



Concept Plan Civil Narrative

Willamette Falls Legacy Project
February 3, 2014

Site Utilities

Existing utilities throughout the redevelopment area are mostly private lines to support the prior industrial Blue Heron Paper Mill operations, with limited public water and storm infrastructure within the vacated right-of-ways. Regardless, the existing utilities are predominantly antiquated and in poor condition, and unsuitable for reuse. Since the secondary mill operation utilities will be removed as part of the redevelopment, the existing infrastructure described below focuses on the tailraces, public utilities and private utilities in the right-of-way. The proposed infrastructure improvements are shown in the attached Conceptual Utility Plan and described in more detail below.

This information is based on site visit observations and review of previous studies, including the *Willamette Falls Legacy Project Site Stabilization and Building Assessment Report* dated January 2013, Oregon City Webmaps, the *Blue Heron Paper Mill Utility Analysis* by AKS dated November 30, 2011, and the *Willamette Falls Legacy Project Habitat and Water Resources Opportunities* report by ESA dated October 2012. A pre-application meeting was also held on December 4, 2013, to discuss potential utility improvements that would be required.

Water & Fire

Existing Water

A 10-inch cast iron public water main runs through the northern end of the site and is the primary supply to downtown Main Street. The existing main hangs vertically off the bluff, east of Highway 99E before crossing below the highway and the railroad where it enters the site at the vacated 3rd Street right-of-way. The main follows 3rd Street and turns north along Main Street, and continues north to downtown. Pressure reducing valves are located at the top of the bluff and near the intersection of Main Street and Highway 99E.

The vertical line hanging off the bluff was recently repaired in late 2013 by Oregon City crews after a cold snap froze the line and caused a leak. Oregon City is evaluating long term replacement alternatives for this line to be implemented in the next 10-20 years.

Existing Fire Protection

There is a separate, private 8-inch water line that enters the site further south, supplied from a 100,000 gallon storage tank on the bluff off High Street. This line supplies fire sprinkler systems on most, if not all of the existing buildings. It too hangs vertically off the bluff, east of Highway 99E before crossing below the highway. The line is exposed again on the west side of the highway above the railroad. It remains exposed as it drops to pass below the rail where it enters the site at the vacated 2nd Street right-of-way.



A thorough assessment of the private fire suppression pipe network connections and condition of the pipes was not conducted. Some of the distribution lines were observed hanging from the structurally supported portion of Main Street and lower levels of the buildings, but the system was not mapped. Further study is warranted to assess the system, if it is to be maintained to provide continued fire protection to the existing buildings before redevelopment.

Approximately 14 fire hydrants are located throughout the site, presumably fed from private water mains extending from the 10-inch public line within the vacated right-of-way noted above. The existing lateral locations are not shown on the maps and should be located prior to demolition.

Proposed Water

The existing 10-inch public water main should be replaced in coordination with Oregon City Water to maintain water service to downtown. It is anticipated the new line will follow the existing route through the site. New 8-inch or 10-inch laterals will extend south in Main street from 3rd Street to 1st street as well as west in 4th Street to serve future development and support fire flows to hydrants.

Proposed Fire Protection

Fire hydrants will be provided in accordance with the Oregon Fire Code. A minimum of six hydrants will be required for the site. More may be required based on the fire-flow requirements for future development. Based on initial discussions with the City, it is anticipated a 3,000 gpm fire flow will be required. The hydrants will be fed off the new main or laterals noted above.

As discussed above with Existing Fire Protection, the private fire distribution system can be abandoned and removed as the existing buildings are demolished. Fire protection for the new buildings will be served from the new water mains.

Sewer

Existing Sanitary Sewer

A 12-inch sanitary line flows north in Main Street from 3rd and 4th Street. An 8-inch line also flows south in Main from 5th to 4th Street where it ties into the 12-inch line. There are other secondary sewer lines from the northern part of the site that connect to this system. The main continues west in 4th Street and north in Water Street before it ties into the Tri-City Service District Willamette Interceptor at the intersection of Water Street and Highway 99E.

During a site visit, it was verified that an existing storm manhole at 3rd Street and Main had been modified to divert low flows from an 18-inch storm line flowing west in 3rd Street to the 12-inch sanitary line flowing north. During larger storm events, the flow would overtop the weir to the existing storm outfall at the river.

While the paper mill was operational, there was a network of private sanitary lines that collected and conveyed the industrial waste water to the clarifier, before being pumped across the river. Much of this

system was removed during the salvage operation and construction of the Interim Stormwater Post-Closure Plan to retrofit the side drainage to the tailraces.

Proposed Sanitary Sewer

A new sanitary main network should be anticipated throughout the site to serve the new development. It appears that the invert at the Tri-City Service District Willamette Interceptor, about 10-feet below existing grade, is deep enough to allow gravity service to most of the redevelopment. Lift stations may be required for services at lower park improvement areas or if basement parking is proposed below street grades.

Storm

Existing Storm Drain

Two storm mains pass through the site and discharge to the Willamette River: an 18-inch main in 3rd Street that discharges to Outfall C (City ID 40016) and a 12-inch main in 4th Street that discharges to NPDES Outfall 2 (City ID 40017).

The 18-inch main in 3rd Street conveys stormwater from Highway 99E and the storm network on the bluff to the south. It is unknown if any portions of the site currently discharge into this storm main. As noted above in the Existing Sanitary Sewer section, the storm manhole at 3rd Street and Main has been modified to divert low flows from the 18-inch line to the 12-inch sanitary line flowing north. During larger storm events, the flows overtop the weir to the existing storm outfall at the river.

The 12-inch main in 4th Street collects surface runoff from the site, north of 3rd Street.

The site also contains three tailraces that outfall to the Willamette River: Tailrace H that discharges into NPDES Outfall 3, Tailrace 1 that discharges into NPDES Outfall 4, and Tailrace 2 that discharges into NPDES Outfall 5. These tailraces are remnants of natural flow channels that were disturbed with construction of the dam and development of the original paper mill site. Tailrace 1 passes through the Grotto at Main and 2nd Street. Flow to these tailraces is mostly limited to site runoff after the construction of the Interim Stormwater Post-Closure Plan. Temporary measures provided to filter runoff prior to discharge to the river will have to be maintained through redevelopment.

The conveyance capacity of these five conveyance systems will need to be preserved during development. If development impacts any of these outfalls, an adequately sized subsurface conveyance system will be required to preserve the existing flow path to the river.

Proposed Storm Drain

Runoff from any redevelopment must be managed in accordance with Oregon City stormwater regulations. Due to direct discharge to the Willamette River, no detention will be required. However, standard water quality treatment must be provided. Water quality treatment alternatives include vegetated storm facilities as well as mechanical treatment systems approved by the City. Alternative treatment methods or low impact development strategies may need to be considered due to the shallow or exposed bedrock condition throughout the site.

The existing 18-inch storm main in 3rd Street that conveys public drainage from Highway 99E will be reconstructed to preserve the current conveyance pathway and outfall. Any proposed connections to this line should be coordinated with Oregon City to verify additional capacity is available and whether outfall improvements may be required.

A new storm conveyance system network should be constructed within the roadway section adequately sized to convey the 25-year modeled storm event. Efforts should be made to reuse existing Outfall 2 at the end of 4th Street as well as the tailraces to mitigate the permitting effort required for new outfalls. Opportunities to enhance the grotto and provide improved water quality should be evaluated further.

As discussed briefly above, for any redevelopment where fill displaces any of the tailraces, an adequately sized storm conveyance system should be installed to preserve capacity.