



US Army Corps
of Engineers
Seattle District

Public Notice of Application for Permit

US Army Corps of Engineers
Regulatory Branch
4735 E. Marginal Way S., Bldg 1202
Seattle, WA 98134-2388
Telephone: (206) 482-6917
ATTN: Kylie Miller,
Project Manager

Public Notice Date: February 26, 2024
Expiration Date: March 27, 2024

Reference No.: NWS-2021-461
**Name: Alderwood Water & Wastewater
District (S1915 Queensborough Sewer
Rehabilitation)**

Interested parties are hereby notified that the U.S. Army Corps of Engineers (Corps) has received an application to perform work in waters of the U.S. as described below and shown on the enclosed drawings dated February 9, 2024. The Corps will review the work in accordance with Section 404 of the Clean Water Act (CWA).

APPLICANT: Alderwood Water & Wastewater District
Attention: Mr. Don Ranger
Telephone: (425) 743-4605

AGENT: Environmental Science Associates (ESA)
Attention: Ms. Colleen Kroe
Telephone: (206) 550-1923

LOCATION: The proposed project would be located in Queensborough Creek and wetlands at Bothell, Snohomish County, Washington.

WORK: The applicant proposes to place fill material (cobble, wood, and riprap) into Queensborough Creek and adjacent wetlands to stabilize the streambanks and prevent further erosion in order to protect existing sewer infrastructure. The project as proposed would permanently place 1,524 cubic yards of fill material into 1,353 linear feet of Queensborough Creek and 66.5 cubic yards of fill into 603 square feet of Category III wetlands. Additionally, the project would result in temporary impacts to 2,752 square feet of Category III wetlands, temporary impacts to 40,142 square feet of stream buffer, and permanent impacts to 19,002 square feet of stream buffer.

The proposed project would consist of the following elements within Queensborough Creek and the adjacent wetlands:

Temporary construction access from the eastern end of the project area is anticipated to be along the streambed due to steep slope conditions on either side of the streambank. The total length of in stream access is anticipated to be approximately 150 linear feet. Similarly,

temporary construction access from the western end of the project area is anticipated along the streambed for a length of 700 linear feet. The construction contractor would be required to repair and restore all portions of the stream that are used for construction access, and best management practices (BMPs) would be installed to protect the streambank at locations used to enter or exit the streambed. Access points down the streambanks would not be maintained after construction for maintenance equipment and would be restored to existing preconstruction conditions.

Construction access to the middle reach of the project area would be approximately 1,500 linear feet routed from the street and along the southern streambank. The temporary access path would be up to 15-feet wide to allow for equipment access and material transport during construction. The width may be shifted or limited in the field to avoid obstructions, limit tree removals, or limit grading. The construction contractor would be required to limit tree removals to the greatest extent practical, and trees would be marked in the field for approval before removal is initiated. Removed trees would be repurposed on site in the stream restoration design wherever possible. BMPs such as silt fencing and coir logs would be installed along the north side of the access path to protect the creek. Areas along the path that have wet or loose soil would be covered with hog fuel, timber mats, temporary path mats, or similar BMPs to prevent damage to the soil profile. The use of this hog fuel would be limited to temporary impact areas for access, which would be restored with native vegetation.

A gabion outlet structure would be installed at the outlet of the existing culvert at the head of Queensborough Creek where flows consist entirely of stormflows during precipitation events. Upstream of this location, there is no open stream channel with only closed stormwater pipes. The gabion structure would consist of gabion baskets filled with quarry spalls. The substrate at the outlet of the culvert would be hand excavated and the gabion baskets would be installed with half of the basket keyed into the substrate.

Roughened channel would be the primary method of streambed control. The roughened channel would consist of standard Washington Department of Transportation (WSDOT) specified material known as Engineered Streambed Material (ESM). ESM consists of a mixture of rounded and sub-angular (alluvial) rock and includes small boulders up to 32-inches in diameter, cobbles, gravels, and fines suitably sized to stabilize the streambed and for fish habitat. The material would be placed in lifts and the construction contractor would be required to wash additional fine material into interstitial void spaces during installation and ensure adequate sealing to prevent streamflow from flowing subsurface following project completion.

Bed control rock is proposed at five locations to improve streambed stabilization in conjunction with the roughened channel. At each location, a trapezoidal trench oriented perpendicular to stream flow would be excavated to a depth of approximately two to three feet and to a point up the right bank approximately one foot above the ordinary high water mark (OHWM). The left bank excavation would not extend up the bank above the OHWM to protect and minimize bank disturbance. A foundation of ESM would be placed in the trench below the OHWM to a depth of two to three feet, over which habitat boulders sized between 24 and 36 inches in diameter would be placed. The interstitial spaces between the boulders would be backfilled with streambed

cobble and fines to fill interstitial voids, similar in size to the native material, up to the original streambed elevation, leaving the tops of the boulders exposed.

Bed control log structures would be installed at five locations to improve streambed stabilization and introduce more wood features in the stream. In each location, the existing channel bed would be excavated 3-feet deep and two 18-inch minimum diameter logs would be installed in the trench and keyed into the streambed using buried boulders with boulder collars for ballasting to minimize bank excavation and disturbance. Over-excavation would be backfilled with ESM at a maximum slope of 3:1 and a thickness of approximately 3-feet for stability.

Channel-spanning log jams would be installed at four locations in the project area to improve streambed stabilization and introduce more wood features in the stream. For each structure, one log with a minimum diameter of 12 inches would then be placed diagonally in the stream channel, upstream and resting against two boulders that would be buried for ballasting. A second log of similar size (a cross member) would be placed vertically across the channel with one end resting on the first log and the other end resting against the upstream end of the third pile. The cross member would be keyed into the right bank and the banks would be backfilled at a 2:1 slope to match the existing grade. Racking material comprised of a mix of woody materials salvaged from on-site clearing and ESM material would be used as backfill material.

Bank stabilizing logs are proposed at nine locations along the right bank of Queensborough Creek. Bank stabilizing logs are proposed in areas with roughened channel and rock toe protection adjacent to sewer maintenance hole (MH) structures. The logs would provide “soft armoring” to deflect flow away from MHs, promoting scour pool habitat, and keeping the creek from entraining against harder riprap installed around a MH. Two logs are proposed in parallel, but single logs may be used to avoid constricting flow or providing too much deflection that could negatively impact the opposite bank.

Log diameter would vary 12 to 15-inches and log length would vary from 15 to 20 feet long. The logs would generally be parallel to streamflow, with root wads facing upstream, but the final orientation would be field fit per location. Each log would have 30 to 50 percent of its diameter embedded and would be further anchored with earth anchors and fastened together in configurations with more than one log. A six-inch thick layer of dead brush salvaged onsite would be pinned down by the logs to help create more local complexity. The root wads would be excavated into the bed such that the bole sits flush with the bed to deflect flow and maintain a scour hole for habitat.

Rock toe protection would be installed at locations along Queensborough Creek where sewer manholes have been exposed and are at risk (a total of 10 locations). The distance of excavation along the streambank is dependent on the location but would range from 20 to 50 feet in length at each use. In these areas, the existing streambank would be excavated to a depth of approximately three feet at a 1:2 slope and would extend at least one foot above the 100-year floodplain and at least three feet into the channel bed to provide robust stabilization. Above the OHWM the excavation would be backfilled to grade with light loose riprap. Where the

material extends into the channel bed, the excavation would be backfilled with three feet of ESM.

Biotechnical bank stabilization would be installed at seven locations along the right bank of Queensborough Creek. This feature would include installation of a layer of coir biodegradable fabric over the existing streambank surface. The fabric would be held in place with wooden stakes and live pole plantings would be installed to grow over time and provide natural stabilization of the streambank.

PURPOSE: The purpose of the proposed project is to minimize future erosion and potential damage to existing sewer line infrastructure.

ADDITIONAL INFORMATION: Copies of this public notice which have been mailed or otherwise physically distributed feature project drawings in black and white. The electronic version features those drawings in color, which we think more accurately communicates the scope of project impacts. To access the electronic version of this public notice, go to the Seattle District's web page at <http://www.nws.usace.army.mil/> and under the heading Open Public Comment Periods select Regulatory Public Notices. Recently-issued public notices are listed in chronological order of the date of issuance. Select and view the listing for this project.

The wetland boundaries and location of the ordinary high water mark shown on the project drawings have not yet been verified by the U.S. Army Corps of Engineers (Corps). If the Corps determines the boundaries of the wetland/waters are substantially inaccurate a new public notice may be published.

MITIGATION: To compensate for project impacts, the applicant has voluntarily proposed 1,420 square feet of wetland creation, 2,752 square feet of wetland restoration, and restoration of 40, 142 square feet of temporarily impacted stream buffer. Permanent impacts to stream buffer may be mitigated by purchasing ILF or mitigation bank credits. The project is in the service area of Keller Farm Mitigation Bank. The Corps is still evaluating the mitigation proposal.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat.

After receipt of comments from this public notice, the U.S. Army Corps of Engineers will evaluate the potential impacts to proposed and/or listed species and their designated critical habitat.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

If the U.S. Army Corps of Engineers (Corps) determines that the proposed action may adversely affect EFH for federally managed fisheries in Washington waters, the Corps will initiate EFH consultation with the NMFS. The Corps' final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

CULTURAL RESOURCES: The Corps has reviewed the latest published version of the National Register of Historic Places, Washington Information System for Architectural and Archaeological Records Data and other sources of information. The Corps invites responses to this public notice from Native American Nations or tribal governments; Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns regarding historic properties and sites of religious and cultural significance at or near the project area. After receipt of comments from this public notice, the Corps will evaluate potential impacts and consult with the State Historic Preservation Officer and Native American Nations in accordance with Section 106 of the National Historic Preservation Act, as appropriate.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

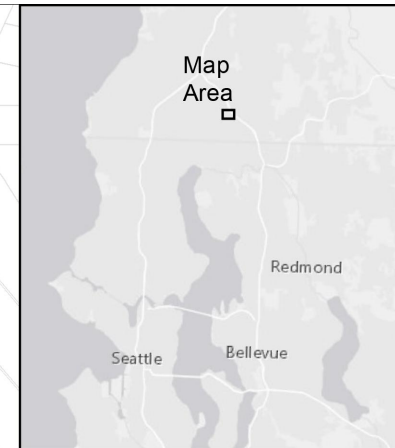
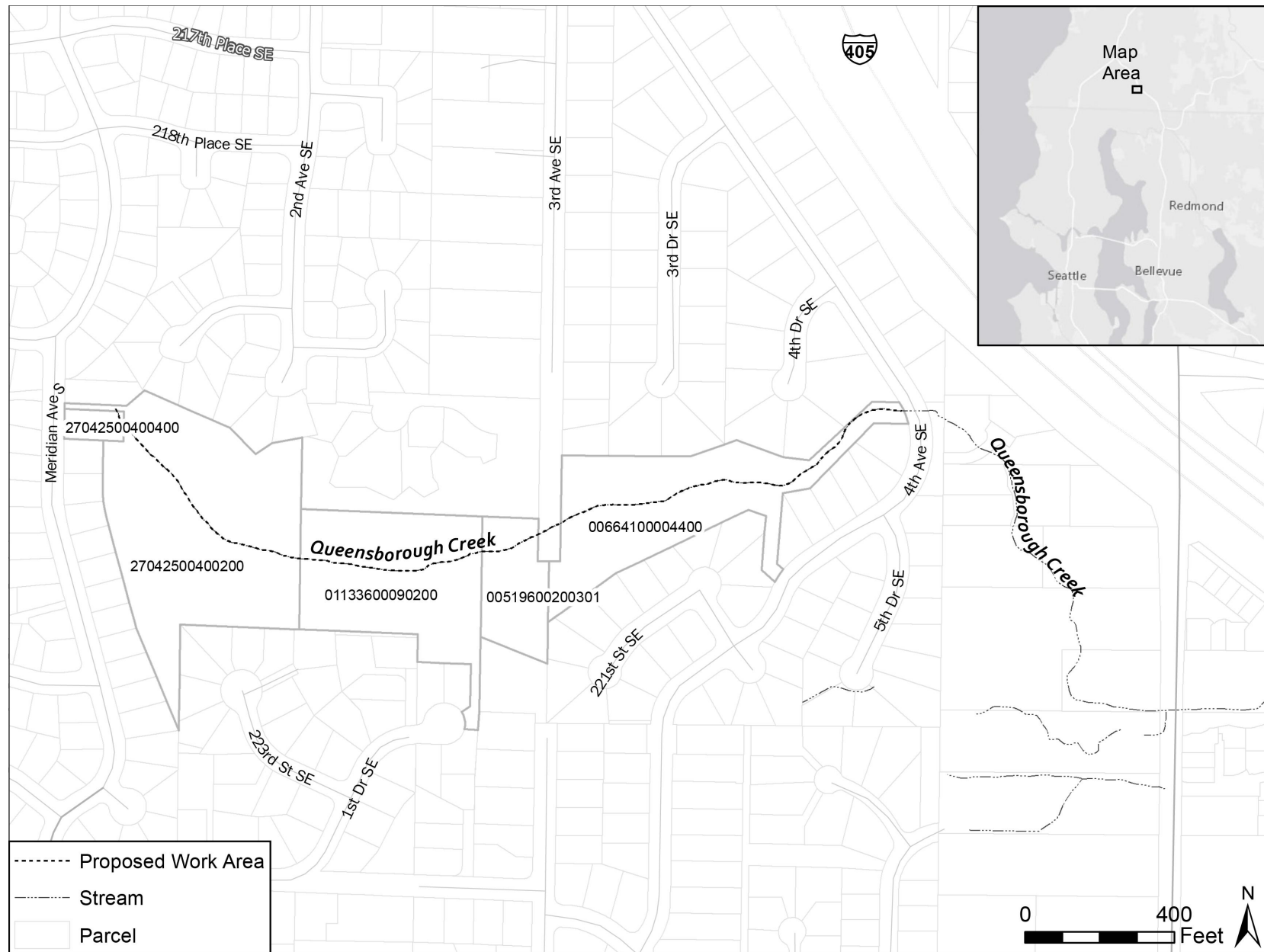
EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. The Washington Department of Ecology has or will evaluate the proposed project in accordance with Section 401 of the Clean Water Act and for consistency with the Coastal Zone Management Act.

The U.S. Army Corps of Engineers is soliciting comments from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether authorizing the work would not be contrary to the public interest. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. All e-mail comments should be sent to Kylie.M.Miller@usace.army.mil. Conventional mail comments should be sent U.S. Army Corps of Engineers, Regulatory Branch, 4735 E. Marginal Way S, Bldg 1202, Seattle, Washington, 98134-2388. Either conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commenter's name, address, and phone number. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act including any personally identifiable information such as names, phone numbers, and addresses. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration. Please include the following name and reference number:

Alderwood Water & Wastewater District, NWS-2021-461

Encl: Figures (24)



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

REFERENCE:

LOCATION ADDRESS:

South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

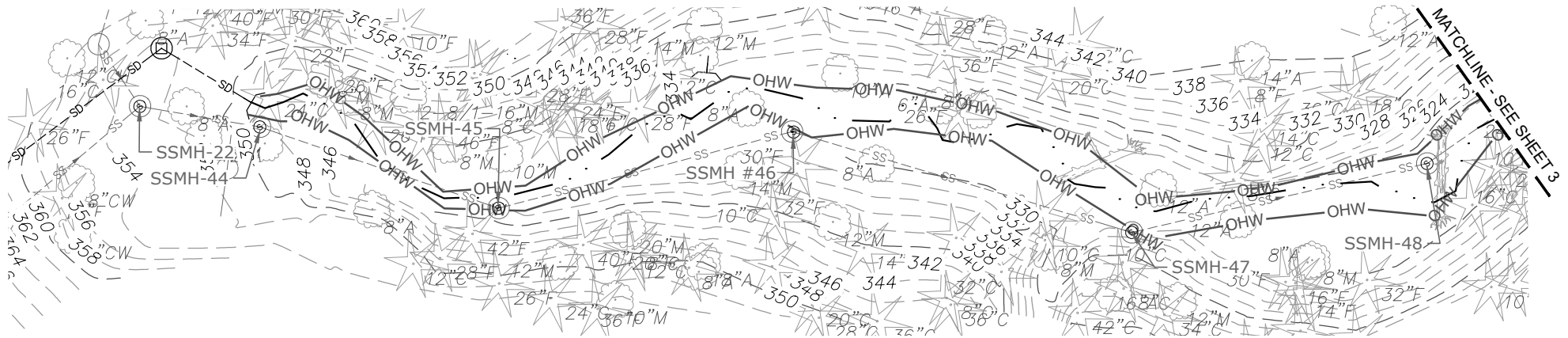
VICINITY MAP

DATUM: NAVD 88

SHEET: 1 of 24

DATE: 2/9/2024

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EXISTING CONDITIONS

PLAN

SCALE: 1"=60'

LEGEND

- 260 — MAJOR CONTOUR
- 262 — MINOR CONTOUR
- TOP — TOP OF SLOPE
- TOE — TOE OF SLOPE
- OHW — ORDINARY HIGH WATER
- WE — EXISTING WETLANDS
- SS — EXISTING SEWER LINE
- (M) — EXISTING MANHOLE
- (T) — EXISTING TREES
- — PROPERTY LINE
- · · — THALWEG
- SD — STORM DRAIN LINE



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Queensborough Sewer Rehabilitation

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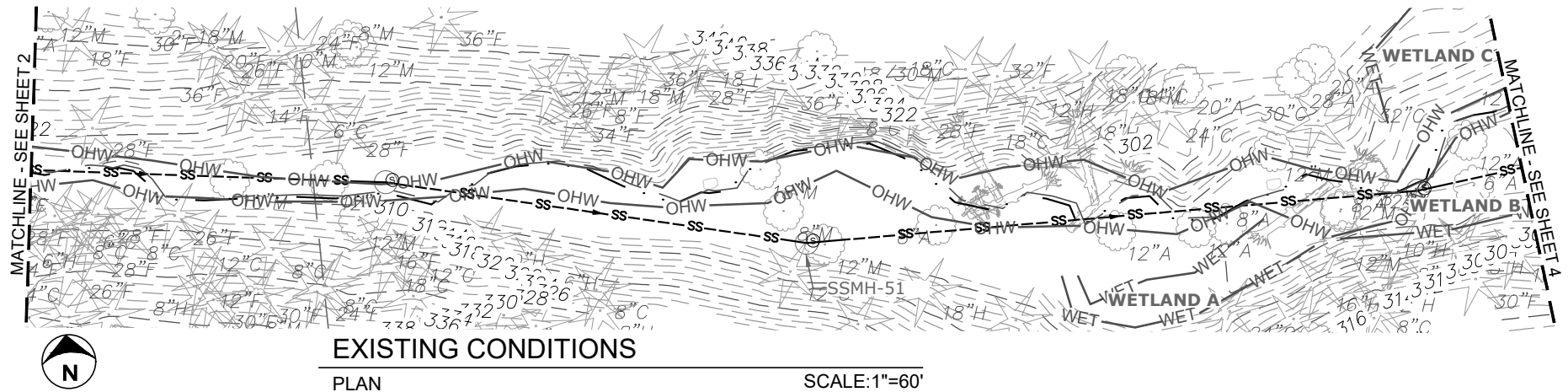
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EXISTING CONDITIONS PLAN 1 OF 5

DATUM: NAVD 88

SHEET: 2 of 24

DATE: 2/9/2024



LEGEND

- 260 — MAJOR CONTOUR
- 262 — MINOR CONTOUR
- TOP — TOP OF SLOPE
- TOE — TOE OF SLOPE
- OHW — ORDINARY HIGH WATER
- WET — EXISTING WETLANDS
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- SS — EXISTING MANHOLE
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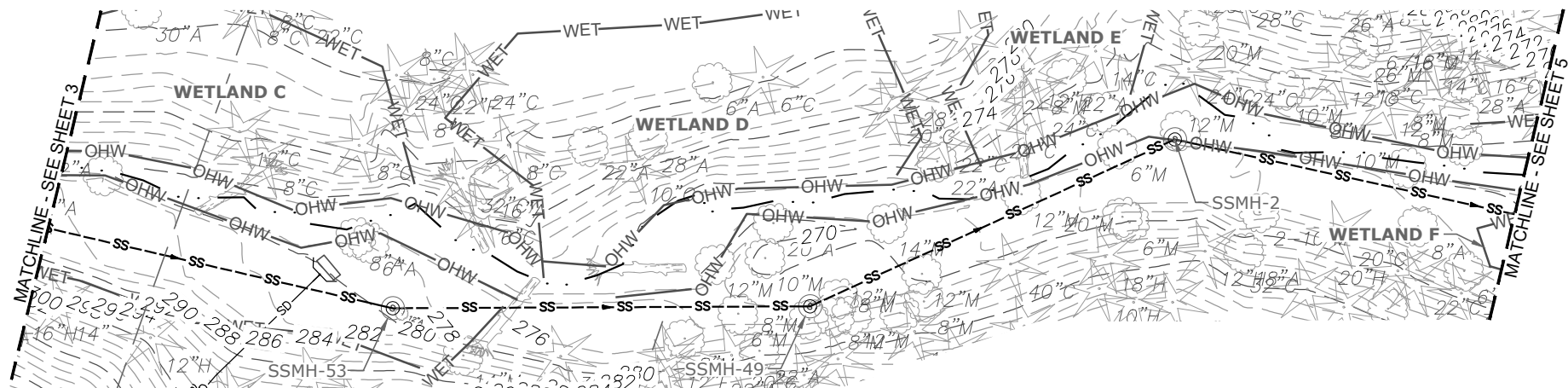
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DATUM: NAVD 88

SHEET: 3 of 24

DATE: 2/9/2024

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EXISTING CONDITIONS

PLAN

SCALE: 1"=60'

LEGEND

- 260 — MAJOR CONTOUR
- 262 — MINOR CONTOUR
- TOP — TOP OF SLOPE
- TOE — TOE OF SLOPE
- OHW — ORDINARY HIGH WATER
- WET — EXISTING WETLANDS
- SS — EXISTING SEWER LINE
- SSMH — EXISTING MANHOLE
- EXISTING TREES
- PROPERTY LINE
- THALWEG
- STORM DRAIN LINE



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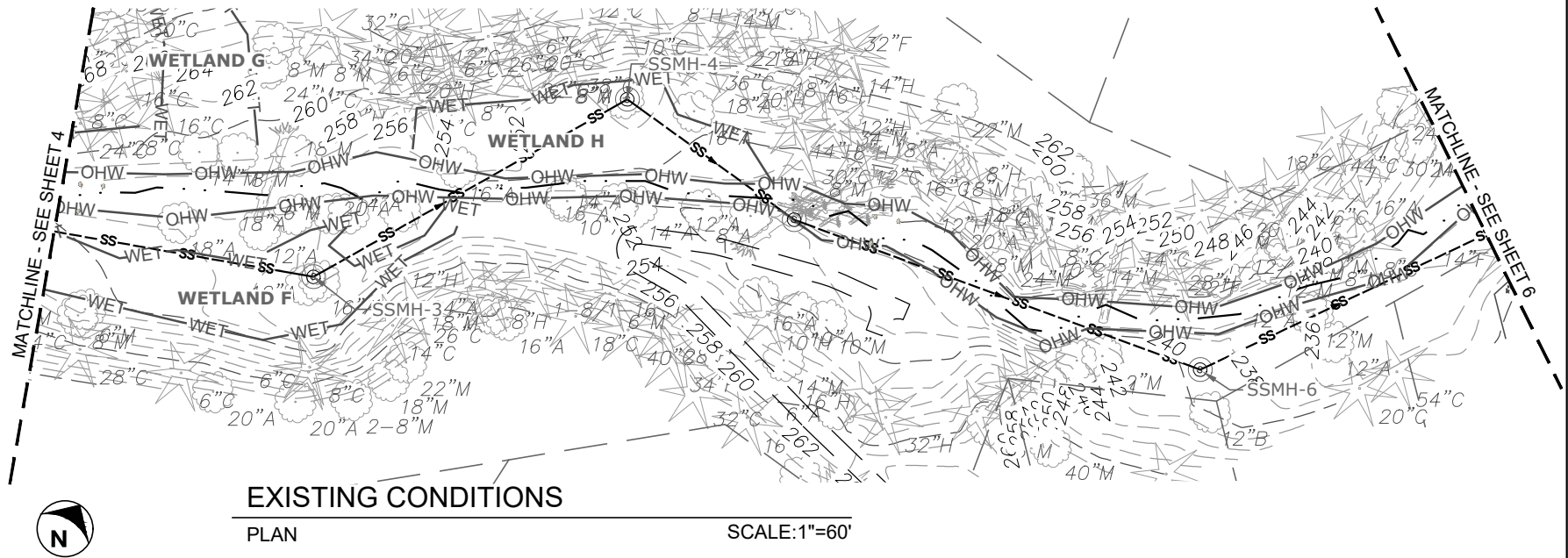
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DATUM: NAVD 88

SHEET: 4 of 24

DATE: 2/9/2024

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LEGEND

- 260--- MAJOR CONTOUR
- 262--- MINOR CONTOUR
- TOP--- TOP OF SLOPE
- TOE--- TOE OF SLOPE
- OHW--- OHW--- ORDINARY HIGH WATER
- WET--- WET--- EXISTING WETLANDS
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Queensborough Sewer Rehabilitation

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COUNTY: Snohomish **STATE:** Washington

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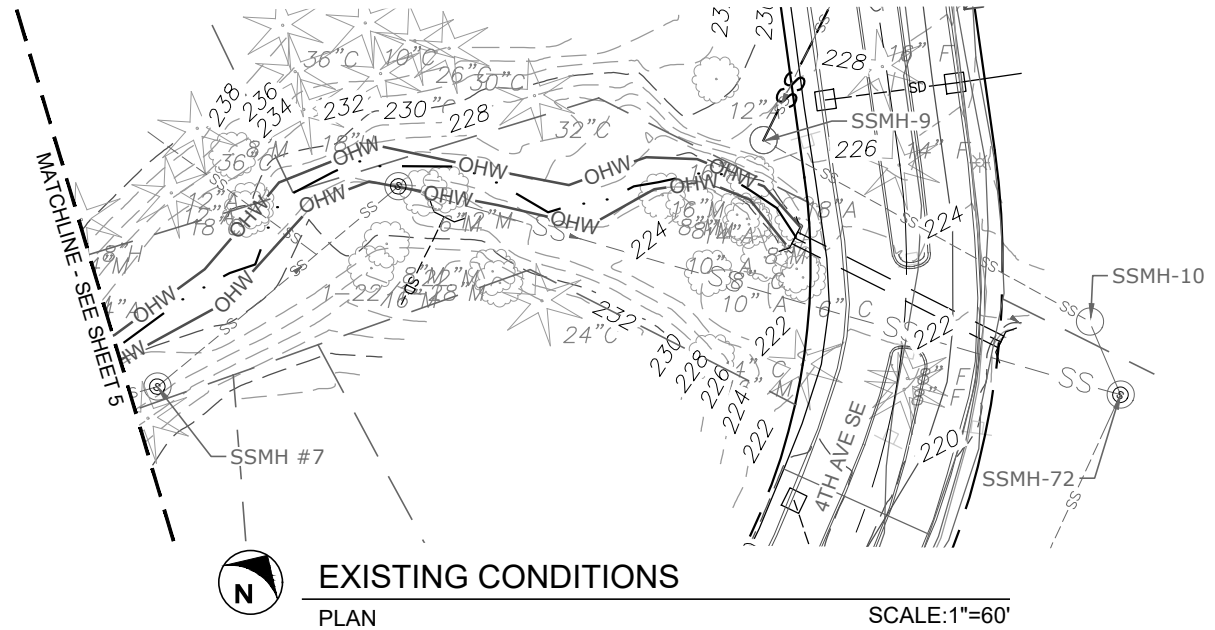
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EXISTING CONDITIONS PLAN 4 OF 5

DATUM: NAVD 88

SHEET: 5 of 24

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LEGEND

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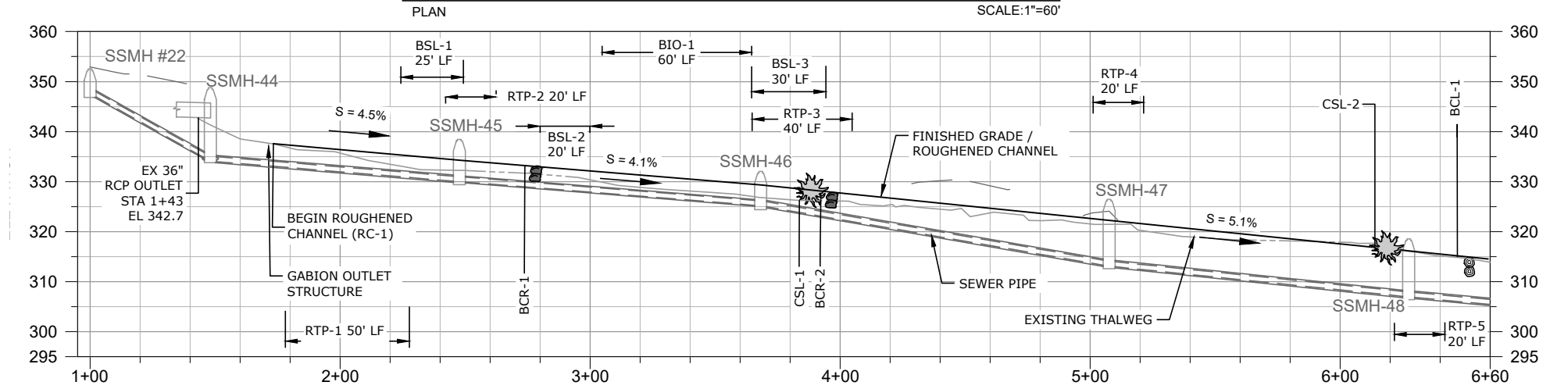
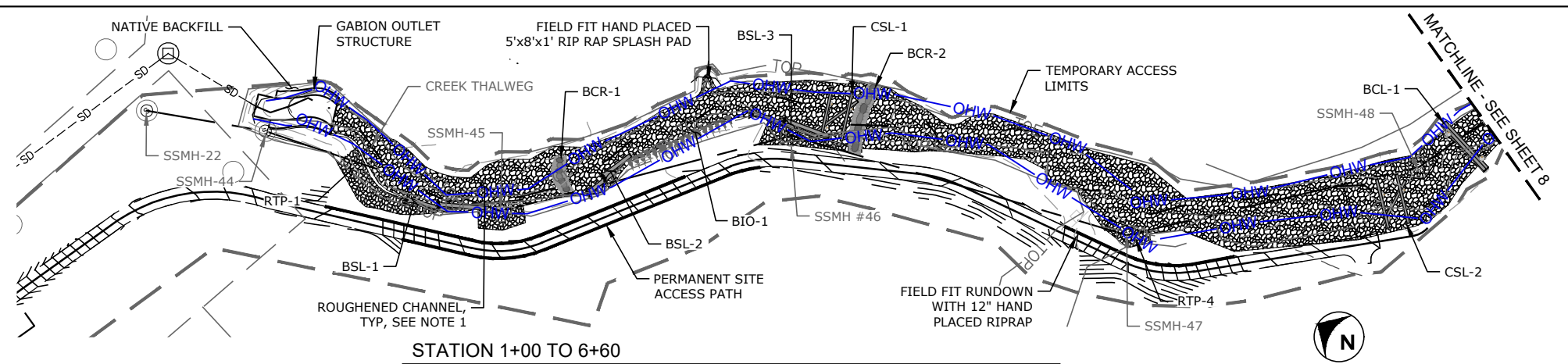
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DATUM: NAVD 88

SHEET: 6 of 24

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- LEGEND**
- MAJOR CONTOUR
 - MINOR CONTOUR
 - TOP OF SLOPE
 - TOE OF SLOPE
 - ORDINARY HIGH WATER
 - EXISTING WETLANDS
 - CUTBANK
 - UNSTABLE SLOPE
 - LANDSLIDE
 - GB #2 BORING LOCATION

- BCL BED CONTROL LOG STRUCTURE
- BCR BED CONTROL ROCK STRUCTURE
- BSL BANK STABILIZATION LOG
- CSL CHANNEL SPANNING LOG JAM
- RC ROUGHENED CHANNEL
- SSMH SANITARY SEWER MANHOLE
- RTP ROCK TOE PROTECTION

- NOTES**
- INSTALL ROUGHENED CHANNEL (RC) TO RESTORE MINIMUM 3 FEET OF COVER OVER EXISTING SEWER PIPE.

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

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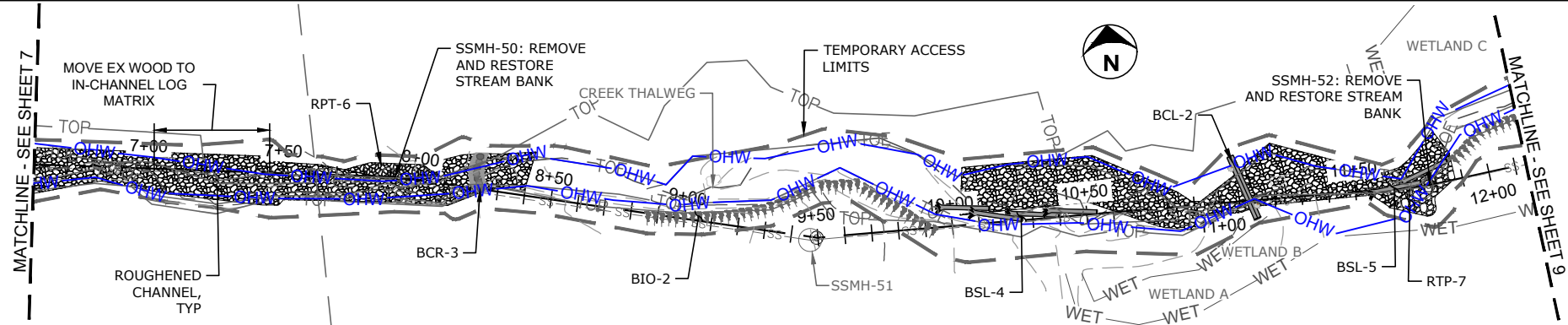
PLAN AND PROFILE 1+00 TO 6+60

DATUM: NAVD 88

SHEET: 7 of 24

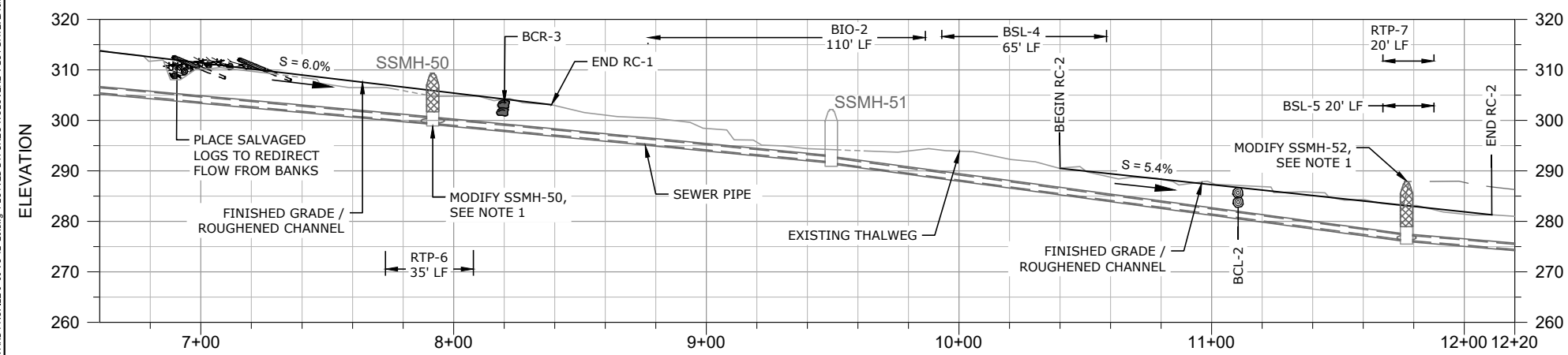
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STATION 6+60 TO 12+20
PLAN

SCALE: 1"=60'



STATION 6+60 TO 12+20
PROFILE

SCALE: H: 1"=60', V: 1"=30'

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- TOP OF SLOPE
- TOE OF SLOPE
- ORDINARY HIGH WATER
- EXISTING WETLANDS
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ABBREVIATIONS

- BCL BED CONTROL LOG STRUCTURE
- BCR BED CONTROL ROCK STRUCTURE
- BSL BANK STABILIZATION LOG
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- RC ROUGHENED CHANNEL
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- RTP ROCK TOE PROTECTION



NOTES

- REMOVE EXPOSED PORTION OF MH STRUCTURES. SEWER FLOW THROUGH MH TO BE MAINTAINED. RESTORE AND ARMOR IMPACTED STREAM AREA FOLLOWING STRUCTURE REMOVAL.
- INSTALL ROUGHENED CHANNEL (RC) TO RESTORE MINIMUM 3 FEET OF COVER OVER EXISTING SEWER PIPE.

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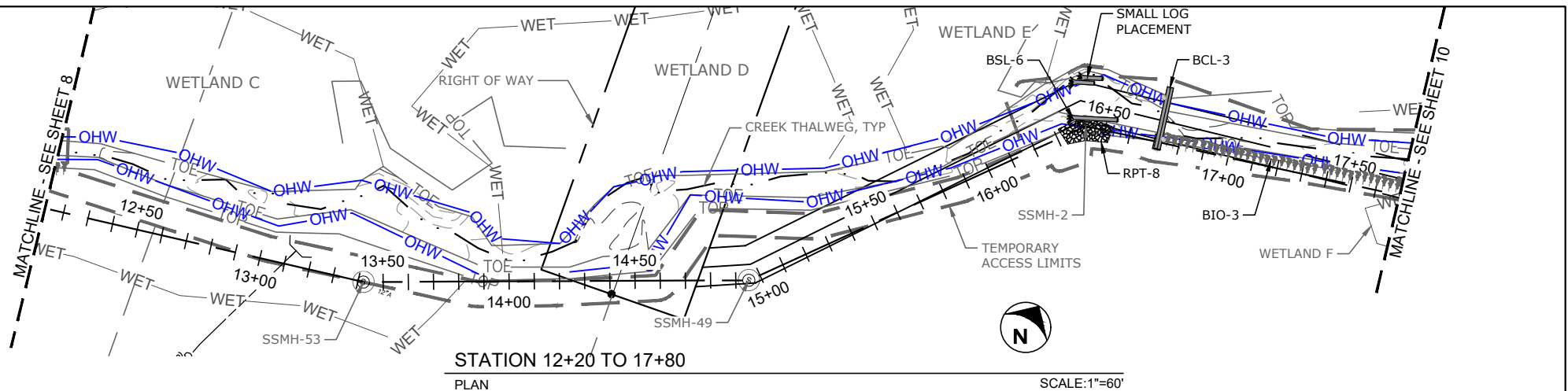
PLAN AND PROFILE 6+60 TO 12+20

DATUM: NAVD 88

SHEET: 8 of 24

DATE: 2/9/2024

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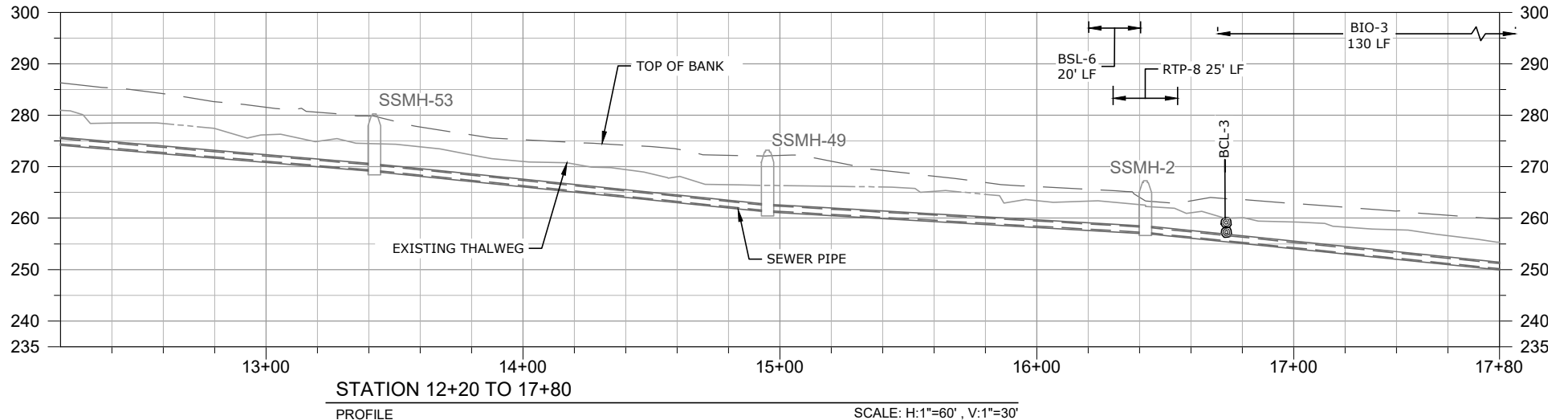


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- BCL BED CONTROL LOG STRUCTURE
- BCR BED CONTROL ROCK STRUCTURE
- BSL BANK STABILIZATION LOG
- CSL CHANNEL SPANNING LOG JAM
- RC ROUGHENED CHANNEL
- SSMH SANITARY SEWER MANHOLE
- RTP ROCK TOE PROTECTION



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

REFERENCE:

LOCATION ADDRESS:

South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

PLAN AND PROFILE 12+20 TO 17+80

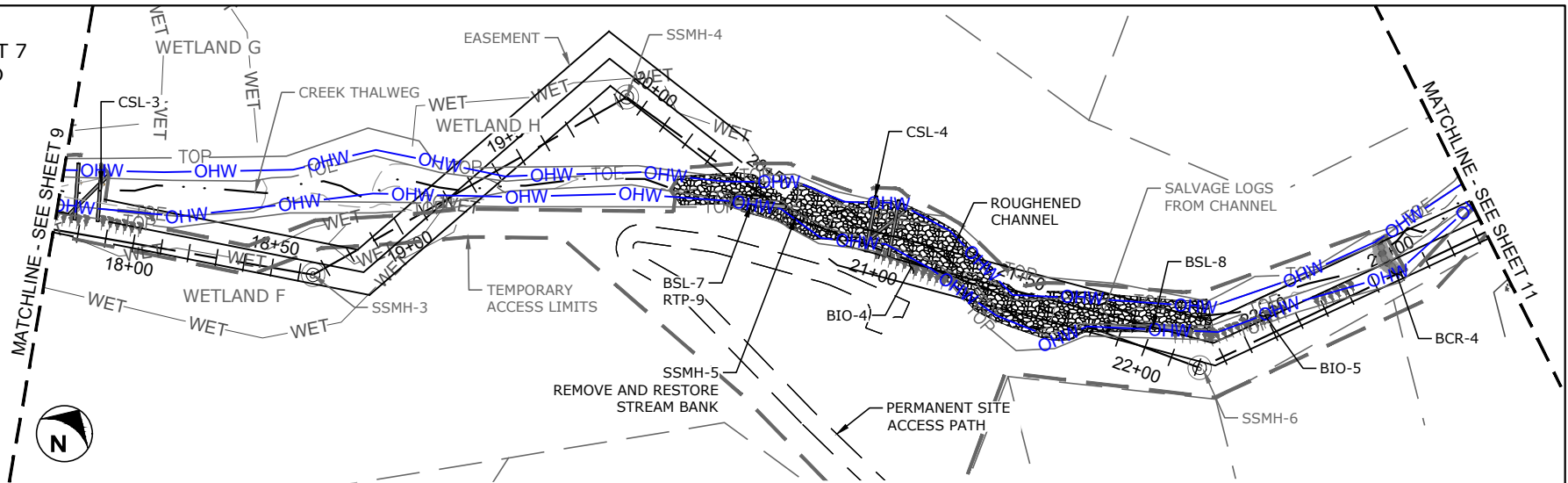
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SHEET: 9 of 24

DATE: 2/9/2024

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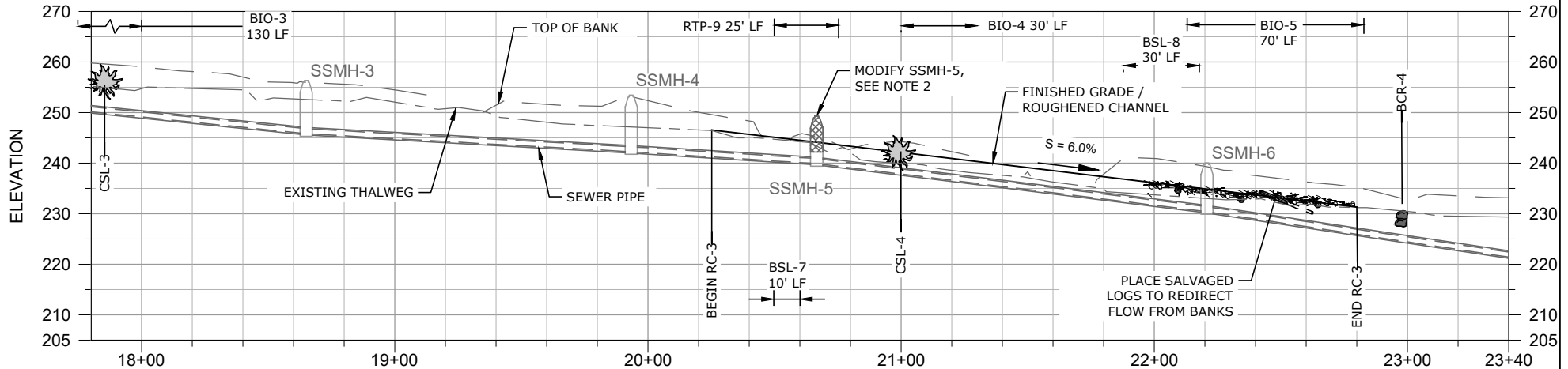
NOTE: SEE SHEET 7
FOR LEGEND AND
ABBREVIATIONS



STATION 17+80 TO 23+40

PLAN

SCALE: 1"=60'



STATION 17+80 TO 23+40

PROFILE

SCALE: H:1"=60', V:1"=30'

NOTES

1. INSTALL RC TO RESTORE MINIMUM 3 FEET OF COVER OVER EXISTING SEWER PIPE.
2. REMOVE EXPOSED PORTION OF MH STRUCTURE. SEWER FLOW THROUGH MH TO BE MAINTAINED. RESTORE AND ARMOR IMPACTED STREAM AREA FOLLOWING STRUCTURE REMOVAL.

PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

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LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

PLAN AND PROFILE 17+80 TO 23+40

DATUM: NAVD 88

SHEET: 10 of 24

DATE: 2/9/2024

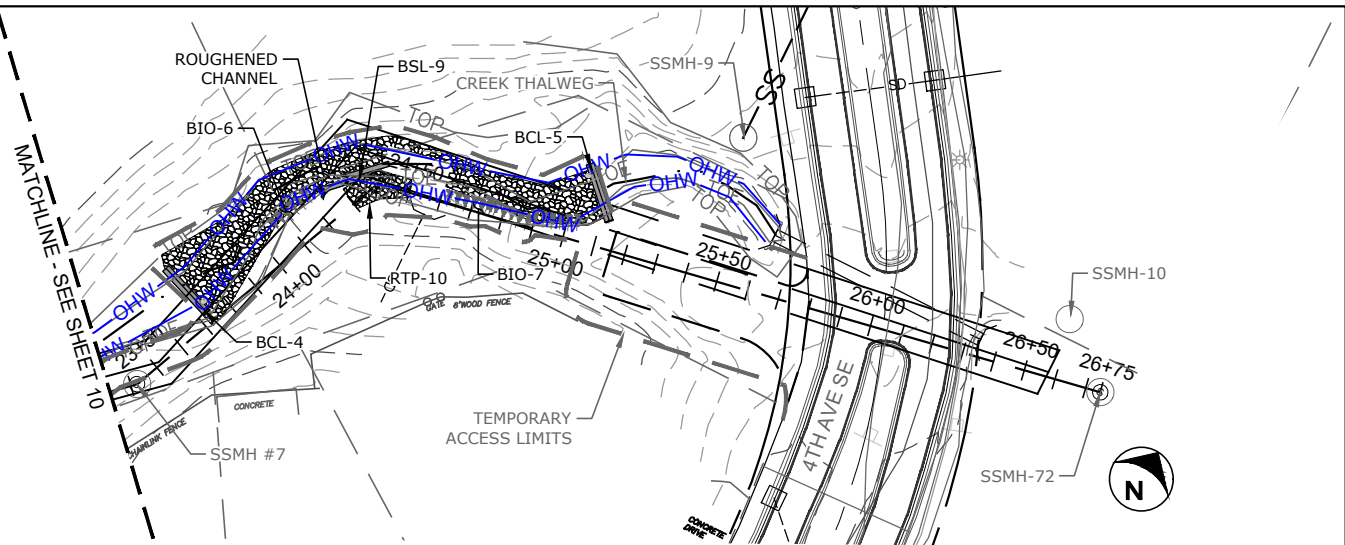
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LEGEND

- 260 — MAJOR CONTOUR
- 262 — MINOR CONTOUR
- TOP — TOP OF SLOPE
- TOE — TOE OF SLOPE
- CHW — CHW — ORDINARY HIGH WATER
- WET — WET — EXISTING WETLANDS
- CUTBANK
- UNSTABLE SLOPE
- LANDSLIDE
- GB #2 BORING LOCATION

ABBREVIATIONS

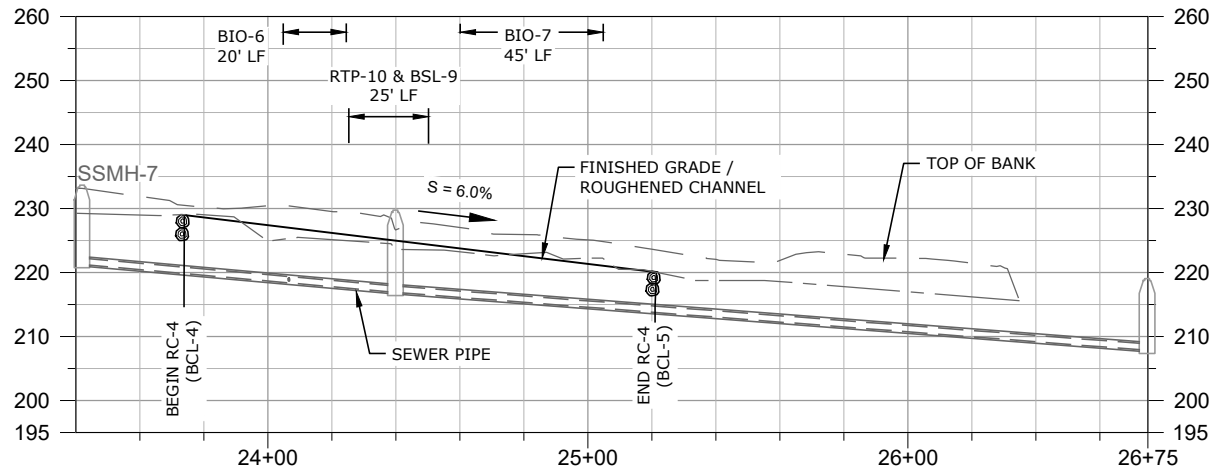
- BCL BED CONTROL LOG STRUCTURE
- BCR BED CONTROL ROCK STRUCTURE
- BSL BANK STABILIZATION LOG
- CSL CHANNEL SPANNING LOG JAM
- RC ROUGHENED CHANNEL
- SSMH SANITARY SEWER MANHOLE
- RTP ROCK TOE PROTECTION



STATION 23+40 TO 26+75

PLAN

SCALE: 1"=60'



STATION 23+40 TO 26+75

PROFILE

SCALE: H: 1"=60', V: 1"=30'



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

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LOCATION ADDRESS:

South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

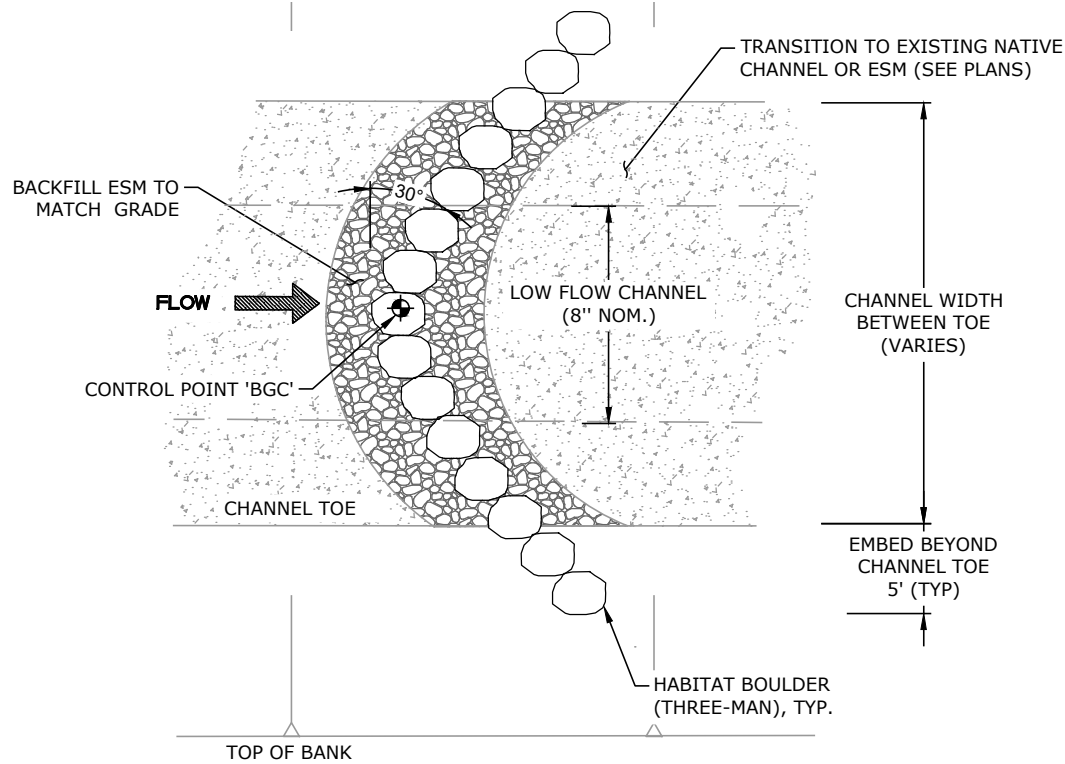
PLAN AND PROFILE 23+40 TO 26+75

DATUM: NAVD 88

SHEET: 11 of 24

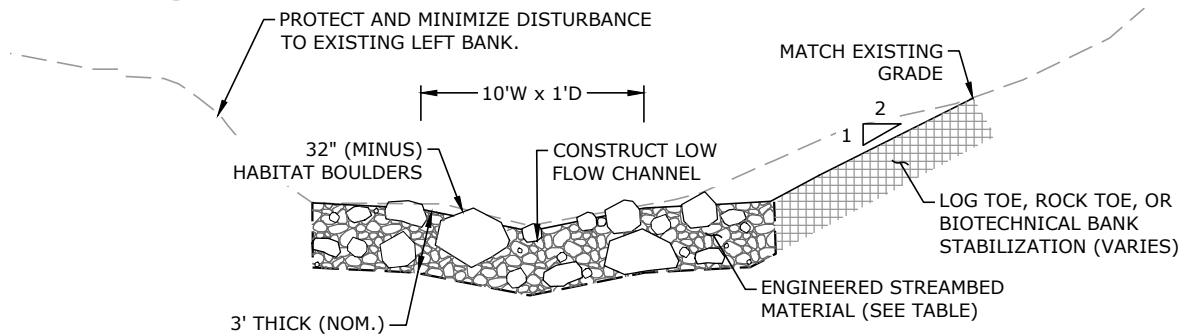
DATE: 2/9/2024

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1 BED CONTROL ROCK (BCR)
- DETAIL

SCALE: NTS



2 ROUGHENED CHANNEL
- DETAIL

SCALE: NTS

BED CONTROL ROCK - GRADATION		
FILL MATERIAL	DIAMETER RANGE (IN)	PERCENT BY WEIGHT
HABITAT BOULDER (3-MAN)	24 - 36	70%
STREAMBED SEDIMENT	NO. 200 - 2.5	30%

ENGINEERED STREAMBED MATERIAL (ESM) - GRADATION		
FILL MATERIAL	DIAMETER RANGE (IN)	PERCENT BY WEIGHT
ROCK FOR EROSION AND SCOUR PROTECTION CLASS B	12 - 32	20%
STREAMBED COBBLES (12-INCH)	0.75 - 12	50%
STREAMBED SEDIMENT	NO. 200 - 2.5	30%

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District
PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

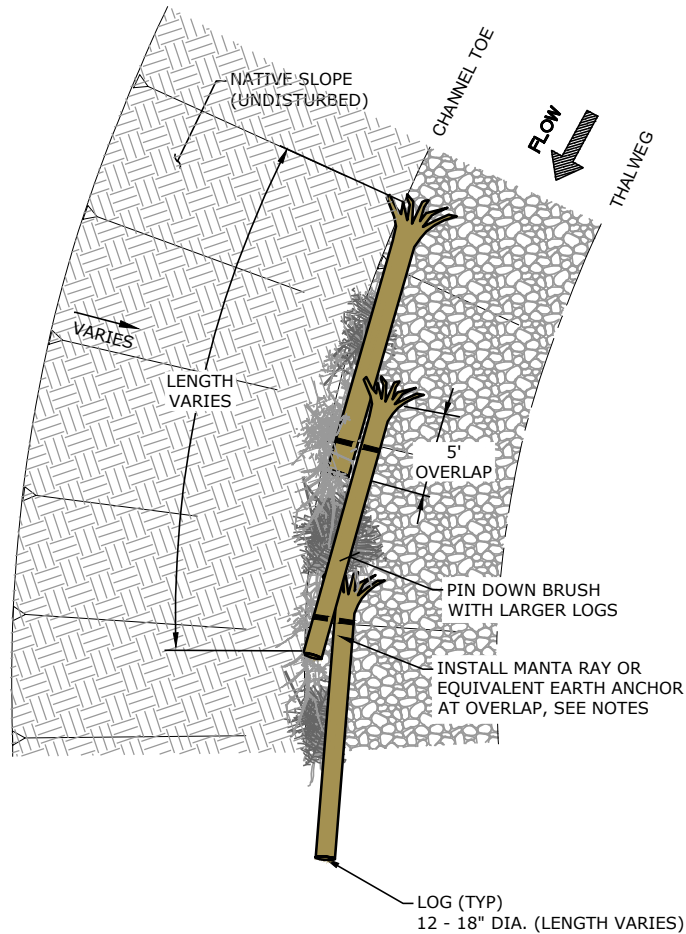
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LOCATION ADDRESS:
South of 220th St SE between Meridian Ave S & 4th Ave SE
NEAR: Bothell
COUNTY: Snohomish **STATE:** Washington
LAT/LONG: 47°47'52.6"N 112°13'31.8"W
ADJACENT PROPERTY OWNERS:
See separate page.

CHANNEL DETAILS

DATUM: NAVD 88
SHEET: 12 of 24
DATE: 2/9/2024

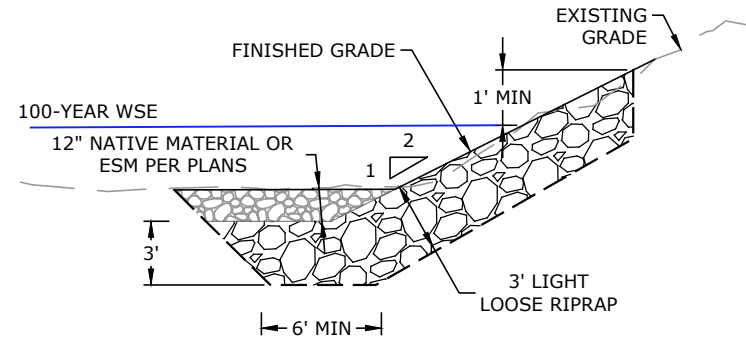
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3 BANK STABILIZATION LOG TOE (BSL)
- PLAN

SCALE: NTS

LIGHT LOOSE RIPRAP - GRADATION	
SIZE FRACTION	DIAMETER (INCHES)
D100	26
D50	12



4 ROCK TOE PROTECTION (RTP)
- SECTION

SCALE: NTS

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District
PARCELS: 27042500400400, 27042500400200,
01133600090200, 00519600200301, and
00664100004400

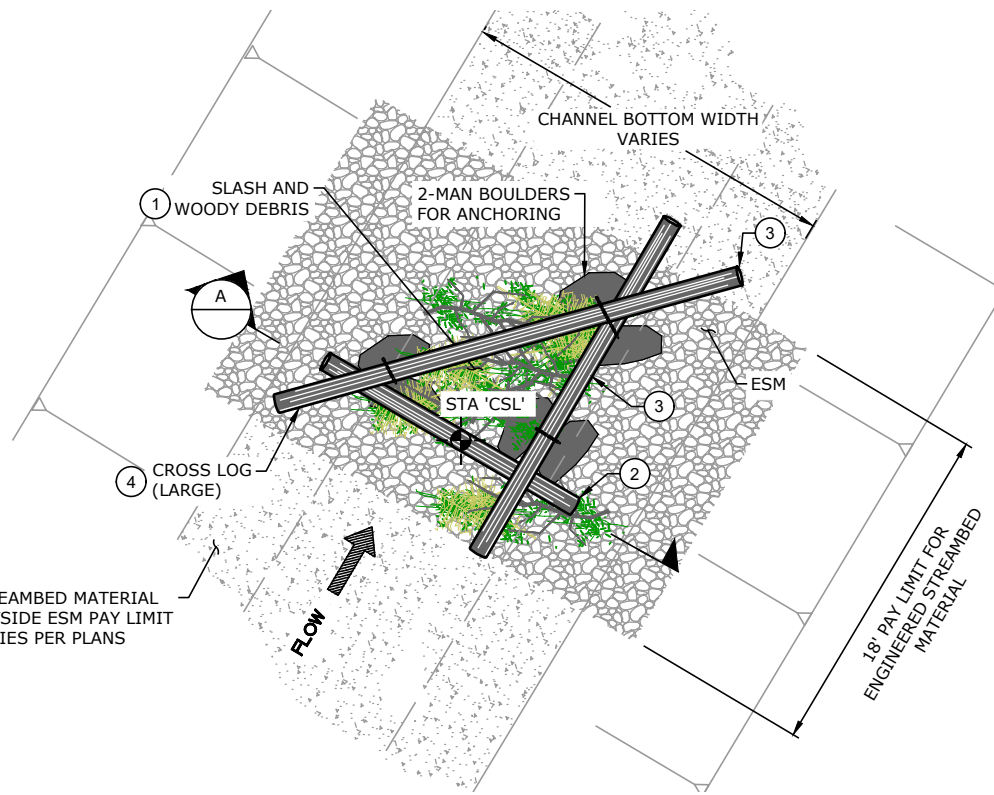
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LOCATION ADDRESS:
South of 220th St SE between Meridian Ave S & 4th Ave SE
NEAR: Bothell
COUNTY: Snohomish **STATE:** Washington
LAT/LONG: 47°47'52.6"N 112°13'31.8"W
ADJACENT PROPERTY OWNERS:
See separate page.

CHANNEL DETAILS

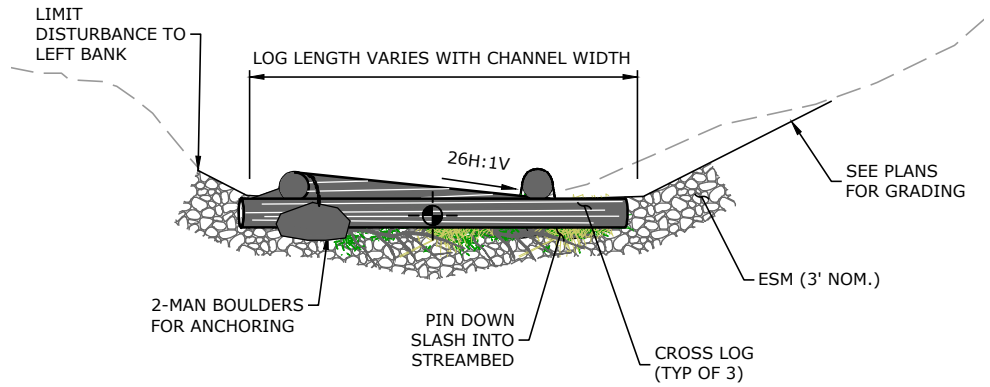
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SHEET: 13 of 24
DATE: 2/9/2024

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5 CHANNEL SPANNING LOG JAM (CSL)
- PLAN

SCALE: NTS



A CHANNEL SPANNING LOG JAM (CSL)
- SECTION
SCALE: NTS

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District
PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

REFERENCE:

LOCATION ADDRESS:
South of 220th St SE between Meridian Ave S & 4th Ave SE
NEAR: Bothell
COUNTY: Snohomish **STATE:** Washington
LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:
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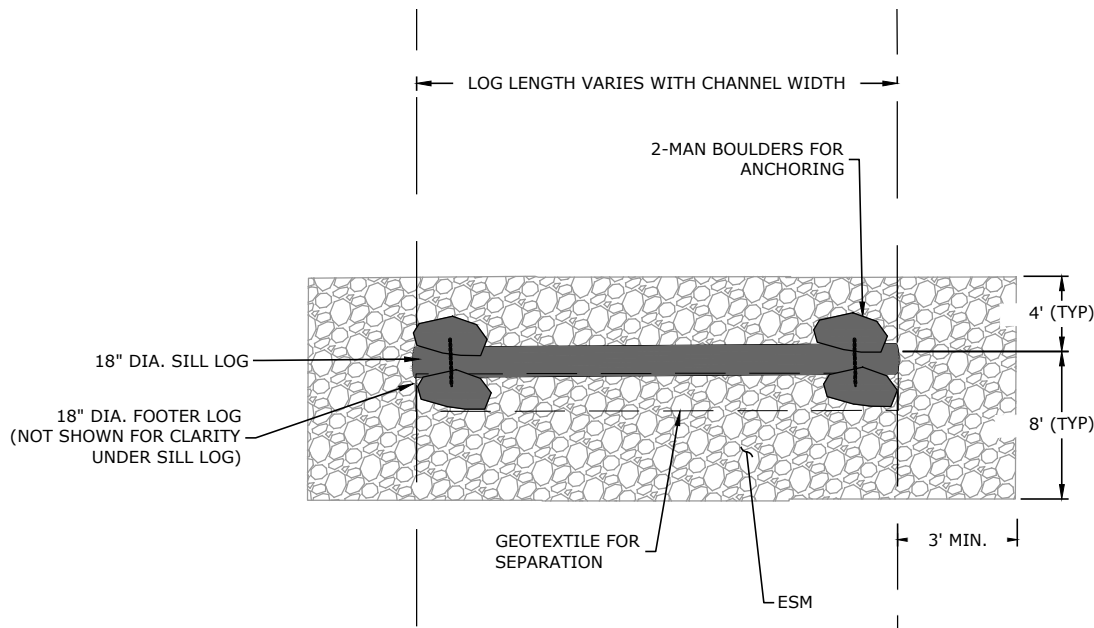
CHANNEL DETAILS

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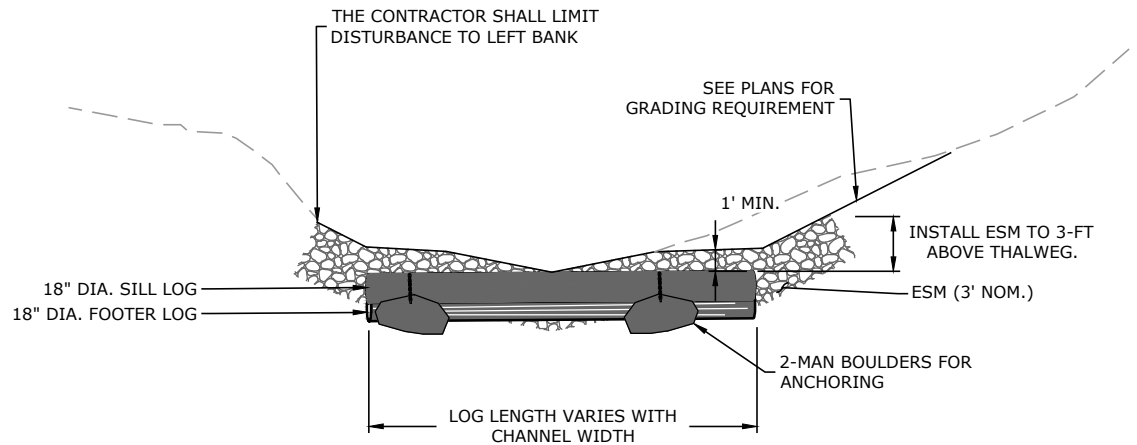
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DATE: 2/9/2024

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6 BED CONTROL LOG (BCL)
PLAN SCALE: NTS



A BED CONTROL LOG (BCL)
SECTION SCALE: NTS

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

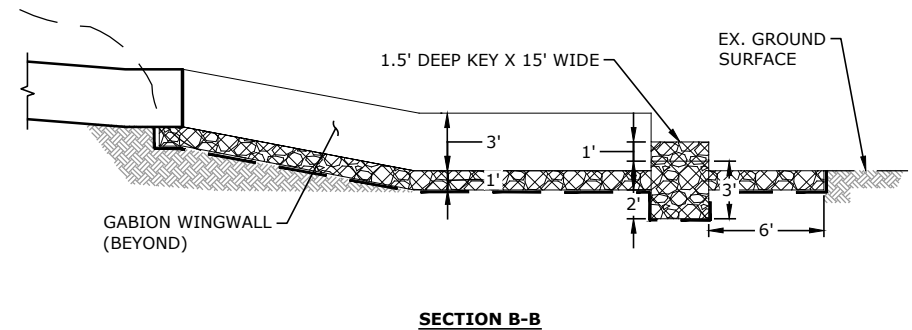
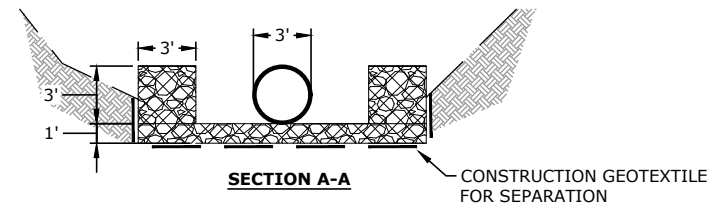
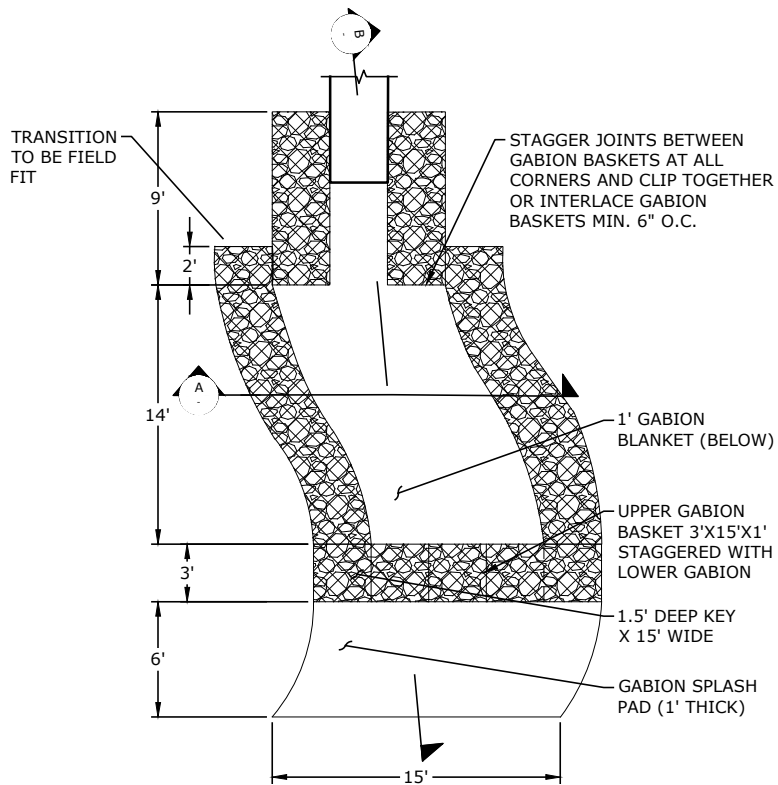
APPLICANT: Alderwood Water & Wastewater District
PARCELS: 27042500400400, 27042500400200,
01133600090200, 00519600200301, and
00664100004400

REFERENCE:

LOCATION ADDRESS:
South of 220th St SE between Meridian Ave S & 4th Ave SE
NEAR: Bothell
COUNTY: Snohomish **STATE:** Washington
LAT/LONG: 47°47'52.6"N 112°13'31.8"W
ADJACENT PROPERTY OWNERS:
See separate page.

CHANNEL DETAILS

DATUM: NAVD 88
SHEET: 15 of 24
DATE: 2/9/2024



7 GABION OUTLET STRUCTURE
- DETAIL

SCALE: NTS

PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

REFERENCE:

LOCATION ADDRESS:

South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

CHANNEL DETAILS

DATUM: NAVD 88

SHEET: 16 of 24

DATE: 2/9/2024

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PERMANENT AND TEMPORARY WETLAND IMPACTS

WETLAND	WETLAND SIZE (SF)	PERMANENT IMPACT AREAS			TEMPORARY IMPACT AREAS		
		SF	CY	SOURCE OF IMPACT	SF	CY	SOURCE OF IMPACT
A	1,427	4	0.4	COBBLE	31	1.7	TEMPORARY ACCESS
B	7,308	364	40.0	WOOD AND RIPRAP	1,845	102.5	TEMPORARY ACCESS
C	8,827	27	3.0	COBBLE	127	7.1	TEMPORARY ACCESS
D	10,379	0	0.0	N/A	0	0.0	N/A
E	9,336	65	7.2	COBBLE	59	3.3	TEMPORARY ACCESS
F	3,315	0	0.0	N/A	500	27.8	TEMPORARY ACCESS
G	2,868	63	7.0	WOOD	102	5.7	TEMPORARY ACCESS
H	3,220	80	8.9	COBBLE	88	4.9	TEMPORARY ACCESS
TOTAL	46,680	603	66.5	-	2,752	152.9	-

PERMANENT STREAM IMPACT AREAS

STREAM	SF	CY	SOURCE OF IMPACT
QUEENSBOROUGH CREEK	14,855	1,238.0	COBBLE
	1,972	214.0	RIPRAP
	796	72.0	WOOD
TOTAL	17,623	1,524.0	-

PERMANENT AND TEMPORARY STREAM BUFFER IMPACTS

STREAM	PERMANENT IMPACT AREAS			TEMPORARY IMPACT AREAS		
	SF	CY	SOURCE OF IMPACT	SF	CY	SOURCE OF IMPACT
QUEENSBOROUGH CREEK	5,845	324.7	PERMANENT ACCESS	40,142	2,230.1	TEMPORARY ACCESS
	8,253	994.0	COBBLE			
	3,979	444.0	RIPRAP			
	925	19.8	WOOD			
TOTAL	19,002	1,782.5	-	40,142	2,230.1	-

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

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See separate page.

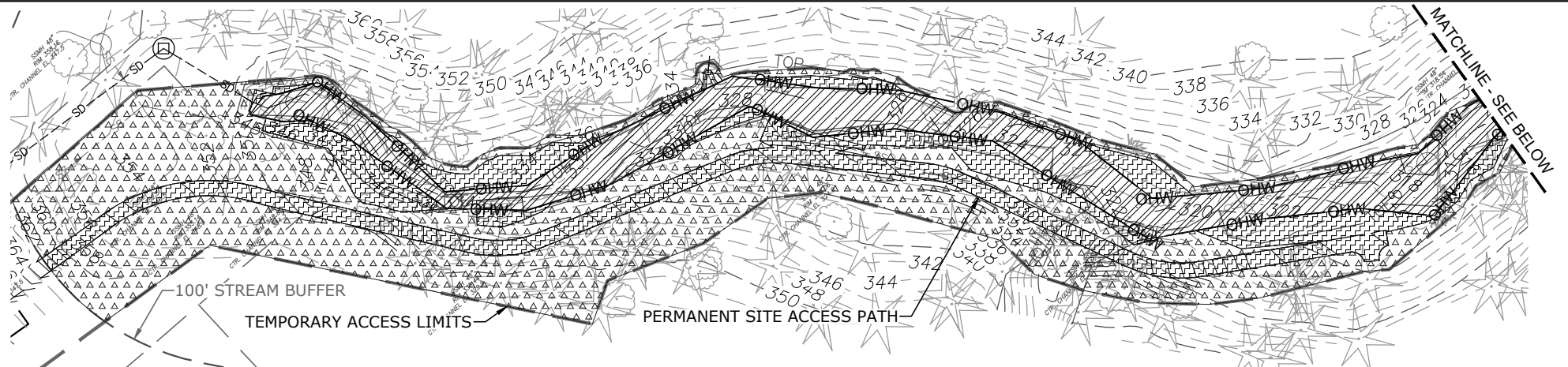
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DATUM: NAVD 88

SHEET: 17 of 24

DATE: 2/9/2024

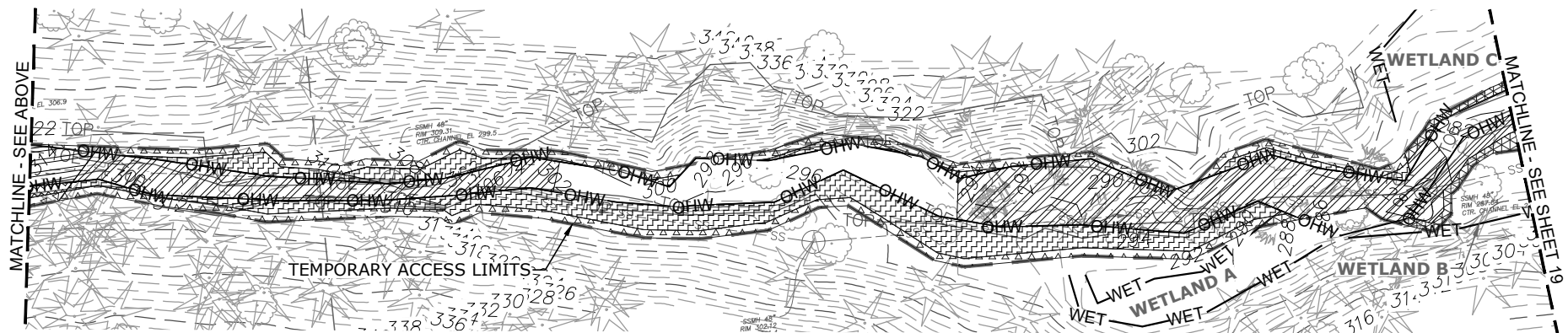
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IMPACTS - STATION 1+00 TO 6+60

PLAN

SCALE: 1"=60'



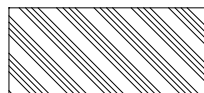
IMPACTS - STATION 6+60 TO 12+20

PLAN

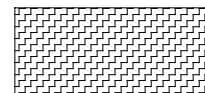
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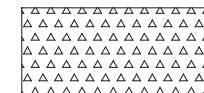
LEGEND



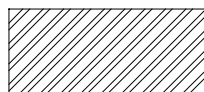
PERMANENT IMPACT -
WETLAND (603 SF)



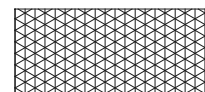
PERMANENT IMPACT -
STREAM BUFFER
(19,002 SF)



TEMPORARY IMPACT -
STREAM BUFFER
(40,142 SF)



PERMANENT IMPACT -
STREAM (17,623 SF)



TEMPORARY IMPACT -
WETLAND (2,753 SF)



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

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ADJACENT PROPERTY OWNERS:

See separate page.

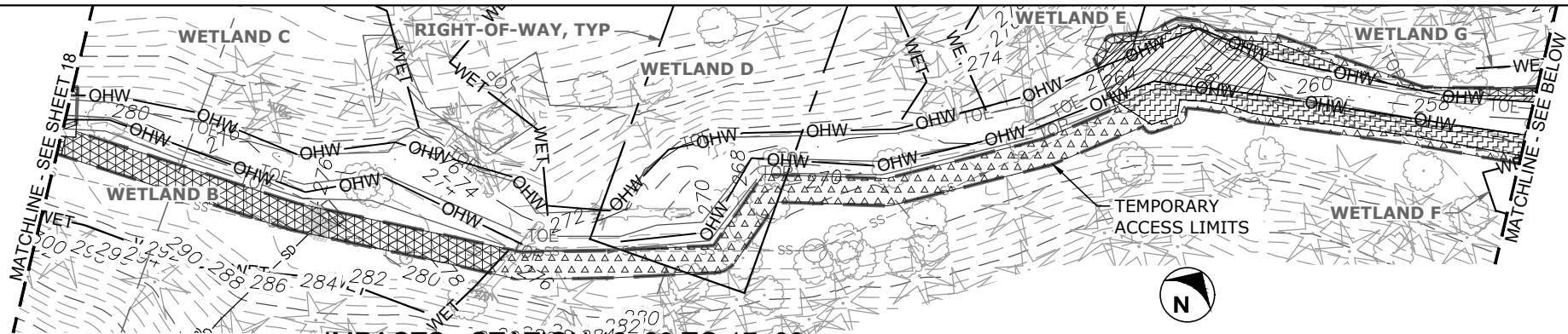
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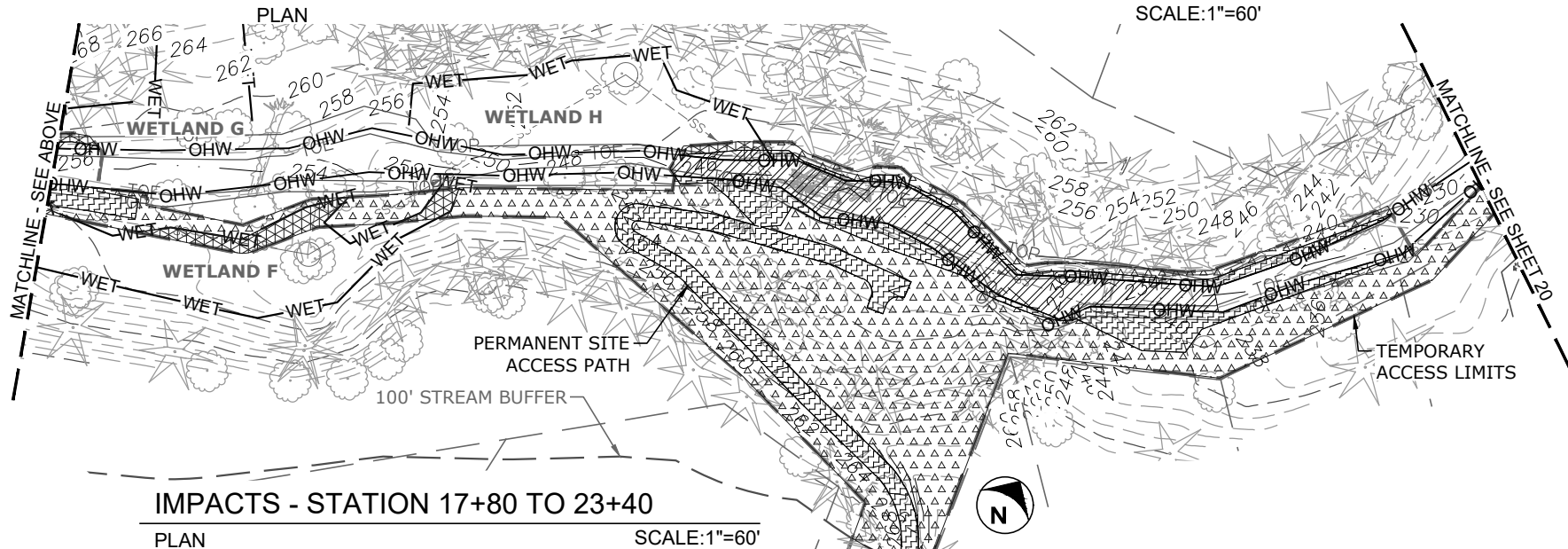
SHEET: 18 of 24

DATE: 2/9/2024

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IMPACTS - STATION 12+20 TO 17+80

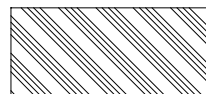


IMPACTS - STATION 17+80 TO 23+40

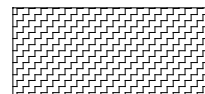
PLAN

SCALE: 1"=60'

LEGEND



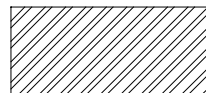
PERMANENT IMPACT -
WETLAND (603 SF)



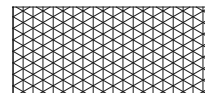
PERMANENT IMPACT -
STREAM BUFFER
(19,002 SF)



TEMPORARY IMPACT -
STREAM BUFFER
(40,142 SF)



PERMANENT IMPACT -
STREAM (17,623 SF)



TEMPORARY IMPACT -
WETLAND (2,753 SF)



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

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ADJACENT PROPERTY OWNERS:

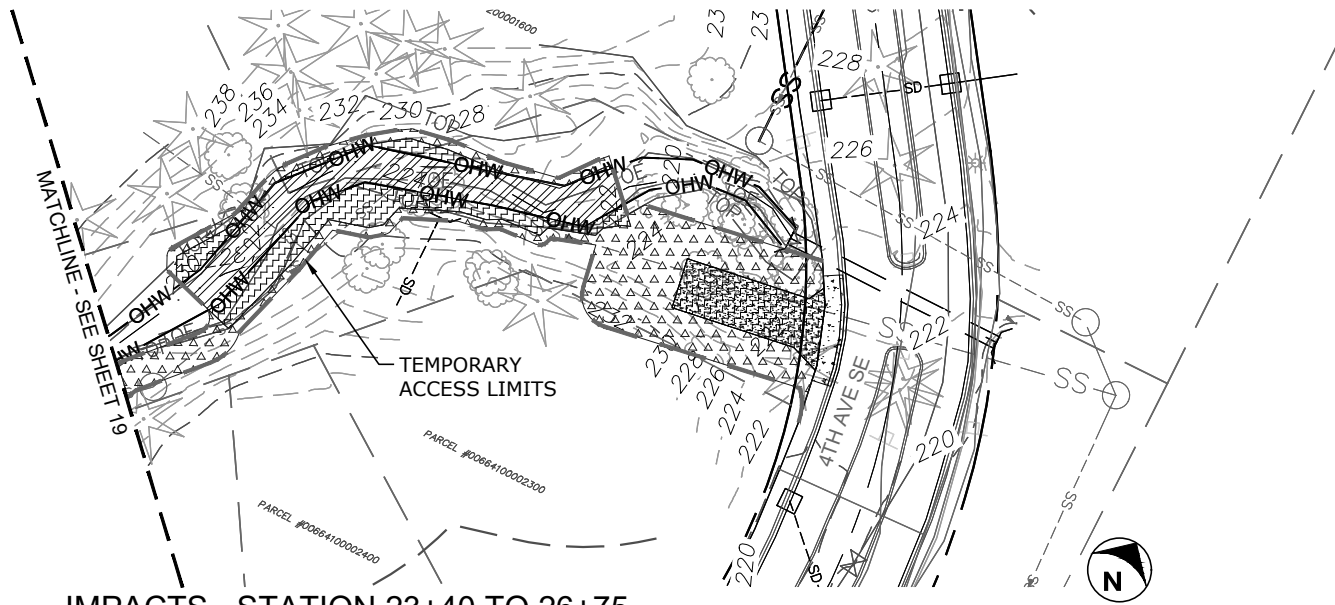
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IMPACTS PLAN 2 OF 3

DATUM: NAVD 88

SHEET: 19 of 24

DATE: 2/9/2024

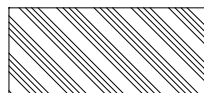


IMPACTS - STATION 23+40 TO 26+75

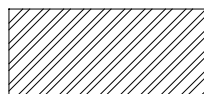
PLAN

SCALE: 1"=60'

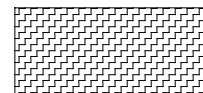
LEGEND



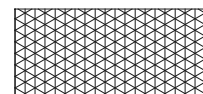
PERMANENT IMPACT -
WETLAND (603 SF)



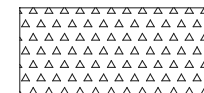
PERMANENT IMPACT -
STREAM (17,623 SF)



PERMANENT IMPACT -
STREAM BUFFER
(19,002 SF)



TEMPORARY IMPACT -
WETLAND (2,753 SF)



TEMPORARY IMPACT -
STREAM BUFFER
(40,142 SF)

PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

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LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

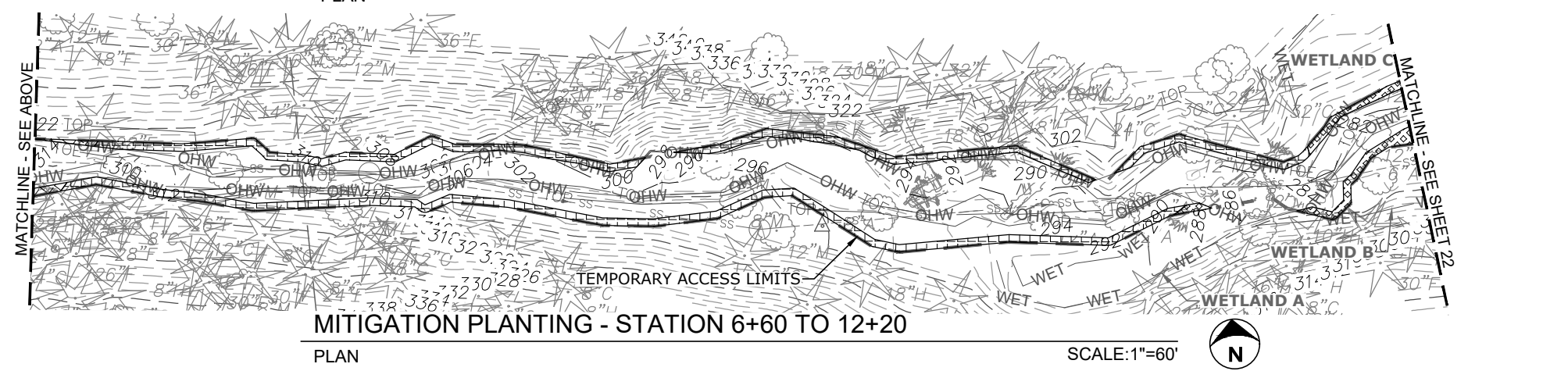
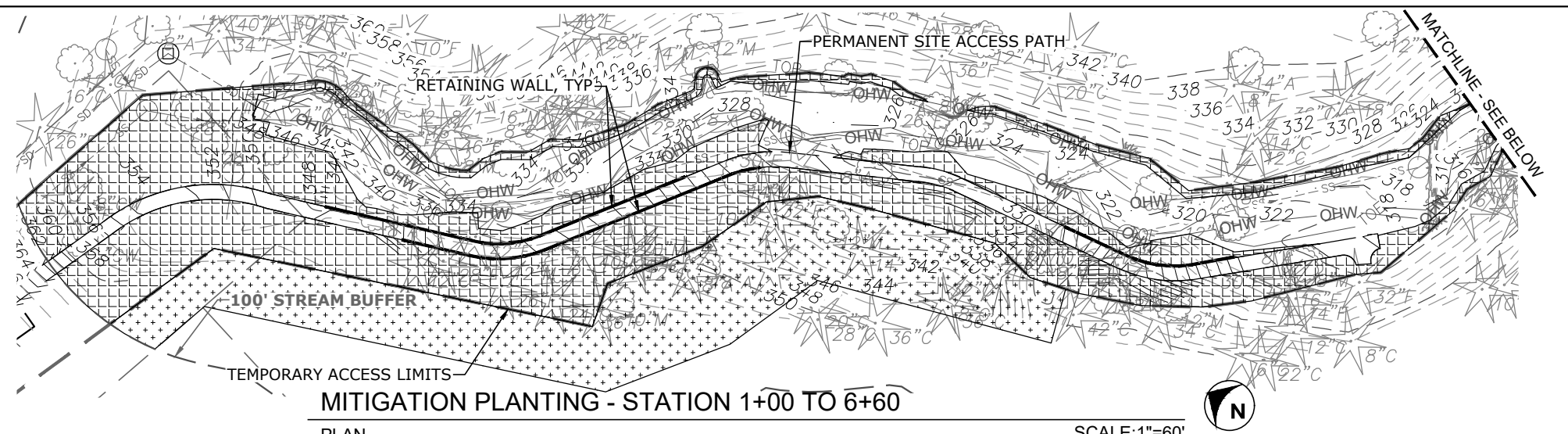
IMPACTS PLAN 3 OF 3

DATUM: NAVD 88

SHEET: 20 of 24

DATE: 2/9/2024

FILE: P:\01 CAD\19xxxx\20191484.00 ANWD S1915 Queensborough Sewer Rehab\08 CAD\DWG\FIGURES\JARP\21 CONCEPTUAL MITIGATION PLAN 1 OF 3.dwg PLOTTED BY: GREG WOLOVEKE PLOT DATE: 2/13/2024 8:56:38 AM



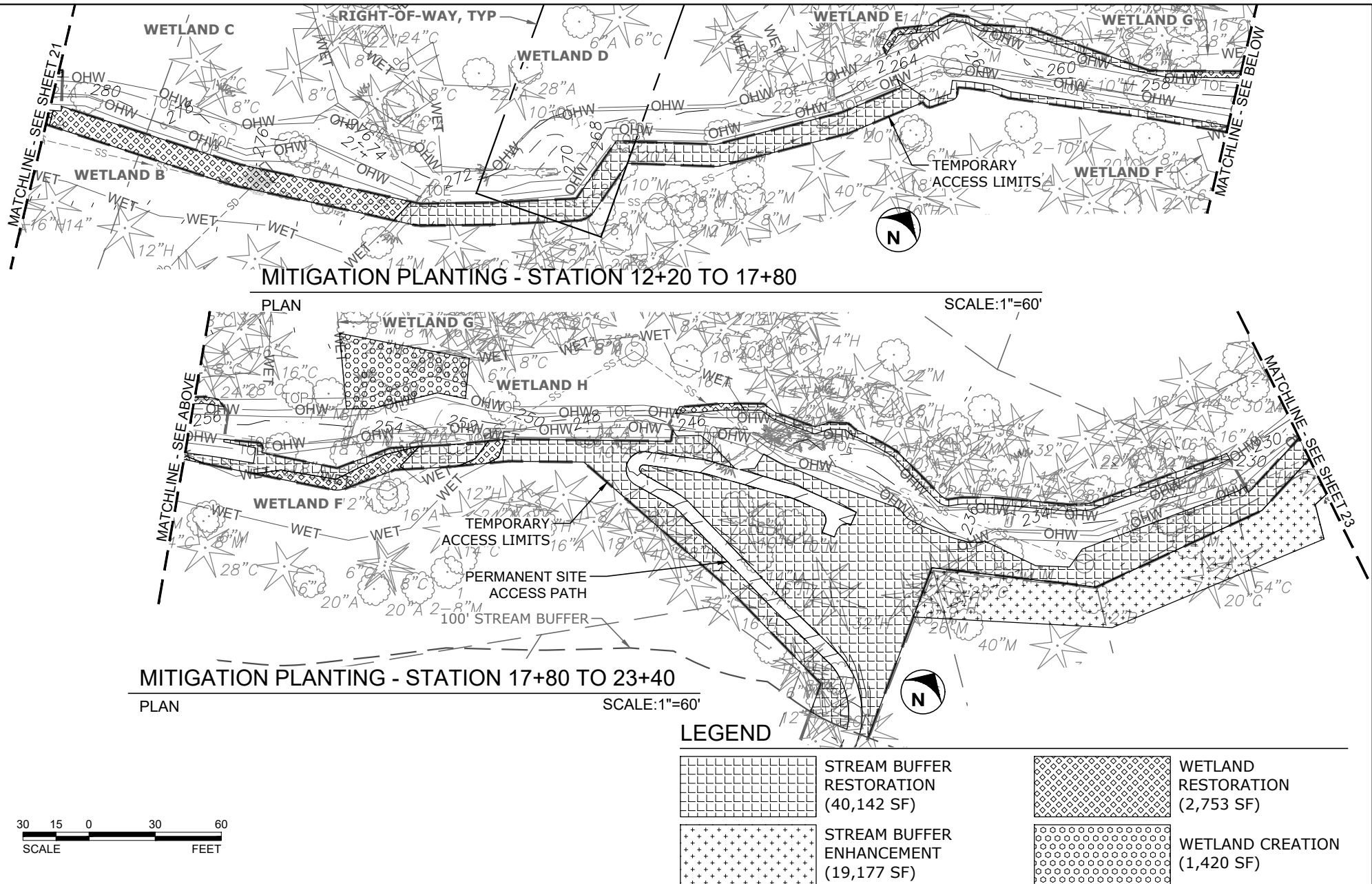
LEGEND

	STREAM BUFFER RESTORATION (40,142 SF)		WETLAND RESTORATION (2,753 SF)
	STREAM BUFFER ENHANCEMENT (19,177 SF)		WETLAND CREATION (1,420 SF)



PROPOSED PROJECT: Queensborough Sewer Rehabilitation	LOCATION ADDRESS: South of 220th St SE between Meridian Ave S & 4th Ave SE	CONCEPTUAL MITIGATION PLAN 1 OF 3
APPLICANT: Alderwood Water & Wastewater District	NEAR: Bothell	DATUM: NAVD 88
PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400	COUNTY: Snohomish STATE: Washington	SHEET: 21 of 24
REFERENCE:	LAT/LONG: 47°47'52.6"N 112°13'31.8"W	DATE: 2/9/2024
	ADJACENT PROPERTY OWNERS: See separate page.	

FILE: P:\01 CAD\19xxxx\20191484.00 A\WWD S1915 Queensborough Sewer Rehab\08 CAD\DWG\FIGURES\JARP\02 CONCEPTUAL MITIGATION PLAN 2 OF 3.dwg PLOTTED BY: GREG WOLOVEKE PLOT DATE: 2/13/2024 8:57:02 AM



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

REFERENCE:

LOCATION ADDRESS:

South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.

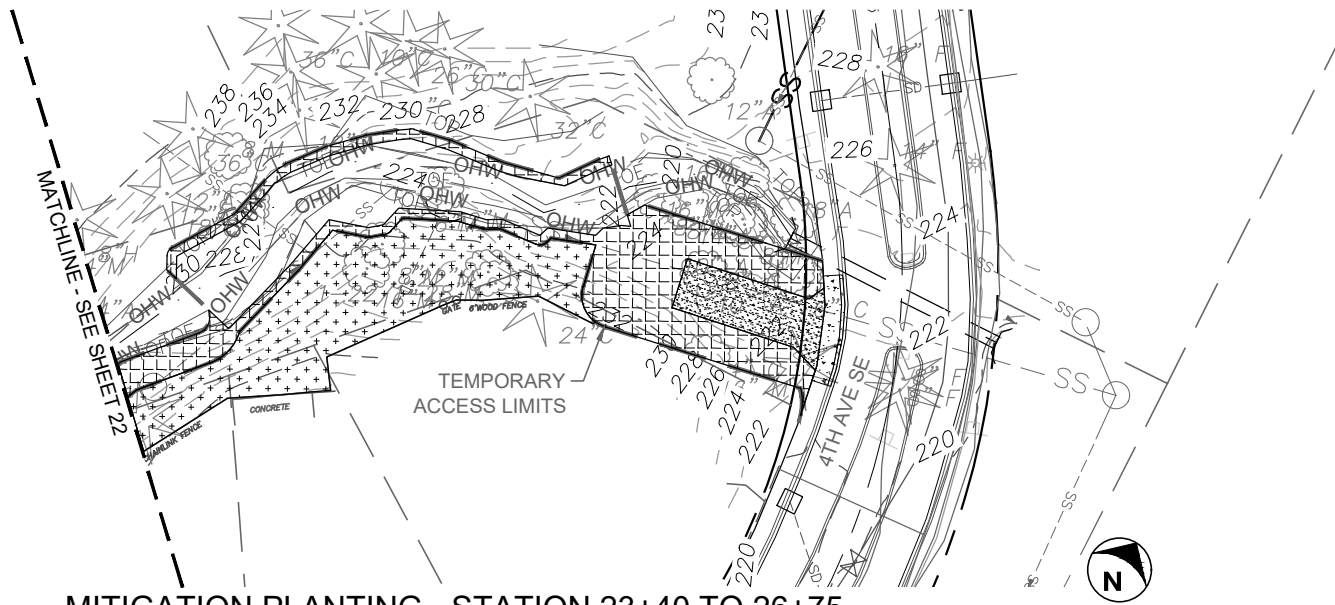
CONCEPTUAL MITIGATION

PLAN 2 OF 3

DATUM: NAVD 88

SHEET: 22 of 24

DATE: 2/9/2024

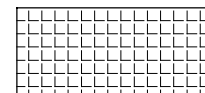


MITIGATION PLANTING - STATION 23+40 TO 26+75

PLAN

SCALE: 1"=60'

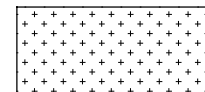
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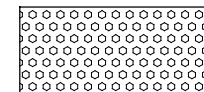
STREAM BUFFER
RESTORATION
(40,142 SF)



WETLAND
RESTORATION
(2,753 SF)



STREAM BUFFER
ENHANCEMENT
(19,177 SF)



WETLAND CREATION
(1,420 SF)



PROPOSED PROJECT:

Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

PARCELS: 27042500400400, 27042500400200,
01133600090200, 00519600200301, and
00664100004400

REFERENCE:

LOCATION ADDRESS:

South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:

See separate page.





CONCEPTUAL MITIGATION PLAN 3 OF 3

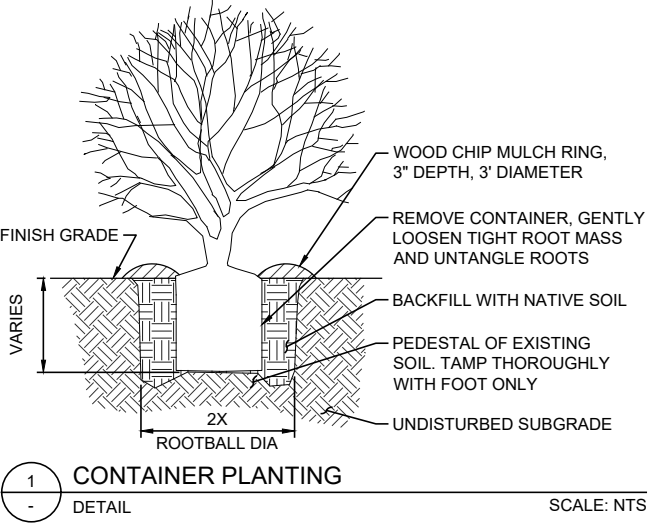
DATUM: NAVD 88

SHEET: 23 of 24

DATE: 2/9/2024

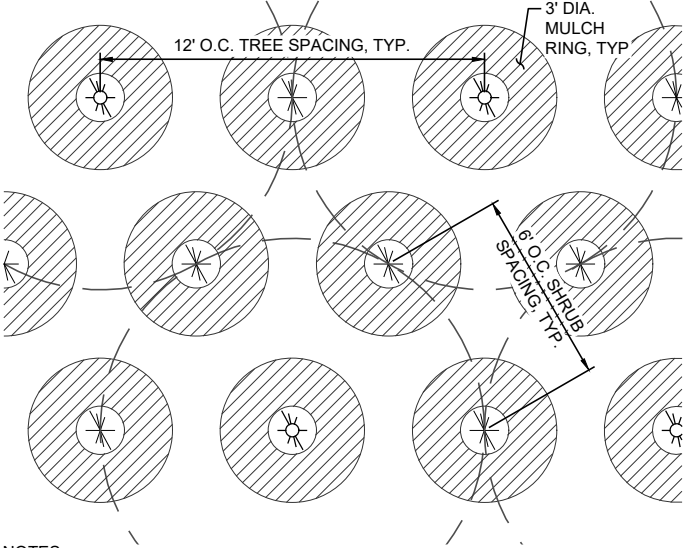
MITIGATION PLANTING SCHEDULE

					QUANTITIES			
		SIZE	SPACING	STREAM BUFFER RESTORATION	STREAM BUFFER ENHANCEMENT	WETLAND RESTORATION	WETLAND CREATION	
				(40,142 SF)	(19,177 SF)	(2,753 SF)	(1,420 SF)	
BOTANICAL NAME		COMMON NAME						
TREES	ACER MACROPHYLLUM	BIGLEAF MAPLE	1 GAL.	12' O.C.	160	76		
	PICEA SITCHENSIS	SITKA SPRUCE	1 GAL.	12' O.C.				6
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL.	12' O.C.	161	77		5
SHRUBS	ACER CIRCINATUM	VINE MAPLE	1 GAL.	6' O.C.	193	92		
	LONICERA INVOLUCRATA	BLACK TWINBERRY	1 GAL.	6' O.C.			44	17
	MAHONIA AQUIFOLIUM	TALL OREGON GRAPE	1 GAL.	6' O.C.	193	92		
	RUBUS SPECTABILIS	SALMONBERRY	1 GAL.	6' O.C.	194	93	44	17
	SAMBUCUS RACEMOSA	RED ELDERBERRY	1 GAL.	6' O.C.	193	92		
	SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL.	6' O.C.	193	92		
								



PLANTING NOTES

- 1. PLANT SPACING IS TRIANGULAR SPACING FOR ALL PLANTING AREAS. SEE PLANTING LAYOUT DETAIL, THIS SHEET.
- 2. PRESERVE AND PROTECT ALL EXISTING WETLANDS, TREES AND VEGETATION NOT DESIGNATED FOR REMOVAL.
- 3. SET ASIDE TOPSOIL FROM WETLAND CREATION GRADING TO USE IN PLANTING AREA SHOWN HERE.
- 4. PLANT SPACING IS AVERAGE. FIELD FIT PROPOSED PLANTINGS AROUND EXISTING TREES.
- 5. PROVIDE TEMPORARY IRRIGATION FOR A MINIMUM OF ONE (1) YEAR.



NOTES:

- 1. MITIGATION PLANTING LAYOUT IS CONCEPTUAL AND INTENDED TO SHOW GROUPINGS OF SIMILAR SPECIES OF PLANTS.
- 2. GROUP EACH SPECIES IN CLUSTERS OF 3, 5, 7, OR 9.
- 3. PLANT LAYOUT AND TRIANGULAR SPACING MAY BE ADJUSTED TO MEET FIELD CONDITIONS WITH THE ACCEPTANCE OF THE ENGINEER.

2 PLANTING LAYOUT

DETAIL

SCALE: NTS

PROPOSED PROJECT:
Queensborough Sewer Rehabilitation

APPLICANT: Alderwood Water & Wastewater District

PARCELS: 27042500400400, 27042500400200, 01133600090200, 00519600200301, and 00664100004400

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LOCATION ADDRESS:
South of 220th St SE between Meridian Ave S & 4th Ave SE

NEAR: Bothell

COUNTY: Snohomish **STATE:** Washington

LAT/LONG: 47°47'52.6"N 112°13'31.8"W

ADJACENT PROPERTY OWNERS:
See separate page.

MITIGATION PLANTING DETAILS

DATUM: NAVD 88

SHEET: 24 of 24

DATE: 2/9/2024