

AKS: UPDATED STORMWATER REPORT NOT INCLUDED IN RESUBMITTAL DUE TO MINOR COMMENTS. FINAL DESIGN WILL ADDRESS REMAINING COMMENTS.

Pages from DS Comments_Stormwater Report_1105 Front Street NE_24-106451-PLN.pdf Markup Summary

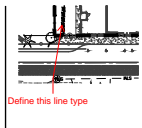
Callout (5)



Subject: Callout
Page Label: 4
Author: roseh
Date: 4/5/2024 8:46:56 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:57:18 AM
Color: ■
Layer:
Space:

In future submittals please clarify line type. This appears to be basin boundary.

AKS: WILL BE INCLUDED WITH FINAL DESIGN / NEXT STORMWATER SUBMITTAL.



Subject: Callout
Page Label: 4
Author: roseh
Date: 4/5/2024 8:47:22 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:57:22 AM
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Define this line type

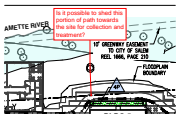
AKS: WILL BE INCLUDED WITH FINAL DESIGN / NEXT STORMWATER SUBMITTAL.



Subject: Callout
Page Label: 3
Author: roseh
Date: 4/5/2024 9:12:30 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:57:41 AM
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This discretionary approach only applies to land use review for whether GSI to the MEF is provided. Large projects must provide water quality treatment according to SRC Ch 71 which requires management of runoff from all project impervious areas.

AKS: WATER QUALITY TREATMENT IS PROVIDED FOR NEW IMPERVIOUS AREA. LOTS 5/6 HAVE 10% AREA SET ASIDE BUT TO BE FUTHER DESIGNED WITH PHASE 2 SITE PLAN REVIEW.



Subject: Callout
Page Label: 4
Author: roseh
Date: 4/5/2024 9:27:06 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:58:01 AM
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Is it possible to shed this portion of path towards the site for collection and treatment?

AKS: PLANS REVISED.

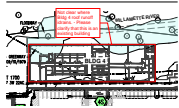
184.00 (Below Ground)	184.27	184.35
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Subject: Callout
Page Label: 3
Author: roseh
Date: 4/5/2024 10:32:57 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:58:09 AM
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Details No. 216 & 217 limit depth to 18"

AKS: DESIGN STANDARDS DONT EXPLICITLY LIST 18" MAX PONDING DEPTH. FACILITY IS PRIVATELY OWNED / MAINTAINED. WE RESPECTFULLY REQUEST APPROVAL OF PONDING DEPTHS SHOWN. FALL PROTECTION IS PROPOSED WHERE BUILDING CODE WOULD TRIGGER THE NEED FOR HANDRAILS.

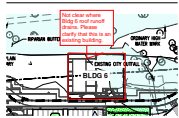
Group (2)



Subject: Group
Page Label: 4
Author: roseh
Date: 4/5/2024 9:27:52 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:57:26 AM
Color: ■
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Space:

Not clear where Bldg 4 roof runoff drains. - Please clarify that this is an existing building

EXISTING RUNOFF DRAINS TO AN OUTLET BELOW THE STRUCTURE. NO CHANGE PROPOSED TO THIS CONFIGURATION.



Subject: Group
Page Label: 4
Author: roseh
Date: 4/5/2024 9:27:42 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:57:30 AM
Color: ■
Layer:
Space:

Not clear where Bldg 6 roof runoff drains. Please clarify that this is an existing building.

EXISTING RUNOFF DRAINS TO AN OUTLET BELOW THE STRUCTURE. NO CHANGE PROPOSED TO THIS CONFIGURATION.

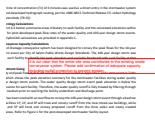
Text Box (2)



Subject: Text Box
Page Label: 1
Author: roseh
Date: 4/5/2024 9:22:05 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:57:58 AM
Color: ■
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Space:

Please add statement about existing buildings intending to remain on-site.

INCLUDED IN NARRATIVE



Subject: Text Box
Page Label: 2
Author: roseh
Date: 4/5/2024 10:43:51 AM
Status: Accepted set by LChristian on 4/19/2024 at 9:58:05 AM
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It is not clear that the entire site area contributes to the existing onsite conveyance system. Please add confirmation of adequate capacity including outfall protection to prevent erosion.

EXISTING CITY STORM OUTFALL HAS OUTFALL PROTECTION AND THE SITE CONTRIBUTED AREA IS SMALL IN COMPARISON TO THE BASIN AND VOLUME OF RUNOFF DRAINING TO THE PIPE/OUTFALL. THIS CAN BE CLARIFIED WITH FINAL STORMWATER REPORT.

Preliminary Stormwater Report

THE CANNERY

SALEM, OREGON

1.0 Purpose of Report

The purpose of this report is to demonstrate compliance with the City of Salem (City) stormwater criteria for land use and site plan review applications. This report is an analysis of the effects the proposed development will have on the existing stormwater conveyance system; document the criteria, methodology, and informational sources used to design the proposed stormwater system; and present the results of the analysis.

2.0 Project Overview and Description

2.1. Size and Location of Project Site

The project site subject to this stormwater report is ±7.6 acres of the overall site area (±13.6 acres), located at 1105 Front Street NE, Salem, Marion County, Oregon, Tax Lot 900 of Marion County Assessor's Map 7 3W 22AB. The remaining acreage on the property is anticipated to be developed in a similar manner as a separate phase, but no plans have been confirmed at this time.

2.2. Property Scope and Proposed Improvements

The property is zoned MU-R (Mixed Use-Riverfront). The proposed development involves restoring three existing buildings along the Willamette River, and three new mixed-use buildings including associated parking lots, landscaped areas, utilities, and infrastructure.

2.3. Watershed Description

Current site runoff flows into an existing public stormwater system that ultimately discharges to the Willamette River through existing culverts.

Runoff from the proposed development will be conveyed to several Green Stormwater Infrastructure (GSI) facilities that will provide water quality treatment per City standards. After being treated, runoff will discharge to the existing public storm main that is in the Gaines Street project entrance. Due to the site's location adjacent to the Willamette River **INCLUDED IN NARRATIVE** red based on city feedback and subsequent discussions.

Please add statement about existing buildings intending to remain on-site.

2.4. Existing Site Conditions

The site currently contains a commercial food distribution warehouse and an abandoned industrial cannery with associated buildings and parking areas. The site up to the top of bank is relatively flat with on-site grades averaging 1.0 percent. Below the top of bank, the site is steep with grades up to 50 percent. The site slopes from a high point of ±150.25 feet in the northeast corner to a low point of ±142.86 at the existing storm area drain in the southwest corner of the site.

2.5. Existing Trees and Native Vegetation Impact/Preservation

The portion of the site that is within the riparian buffer and bank slopes includes various trees and vegetation. The remainder of the site is relatively clear of vegetation and is developed. Selected existing trees will be removed as part of the development in accordance with City standards. The majority of the trees and vegetation within the riparian buffer are to remain and will be protected during development.

4.2. Design Assumptions

The design of the stormwater system was analyzed for runoff generated by the City's water quality and the 100-year 24-hour design storm events. Due to the site's location adjacent to the Willamette River, flow control/detention is not a project requirement per City feedback and subsequent discussions.

The following 24-hour rainfall intensities were used for the design storm for the recurrence interval:

Table 4-1: Rainfall Intensities

Recurrence Interval (Years)	Total Precipitation Depth (inches)
Water Quality	1.38
100-year	4.40

The following runoff curve numbers (CN) were used for this analysis:

- Post-Developed – CN = 98; for the preliminary analysis it was assumed that each full basin area was 100 percent impervious surface.
- Growing Medium Filtration Rate = 2.0 inches/hour

A time of concentration for the pre-developed condition was not determined due to the facilities only providing water quality treatment and conveyance.

A minimum time of concentration (Tc) of 6 minutes was used as a direct entry in the stormwater system model for post-developed hydrograph routing, per the 1986 NRCS *Technical Release 55: Urban Hydrology for Small Watersheds (TR-55)*.

4.3. Hydrology Calculations

Tables 4-2 and 4-3 below summarize areas tributary to each facility and the calculated elevations within each facility for post-developed peak flow rates of the water quality and 100-year design storm events. Supporting HydroCAD calculations are provided in Appendix C.

4.4. Conveyance Capacity Calculations

The proposed drainage conveyance system has been designed to convey the peak flows for the 10-year 24-hour storm event per City of Salem *Public Works Design Standards*. The 100-year design storm was analyzed for each facility to identify the peak elevation and available freeboard with each facility at that elevation.

Updated basin map.

4.5. Treatment Sizing

Water quality and peak flow HydroCAD calculations are provided in Appendix C and summarized in Table 4-3 below, which shows the peak elevation summary for the stormwater facilities during water quality and 100-year design storm events. The water quality design storm event peak elevation is below the overflow elevation for each facility. Therefore, the water quality runoff is fully treated by filtering through the growing medium prior to reaching the facility underdrain and discharge point.

It is not clear that the entire site area contributes to the existing onsite conveyance system. Please add confirmation of adequate capacity including outfall protection to prevent erosion.

Each facility has been sized with an overflow to convey the 100-year design storm event through a beehive structure. Facilities 1P, 2P, and 3P will treat and convey runoff from the new mixed-use buildings, while facilities 4P and 5P will treat and convey proposed runoff from the drive aisles and newly created impervious areas. Refer to Figure 1 for the post-developed stormwater facility layout.

Table 4-2: Impervious Area Conveyed to Facility

Subbasin ID	Source (roof, road, other)	Impervious Area (square feet)	Facility Ownership (private/public)	Facility Type	Facility Size (square feet)
1S	Roof drain, hardscapes & landscape	44,539	Private	Storm Planter	1,100
2S	Roof drain, hardscapes, & landscape	35,385	Private	Storm Planter	975
3S	Roof drain, hardscapes, & landscape	43,849	Private	Storm Planter	1,000
4S	Hardscapes & landscape	31,106	Private	Storm Planter	545
5S	Hardscapes & landscape	44,865	Private	Rain Garden	1,600

Table 4-3: Peak Elevation Summary

Facility ID	Facility Bottom Elevation (feet)	Peak Elevation, Water Quality (feet)	Beehive Overflow Elevation (feet)	Peak Elevation, 100-Year Event (feet)
1P	145.50 (Above Ground) 142.75 (Rock Bottom)	146.48	146.55	146.69
2P	144.50 (Above Ground) 141.75 (Rock Bottom)	145.27	145.35	145.47
3P	144.00 (Above Ground) 141.25 (Rock Bottom)	145.17	145.25	145.38
4P	140.50 (Above Ground) 137.75 (Rock Bottom)	142.63	142.70	142.81
5P	140.00 (Above Ground) 136.25 (Rock Bottom)	142.14	142.20	142.34

Details No. 216 & 217 limit depth to 18"

5.0 GSI Analysis

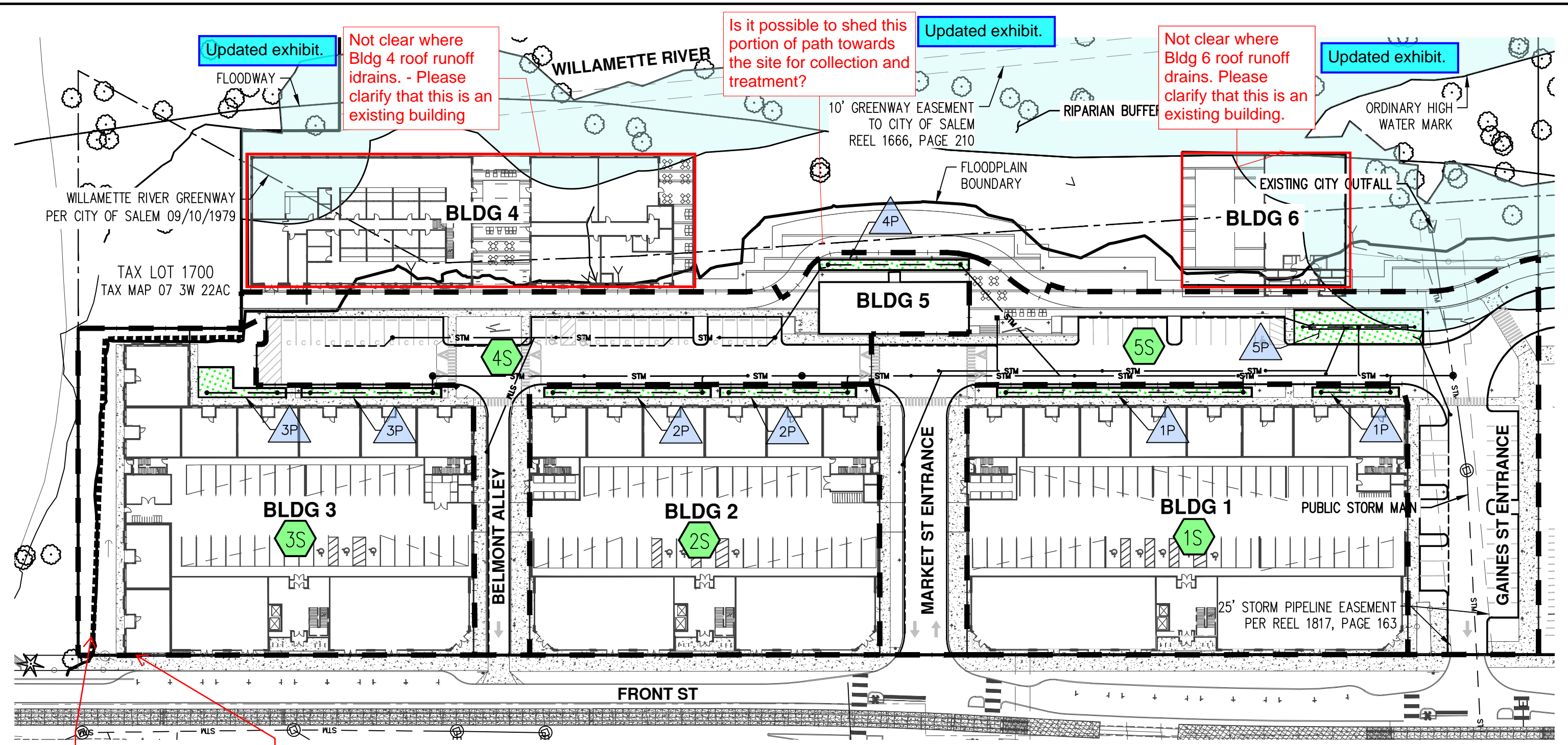
This stormwater report describes the engineering and design process that was used for design of the stormwater facilities for this project. The GSI facilities have been designed in compliance with the *Public Works Design Standards*. Supporting HydroCAD calculations are included in Appendix C.

Runoff from the buildings, parking lot, and immediate surrounding areas will be conveyed to the five proposed GSI facilities discussed previously.

The proposed storm system has been designed to treat over 80 percent of the new or replaced impervious surface and therefore meets the GSI/MEF requirement by using the discretionary approach outlined in 4E.7 of the *Public Works Design Standards*.

This discretionary approach only applies to land use review for whether GSI to the MEF is provided. Large projects must provide water quality treatment according to SRC Ch 71 which requires management of runoff from all project impervious areas.

DWG: 5968-01_20240116 BASIN MAP | 11X17-L



Updated exhibit.

Not clear where Bldg 4 roof runoff idrains. - Please clarify that this is an existing building

Is it possible to shed this portion of path towards the site for collection and treatment?

Updated exhibit.

Not clear where Bldg 6 roof runoff drains. Please clarify that this is an existing building.

Updated exhibit.

Define this line type

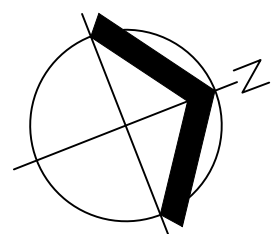
In future submittals please clarify line type. This appears to be basin boundary.

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LEGEND

SUBCATCHMENT

STORMWATER FACILITY



SCALE: 1" = 60 FEET

ORIGINAL PAGE SIZE: 11" x 17"

DATE: 01/18/2024

POST-DEVELOPED BASIN MAP		FIGURE
THE CANNERY		1
AKS ENGINEERING & FORESTRY, LLC 3700 RIVER RD N, STE 1 KEIZER, OR 97303 503.400.6028 WWW.AKS-ENG.COM		DRWN: MJM CHKD: TDR AKS JOB: 5968-01

