Wood Environment & Infrastructure Solutions, Inc.
15862 SW 72nd Avenue, Suite 150
Portland, Oregon
USA 97224
T: 503-639-3400
www.woodplc.com

Memo

To:	Mark Pugh Project Manager Northwest Region Cleanup Section Oregon Dept. of Environmental Quality	Project:	Blue Heron Mill PPA 9-61M-135580.05
From:	John Kuiper, RG, Wood Dan Schall, PE, Wood		
Date:	1/12/2022		
Subject:	Response to DEQ Comments on *Initial Stormwater Conveyance Mapping Results* from November 16, 2021		

Dear Mark:

The Confederated Tribes of the Grand Ronde Community of Oregon (CTGR) and Wood Environmental Infrastructure Solutions, Inc. (Wood) have received the comments from the Oregon Department of Environmental Quality (DEQ) on November 16, 2021 pertaining to the document entitled *Initial Stormwater Conveyance Mapping Results* prepared by Wood and dated October 25, 2021. On behalf of CTGR, Wood has prepared the following responses to these comments and a revised report is attached.

DEQ Comment #1

CTGR is mapping the stormwater system as part of the source control work identified as a high priority task in the Prospective Purchaser Agreement (PPA). While work to address other high priority items is described in an "Overarching Work Plan" dated July 9, 2021, DEQ and CTGR agreed to keep the source control piece separate, with specific tasks and deliverables to be determined through an iterative process as more information is developed. Thus, to maintain continuity it is important for source control deliverables to provide introductory information on scope and objective of the work, context within the overall source control evaluation, new information obtained since the source control document, and recommendations for further source control work and schedule of next deliverable(s).

Repsonse to Comment #1

The report has been revised to include additional introductory information which frames the source control work within the context of the PPA and how it relates to the Overarching Workplan. The report now includes recommendations and schedule for further source control work.

DEQ Comment #2

Investigation of the stormwater system layout is being conducted to support a potential in-line sediment removal. Although a good portion of the system has been mapped by probe and remote sensing, additional investigation is needed. As discussed in our October 27, 2021 meeting, alternate methods are

needed to complete the mapping, and may include camera scoping, dye/smoke tests, and/or further remote sensing. Camera scoping is needed to assess the volume and extent of legacy sediment and whether an in-line cleanout is warranted and also to determine the nature of line blockages.

Response to Comment #2

The report has been revised to specify that a second round of conveyance investigation is currently being coordinated by CTGR and Wood. Investigation techniques will include camera scoping, dye/smoke tests, and additional remote sensing. Once this second round is completed, the plan is to prepare a Stormwater Source Control Evaluation Report that will summarize investigation work, measures, and findings. The report will follow the template in DEQ's January 2009 *Guidance for Evaluating the Stormwater Pathway at Upland Sites*.

DEQ Comment #3

To facilitate identification, tracking and status of source control, please create a summary table that contains a unique identifier and pertinent information for each of the system features (e.g., trench drains, vault, sump, gully-washer, "broken pipe(s)"). Catch basins already have numerical designations and should be included on the table. The table should contain relevant information for each feature such as size, depth, drainage basin, and status of source control with respect to BMPs or cleanouts implemented, cleaning/scoping/sampling completed or pending/planned. The table will facilitate tracking and should be updated as appropriate, but at a minimum every quarter.

Response to Comment #3

The report has been revised to include a stormwater conveyance system summary table and the figures have been revised to show unique identifiers for all stormwater features on the Site. The summary table is included in the report as Attachment C.

DEQ Comment #4

Please provide blown-up figures for each drainage basin to improve readability.

Response to Comment #4

Large scale (blown-up) figures of each drainage basin are provided in Figures 3A-D.

Closing

The revised memo report is attached. Please contact John Kuiper (503-704-7793) or Dan Schall (503-501-8672) if you have any further questions.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.

John Kuiper, RG
Project Manager

c: Ryan Webb, CTGR
Stacia Martin, CTGR
Heidi Nelson, DEQ

Attachment

Wood Environment & Infrastructure Solutions, Inc.
15862 SW 72nd Ave., Suite 150
Portland, Oregon
USA 97224
T: 503-639-3400
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1/12/2022
Project #: 961M135580

Mark Pugh, RG
Oregon Department of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232

Subject: **Initial Stormwater Conveyance System Mapping Results – Revision 1**
Former Blue Heron Property
419/427 Main Street
Oregon City, Oregon

Dear Mr. Pugh

On behalf of the Confederated Tribes of the Grand Ronde Community of Oregon (CTGR), Wood Environment & Infrastructure Solutions, Inc. (Wood) is submitting this Initial Stormwater Conveyance System Mapping Results for work conducted at the Former Blue Heron Paper Mill property located in Oregon City (Site). The mapping was conducted in accordance with the Oregon Department of Environmental Quality (DEQ) approved Overarching Workplan (OWP) dated July 9, 2021. Mapping was conducted on August 16 and 17, 2021, and a set of updated Stormwater Site Plans (with large-scale versions of the drainage basins) are included in Attachment A - Figures 1, 2, 3, 3A, 3B, 3C, and 3D.

Background

A Prospective Purchaser Agreement (PPA) executed between the CTGR and the DEQ became effective August 15, 2019. The PPA Scope of Work (SOW) includes four main objectives that must be addressed at the Site prior to qualifying for a DEQ Certificate of Completion. The purpose of the initial stormwater mapping activity described herein is to address portions of two of these objectives (Site Stabilization and High Priority Remedial Actions) by developing a better understanding of the layout and configuration of the Site's stormwater conveyance systems and drainage basins. As detailed in the OWP, section 3.1.1.1.5, the overall approach is following DEQ's January 2009 *Guidance for Evaluating the Stormwater Pathway at Upland Sites*. Future steps include preparing a Stormwater Source Control Evaluation Report that will summarize investigation work, measures, and findings.

To gain a better understanding of the Site and how its stormwater conveyance systems relate to Site Stabilization and High Priority Remedial Actions, Wood conducted an initial Site visit on November 4, 2019. During the visit, stormwater features throughout the Site (catch basins, manholes, trench drains, outfalls, downspout mixed-media filters, etc.) were inspected to identify opportunities for implementing initial Best Management Practices (BMPs). In September 2020, sampling of stormwater and sediment occurred at Site catch basins and drainage features. This was followed by cleanout of various catch basins and drainage features, street sweeping, and installation of catch basin filters and absorption booms during January to February 2021. Maps showing the drainage basins and stormwater conveyance systems at the Site were provided in the OWP, however, the connectivity, conditions, and characteristics of the stormwater features were still not fully understood. The work described below is part of an iterative process to understand how the Site's stormwater collection and conveyance systems are interconnected and how they function. This first mapping event was undertaken to include only above-ground work at

accessible stormwater structures that did not require confined space entry. This event utilized a common duct rodding approach to determine what pipes could be located by this method, and to help determine level of effort and additional methods that would need to be utilized in subsequent mapping events, which would likely include in-line sediment removal.

As new information is generated it will be incorporated into the ongoing source control efforts, including sampling and evaluation of stormwater and sediments and implementation of additional BMPs, so that stormwater discharges to the Willamette River will consistently meet compliance standards.

Field Work

On August 16 and 17, 2021, Wood and Locates Down Under, Inc. (based in Oregon City), visited the Site to map and better understand the Site's stormwater conveyance system and drainage characteristics. Wood and Locates Down Under verified stormwater feature connections by use of a traceable duct rod line (both small and large sizes were used), and visual observations. Selected photographs documenting the work are provided in Attachment B. The "duct rod" technique utilizes a detectable rod consisting of a copper wire encased within the center of a fiberglass core that is pushed through pipes from manholes, catch basins, and other accessible openings. A transmitter is then connected to the duct rod so that an easily identifiable signal is transmitted along the entire length of the duct rod, which can then be detected by a handheld receiver at the ground surface. This scope of this initial effort was to perform all work at the ground surface and did not include performing confined space entry, which would require additional safety protocols.

All accessible catch basins, drains, and manholes at the Site were inspected during this work. However, not all infrastructure connections could be verified due to certain pipes having: 1) size limitations and/or depths requiring confined space entry procedures, 2) debris clogging pipes, and/or 3) other pipe obstructions. For example, while attempting the rodding of some pipes larger than 24" in diameter, refusal was encountered (either due to clogging or other obstructions) which caused the duct rod to coil up. Successfully rodding these larger diameter pipes will require confined space entry, and or other techniques.

Conclusions

Currently, approximately 75 percent of the Site's stormwater conveyance system, connections, and drainage basin boundaries have been confirmed. The investigation and mapping process is iterative and DEQ will be notified and provided with written memos as additional tasks are undertaken, and the use of other techniques and methods are implemented. A summary table (Stormwater Conveyance System Source Control Summary Table) has been developed to facilitate identification, tracking, and status of source control investigation activities of the stormwater conveyance system (Attachment C). The summary table will be updated with each source control investigation activity.

Based on the findings of the most recent Site mapping and inspection activities, Wood has updated selected Site figures (Attachment A) to reflect the current understanding of:

- observed stormwater features
- verified stormwater conveyance connections
- sheet flow direction
- conveyance pipe flow direction
- drainage basin boundaries.

Recommendations for Future Work

A complete assessment of the Site's stormwater conveyance system will require additional investigation equipment and methods. Remaining data gaps include accessing and tracing the larger diameter pipes, line flushing and sediment removal (and mapping of those features with obstructions), stormwater connections inside buildings, and additional mapping of the tailrace features. Additional investigation methods will likely include a combination of camera scoping, dye testing, smoke testing, further remote sensing, and in-line sediment cleanout and removal. A second round of stormwater conveyance system investigation is currently being coordinated by CTGR and Wood and is expected to be executed in the first quarter of 2022. As additional work is completed, the attached Stormwater Conveyance System Source Control Summary Table will be updated, and DEQ will be provided with both "track changes" and "clean" versions of the table. After completion of the work Wood will prepare a Stormwater Source Control Evaluation Report that will summarize investigation work, measures, and findings. The report will follow the template in DEQ's January 2009 *Guidance for Evaluating the Stormwater Pathway at Upland Sites*. This report is expected to be submitted in the second half of 2022.

Closing

Wood and the CTGR appreciate DEQ's flexibility as we work towards project objectives. Please do not hesitate to contact John Kuiper or Daniel Schall of Wood with any questions.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.

Daniel Schall, PE
Project Engineer

John Kuiper, RG
Project Manager

Reviewed by:

Birte Kersting-Wilson, CHMM
Principal

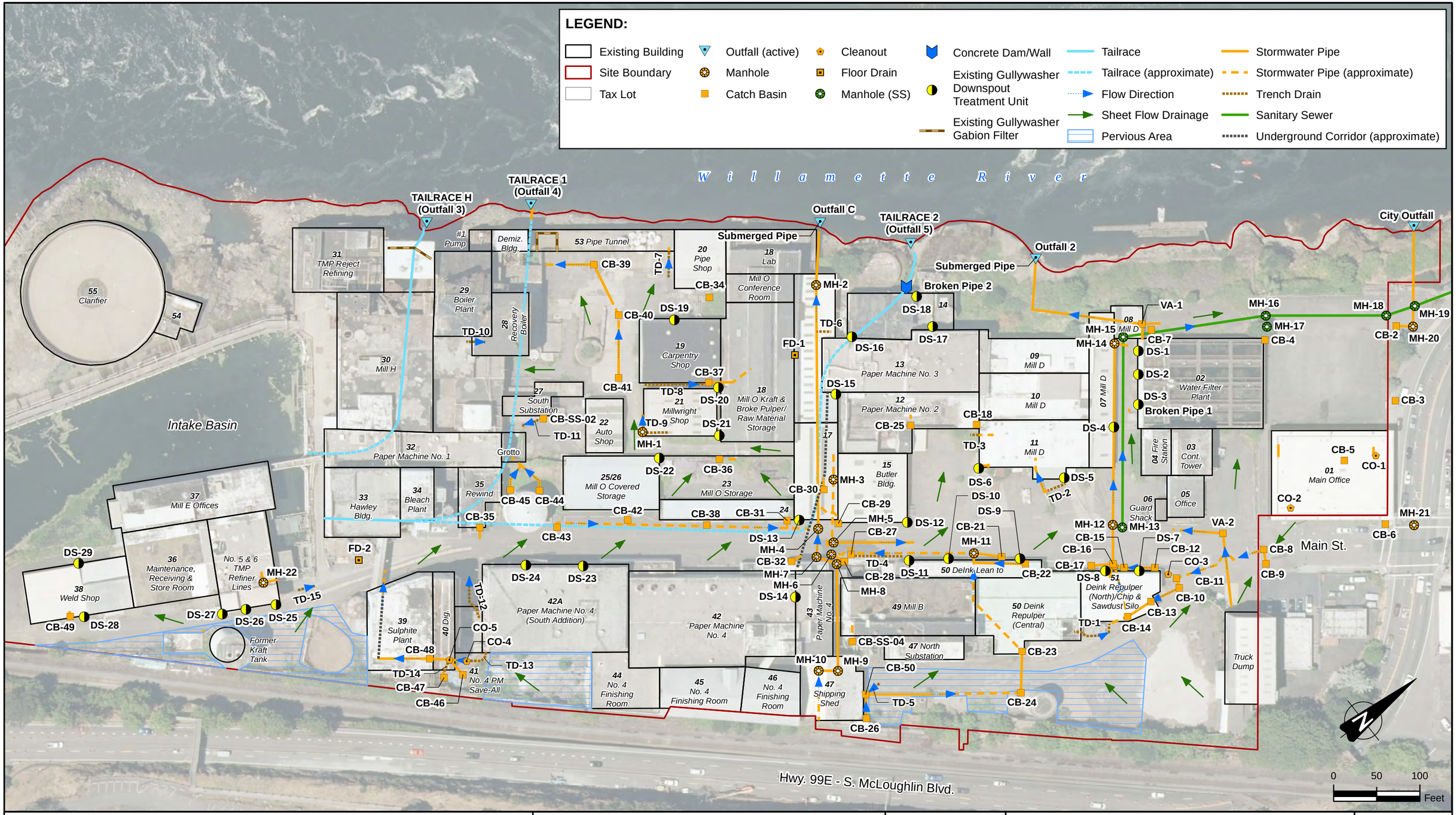
Attachments:

Attachment A – Figures
- Figure 1 - Stormwater Site Plan
- Figure 2 – Stormwater Initial BMP Implementation, February 2021
- Figure 3 – Drainage Basins
- Figures 3A-3D – Drainage Basins (large scale version)

Attachment B – Site Photographs
Attachment C – Stormwater Conveyance System Source Control Summary Table

c: Stacia Hernandez – CTGR
Ryan Webb - CTGR

Attachment A:
Figures



	CONFEDERATED TRIBES OF THE GRAND RONDE		FORMER BLUE HERON PAPER MILL 419 MAIN STREET, OREGON CITY, OREGON
	Wood Environment & Infrastructure Solutions, Inc. 15862 SW 72nd Ave., Suite 150 Portland, OR 97224	wood.	STORMWATER SITE PLAN

DATE: DECEMBER 2021
SCALE: 1 " = 105 '
PROJECT NO.: 961M13558.04
FIGURE: 1

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K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 1 - Stormwater Site Plan.mxd - stephane.descombes - 12/21/2021 - 12:04:38 PM

LEGEND:

- Existing Building
- Site Boundary
- Tax Lot
- Outfall (active)
- Manhole
- Catch Basin
- Cleanout
- Floor Drain
- Manhole (SS)
- Concrete Dam/Wall
- Existing Gullywasher Downspout Treatment Unit
- Existing Gullywasher Gabion Filter
- Tailrace
- Tailrace (approximate)
- Flow Direction
- Sheet Flow Drainage
- Pervious Area
- Stormwater Pipe
- Stormwater Pipe (approximate)
- Trench Drain
- Sanitary Sewer
- Underground Corridor (approximate)

Initial Best Management Practices

- Vac-Out Manhole
- Vac-Out Catch Basin, Install Fabric Insert and Wattles/Booms
- Vac-Out Trench Drain
- Street Sweeping (~4.18 acres)
- Replace Sandbag Berm

*NOTE: Vac-Out to Remove All Sediment and Water

Willamette River

TAILRACE H (Outfall 3)
TAILRACE 1 (Outfall 4)
Outfall C
TAILRACE 2 (Outfall 5)
Outfall 2
City Outfall
Submerged Pipe
Submerged Pipe
Broken Pipe 2
Broken Pipe 1

55 Clarifier
54
Intake Basin
31 TMP Reject Refining
#1 Pump
Demiz. Bldg.
53 Pipe Tunnel
20 Pipe Shop
18 Lab
Mill O Conference Room
29 Boiler Plant
28 Recovery Boiler
30 Mill H
19 Carpentry Shop
27 South Substation
21 Millwright Shop
22 Auto Shop
18 Mill O Kraft & Broke Pulper/ Raw Material Storage
32 Paper Machine No. 1
Grotto
37 Mill E Offices
33 Hawley Bldg.
34 Bleach Plant
35 Rewind
25/26 Mill O Covered Storage
23 Mill O Storage
15 Butler Bldg.
13 Paper Machine No. 3
12 Paper Machine No. 2
09 Mill D
10 Mill D
11 Mill D
08 Mill D
07 Mill D
04 Fire Station
03 Cont. Tower
02 Water Filter Plant
01 Main Office
06 Guard Shack
05 Office
36 Maintenance, Receiving & Store Room
No. 5 & 6 TMP Refiner Lines
38 Weld Shop
Former Kraft Tank
39 Sulphite Plant
40 Dig
42A Paper Machine No. 4 (South Addition)
42 Paper Machine No. 4
43 Paper Machine No. 4
44 No. 4 Finishing Room
45 No. 4 Finishing Room
46 No. 4 Finishing Room
41 No. 4 PM Save-All
49 Mill B
50 Deink Repulper (Central)
50 Delnk Lean to
51 Deink Repulper (North)/Chip & Sawdust Silo
47 North Substation
47 Shipping Shed
Truck Dump

CB-39, CB-34, CB-40, DS-19, TD-7, TD-10, CB-41, CB-37, TD-8, DS-20, DS-21, TD-9, MH-1, DS-22, CB-36, CB-SS-02, TD-11, CB-45, CB-44, CB-35, CB-42, CB-43, CB-38, CB-31, CB-30, MH-3, CB-29, MH-5, DS-12, CB-27, DS-13, MH-4, CB-32, MH-7, MH-6, DS-14, CB-28, TD-4, DS-11, MH-8, DS-24, DS-23, FD-1, MH-2, TD-6, DS-16, DS-18, DS-17, DS-15, CB-25, CB-18, TD-3, DS-6, DS-10, DS-9, CB-21, MH-11, CB-22, DS-5, TD-2, DS-4, VA-1, MH-16, MH-15, MH-14, CB-7, DS-1, DS-2, DS-3, CB-4, MH-17, MH-18, MH-19, CB-2, MH-20, CB-3, CB-5, CO-1, CO-2, MH-21, CB-6, MH-12, MH-13, VA-2, DS-7, CB-15, CB-16, CB-12, CB-17, DS-8, CO-3, CB-11, CB-10, CB-13, CB-14, TD-1, CB-8, CB-9, Main St., CB-23, CB-24, CB-50, TD-5, CB-26, CB-SS-04, MH-10, MH-9, FD-2, DS-29, DS-28, CB-49, DS-27, DS-26, DS-25, MH-22, TD-15, CB-48, TD-14, CB-47, CB-46, TD-12, CO-5, CO-4, TD-13, Hwy. 99E - S. McLoughlin Blvd.

0 50 100 Feet

DRAWN BY: PM CHECKED BY: DS

	CONFEDERATED TRIBES OF THE GRAND RONDE		FORMER BLUE HERON PAPER MILL 419 MAIN STREET, OREGON CITY, OREGON
	Wood Environment & Infrastructure Solutions, Inc. 15862 SW 72nd Ave., Suite 150 Portland, OR 97224	wood.	STORMWATER INITIAL BMP IMPLEMENTATION

DATE: DECEMBER 2021
SCALE: 1 " = 105 '
PROJECT NO.: 961M13558.04
FIGURE: 2

K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 2 - Stormwater Initial BMP Implementation.mxd - stephane.descombes - 12/21/2021 - 12:15:48 PM

LEGEND:

- Existing Building
- Site Boundary
- Outfall (active)
- Manhole
- Catch Basin
- Cleanout
- Floor Drain
- Manhole (SS)
- Concrete Dam/Wall
- Existing Gullywasher Downspout Treatment Unit
- Existing Gullywasher Gabion Filter
- Tailrace
- Tailrace (approximate)
- Flow Direction
- Sheet Flow Drainage
- Pervious Area
- Stormwater Pipe
- Stormwater Pipe (approximate)
- Trench Drain
- Sanitary Sewer
- Underground Corridor (approximate)

Drainage Basin

- Basin A - 43,826 sq. ft.
- Basin B - 85,472 sq. ft. (Tailrace H)
- Basin C - 151,508 sq. ft. (Tailrace 1)
- Basin D - 267,210 sq. ft. (Tailrace 2)
- Basin E - 158,535 sq. ft. (City SS/Storm)
- Basin F - 15,207 sq. ft. (Outfall 2)

Willamette River

TAILRACE H (Outfall 3)

TAILRACE 1 (Outfall 4)

Outfall C appears to only be off-site flow from Hwy. 99

Outfall C

TAILRACE 2 (Outfall 5)

Outfall 2

City Outfall

Submerged Pipe

Submerged Pipe

Broken Pipe 2

Broken Pipe 1

Intake Basin

55 Clarifier

54

31 TMP Reject Refining

#1 Pump

Demiz. Bldg.

53 Pipe Tunnel

20 Pipe Shop

18 Lab

Mill O Conference Room

29 Boiler Plant

28 Recovery Boiler

30 Mill H

19 Carpentry Shop

27 South Substation

21 Millwright Shop

22 Auto Shop

18 Mill O Kraft & Broke Pulper/ Raw Material Storage

32 Paper Machine No. 1

Grotto

25/26 Mill O Covered Storage

23 Mill O Storage

33 Hawley Bldg.

34 Bleach Plant

35 Rewind

37 Mill E Offices

36 Maintenance, Receiving & Store Room

No. 5 & 6 TMP Refiner Lines

38 Weld Shop

Former Kraft Tank

39 Sulphite Plant

40 Dig.

41 No. 4 PM Save-All

42A Paper Machine No. 4 (South Addition)

42 Paper Machine No. 4

43 Paper Machine No. 4

44 No. 4 Finishing Room

45 No. 4 Finishing Room

46 No. 4 Finishing Room

47 Shipping Shed

49 Mill B

50 DeInk Lean to

50 Deink Repulper (Central)

47 North Substation

15 Butler Bldg.

17

24

14

13 Paper Machine No. 3

12 Paper Machine No. 2

09 Mill D

10 Mill D

11 Mill D

08 Mill D

07 Mill D

04 Fire Station

03 Cont. Tower

01 Main Office

06 Guard Shack

05 Office

51 Deink Repulper (North)/Chip & Sawdust Silo

02 Water Filter Plant

Truck Dump

Main St.

Hwy. 99E - S. McLoughlin Blvd.

Discharge from Hwy. 99 enters site here & flows to Outfall C

CB-39, CB-34, CB-40, CB-37, CB-41, CB-SS-02, CB-36, CB-45, CB-44, CB-35, CB-42, CB-43, CB-24, CB-23, CB-48, CB-47, CB-46, CB-30, CB-29, CB-31, CB-38, CB-27, CB-32, CB-28, CB-SS-04, CB-50, CB-26, CB-18, CB-25, CB-22, CB-23, CB-24, CB-15, CB-16, CB-17, CB-12, CB-11, CB-10, CB-13, CB-14, CB-9, CB-8, CB-7, CB-4, CB-2, CB-3, CB-5, CB-6, CO-1, CO-2, CO-3, CO-4, CO-5

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MH-22, MH-1, MH-2, MH-3, MH-5, MH-4, MH-7, MH-6, MH-8, MH-10, MH-9, MH-11, MH-12, MH-13, MH-15, MH-14, MH-16, MH-17, MH-18, MH-19, MH-20, MH-21

TD-15, TD-10, TD-7, TD-12, TD-11, TD-9, TD-8, TD-6, TD-14, TD-13, TD-5, TD-4, TD-3, TD-2, TD-1

FD-2, FD-1

VA-1, VA-2

0 50 100 Feet

DRAWN BY: PM CHECKED BY: DS

K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 3 - Drainage Basins.mxd - stephane.descombes - 12/21/2021 - 12:16:19 PM

CONFEDERATED TRIBES OF THE GRAND RONDE

Wood Environment & Infrastructure Solutions, Inc.
15862 SW 72nd Ave., Suite 150
Portland, OR 97224

wood.

FORMER BLUE HERON PAPER MILL
419 MAIN STREET, OREGON CITY, OREGON

DRAINAGE BASINS

DATE: DECEMBER 2021
SCALE: 1 " = 105 '
PROJECT NO.: 961M13558.04
FIGURE: 3

Willamette River

TAILRACE 1 (Outfall 4)

TAILRACE H (Outfall 3)

31 TMP Reject Refining

#1 Pump

Demiz. Bldg.

53 Pipe Tunnel

29 Boiler Plant

28 Recovery Boiler

55 Clarifier

54

30 Mill H

27 South Substation

TD-11

Intake Basin

32 Paper Machine No. 1

Grotto

33 Hawley Bldg.

34 Bleach Plant

35 Rewind

CB-45

CB-35

37 Mill E Offices

36 Maintenance, Receiving & Store Room

No. 5 & 6 TMP Refiner Lines

FD-2

DS-24

42A Paper Machine No. 4 (South Addition)

DS-29

MH-22

TD-15

TD-12

38 Weld Shop

DS-25

DS-26

DS-27

DS-28

CB-49

39 Sulphite Plant

40 Dig.

41 No. 4 PM Save-All

Former Kraft Tank

CB-48

CO-5

TD-13

CO-4

TD-14

CB-47

CB-46

Hwy. 99E - S. McLoughlin Blvd.

LEGEND:

- Outfall (active)
- Manhole
- Catch Basin
- Cleanout
- Floor Drain
- Existing Gullywasher Downspout Treatment Unit
- Existing Gullywasher Gabion Filter
- Stormwater Pipe
- Stormwater Pipe (approximate)
- Trench Drain
- Underground Corridor (approximate)
- Tailrace
- Tailrace (approximate)
- Flow Direction
- Sheet Flow Drainage
- Pervious Area
- Site Boundary
- Existing Building

Drainage Basin

- Basin A - 43,826 sq. ft.
- Basin B - 85,472 sq. ft. (Tailrace H)
- Basin C - 151,508 sq. ft. (Tailrace 1)
- Basin D - 267,210 sq. ft. (Tailrace 2)

N

0 30 60 Feet

CONFEDERATED TRIBES OF THE GRAND RONDE

FORMER BLUE HERON PAPER MILL
419 MAIN STREET, OREGON CITY, OREGON

DATE: DECEMBER 2021

SCALE: 1 " = 60 '

PROJECT NO.: 961M13558.04

FIGURE: 3A

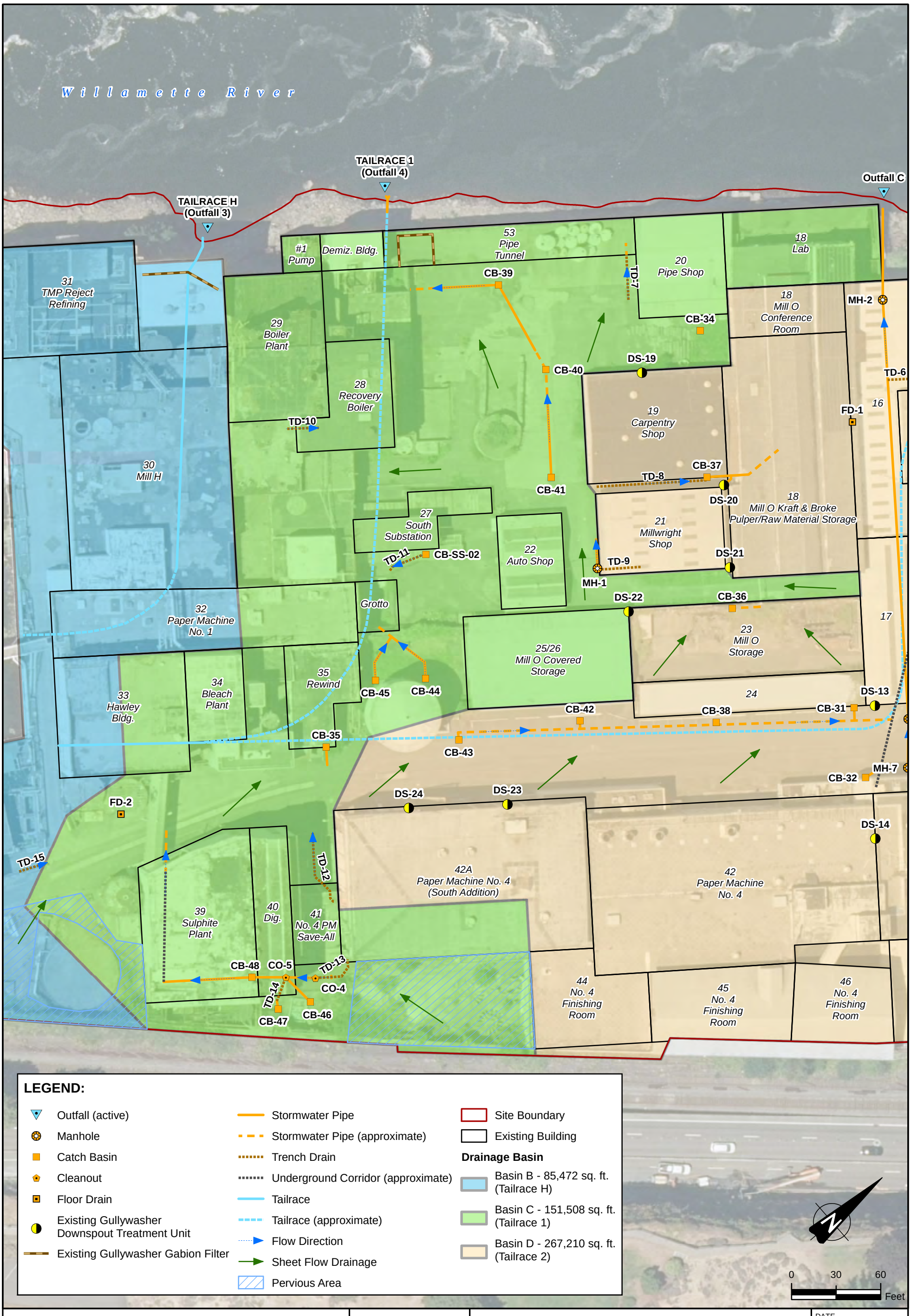
BASIN A AND B

Wood Environment & Infrastructure Solutions, Inc.
15862 SW 72nd Ave., Suite 150
Portland, OR 97224

wood.

DRAWN BY: SD CHECKED BY: MB

K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 3A-D - Drainage Basins Mapbook Portrait.mxd - stephane.descombes - 12/21/2021 - 2:41:36 PM



LEGEND:

- Outfall (active)
- Manhole
- Catch Basin
- Cleanout
- Floor Drain
- Existing Gullywasher Downspout Treatment Unit
- Existing Gullywasher Gabion Filter
- Stormwater Pipe
- Stormwater Pipe (approximate)
- Trench Drain
- Underground Corridor (approximate)
- Tailrace
- Tailrace (approximate)
- Flow Direction
- Sheet Flow Drainage
- Pervious Area
- Site Boundary
- Existing Building

Drainage Basin

- Basin B - 85,472 sq. ft. (Tailrace H)
- Basin C - 151,508 sq. ft. (Tailrace 1)
- Basin D - 267,210 sq. ft. (Tailrace 2)

CONFEDERATED TRIBES OF THE GRAND RONDE

FORMER BLUE HERON PAPER MILL
419 MAIN STREET, OREGON CITY, OREGON

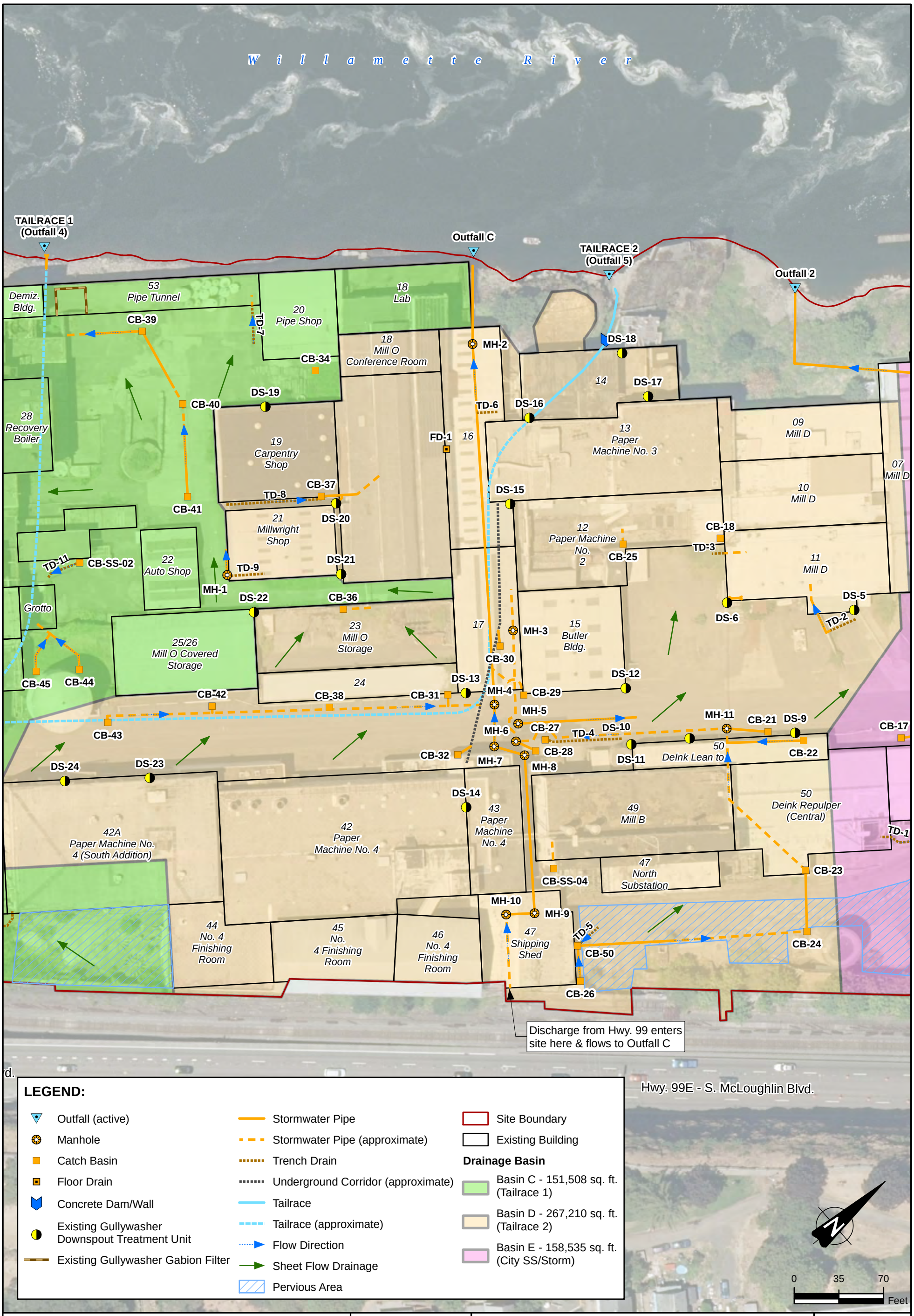
Wood Environment & Infrastructure Solutions, Inc.
15862 SW 72nd Ave., Suite 150
Portland, OR 97224

BASIN C

DATE: DECEMBER 2021
SCALE: 1 " = 60 '
PROJECT NO.: 961M13558.04
FIGURE: 3B

DRAWN BY: SD CHECKED BY: MB

K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 3A-D - Drainage Basins Mapbook Portrait.mxd - stephane.descombes - 12/21/2021 - 2:41:56 PM



LEGEND:

- Outfall (active)
- Manhole
- Catch Basin
- Floor Drain
- Concrete Dam/Wall
- Existing Gullywasher Downspout Treatment Unit
- Existing Gullywasher Gabion Filter
- Stormwater Pipe
- Stormwater Pipe (approximate)
- Trench Drain
- Underground Corridor (approximate)
- Tailrace
- Tailrace (approximate)
- Flow Direction
- Sheet Flow Drainage
- Pervious Area
- Site Boundary
- Existing Building

Drainage Basin

- Basin C - 151,508 sq. ft. (Tailrace 1)
- Basin D - 267,210 sq. ft. (Tailrace 2)
- Basin E - 158,535 sq. ft. (City SS/Storm)

CONFEDERATED TRIBES OF THE GRAND RONDE

FORMER BLUE HERON PAPER MILL
419 MAIN STREET, OREGON CITY, OREGON

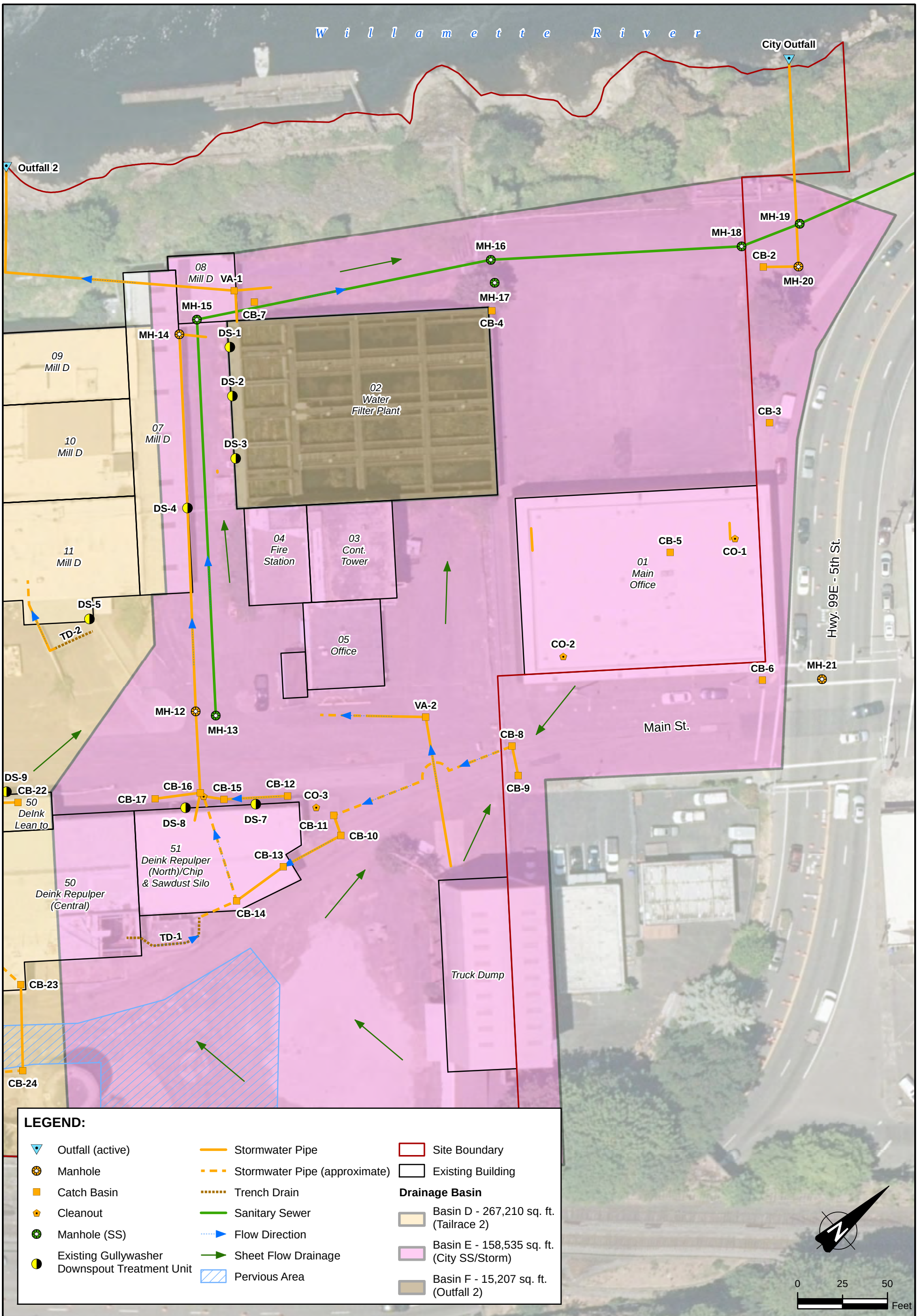
DATE: DECEMBER 2021
SCALE: 1 " = 70 '
PROJECT NO.: 961M13558.04
FIGURE: 3C

Wood Environment & Infrastructure Solutions, Inc.
15862 SW 72nd Ave., Suite 150
Portland, OR 97224

BASIN D

DRAWN BY: SD CHECKED BY: MB

K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 3A-D - Drainage Basins Mapbook Portrait.mxd - stephane.descombes - 12/21/2021 - 2:42:17 PM



CONFEDERATED TRIBES
OF THE GRAND RONDE

FORMER BLUE HERON PAPER MILL
419 MAIN STREET, OREGON CITY, OREGON

DATE
DECEMBER 2021

SCALE
1 " = 50 '

PROJECT NO.
961M13558.04

FIGURE
3D

BASIN E AND F

Wood Environment &
Infrastructure Solutions, Inc.
15862 SW 72nd Ave., Suite 150
Portland, OR 97224

DRAWN BY: SD CHECKED BY: MB

K:\13000\13500\13558\13558\dwg_Stormwater_October 2021\Figure 3A-D - Drainage Basins Mapbook Portrait.mxd - stephane.descombes - 12/21/2021 - 2:42:36 PM

Attachment B:
Site Photographs

Photo 1: View of Locates Down Under examining Catch Basin (CB)-43.

Photo 2: View of CB-43.

wood.

15862 SW 72nd Ave, Suite 150
Portland, Oregon 97224

PROJECT NO.: 961M135580
PROCESSED: 10/11/2021
DATE 10/21/2021
PAGE 1

Former Blue Heron
Oregon City, Oregon

PHOTOGRAPH LOG

Photo 3: Inside view of CB-43.

Photo 4: View of stormwater line along vacated Main Street.

Photo 5: View of knife gate at Tailrace 1 (Outfall 4) discharge area.

Photo 6: View of inside Pipe Tunnel.

Attachment C:
Stormwater Conveyance System
Source Control Summary Table

BLUE HERON STORMWATER FEATURE SOURCE CONTROL INVESTIGATION

Last Updated: 12/23/2021

General Info						Source Investigation Notes					
Feature ID	Feature Type	Size	Depth	Basin	Initial Sediment Depth, Sept 24-25, 2020	Condition	BMPs Implemented	Sampling	Scoping	Cleaning	Notes
CB-1	Catch Basin	Not Measured		E	Not measured	Unknown	None	None	None	None	Off-Site
CB-2	Catch Basin	Not measured		E	Not measured	Unknown	None	None	None	None	Off-Site
CB-3	Catch Basin	Not measured		E	Not measured	Unknown	None	None	None	None	Off-Site
CB-4	Catch Basin	Not measured		E	Not measured	Unknown	None	None	None	None	Off-Site
CB-5	Catch Basin	Not measured		E	Not measured	Unknown	None	None	None	None	Off-Site
CB-6	Catch Basin	Not measured		E	Not measured	Unknown	None	None	None	None	Off-Site
CB-7	Catch Basin	28" x 12"	24"	E	3"	Clear	Fabric Insert	Sediment	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-8	Catch Basin	30" diameter	27"	E	3"	Outlet clogged	Fabric Insert	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-9	Catch Basin	15" x 15"	20"	E	15"	Clear	Fabric Insert	Sediment	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-10	Catch Basin	30" diameter	40"	E	6"	Clear	Fabric Insert	Sediment	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-11	Catch Basin	30" diameter	48"	E	4"	Inlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-12	Catch Basin	17" diameter	11"	E	2"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-13	Catch Basin	30" diameter	65"	E	12"	Clear	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-14	Catch Basin	30" diameter	69"	E	11"	Unable to open	?	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-15	Catch Basin	18" diameter	20"	E	2"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-16	Catch Basin	30" diameter	88"	E	12"	Clear	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-17	Catch Basin	17" diameter	26"	E	7"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-18	Catch Basin	24" x 24"	?	D	Full	Full of sediment	None	None	Unconfirmed	None	Further investigation required
CB-21	Catch Basin	27" x 11"	10"	D	9"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-22	Catch Basin	14" x 10"	5"	D	0.25"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-23	Catch Basin	32" x 32"	25"	D	14"	Clear	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-24	Catch Basin	54" x 36"	28"	D	2"	Inlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-25	Catch Basin	24" x 24"	31"	D	32.5"	Outlet clogged	None	None	Unconfirmed	None	Further investigation required
CB-26	Catch Basin	24" x 24"	43"	D	13"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-27	Catch Basin	58" x 35"	96"	D	4"	Clear	Fabric Insert	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-28	Catch Basin	28" x 14"	32"	D	5"	Clear	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-29	Catch Basin	24" x 24"	30"	D	32"	Full of sediment	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-30	Catch Basin	18" x 18"	92"	D	1"	Clear	Fabric Insert	None	Confirmed	None	Connections confirmed
CB-31	Catch Basin	24" x 24"	30"	D	24"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-32	Catch Basin	26" x 23"	9.5"	D	2"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-34	Catch Basin	15" diameter	36.5"	C	14"	Full of Water	Fabric Insert	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-35	Catch Basin	24" x 24"	30"	C	26"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-36	Catch Basin	24" x 24"	36"	D	18"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-37	Catch Basin	24" x 24"	30"	D	15"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-38	Catch Basin	24" x 24"	32"	D	20"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-39	Catch Basin	28" x 13"	18"	C	0"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-40	Catch Basin	24" x 24"	17"	C	17"	Full of sediment	None	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-41	Catch Basin	24" x 24"	17"	C	19"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-42	Catch Basin	24" x 24"	30"	D	17"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-43	Catch Basin	24" x 24"	32"	D	15"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-44	Catch Basin	?	?	C	?	Outlet clogged	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-45	Catch Basin	11.5" diameter	6"	C	1"	Outlet clogged	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-46	Catch Basin	18" x 18"	18"	C	3"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-47	Catch Basin	27" x 18"	18.5"	C	2.5"	Clear	Fabric Insert	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-48	Catch Basin	12" x 12"	13"	C	3.5"	Clear	Fabric Insert	Sediment	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-49	Catch Basin	24" x 24"	30"	B	24.5"	Outlet clogged	Fabric Insert	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-50	Catch Basin	35" x 25"	33"	D	16.5"	Outlet clogged	Fabric Insert	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
CB-SS-02	Catch Basin	36" x 24"	14"	C	11.5"	Clear	None	Sediment	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
CB-SS-04	Catch Basin	24" x 21"	81"	D	4"	Outlet clogged	Fabric Insert	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required

General Info						Source Investigation Notes					
Feature ID	Feature Type	Size	Depth	Basin	Initial Sediment Depth, Sept 24-25, 2020	Condition	BMPs Implemented	Sampling	Scoping	Cleaning	Notes
MH-1	Manhole	24" diameter	38"	C	6"	Outlet clogged	None	Sediment	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
MH-2	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-3	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-4	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-5	Manhole	24" diameter	?	D	Not measured	Outlet clogged	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
MH-6	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
MH-7	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-8	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-9	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-10	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-11	Manhole	24" diameter	?	D	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-12	Manhole	24" diameter	?	E	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-13	Manhole	24" diameter	?	E	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-14	Manhole	24" diameter	?	E	Not measured	Too deep/large for rodder	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
MH-15	Manhole	24" diameter	?	E	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
MH-16	Manhole	24" diameter	?	E	Not measured	?	?	None	None	None	Further investigation required
MH-17	Manhole	24" diameter	?	E	Not measured	?	?	None	None	None	Further investigation required
MH-18	Manhole	24" diameter	?	E	Not measured	?	?	None	None	None	Further investigation required
MH-19	Manhole	24" diameter	?	E	Not measured	?	?	None	None	None	Further investigation required
MH-20	Manhole	24" diameter	?	E	Not measured	?	?	None	None	None	Further investigation required
MH-21	Manhole	24" diameter	?	E	Not measured	?	?	None	None	None	Further investigation required
MH-22	Manhole	24" diameter	?	B	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
VA-1	Vault	12" x 12"	?	E	Not measured	Too deep/large for rodder	None	None	Unconfirmed	None	Further investigation required
VA-2	Vault	24" x 24"	?	E	Not measured	Inlet/outlet clogged	None	None	Unconfirmed	None	Further investigation required
CO-1	Cleanout	?	?	E	Not measured	?	?	None	None	None	Further investigation required
CO-2	Cleanout	?	?	E	Not measured	?	?	None	None	None	Further investigation required
CO-3	Cleanout	?	?	E	Not measured	?	?	None	None	None	Further investigation required
CO-4	Cleanout	?	?	C	Not measured	Clear	None	None	Confirmed	None	Connections confirmed
CO-5	Cleanout	?	?	C	Not measured	Clear	None	None	Confirmed	None	Connections confirmed
FD-1	Floor Drain	8" diameter	N/A	D	Not measured	Too small for rodder	None	None	Unconfirmed	None	Further investigation required
FD-2	Floor Drain	8" diameter	N/A	C	Not measured	Too small for rodder	None	None	Unconfirmed	None	Connections confirmed
TD-1	Trench Drain	?	?	E	Not measured	Clear	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-2	Trench Drain	?	?	D	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-3	Trench Drain	?	?	D	Not measured	Full of sediment	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-4	Trench Drain	?	?	D	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-5	Trench Drain	?	?	D	Not measured	Full of sediment	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-6	Trench Drain	?	?	D	Not measured	Grate stuck	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-7	Trench Drain	?	?	C	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
TD-8	Trench Drain	?	?	D	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
TD-9	Trench Drain	?	?	D	Not measured	Full of sediment	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-10	Trench Drain	?	?	C	Not measured	Grate stuck	None	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
TD-11	Trench Drain	?	?	C	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
TD-12	Trench Drain	?	?	C	Not measured	?	?	None	None	Cleaned Jan/Feb 2021	Further investigation required
TD-13	Trench Drain	?	?	C	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
TD-14	Trench Drain	?	?	C	Not measured	Clear	None	None	Confirmed	Cleaned Jan/Feb 2021	Connections confirmed
TD-15	Trench Drain	?	?	B	Not measured	?	?	None	Unconfirmed	Cleaned Jan/Feb 2021	Further investigation required
DS-1	Downspout Unit	275 gal tote	N/A	E	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-2	Downspout Unit	275 gal tote	N/A	E	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-3	Downspout Unit	275 gal tote	N/A	E	N/A	Broken inlet pipe, overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-4	Downspout Unit	275 gal tote	N/A	E	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-5	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown

General Info						Source Investigation Notes					
Feature ID	Feature Type	Size	Depth	Basin	Initial Sediment Depth, Sept 24-25, 2020	Condition	BMPs Implemented	Sampling	Scoping	Cleaning	Notes
DS-6	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-7	Downspout Unit	275 gal tote	N/A	E	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-8	Downspout Unit	275 gal tote	N/A	E	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-9	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-10	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-11	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-12	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-13	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-14	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-15	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-16	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-17	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-18	Downspout Unit	275 gal tote	N/A	D	N/A	Broken inlet pipe, overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-19	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-20	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-21	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-22	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-23	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-24	Downspout Unit	275 gal tote	N/A	D	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-25	Downspout Unit	275 gal tote	N/A	B	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-26	Downspout Unit	275 gal tote	N/A	B	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-27	Downspout Unit	275 gal tote	N/A	B	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-28	Downspout Unit	275 gal tote	N/A	B	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
DS-29	Downspout Unit	275 gal tote	N/A	A	N/A	Overgrown, needs to be sampled	Gravity Biofilter	None	N/A	None	Overgrown
City Outfall	Outfall	?	N/A	E	N/A	?	?	None	None	None	
Outfall 2	Outfall	?	N/A	E	N/A	?	?	None	None	None	
Tailrace 2	Outfall	Tailrace	N/A	D	N/A	?	?	Stormwater	None	None	
Outfall C	Outfall	?	N/A	D	N/A	?	?	Stormwater	None	None	
Tailrace 1	Outfall	Tailrace	N/A	C	N/A	?	?	Stormwater	None	None	
Tailrace H	OUtfall	Tailrace	N/A	B	N/A	?	?	Stormwater	None	None	