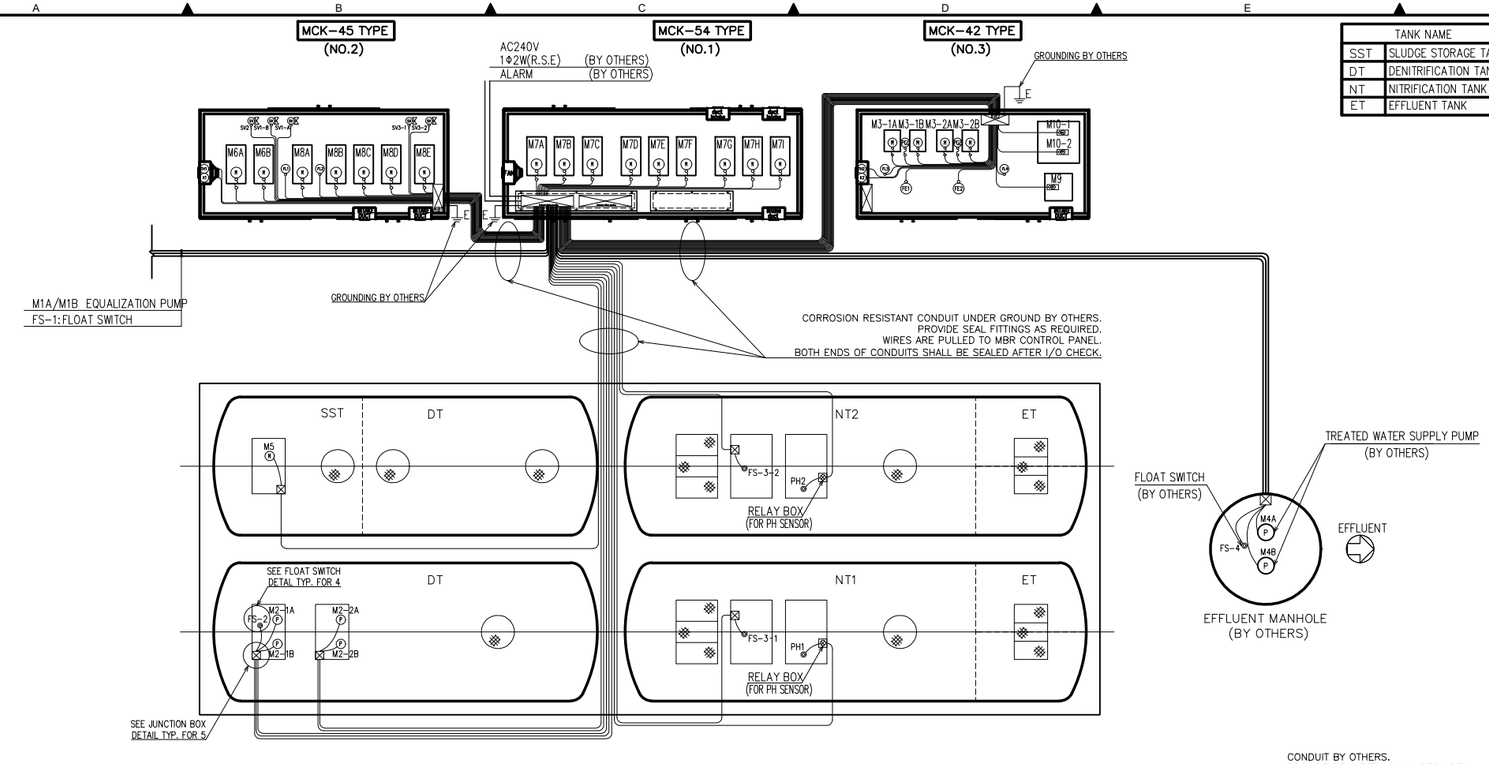
DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

PIPING WORK
DRAWING - 2

DATE: APRIL 2023
DRAWING NO: **KC-009**
SHT NO 9 / TOTAL 14 | REV NO:



FIELD WIRING WORK

TANK NAME	
SST	SLUDGE STORAGE TANK
DT	DENITRIFICATION TANK
NT	NITRIFICATION TANK
ET	EFFLUENT TANK

NO.1 EQUIPMENT ROOM

SYMBOL	EQUIPMENT NAME	POWER KW/HP	Q'TY	VOLTAGE	CABLE	CONDUIT	JUNCTION BOX ⊠
M7A	MBR AERATION BLOWER A	0.75/1.01	1	100			
M7B	MBR AERATION BLOWER B	0.75/1.01	1	100			
M7C	MBR AERATION BLOWER C	0.75/1.01	1	100			
M7D	MBR AERATION BLOWER D	0.75/1.01	1	100			
M7E	MBR AERATION BLOWER E	0.75/1.01	1	100			
M7F	MBR AERATION BLOWER F	0.75/1.01	1	100			
M7G	MBR AERATION BLOWER G	0.75/1.01	1	100			
M7H	MBR AERATION BLOWER H	0.75/1.01	1	100			
M7I	MBR AERATION BLOWER I	0.75/1.01	1	100			

WIRES AND CONDUITS ARE INSTALLED PRIOR TO SHIPMENT

INSTALLATION IN TANKS (WIRED IN CUBICLE)

SYMBOL	EQUIPMENT NAME	POWER KW/HP	Q'TY	VOLTAGE	CABLE	CONDUIT	JUNCTION BOX ⊠
M1A	EQUALIZATION PUMP A	0.4/0.54	1	115	CV2φ-3C	22X1	150X150X100(PVC)
M1B	EQUQLIZATION PUMP B	0.4/0.54	1	115	CV2φ-3C	22X1	
M2-1A	CIRCULATION PUMP A	0.75/1.01	1	115	CV3.5φ-3C	28X1	150X150X100(PVC)
M2-1B	CIRCULATION PUMP B	0.75/1.01	1	115	CV3.5φ-3C	28X1	
M2-2A	CIRCULATION PUMP A	0.75/1.01	1	115	CV3.5φ-3C	28X1	150X150X100(PVC)
M2-2B	CIRCULATION PUMP B	0.75/1.01	1	115	CV3.5φ-3C	28X1	
M5	FINE SCREEN	0.025/0.034	1	100	CV2φ-3C	22X1	150X150X100(PVC)
FS-1	FLOAT SWITCH	———	3	——	CVV1.25φ-4C	22X1	———
FS-2	FLOAT SWITCH	———	3	——	CVV1.25φ-4C	22X1	———
FS3-1	FLOAT SWITCH (Ⅰ-TRAIN)	———	2	——	CVV1.25φ-3C	22X1	150X150X100(PVC)
FS3-2	FLOAT SWITCH (Ⅱ-TRAIN)	———	2	——	CVV1.25φ-3C	22X1	150X150X100(PVC)
PH1	PH SENSOR (Ⅰ-TRAIN)	———	1	100	DEDICATED CABLE	22X1	———
PH2	PH SENSOR (Ⅱ-TRAIN)	———	1	100	DEDICATED CABLE	22X1	———

NOTE:
1. DISTANCE BETWEEN THE EQUIPMENT ROOM AND FRP TANK IS TO BE DETERMINED.
2. PIPES, WIRES AND CONDUITS BETWEEN EQUIPMENT ROOM AND FRP TANK BY OTHERS.
3. PIPES, WIRES AND CONDUITS SHALL BE INSTALLED UNDER GROUND
4. PIPES, WIRES AND CONDUITS IN EQUIPMENT ROOM IS FURNISHED PRIOR TO SHIPMENT UNLESS OTHERWISE NOTED. PIPE CONNECTION AND WIRE TERMINATION IN SIDE THE EQUIPMENT ROOM SHALL BE COMPLETED BY OTHERS.
5. JUNCTION BOXES IN THE FIELD AND IN FRP TANK ARE FURNISHED BY OTHERS.
6. CHEMICAL HOSE SHALL BE ENCLOSED IN FLEXIBLE CONDUITS BY OTHERS. THE BOTH ENDS OF THE FLEXIBLE CONDUITS SHALL BE SEALED.
7. GROUNDING SHALL BE INSTALLED PROPERLY BY OTHERS.

INSTALLATION IN EFFLUENT MANHOLE TANK

SYMBOL	EQUIPMENT NAME	POWER KW/HP	Q'TY	VOLTAGE	CABLE	CONDUIT	JUNCTION BOX ⊠
M4A	TREATED WATER SUPPLY PUMP A	3.73/5.0	1	240	CV3.5φ-3C	28X1	200X200X100(PVC)
M4B	TREATED WATER SUPPLY PUMP B	3.73/5.0	1	240	CV3.5φ-3C	28X1	
FS-4	FLOAT SWITCH	———	3	——	CVV1.25φ-4C	22X1	———

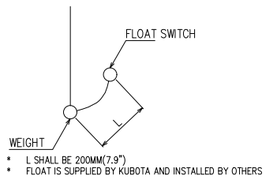
NOTE:
1. TREATED WATER SUPPLY PUMPS ARE SUPPLIED AND INSTALLED BY OTHERS
2. FLOAT SWITCH4 IS SUPPLIED AND INSTALLED BY OTHERS.

NO.2 EQUPMENT ROOM

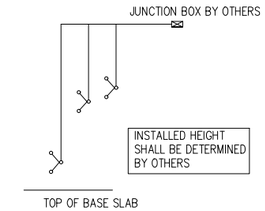
SYMBOL		EQUIPMENT NAME	POWER KW/HP	Q'TY	VOLTAGE	CABLE	CONDUIT	JUNCTION BOX ⊠
M6A		MIXING BLOWER A	0.75/1.01	1	100	CV3.5φ-3C	28X1	
M6B		MIXING BLOWER B	0.75/1.01	1	100	CV3.5φ-3C	28X1	
M8A		AERATION BLOWER A	0.75/1.01	1	100	CV3.5φ-3C	28X1	
M8B		AERATION BLOWER B	0.75/1.01	1	100	CV3.5φ-3C	28X1	
M8C		AERATION BLOWER C	0.75/1.01	1	100	CV3.5φ-3C	28X1	———
M8D		AERATION BLOWER D	0.75/1.01	1	100	CV3.5φ-3C	28X1	
M8E		AERATION BLOWER E	0.75/1.01	1	100	CV3.5φ-3C	28X1	
SV-1A		SOLENOID VALVE(EQ1 MIXING)	———	1	100	CVV1.25φ-2C	22X1	
SV-1B		SOLENOID VALVE(EQ2 MIXING)	———	1	100	CVV1.25φ-2C	22X1	
SV-2		SOLENOID VALVE(DT MIXING)	———	1	100	CVV1.25φ-2C	22X1	———
SV3-1		SOLENOID VALVE(SLUDGE TRANSFER1 MIXING)	———	1	100	CVV1.25φ-2C	22X1	
SV3-2		SOLENOID VALVE(SLUDGE TRANSFER2 MIXING)	———	1	100	CVV1.25φ-2C	22X1	
KB1	K1	VENTILATION FAN	25/0.03	1	100	CV2φ-3C	22X1	———
	FL1	ILLUMINATION 1	7/0.09	1	(DC24)	CVV2φ-2C	22X1	———
	FL2	ILLUMINATION 2	7/0.09	1	(DC24)	CVV2φ-2C	22X1	———
	——	SPARE	———	1	——	CV2φ-4C	22X1	———

NO.3 EQUIPMENT ROOM

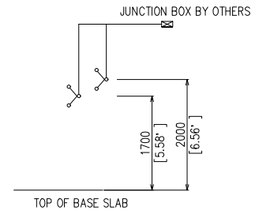
SYMBOL		EQUIPMENT NAME	POWER KW/HP	Q'TY	VOLTAGE	CABLE	CONDUIT	JUNCTION BOX ⊠
M3-1A		PERMEATE PUMP 1A	0.4/0.54	1	100	CV2φ-3C	22X1	———
M3-1B		PERMEATE PUMP 1B	0.4/0.54	1	100	CV2φ-3C	22X1	
M3-2A		PERMEATE PUMP 2A	0.4/0.54	1	100	CV2φ-3C	22X1	———
M3-2B		PERMEATE PUMP 2B	0.4/0.54	1	100	CV2φ-3C	22X1	
M9		MICROC DOSING PUMP	17/0.02	1	100~230	CVV1.25φ-3C	22X1	———
M10-1		NAOH DOSING PUMP (Ⅰ-TRAIN)	17/0.02	1	100~230	CVV1.25φ-3C	22X1	———
M10-2		NAOH DOSING PUMP (Ⅱ-TRAIN)	17/0.02	1	100~230	CVV1.25φ-3C	22X1	———
PG1		PRESSURE SENSOR(Ⅰ-TRAIN)	———	1	——	CVVS1.25φ-2C	16X1	———
PG2		PRESSURE SENSOR(Ⅱ-TRAIN)	———	1	——	CVVS1.25φ-2C	16X1	———
FE1		ELECTROMAGNETIC FLOW METER(Ⅰ-TRAIN)	———	1	——	CVVS1.25φ-6C	28X1	———
FE2		ELECTROMAGNETIC FLOW METER(Ⅱ-TRAIN)	———	1	——	CVVS1.25φ-6C	28X1	———
KB2	K2	VENTILATION FAN	25/0.03	1	100	CV2φ-3C	22X1	———
	FL3	ILLUMINATION 3	7/0.09	1	(DC24)	CVV2φ-2C	22X1	———
	FL4	ILLUMINATION 4	7/0.09	1	(DC24)	CVV2φ-2C	22X1	———
	——	SPARE	———	1	——	CV2φ-4C	22X1	———



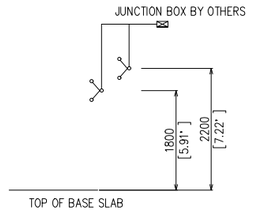
* L SHALL BE 200MM(7.9")
* FLOAT IS SUPPLIED BY KUBOTA AND INSTALLED BY OTHERS



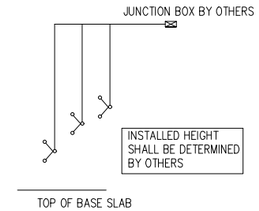
(FS-1)
FLOAT SWITCH DETAIL IN EQ



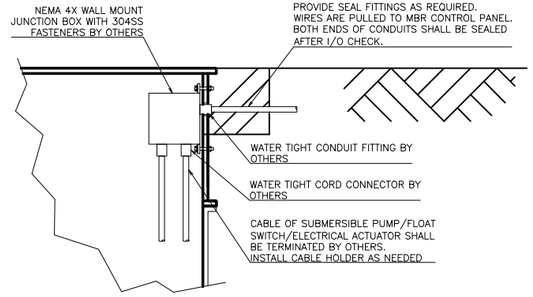
(FS-2)
FLOAT SWITCH DETAIL IN DT



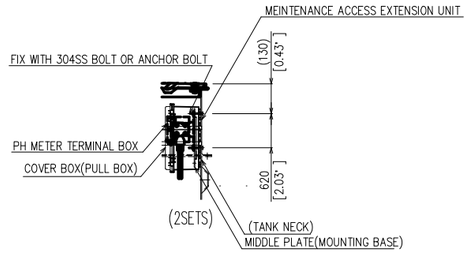
(FS3-1/FS3-2)
FLOAT SWITCH DETAIL IN NT



FS-4(BY OTHERS)
FLOAT SWITCH DETAIL IN EFFLUENT MANHOLE



JUNCTION BOX DETAIL



PH METER TERMINAL BOX COVER INSTALLATION DRAWING (FOR REFERENCE)

*THIS IS A REFERENCE DRAWING WHEN INSTALLING IN A TANK.
*FIXING BOLTS (ANCHOR BOLTS) ARE WITHIN THE SCOPE OF ON SITE INSTALLATION.(BY OTHERS)

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

WIRING WORK DRAWING

DATE: APRIL 2023
DRAWING NO: **KC-010**
SHT NO 10 / TOTAL 14
REV NO:

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
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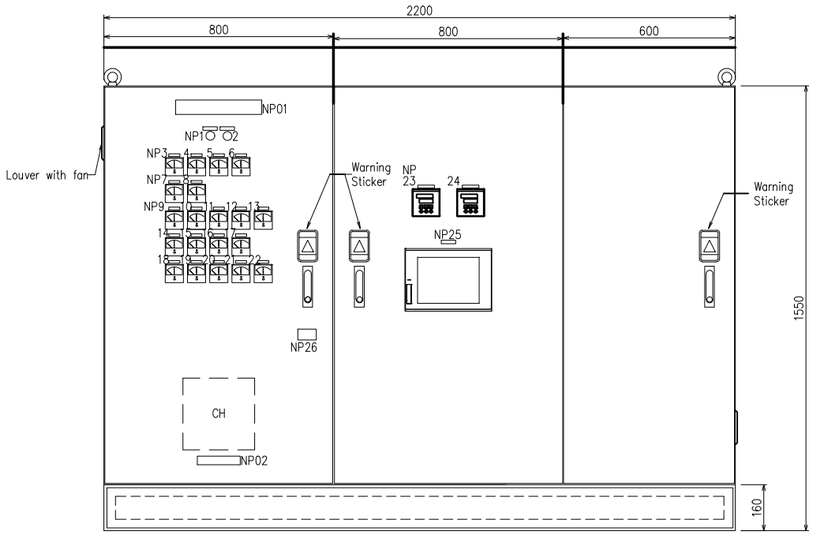
PLOTTED: Apr 12, 2023-05:30:02pm By ALALIO
XREFS: W3Y05400_Border.dwg; 134W-001-2E.dwg
IMAGES:

*Note: When voltage of power supply is fluctuating, install automatic voltage regulator (AVR) to keep constant adequate voltage level.(out of scope)
*The AC Automatic Voltage Regulator .The automatic voltage regulator(AVR) is a device designed to regulate voltage automatically
—that is,to take a fluctuating voltage level and turn it into a constant voltage level
*Conforming to UL standards



FROANT VIEW
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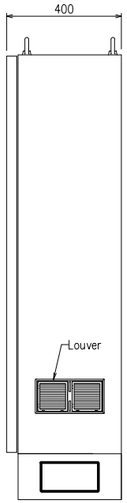
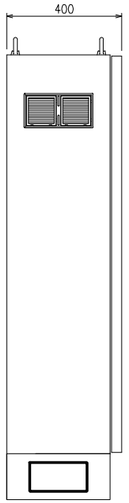
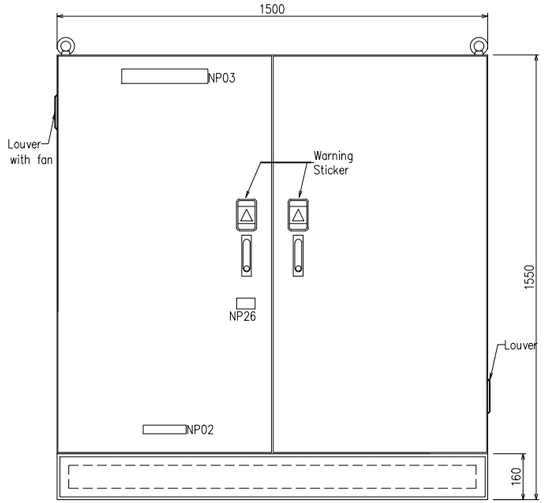


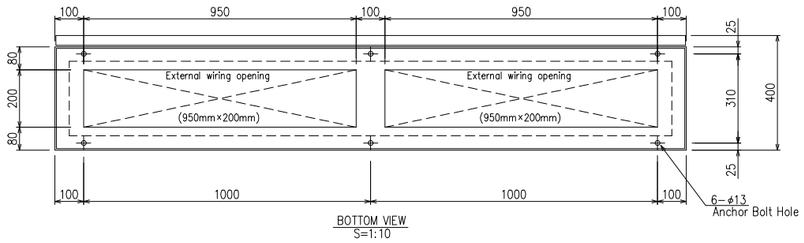
SIDE VIEW
S=1:10



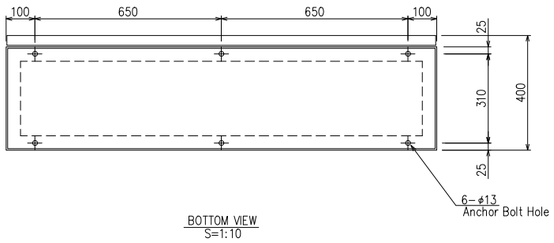
SIDE VIEW
S=1:10



FROANT VIEW
S=1:10



BOTTOM VIEW
S=1:10



BOTTOM VIEW
S=1:10

NAME PLATE LIST

NP-NO	LETTER
NP01	CONTROL PANEL FOR CANTEEN WASTE WATER TREATMENT SYSTEM
02	KUBOTA CORPORATION
03	TRANSFOMER BOX
NP 1	MAIN POWER SOURCE
2	ALARM
3	PERMEATE PUMP 1A
4	PERMEATE PUMP 1B
5	PERMEATE PUMP 2A
6	PERMEATE PUMP 2B
7	MIXING BLOWER A
8	MIXING BLOWER B
9	MBR AERATION BLOWER A
10	MBR AERATION BLOWER B
11	MBR AERATION BLOWER C
12	MBR AERATION BLOWER D
13	MBR AERATION BLOWER E
14	MBR AERATION BLOWER F
15	MBR AERATION BLOWER G
16	MBR AERATION BLOWER H
17	MBR AERATION BLOWER I
18	AERATION BLOWER A
19	AERATION BLOWER B
20	AERATION BLOWER C
21	AERATION BLOWER D
22	AERATION BLOWER E
23	PH Indicating Controller 1
24	PH Indicating Controller 2
25	TOUCH OPERATION SCREEN
26	UL508A LISTED

SPECIFICATIONS OF BOX		
TYPE	INDOOR SELF-STANDING TYPE	
	STEEL	
plate thickness	panel plate	2.3mm
	door plate	2.3mm
	device plate	2.3mm
color	outside	5Y7/1 Half gloss
	inside	5Y7/1 Half gloss

NO	REVISION DESCRIPTION	BY	APVD	DATE

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KUBOTA Corporation

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	CONTRACT NO:		

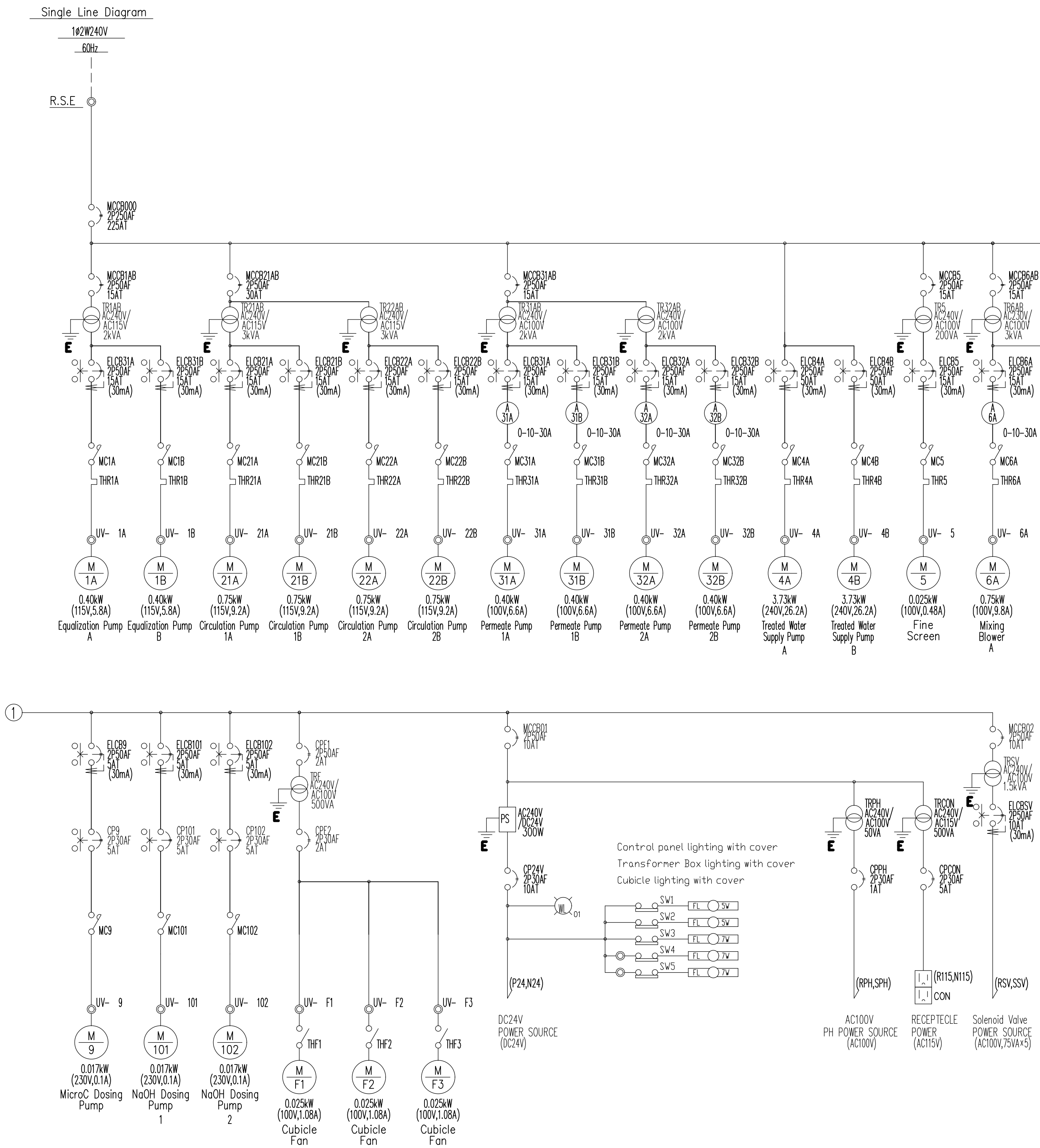
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONTROL PANEL DRAWING - 1

DATE: APRIL 2023
DRAWING NO: KC-011
SHT NO 11 / TOTAL 14
REV NO:

*Note: When voltage of power supply is fluctuating, install automatic voltage regulator (AVR) to keep constant adequate voltage level.(out of scope)
*The AC Automatic Voltage Regulator .The automatic voltage regulator(AVR) is a device designed to regulate voltage automatically
–that is,to take a fluctuating voltage level and turn it into a constant voltage level
*Conforming to UL standards



No.1 Cubicle Terminal Box Arrangement

TB0

R	S	E
Incoming Power (AC240V)		

TB1

U1A	V1A	E	U1B	V1B	E	U21A	V21A	E	U21B	V21B	E	U22A	V22A	E	U22B	V22B	E	U31A	V31A	E	U31B	V31B	E	U32A	V32A	E	U32B	V32B	E	U4A	V4A	E	U4B	V4B	E	U5	V5	E	U6A	V6A	E	U6B	V6B	E
Equalization Pump A			B			Circulatiion Pump 1A			1B			2A			2B			Permeate Pump 1A			1B			2A			2B			Treated Water Supply Pump A			B			Fine Screen			Mixing Blower A			B		

TB1

U7A	V7A	E	U7B	V7B	E	U7C	V7C	E	U7D	V7D	E	U7E	V7E	E	U7F	V7F	E	U7G	V7G	E	U7H	V7H	E	U7I	V7I	E	U8A	V8A	E	U8B	V8B	E	U8C	V8C	E	U8D	V8D	E	U8E	V8E	E	U9	V9	E	U101	V101	E	U102	V102	E	UF1	VF1	E	UF2	VF2	E	UF3	VF3	E
MBR Aeration Blower A			B			C			D			E			F			G			H			I			Aeration Blower A			B			C			D			E			MicroC Dosing Pump			NaOH Dosing Pump A			B			Cubicle Fan			Cubicle Fan			Cubicle Fan		

TB2

SV1A1	SV1A2	SV1A1	SV1A2	SV21	SV22	SV311	SV312	SV321	SV322	P24	THF2A	P24	F11	F12	F13	P24	F21	F22	P24	F311	F312	P24	F311	F312	P24	F41	F42	F43	P11	N11	E	P12	N12	E	I+1	I−1	E	P+1	P−1	E	I+2	I−2	E	P+2	P−2	E	ALP	ALN	AL1	AL2				
Equalization Solenoid Valve A		B		Denitrification Solenoid Valve		Sludge Transfer Solenoid Valve 1		2		(DC24V) Transformer Box Fan		Equalization Tank Float Switch				Denitrification Tank Float Switch			Nitrification Tank1 Float Switch			Nitrification Tank2 Float Switch			Effluent Tank Float Switch				(+) (R) Vacuum Meter FP201	(−) (Bl)	(E)	(+) (R) Vacuum Meter FP201	(−) (Bl)	(E)	(instant) Flow meter1 FD−UH			(pulse)			(instant) Flow meter1 FD−UH			(pulse)			(Voltage Contact) (DC24V) External Alarm		(Dry Contact) External Alarm		Spare			

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
KUBOTA Corporation

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CONTRACT NO:

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DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONTROL PANEL DRAWING - 2

DATE: APRIL 2023
DRAWING NO: KC-012
SHT NO 12 / TOTAL 14
REV NO:

TOS
GT2710-STBD
(DC24V 10.4inch)
card
FG
DC
RS-422
DC24V
P24 N24
Communication Cable
(GT01-C30R4-8P)
+ - E S/S 24V 0V
X0 X1 X2 X3 X4 X5 X6 X7 X10 X11 X12 X13 X14 X15 X16 X17 X20 X21 X22 X23 X24 X25 X26 X27 X30 X31 X32 X33 X34 X35 X36 X37 X40 X41 X42 X43 X44 X45 X46 X47
Switch On at rising
Switch On at rising
FLS 1L
FLS 1H
FLS 1A
FLS 2L
FLS 2H
F11 Equalization Tank
F12 Equalization Tank
F13 Equalization Tank
F21 Circulation Tank
F22 Circulation Tank
PLC
FX3U-80MR/ES (DC24V)
COM1 COM2 COM3 COM4 COM5 COM6 COM7
Y000 Y001 Y002 Y003 Y004 Y005 Y006 Y007 Y010 Y011 Y012 Y013 Y014 Y015 Y016 Y017 Y020 Y021 Y022 Y023 Y024 Y025 Y026 Y027 Y030 Y031 Y032 Y033 Y034 Y035 Y036 Y037 Y040 Y041 Y042 Y043 Y044 Y045 Y046 Y047
P24
N24
DC24V
SS 0
RC01
Y000A Y001A Y002A Y003A Y004A Y005A Y006A Y007A Y010A Y011A Y012A Y013A Y014A Y015A Y016A Y017A Y020A Y021A Y022A Y023A Y024A Y025A Y026A Y027A Y030A Y031A Y032A Y033A Y034A Y035A
MC 1A MC 1B MC 21A MC 21B MC 22A MC 22B MC 31A MC 31B MC 32A MC 32B MC 4A MC 4B MC 5 MC 6A MC 6B MC 7A MC 7B MC 7C MC 7D MC 7E MC 7F MC 7G MC 7H MC 7I MC 8A MC 8B MC 8C MC 8D MC 8E MC 9 MC 101 MC 102 SV 1AX SV 1BX SV 2X SV 31X SV 32X
DC24V
P24 N24
Switch On at rising
Switch On at rising
Switch On at rising
FLS 3IM
FLS 3IH
FLS 3ZM
FLS 3ZH
FLS 4L
FLS 4H
FLS 4A
F311 Pump Emergency Tank1
F312 Pump Emergency Tank1
F321 Pump Emergency Tank2
F322 Pump Emergency Tank2
F41 Effluent Tank
F42 Effluent Tank
F43 Effluent Tank
BS BZ
Alarm Buzzer Stop
SS0
Forced Circuit
P+1 P+2
SW SW
P-1 P-2
Flowmeter 1
Flowmeter 2
PH1 LL
PH1 L
PH1 H
PH1 HH
PH2 LL
PH2 L
PH2 H
PH2 HH
+ - E S/S 24V 0V
X0 X1 X2 X3 X4 X5 X6 X7 X10 X11 X12 X13 X14 X15 X16 X17 X20 X21 X22 X23 X24 X25 X26 X27
ADDITIONAL BLOCK
(FX2N-32ER-ES/UL)
N24
S/S X0 X1 X2 X3 X4 X5 X6 X7
ADDITIONAL BLOCK
(FX2N-8EX-ES/UL)
(DC24V)
P24 N24
24+ 24-
ANALOG INPUT BLOCK (FX3U-4AD)
CH1 CH2 CH3 CH4
V+ I+ VI- FG
AD1+ AD1- Vacuum Meter
AD2+ AD2- Vacuum Meter
AD3+ AD3- Instantaneous flow1
AD4+ AD4- Instantaneous flow2
ETHERNET BLOCK
(FX3U-ENET-L)
10BASE-T/
100BASE-TX
RJ45 port
COM1 COM2 COM3 COM4
Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7
Y050 Y051 Y052
Alarm Buzzer
PLC RUN
Alarm
BZ
PLC X1
AL X
DC24V
N24

BORDER FILE EDITION: KCWTD-Dsize-TB-Border
C:\pw_americalyeg_alaliq\d0106487\KC-013_134W-001-1F3.dwg | Layout: Layout1
PLOTTED: Apr 12, 2023-05:28:37pm By ALALIQ
XREFS: W3Y05400_Border.dwg; 134W-001-2F3.dwg
IMAGES:

NO	REVISION DESCRIPTION	BY	APVD	DATE

Jacobs
KUBOTA Corporation

PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

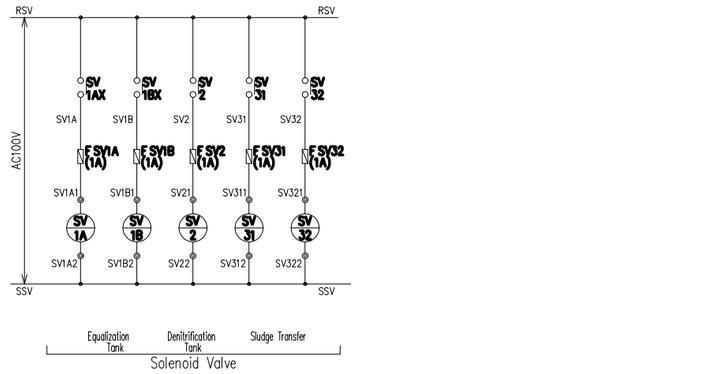
DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

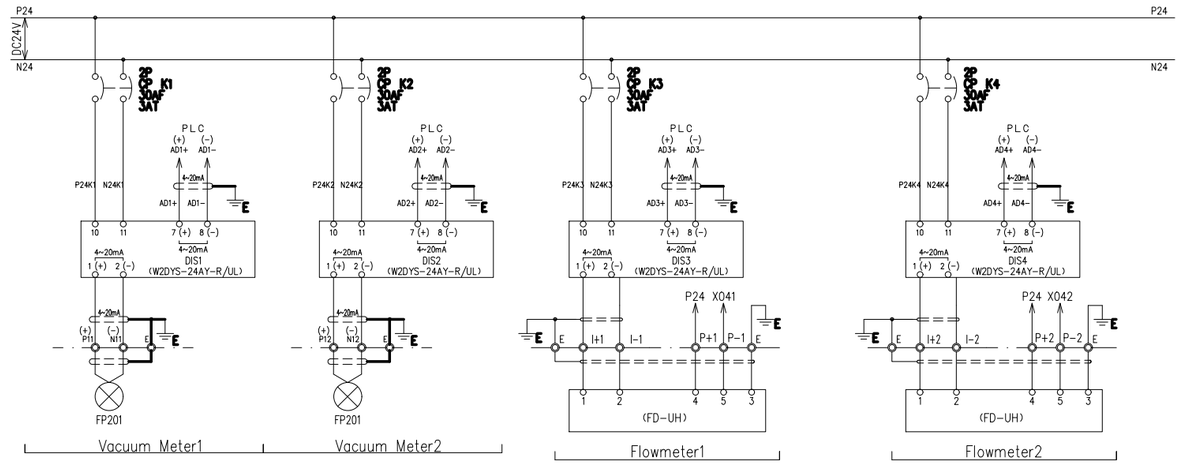
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONTROL PANEL DRAWING - 3

DATE: APRIL 2023
DRAWING NO: KC-013
SHT NO 13 / TOTAL 14
REV NO:





Flow meter setting	default setting
pulse width	0.1 m3/pulse (26.4gal/pulse)
Instantaneous flow span	0 – 200 m3/h (0–52.840lgph)

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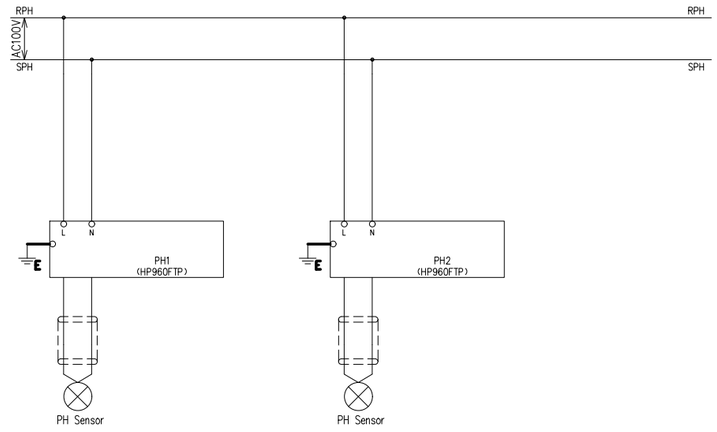

NO	REVISION DESCRIPTION	BY	APVD	DATE

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PRELIMINARY ISSUE DRAWING
INFORMATION ONLY
100% REVIEW

DESIGNED/DRAWN: KUBOTA	SCALE: NONE
DESIGN ENGINEER: KUBOTA	WORK ORDER:
REVIEW ENGINEER: M. MADISON	PROJECT NO: KC000126
	CONTRACT NO:

King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
2021 FALL CITY WASTEWATER

CONTROL PANEL DRAWING - 4

DATE: APRIL 2023
DRAWING NO: **KC-014**
SHT NO 14 / TOTAL 14 | REV NO: