COLUMBIA AVENUE REALIGNMENT

ACTION PLAN

ACKNOWLEDGMENTS

CITY OF STEVENSON, WASHINGTON

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FUNDER

Washington State Department of Ecology

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ACRONYMS AND ABBREVIATIONS

AACE	Association for the Advancement of Cost Engineering International
BRLF	Brownfields Revolving Loan Fund
City	City of Stevenson
Commerce	Washington State Department of Commerce
DAHP	Washington State Department of Archaeology and Historic Preservation
Plan for *SUCCESS!*	Stevenson Downtown Plan for *SUCCESS!*
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FFS	focused feasibility study
ft	foot or feet
Hunsaker Site	Hunsaker Oil Stevenson Station, Parcel 4432
IPG	Integrated Planning Grant
MFA	Maul Foster & Alongi, Inc.
Midstate Site	Midstate Land Company, Parcel 4440
NFA	No Further Action
Open House	Columbia Avenue Realignment Design Open House, November 3, 2022
the Project	City's Columbia Avenue Realignment Project
Project Area	Columbia Avenue right-of-way between 1st and 2nd streets, including surrounding parcels
ROW	right-of-way
sq ft	square feet
SS4A	Safe Streets and Roads for All
TIB	Transportation Improvement Board
VCP	Ecology's Voluntary Cleanup Program

EXECUTIVE SUMMARY

This report presents an action plan for the Columbia Avenue Realignment Project (the Project) in Stevenson, Washington, in Skamania County. The action plan provides a project description and a summary of past planning efforts and concludes with a set of recommended actions for implementing the Project.

Analyses supporting the Project estimate an initial public investment of between $794,559 to $1,117,095 to acquire the right-of-way (ROW), clean up past pollution, and construct a new streetscape. The majority of this investment could be borne by funding from state and federal grants and/or loans. As a result of these investments, reconfigured lots on either side of a newly constructed Columbia Avenue could support low-rise or mid-rise residential development. Based on conceptual site designs and financial analyses, new development on these lots could generate between $300,600 to $482,200 total over the next ten years in tax revenue for the City and an additional $1,560,400 to $2,192,300 in tax revenue for the State of Washington, Skamania County, and junior taxing districts (i.e., the school, library, cemetery, and others).

Achieving the return on the public's investment would necessitate private development of the corridor adjacent to the relocated street. The feasibility analysis indicates that additional actions would be necessary before the City and others could realize the expected returns on investment.

The recommended actions address four categories: (1) initial decision steps, (2) securing funding, (3) development feasibility considerations, and (4) design, cleanup, and construction. The recommendations are based on the outcomes of past environmental assessments and cleanup efforts, public engagement, and a development feasibility analysis. The purpose of this action plan is to provide a course of action and options for the City of Stevenson to implement the Project and work toward associated revitalization and safety goals for the downtown area. Commitment to undertake actions in all categories is necessary to realize the anticipated returns on investment.

PROJECT DESCRIPTION

The Project consists of realignment of Columbia Avenue; redevelopment of the adjacent parcels; and environmental cleanup in the Columbia Avenue ROW between 1st and 2nd streets, including surrounding parcels (Project Area). The Project aims to improve walkability, circulation, safety, and economic vitality in Stevenson's urban and commercial core areas. The analysis and environmental assessment completed for the Project was funded by a Washington State Department of Ecology Integrated Planning Grant.

The proposed realignment of Columbia Avenue includes narrowing the traffic lanes, adding street amenities, and enhancing the view corridor to the Columbia River Gorge. The intent is to improve pedestrian and vehicle movement downtown and attract tourism traffic to support commerce. Redevelopment of adjacent parcels is proposed, including ground-floor retail spaces to create a vibrant commercial main street aesthetic. To address petroleum contaminants in the Project Area, MFA recommends conducting further cleanup and remediation concurrently with the realignment.

BACKGROUND

Analyses conducted in support of the *Stevenson Downtown Plan for SUCCESS! (Plan for SUCCESS!)* projected a market demand for 14,103 to 25,923

square feet of new commercial development and 51 to 88 new rental housing units in the downtown area. To meet this demand, the Plan for *SUCCESS!* conceived this Project as a high priority. Development scenarios associated with this Action Plan would provide 10,000 square feet of new commercial space, satisfying 39 to 71 percent of commercial market demand, and 8 to 21 housing units, satisfying 9 to 41 percent of residential rental market demand.

PUBLIC ENGAGEMENT AND DEVELOPMENT FEASIBILITY ANALYSIS

Comments shared through public engagement showed widespread support for the Project and new development in the Project Area. In keeping with the aim to enhance the view corridor to the Columbia River Gorge, public support was greater for a low-rise development than for a mid-rise development. The net value as a percentage of cost for the mid-rise development was shown to be greater than the net value as a percentage of cost for the low-rise development in the development feasibility analysis, however. This indicates that the mid-rise concept is closer to the break-even point in terms of initial value than the low-rise building, a tension point between the realities of development and community preferences.

ENVIRONMENTAL ASSESSMENTS

Previous environmental assessments revealed petroleum impacts from past uses in the Project Area. Recent environmental studies funded by the Integrated Planning Grant further assessed the extent of petroleum impacts in the public ROW and provided cleanup recommendations. The Project Area has undergone cleanup efforts, but some petroleum impacts remain. This action plan proposes a cost-effective alternative for addressing the remaining petroleum impacts.

ESTIMATED PROJECT COSTS

The Project is anticipated to cost $794,559 to $1,117,095 in total. The preferred cleanup approach is anticipated to cost up to $392,055; property acquisition is estimated at $90,000 to $203,440; and ROW construction costs are estimated at $521,600.

FUNDING APPROACH

Several state and federal options allow public agencies to fund environmental cleanup. The recommended approach based on the scope and complexity of the cleanup is to pursue grant funding through the Washington State Department of Commerce's (Commerce) Brownfields Revolving Loan Fund (BRLF) program. The BRLF program would cover up to 100 percent of the cleanup costs, leaving between $613,430 and $728,961 in costs for the project. Additional grants will become available in 2024 that could offset some project costs: the U.S. Department of Transportation Safe Streets and Roads for All grant program, the Washington State Transportation Improvement Board Small City Active Transportation program or its Complete Streets Award are all programs that would fit both the project and the City of Stevenson.

RECOMMENDATIONS

Initial Decision Steps: Further cleanup and remediation efforts are recommended as part of realigning Columbia Avenue: excavating contaminated shallow soils, backfilling with clean material, and leaving some contaminated soils in place under clean fill and high-visibility fabric.

Securing Funding: The Brownfields Revolving Loan Fund (BRLF) grant, available through the U.S. Environmental Protection Agency and the Washington State Department of Commerce, is recommended as the main source of funding, with

additional grants to fill identified funding gaps. Recommended actions reflect the steps necessary to participate in the BRLF grant program.

Development Feasibility Considerations: The importance of the net value as a percentage of cost of the mid-rise development compared to the net value as a percentage of cost of the low-rise development and public preference for the low-rise development must be weighed and resolved. Neither option approaches a break-even point in the initial time frame, but the mid-rise option comes closer in initial value. Does the City look for the more advantageous return on investment but choose to block some of the historical viewshed, or does the City give preference to views and find other ways to reap returns on investments? The development feasibility analysis includes several suggestions for the City's consideration to offset any potential barriers to realizing a return on investment:

- Consider reducing parking standards in downtown Stevenson.
- Continue to allow for additional building height similar to the mid-rise concept.
- Consider selling excess publicly owned land, if any exists after the realignment, at a discount to reduce overall development costs.
- Engage with potential developers to educate them about previous cleanup efforts and convey the minimal risks associated with the properties.
- Identify other public or nonprofit development partners that could leverage state and federal grant resources to assist with the buildout and that may be less driven by the project's bottom line.

Design, Cleanup, and Construction: Once the City has made its initial decisions, secured funding, and resolved the issue regarding historical views, design, cleanup, and construction can begin.

ACTION PLAN

The following table outlines short, mid-, and long-term action plan tasks, including potential funding sources and related agencies and parties, under the four recommendation categories: initial decision steps; securing funding; development feasibility considerations; and design, cleanup, and construction.

TASK	DESCRIPTION	FUNDING SOURCE	TERM
INITIAL DECISION STEPS			
Staff/City Council Decision	Present findings of this report to City Council for decision on whether to proceed.	City	Short
ROW Acquisition	Begin acquisition process for parcel east of the current ROW in coordination with Washington State Department of Transportation and the City's legal counsel.	City	Short
SECURING FUNDING			
Coordination with EPA and Commerce	Meet with EPA and Commerce to discuss BRLF program and confirm eligibility for grant funding.	City	Short
Evaluate Other Grant Programs	Review and evaluate funding programs identified above to fund remainder of improvement and acquisition costs.	City	Short
BRLF Grant Application	Upon property acquisition, pursue BRLF grant funding and enter Ecology's VCP.	City	Medium
Pursue ROW Funds	Pursue additional grant funding for ROW improvements.	City	Medium
DEVELOPMENT FEASIBILITY CONSIDERATIONS			
Development Feasibility Recommendations	Evaluate recommendations presented in the Development Feasibility Analysis (Appendix B), including parking requirements, height limits, and seeking out potential public agency development partners.	City	Medium
DESIGN, CLEANUP, AND CONSTRUCTION			
Design and Permitting	Complete additional ROW and remedial design and secure required permits.	BRLF, SS4A, TIB	Medium
Construction	Execute the Project and cleanup concurrently.	BRLF, SS4A, TIB	Long
Request NFA	Request NFA through Ecology's VCP.	BRLF	Long

Notes
Term refers to the approximate timing of the task. Short-term is 0–2 years, medium-term 2–5 years, and long-term 5+ years.
BRLF = Brownfields Revolving Loan Fund program.
City = City of Stevenson.
Commerce = Washington State Department of Commerce.
EPA = U.S. Environmental Protection Agency.
NFA = No Further Action determination.
ROW = right-of-way.
SS4A = Safe Streets for All program.
TIB = Washington State Transportation Improvement Board.
VCP = Voluntary Cleanup Program

PROJECT OVERVIEW

In 2019, the City of Stevenson (City) completed the *Stevenson Downtown Plan for SUCCESS! (Plan for SUCCESS!)* to guide improvement of Stevenson's urban and commercial core areas (City 2019). The Plan for *SUCCESS!* focuses on immediate actions and priority projects to spark positive change downtown within five years. One high-priority project identified in the *Plan for SUCCESS!* is the Columbia Avenue Realignment Project (the Project).

The *Plan for SUCCESS!* identified the Project as a priority because of its potential to improve walkability and circulation downtown and encourage new development and economic vitality. The Project consists of realignment of Columbia Avenue, redevelopment of the adjacent parcels, and environmental remediation in the Columbia Avenue right-of-way (ROW) between 1st and 2nd streets, including surrounding parcels (Project Area; see Figure 1-1). The analysis and environmental assessment completed for the Project was funded by a Washington State Department of Ecology (Ecology) Integrated Planning Grant (IPG).

Realignment of Columbia Avenue: The *Plan for SUCCESS!* proposes that walking and driving downtown be made easier and safer by realigning Columbia Avenue, narrowing the traffic lanes, and adding street amenities such as decorative crosswalks, landscaping, and street trees. Realigning Columbia Avenue entails moving the road segment between 1st Street and 2nd Street 40 feet (ft) to the east to match the alignment of Columbia Avenue on the north side of 2nd Street.

Redevelopment of Adjacent Parcels: To support the commercial main street aesthetic outlined in the *Plan for SUCCESS!*, redevelopment of the parcels adjacent to Columbia Avenue would include ground-floor retail with minimal setbacks. Additionally, realignment of Columbia Avenue has the potential to enhance a view corridor to the Columbia Gorge. The view corridor may help capture tourism traffic along 2nd Street (State Route 14) to support commerce along Columbia Avenue and in the downtown commercial core.

Environmental Remediation: Past environmental investigations revealed petroleum impacts from past uses in the Project Area (Maul Foster & Alongi, Inc. [MFA] 2020). Recent environmental studies funded by the IPG further assessed the extent of petroleum impacts in the public ROW and recommended cleanup actions. While portions of the Project Area have been cleaned up, petroleum impacts remain in some areas. Further cleanup and remediation efforts to be undertaken as part of realigning Columbia Avenue are recommended.

PROJECT LOCATION

The Project is located in Stevenson, Washington (Figure 1-2). The approximately twp acres Project Area includes the existing Columbia Avenue right-of-way between 1st and 2nd Streets as well the five surrounding parcels. (Figure 1-1). The area includes a single-family home, small multifamily residences, and commercial uses. The commercial uses include a gas station with coffee shop and taco restaurant, a dentist office, and a hardware store.

Figure 1-1: Columbia Avenue Project Area—Stevenson, Washington

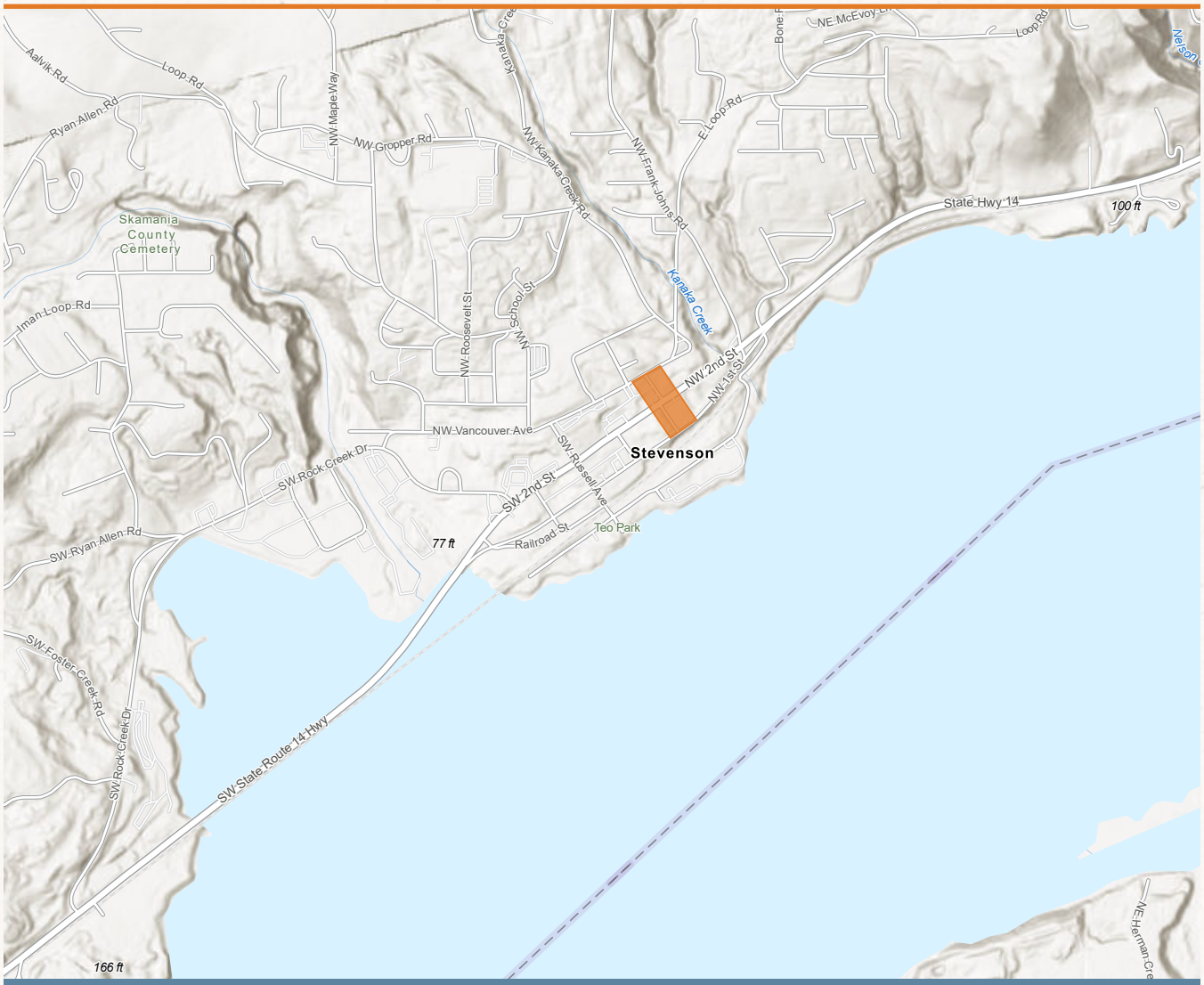

Figure 1-2: Columbia Avenue Project Location—Stevenson, Washington

PROCESS

The Project included environmental assessment, cleanup planning, new ROW design, community engagement, and assessment of the feasibility of redeveloping the surrounding parcels. The planning process took place from June 2022 through June 2023 (Figure 1-3).

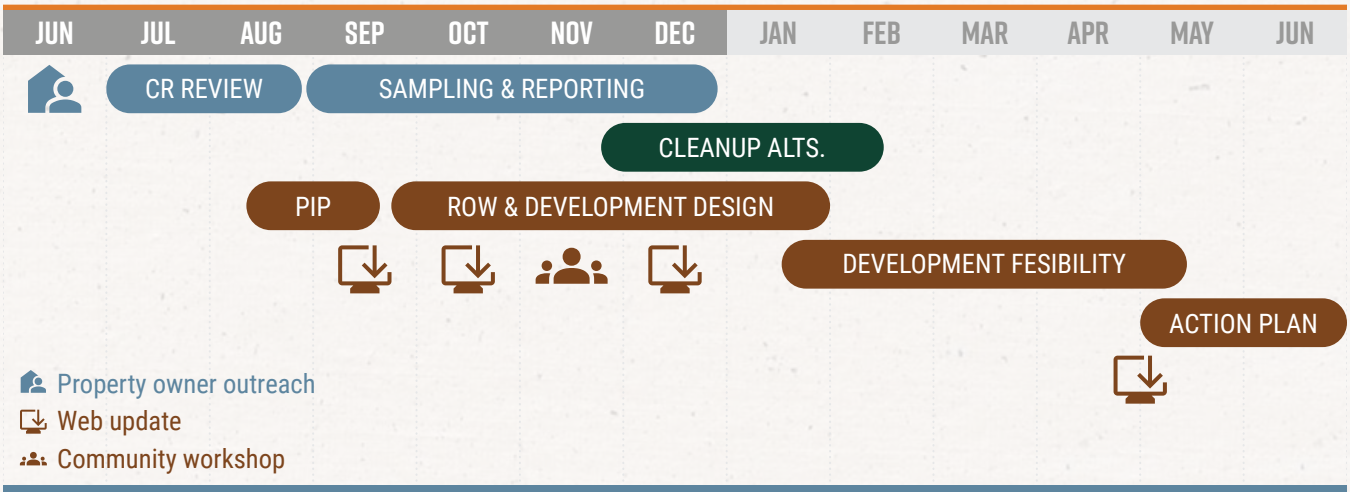

Figure 1-3

ENVIRONMENTAL ASSESSMENT

An initial environmental investigation conducted in 2020 revealed petroleum impacts from past uses on the Midstate Land Company property (dentist office parking area—the Midstate Site) east of the existing Columbia Avenue ROW (see Figure 1-1). To better understand the issue and identify any cleanup needs, MFA conducted an environmental assessment in December 2022, focusing on the existing and proposed Columbia Avenue ROW. MFA collected and analyzed soil and groundwater to assess impacts from petroleum and other chemicals in the Project Area.

CLEANUP PLANNING

In February 2023, MFA completed a focused feasibility study (FFS) to identify and evaluate potential remedial alternatives that would reduce or eliminate exposure to chemicals identified in the environmental assessment (see Appendix A). The FFS analyzed four cleanup alternatives based on their effectiveness, ease of implementation, and cost, and identified a preferred cleanup approach that balanced those factors. The FFS completed for the Project was funded by an Ecology IPG.

RIGHT-OF-WAY DESIGN

MFA developed a conceptual site design for the Columbia Avenue ROW and the surrounding properties, using a 3D massing model to show two alternative scales of the future development. Based on client and community input, one preferred conceptual site design was selected and refined. The refined design includes 60% engineering plans, stormwater analysis, grading design, and a construction cost estimate for the ROW improvements.

PUBLIC INVOLVEMENT

Public engagement opportunities during the planning process included one open house, several coordination calls with neighbors, and one presentation to elected officials. The public involvement activities took place between September 2022 and January 2023. The City hosted an open house at Stevenson City Hall on November 3, 2022 to gather public input on three conceptual site designs. The site design concepts shared with the public included a no-build, low-rise, and mid-rise development option.

DEVELOPMENT FEASIBILITY ANALYSIS

Based on the preferred conceptual site design selected by the client and the community, MFA conducted a development feasibility analysis to identify the land acquisition costs, consider market assumptions, and model redevelopment scenarios (see Appendix B). The analysis provides information to help inform an acquisition and disposition plan for the realignment of Columbia Avenue and compares parking scenarios and models the local tax revenue impact resulting from redevelopment. Finally, the analysis provides recommendations for actions the City could take to reduce barriers to development.

2 | EXISTING CONDITIONS

This chapter includes a summary of the Project Area's history and existing conditions related to environment, transportation, utilities, and applicable regulations. The full report can be found in Appendix C.

PROJECT AREA HISTORY

Based on historical aerial photography, areas northwest of the Project Area have been predominantly residential, while areas to the southeast have been predominantly commercial since at least 1935. As part of the Project, MFA completed a cultural resource review in coordination with Ecology and the Washington State Department of Archaeology and Historic Preservation (DAHP). Ecology determined that the Project Area has a low risk for prehistoric artifacts or other archaeological resources. However, as the Project progresses to construction, additional consultations with DAHP and tribal representatives may be required, especially if state or federal funding is used during the construction phase.

INFRASTRUCTURE ASSESSMENT

The purpose of the infrastructure assessment is to identify and evaluate the infrastructure available to support future development and determine which utilities will have to be relocated when the Columbia Avenue ROW is realigned.

MUNICIPAL WATER

The City owns and operates the Group A Community Water System that supplies potable water to residents, businesses, and public institutions within the city limits. The section of Columbia Avenue between 1st Street and 2nd Street contains an 8-inch-diameter water main and a fire hydrant. There are no conveyance capacity issues with this section of water main, nor are there issues concerning water supply to serve future development in the Project Area. The existing water main will not require replacement, as it will remain in the relocated ROW running under the western sidewalk. The existing hydrant and water service meters will have to be replaced during the Project.

WASTEWATER

The City owns and operates the public sanitary sewer system that serves residents, businesses, and public institutions within city limits. The existing 8-inch-diameter concrete gravity sewer main located in Columbia Avenue in the Project Area has sufficient capacity for future development. The realignment of Columbia Avenue would require relocation and replacement of this section of sanitary sewer pipe with an 8-inch-diameter pipe composed of polyvinyl chloride, or equivalent material, in the new roadway section. The existing main will be plugged and abandoned in place.

STORMWATER

There are storm catch basins in 1st and 2nd streets near the intersection of Columbia Avenue. Stormwater infrastructure will have to be designed and constructed to City standards in the realigned Columbia Avenue to provide conveyance and treatment of stormwater runoff from the roadway prism.

Storm sewer main extensions in accordance with City and Ecology standards will be required to support the new development. Curb inlets must be placed so that no more than 7,000 square feet (sq ft) of hard surface drain into the inlet. Storm drain conveyance systems shall be sized to convey the 25-year storm event with zero property damage at the 100-year storm event.

TRANSPORTATION

Columbia Avenue is a paved, two-lane roadway between 1st and 2nd streets, with incomplete sections of sidewalk on either side of the road. With relocation of the ROW, the new road and sidewalk will have to be constructed in accordance with City and Washington State Department of Transportation specifications. The new ROW would be 60 ft wide, with two lanes of traffic, street parking, and continuous sidewalks on both sides of the roadway.

POWER AND TELECOMMUNICATIONS

Skamania County Public Utility District 1 is the electrical power purveyor in the area. Overhead power runs along the northwest section of Columbia Avenue to a light pole on the east side of the road. The overhead power lines and the light pole will have to be relocated when Columbia Avenue is realigned.

An underground telephone line runs along the western side of Columbia Avenue. This line will have to be relocated to the new ROW when Columbia Avenue is realigned.

REGULATORY ANALYSIS

ZONING CODE

The Project Area is in a Commercial (C1) zone. The uses allowed in the C1 zone are intended to contribute to a vibrant downtown area that combines residential, commercial, and community uses (Figure 2-1).

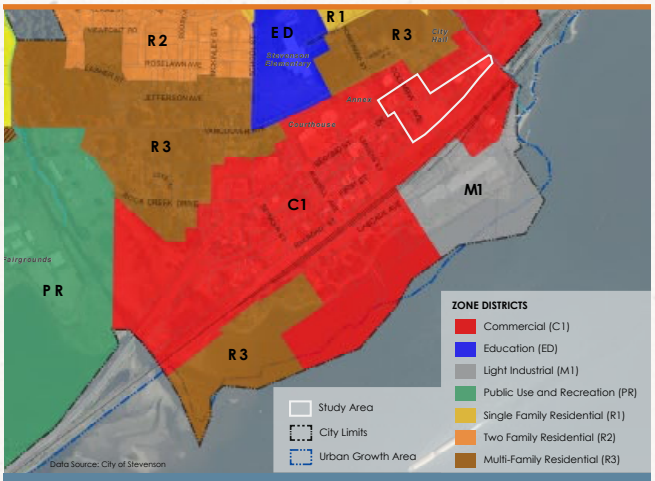

Figure 2-1: City of Stevenson Zoning Map

Developments in the C1 zone are subject to dimensional and design standards. The Plan for *SUCCESS!* proposes to add overlay zones to the area to encourage mixed-use development.

Dimensional Standards: The maximum building heights allowed are 50 ft for commercial buildings and 35 ft for multifamily buildings. Lots may be developed with no setback, and setbacks for most buildings are limited to 10 ft from the front and street-side lot lines.

Design Standards: Except for ground-floor residential dwellings, buildings that front a public sidewalk are required to have a certain percentage of their front or side street wall occupied by doors or windows to prevent blank walls. Landscaping is also required between the street and the building. Off-street parking requirements are specific to each use, with residential structures requiring 1.5 spaces per dwelling unit—except

for one-bedroom units, which require only one space. Retail uses are required to provide one parking space per 200 sq ft of net floor area.

CRITICAL AREAS

Based on the City's Critical Areas Map, the Project Area contains potential environmentally critical areas (see Figure 2-2). While the overall topography of the Project Area slopes gently to the south by about 10 ft, there may be several regulated steep slopes directly adjacent to the existing Columbia Avenue ROW. If the presence of regulated steep slopes is confirmed, then the Project and future development may be required to undergo a critical area permit process as well as additional geotechnical analysis to ensure that these slopes remain stable during and after the relocation project.

Figure 2-2: Critical Areas Map

ENVIRONMENTAL CONSIDERATIONS

AREAS OF CONCERN

Midstate Land Company—Dentist's Office

The dentist's office parking lot (i.e., the Midstate Site) is listed in Ecology's cleanup site database (CSID 690, FSID 1384) as the Midstate Land Company. According to Ecology records, a 1994 investigation revealed diesel, oil, and metal contaminants in soil and groundwater. An oily sump was discovered during the demolition of a building on the northern portion of the Midstate Site in 1995. Gasoline and other petroleum hydrocarbon contamination has also been found.

Cleanup at the Midstate Site was completed in 1995, but some gasoline-contaminated soil remained in place. Some of the contaminated soil could not be removed without undermining the integrity of 2nd Street and the dental office just east of the Midstate Site. The Midstate Site received a No Further Action (NFA) determination from Ecology in 1999. Conditional to the NFA determination, an environmental covenant is on file for the Midstate Site, restricting the use of groundwater and the disturbance of soil.

Hunsaker Oil Stevenson Station

The Hunsaker Oil Stevenson Station (Hunsaker Site) is listed in Ecology's cleanup site database (CSID 8497, FSID 25886634). The Hunsaker Site is directly northwest of the Project Area. A leaking underground storage tank at the Hunsaker Site was reported to Ecology in 1998. There is confirmed benzene and gasoline contamination in soil, suspected diesel contamination in soil and groundwater, suspected gasoline contamination in groundwater, and confirmed "other" petroleum contamination in groundwater.

The Hunsaker Site's status under the independent action process is "Cleanup Started." Ecology notes that four underground storage tanks at the Hunsaker Site (three 6,000-gallon gasoline and one 4,000-gallon diesel) were removed in 1998. No documentation demonstrating that cleanup standards for soil or groundwater were achieved is known to have been provided to Ecology.

ASSESSMENT FINDINGS

MFA conducted a Phase II Environmental Site Assessment at the Midstate Site in 2020 and a remedial investigation of the Project Area, including the Hunsaker Site, in 2022. The assessments included the collection of soil, groundwater, and soil gas samples to identify potential contaminant impacts. The following contaminants of concern were identified:

- Soil
  - Gasoline-range hydrocarbons
  - Volatile organic compounds
  - Polycyclic aromatic hydrocarbons
- Groundwater
  - Gasoline-range hydrocarbons
  - Diesel-range hydrocarbons
  - Lube-oil-range hydrocarbons
  - Volatile organic compounds
  - Polycyclic aromatic hydrocarbons
  - Lead
- Soil gas
  - Volatile organic compounds
  - Generic total petroleum hydrocarbons

Based on depth to groundwater measured during the remedial investigation, it is unlikely that impacted groundwater will be encountered during construction. The results of the soil sampling suggest that soil will not require special handling or disposal during construction, aside from two areas with potential gasoline-range hydrocarbon contamination in the existing Columbia Avenue roadway. The areas impacted with gasoline-range hydrocarbons are in the vicinity of boring locations B05 and B04 (Figure 2-3) (MFA 2022).

Figure 2-3: Boring Locations

CLEANUP ALTERNATIVE AND PREFERRED APPROACH

MFA conducted an FFS in 2023 (see Appendix A) to evaluate four potential cleanup alternatives for the Project Area based on findings from previous investigations, technical feasibility and cost, and regulatory requirements. The FFS modeled four potential remediation approaches, from very limited capping of contaminated soils to extensive excavation. Based on the evaluation of cost and cleanup effectiveness, one alternative was selected as the preferred cleanup approach.

The preferred cleanup approach is a hybrid of excavating contaminated shallow soils near boring B05 (Figure 2-3) within the existing Columbia Avenue ROW and backfilling with clean material, capping impacted soils on the Midstate Site within the Project Area with high-visibility fabric and a 1-ft-thick soil or gravel cap, and institutional controls. It is recommended that soil removal in the ROW be completed in conjunction with the proposed realignment construction. As this alternative will result in some contaminated soil and groundwater remaining in place at the Midstate Site, the existing environmental covenant on the Midstate Site restricting groundwater use would continue to apply, and groundwater would not be considered potable or available for use. The City provides water service in the Project Area, so the environmental covenant will not prevent future development from accessing potable water (see Appendix A). In addition to the environmental covenant, the preferred cleanup approach recommends either conducting soil gas sampling to verify potential vapor intrusion risks from existing soil contamination or installing and maintaining a vapor barrier below any future building.

PUBLIC ENGAGEMENT THEMES

At the Open House, the City invited the community to comment on three realignment options that differed in building height and setback size (Figure 3-1). Community members also commented on display boards depicting a variety of architectural designs and street treatment options. Using Post-it notes and stickers, community members indicated their preference for street-side seating, bicycle parking, landscaping and street trees, and awning types (Figure 3-2). The display boards were left up for a couple of weeks at City Hall so visitors and City Council members could also contribute feedback following the Open House event.

In general, comments received from the Open House indicate that residents support realignment of Columbia Avenue and new development in the Project Area. There was widespread support for a variety of pedestrian and bike amenity improvements. For street tree plantings, the community favored columnar trees that would allow a clear view of the Columbia River.

Both realignment Options 2 and 3 received support and were preferred to Option 1, which depicted no new development in the Project Area. Option 2 is a mid-rise development concept with buildings up to 50 ft in height and no setback. Option 3 is a low-rise concept with two-story buildings up to 35 ft in height, like other buildings nearby. Both Options 2 and 3 received several votes and positive feedback. Comments showed a preference for Option 3, the low-rise development concept. Based on community input, development Options 2 and 3 were selected for further analysis (Figure 3-1).

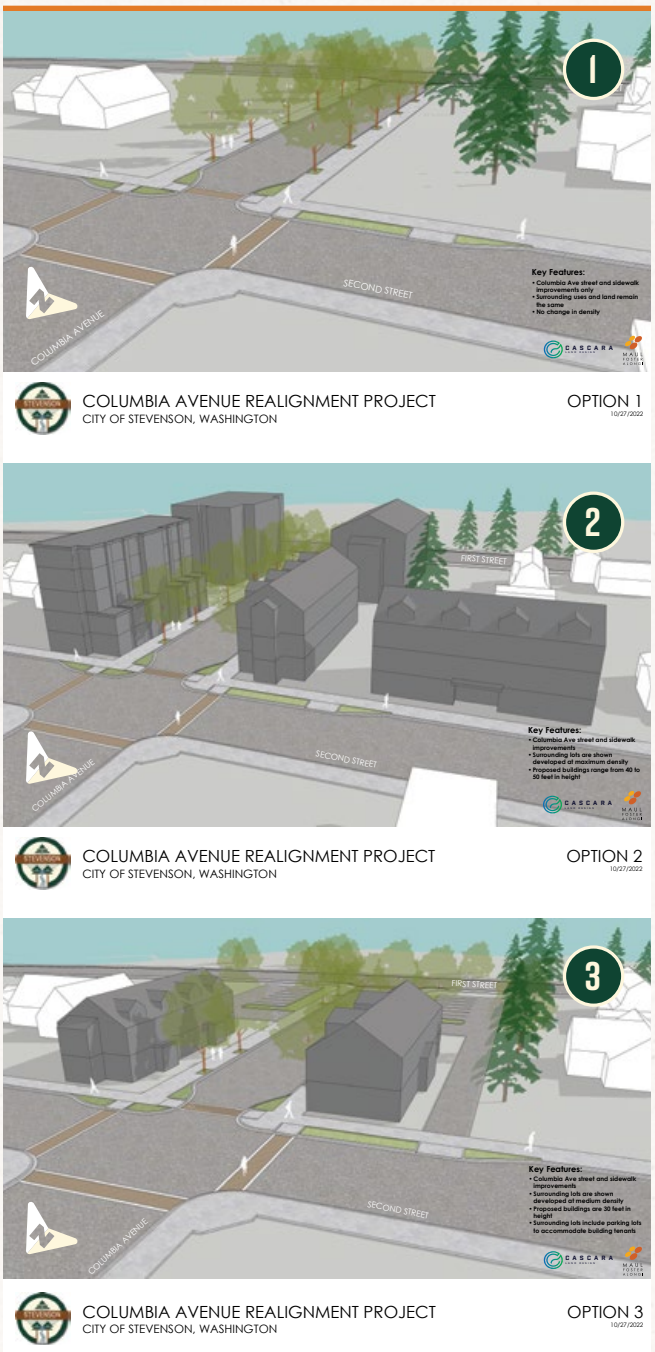

Figure 3-1: Development Options 1–3

Figure 3-2: Community Open House

CONCEPTUAL REDEVELOPMENT SITE PLAN REFINEMENT

MFA provided a development feasibility analysis for the two development options selected based on community feedback from the Open House (see Appendix B). The analysis examines the development potential of the lots on either side of Columbia Avenue once Columbia Avenue is realigned. This analysis includes future estimates of local job impacts and tax revenue implications to help the City determine whether to proceed with the Project, and if so, choose which development option is the best fit.

LOW-RISE CONCEPT (OPTION #3)

The low-rise concept includes two mixed-use buildings with ground-floor retail, residential units above, and associated surface parking toward the south near 1st Street (Figure 3-3). The buildings in this concept are two stories with retail on the ground floor and residential on the second floor (see Table 3-1).

Figure 3-3: Low-Rise Concept

Table 3-1: Low-Rise Concept—Floor Area

BUILDING	TOTAL FLOOR AREA (SQ FT)	GROUND-FLOOR RETAIL (SQ FT)	UPPER-FLOORS RESIDENTIAL	STORIES
East Building	10,000	5,000	5,000	2
West Building	10,000	5,000	5,000	2

Note: sq ft = square feet.

This concept assumes that each building could accommodate up to four two-bedroom apartments for a total of eight residential units. Based on the City's current parking requirements, the retail space would require approximately 40 stalls, or one per 200 sq ft (excludes back-of-house space). The residential units would require an additional 12 stalls or 1.5 per two-bedroom unit, for a total of 52 required stalls. The space remaining after development of the buildings and ROW improvements can accommodate only 14 surface parking stalls, leaving a deficit of 38 stalls relative to the City's requirements. It is assumed that the off-street parking stalls will be reserved for the residential units.

MID-RISE CONCEPT (OPTION #2)

The mid-rise concept models a five-story building on the east side of Columbia Avenue and a three-story building on the northwest corner (Figure 3-4). The buildings in this concept are three and five stories, with retail on the ground floor and residential on the upper floors (see Table 3-2).

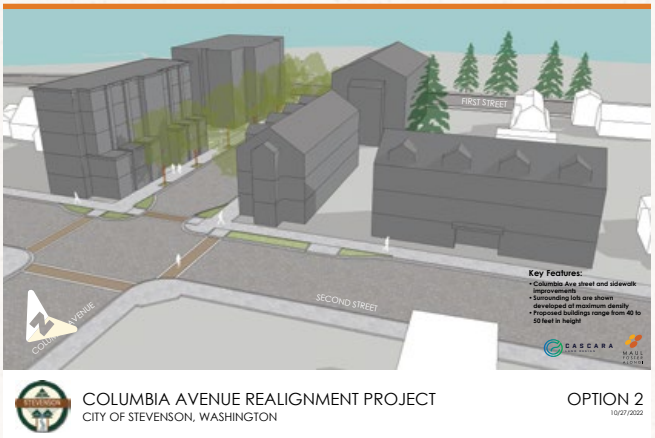

Figure 3-3: Low-Rise Concept

Table 3-2: Mid-Rise Concept—Floor Area

BUILDING	TOTAL FLOOR AREA (SQ FT)	GROUND-FLOOR RETAIL (SQ FT)	UPPER-FLOORS RESIDENTIAL	STORIES
East Building	22,450	5,000	17,450	5
West Building	15,000	5,000	10,000	3

Note: sq ft = square feet.

As with the low-rise concept, the retail space would require approximately 40 stalls, or one per 200 sq ft of retail. It is estimated that the mid-rise concept could accommodate up to 21 two-bedroom housing units. Stevenson Municipal Code requires 31.5 stalls, or 1.5 stalls per two-bedroom unit. The off-street parking requirement is 72 stalls for the residential and commercial uses combined. With space for only 14 parking stalls in the Project Area, this results in a deficit of 58 stalls. Again, it is assumed that the off-street parking stalls will be reserved for the residential units.

DEVELOPMENT FEASIBILITY ANALYSIS & ECONOMIC IMPACTS

The Project entails shifting the existing ROW approximately 40 feet northeast, creating new 40-foot-depth lots on either side of the new ROW totaling about 12,600 sq ft of developable area east of Columbia Avenue and 10,000 sq ft of developable area west of Columbia Avenue (see Appendix D). The Development Feasibility Analysis examines whether there will be sufficient land value following the realignment of Columbia Avenue for a developer to purchase the new 40-foot-depth lots and considers the profit potential of developing the land. The following sections summarize this analysis, including the physical constraints of the lot, the results of the proforma analysis, and key implications. The complete development feasibility analysis is available in Appendix B.

LOT DIMENSIONS

The 40-ft lot depths present a design constraint because mixed-use buildings and residential homes are typically at least 40 ft deep. Squeezing typically-designed buildings on to the 40-ft deep lots would not leave any room for a landscaping buffer between the sidewalk and building. Additionally, there would be no land remaining behind the buildings where parking is commonly provided for residential units. Instead, parking would need to be located to the side of the buildings.

PARKING REQUIREMENTS

It is not feasible to fit the required parking for both buildings in the Project Area; further, the low-rise building concept lacks 37 stalls.

ENVIRONMENTAL CHALLENGES

Because the preferred cleanup option recommends leaving some contaminated soils in place under clean fill and high-visibility fabric, the environmental covenant restricting use of groundwater for potable water is likely to remain in place on the Midstate Site. The City provides water service in the Project Area, so the environmental covenant will not prevent future development from accessing potable water. Although the resulting impact on future development is anticipated to be minimal, the presence of an environmental covenant may be enough to deter some potential developers.

LOW-RISE CONCEPT

According to the development feasibility analysis, the low-rise concept (Figure 3-3) generates $249,545 in net operating income. Based on the market cap rate of 4.7 percent, the project value based on this income would be $5.31 million. However, the estimated project cost before factoring in land purchase is $5.86 million, resulting in a deficit of about $548,623 (see Appendix B).

In this concept, the City-proposed fee-in-lieu-of-parking program of $3,200 per deficient stall adds $121,600 to the Project. Removing the proposed fee in lieu of parking does not generate enough savings to make the Project profitable (see Appendix B).

MID-RISE CONCEPT

Under the base assumptions, the mid-rise concept (Figure 3-4) generates $494,964 in net operating income. Using the market cap rate of 4.7 percent, the project value based on this income would be $10.53 million. However, the estimated project cost before factoring in land purchase is $10.93 million, resulting in a deficit of $471,673 (see Appendix B).

In this concept, the City-proposed fee-in-lieu-of-parking cost totals $185,600 for the 58 deficient stalls. Because of the more modest deficit in value and higher total fee, waiving the parking fee is more impactful in this concept; however, it still results in a negative residual land value of $210,418.

IMPLICATIONS

Both concepts struggle to meet baseline development feasibility metrics using base rent assumptions, which were set up to reflect the midpoint of the cost and rent ranges identified from the Johnson Economics study provided by the City for reference and from engagement with developers (Johnson 2019). The mid-rise concept is much closer to the break-even point in terms of initial value. This finding, combined with the lack of comparable recent developments in the Stevenson area, may indicate a weak market for mixed-use retail and housing development. In both concepts, relatively modest increases in rent that still fall within the range identified in the assumptions research can push the Project over the break-even point. However, risk-averse developers may be reluctant to take this optimistic view of potential rents or may look to more proven markets closer to the Vancouver/Portland Metro area. The physical constraints of the lot, parking requirements, and environmental concerns contribute further to a tenuous case for redevelopment.

Given the challenging case for private development, the City may choose to reduce barriers to development by using one or more of the following strategies:

- Consider reducing parking standards in downtown Stevenson, exploring shared parking agreements and public parking nearby, and conducting a parking study to determine projected parking need for the development.
- Fifty-ft-tall buildings, like the five-story mid-rise concept, are currently allowed in the Project Area. The Plan for SUCCESS! proposes decreasing the 50-ft maximum to a three-story maximum in a future zoning code update. Consider retaining the 50-ft height maximum to allow development of the mid-rise concept. Consider selling excess publicly owned land, if any exists after the realignment, at a discount to reduce overall development costs.
- To reduce the potential concerns prospective developers and future tenants may have because of the environmental covenant on the Midstate Site, proactively develop marketing materials around the benefits of the cleanup efforts in the Project Area and prepare talking points regarding the minimal risks to the area once the cleanup is completed.
- Identify other public or nonprofit development partners that could leverage state and federal grant resources to assist with the buildout and that may be less driven by the Project's bottom line.

PROJECTED ECONOMIC IMPACTS

MFA also analyzed potential economic impacts that would occur upon buildout and occupancy of the surrounding properties as a result of sales of construction materials, new retail sales and employment, and the resulting increase in property taxes. Tax revenue sources included in the economic impact analysis include property tax and sales tax from construction-related sales, retail sales once the buildings are open, and building operations. A full account of the potential economic impacts and assumptions used for the analysis is included in Appendix E.

Both the low-rise and mid-rise concepts include the same retail square footage and are anticipated to generate nine retail jobs with an annual wage of $30,800 and $1.28 million in annual taxable sales revenue. The mid-rise concept generates more tax revenue than the low-rise concept because of the higher construction cost and taxable value of the lager buildings. It is expected to generate $668,500 in sales tax revenue from construction purchases, then $195,200 annually in property and retail sales tax revenue.

With all tax revenue sources combined, the low-rise concept is anticipated to generate $507,400 per year and the mid-rise concept is anticipated to generate $863,700 per year. It is anticipated that after ten years the low-rise concept will generate $1,861,000 per year and the mid-rise concept will generate $2,620,500 in total tax revenue (see Appendix E).

RIGHT-OF-WAY REALIGNMENT AND IMPROVEMENT ENGINEERING DESIGN

The design plans consider the strong desire for safer walking and driving conditions and an improved view corridor as expressed through public engagement and the Plan for SUCCESS!. The ROW design improvements mirror recent improvements made by the City on Russell Avenue, including bulb outs at each intersection to narrow pedestrian crossing widths and stamped concrete decorative crosswalks (see full design detail in Appendix D).

After completing 60% engineering designs for the ROW relocation and improvements, MFA prepared preliminary cost estimates for the Project. A summary of the probable cost, along with cleanup cost estimates from the FFS, is included below. A more detailed account of probable costs can be found in Appendix F. The Columbia Avenue relocation and improvement is anticipated to cost $521,600, and the anticipated preferred cleanup approach preliminary costs are up to $392,055, for a total of $913,655 (see Table 3-3).

Table 3-3: Project Cost Estimates

RIGHT-OF-WAY CONSTRUCTION COSTS		CLEANUP COSTS	
General	$82,700	Site Preparation	$31,200
Grading	$65,000	Capping	$50,400
Surface Finish	$55,200	Institutional Controls	$37,500
Stormwater	$57,600	Excavation and Disposal	$89,955
Sanitary Sewer	$55,700	Design and Project Management	$91,500
Water	$6,900	Contingency	$91,500
Traffic	$17,000		
Soft Cost	$81,500		
RIGHT-OF-WAY SUBTOTAL	**$521,600**	**CLEANUP SUBTOTAL**	**392,055**
TOTAL CONSTRUCTION AND CLEANUP COSTS			**$913,655**

PLANNING-LEVEL COST ESTIMATES

The preferred cleanup approach for the Project is expected to cost between $182,959 and $392,055 based on preliminary feasibility level estimates. This cost estimate accounts for the current design stage of cleanup (i.e., feasibility) and is consistent with the Association for the Advancement of Cost Engineering International (AACE) recommended practice for cost estimating (i.e., -30% to +50%; AACE 2005). For implementation purposes, the $392,055 cost estimate for the proposed cleanup alternative is carried forward.

Costs to acquire the ROW are estimated at between $90,000 and $203,440. Costs to construct the buildings in the ROW are estimated at $521,600. The Project is anticipated to cost $794,559 to $1,117,095 in total.

4 | IMPLEMENTATION APPROACH

This section discusses grant funding and financing options for the Project and next steps to move the Project into implementation.

CLEANUP FUNDING APPROACH

The preferred cleanup approach for the Project is expected to cost up to $392,055 based on preliminary feasibility level estimates. Several state and federal options allow public agencies to fund environmental cleanup. The recommended approach based on the scope and complexity of the cleanup is to pursue grant funding through the Washington State Department of Commerce's (Commerce) Brownfields Revolving Loan Fund (BRLF) program.

BROWNFIELDS REVOLVING LOAN FUND GRANTS

The BRLF program is funded by the U.S. Environmental Protection Agency (EPA). Supplemental funding is available from Commerce. For both the state and federal programs, loan and grant amounts are typically up to $500,000. Local government agencies are eligible to apply for the grant funds. An application could be submitted for either or both agencies' BRLF program. It is recommended to apply first to Commerce's BRLF program because it is assumed there is less competition and easier application and grant management processes with the state program than with the federal program.

BRLF applicants are required to enter Ecology's Voluntary Cleanup Program (VCP) and complete an EPA site eligibility approval process. The applicant must also own the site at the time of application. So, the City would need to acquire the proposed ROW area before pursuing a BRLF grant. Applications are accepted on a rolling basis.

Upon completion of the cleanup, the City can request an NFA determination through the VCP. As discussed previously, an environmental restrictive covenant is likely to remain in place for the soil and groundwater contamination at depth that is not proposed for excavation. This is anticipated to have minimal impact on the future redevelopment of the Project Area.

It is recommended that City pursue a BRLF grant at or near the maximum award amount to cover the cost of cleaning up and restoring the relocated ROW in the Project Area.

CLEANUP FUNDING GAP

The property acquisition cost is estimated to be between $90,000 and $203,440, and the total project cost is estimated to be $794,559 to $1,117,095 (see Table 4-1). Up to $500,000 in funding from the BRLF program can be used toward the cleanup cost of the Project. If the City secures funding from the BRLF program for the cleanup of the Project Area, the adjusted total project cost is estimated to be between $613,430 and $728,961, depending on the cost of cleanup after factoring in property acquisition costs. Assuming that the realignment of Columbia Avenue ultimately catalyzes redevelopment of the surrounding properties, acquiring and developing the new 40-foot-depth lots in the Project Area could generate up to $300,600 to $482,200 total tax revenue for the City over ten years and up to an additional $104,200 during construction if much of the construction purchasing is from local sources.

Table 4-1: Project Funding Gap

	LOWER COST BOUND	HIGHER COST BOUND
Property Acquisition Cost	$90,000	$203,440
Cleanup Costs	$182,959	$392,055
ROW Construction Costs	$521,600	$521,600
TOTAL PROJECT COSTS	**$794,559**	**$1,117,095**
BRLF Cleanup Grant (Up to $500,000 available to cover Cleanup Costs)	-$182,959	-$392,055
BRLF 1% Fee	$1,830	$3,921
ADJUSTED TOTAL PROJECT COST (FUNDING GAP)	**$613,430**	**$728,961**

Note: Based on a limited review of comparable sales, assumes acquisition of entire eastern parcel.

ADDITIONAL FUNDING OPTIONS FOR REALIGNMENT AND DEVELOPMENT

MFA completed a brief review of grant opportunities and other potential grant sources for the ROW relocation and improvements to use as a starting point for evaluating other potential gap funding options (see Table 4-2).

SAFE STREETS AND ROADS FOR ALL GRANT PROGRAM

Through the Safe Streets and Roads for All (SS4A) Grant Program, cities are eligible for federal funds to implement projects and strategies, identified in an action plan, that address a roadway safety problem. The funds are available through the Bipartisan Infrastructure Law, which established the SS4A program with $5 billion in appropriated funds over five years, 2022 through 2026.

Grants are offered for planning and demonstration projects and implementation projects. There is no minimum or maximum award size. Government bodies applying for SS4A implementation grants must adopt an eventual goal of zero roadway fatalities and serious injuries.

TRANSPORTATION IMPROVEMENT BOARD

The Transportation Improvement Board (TIB) distributes grant funding from the revenue generated by three cents of Washington's statewide gas tax to cities and counties for funding transportation projects. The TIB offers several grant programs, of which the Small City Program and Complete Streets Award may be a good fit for the City of Stevenson. Both grants can be used to implement projects that improve safety and accessibility.

The Small City Programs offers grants for cities with populations of 5,000 or less. A 5 percent match is required for the City of Stevenson. The funding amount typically ranges from $300,000 to $1,000,000. The Small City Arterial Program and the Small City Active Transportation Program are available yearly from June to August. The next opportunity will be in 2024.

To be eligible for the Complete Streets Award, a city must have an adopted complete streets ordinance and be nominated by an established nonprofit or state agency nominating partner.

Once nominated, agencies submit a work program to TIB; funds can be used only toward the projects in the approved work plan. A 5 percent match is required. Funds must be expended within three years. The next Complete Streets Awards are anticipated to be available in 2023 or 2024 (TIB 2023).

Table 4-2: Funding Sources for Cleanup, Realignment, and Development

FUNDING SOURCE	AWARD AMOUNT	MATCH REQUIREMENT	ALLOWABLE USES
BRLF, Commerce	$500,000	1% of the total award	Removal of contaminated soil
BRLF, EPA	$500,000+ (grants of up to $2 million may be requested, most awards will be $500,000 or less)	The 20% cost share is waived by the Bipartisan Infrastructure Law	Cleanup activities at brownfield sites owned by the applicant
SS4A Grant Program, U.S. Department of Transportation	No minimum or maximum	20% cash or in-kind from non-Federal sources	Implementation projects from adopted action plans that address road safety
Small City Active Transportation Program, TIB	$300,000 - $1,000,000	5%	Projects that preserve, rehabilitate, or reconstruct TIB classified arterials consistent with local needs
Complete Streets Award, TIB	Variable	5%	Complete street projects in an approved work plan

ACTION PLAN

The recommended actions are informed by the outcomes of the previous environmental assessments and cleanup efforts, public outreach, development feasibility analysis, and review of available funding. The actions listed in Table 4-3 address initial decision-making needs, decrease barriers to development feasibility and funding options, and provide an approach for design, cleanup, and construction. Overall, the recommended tasks set a course to pursue the Project primarily through the BRLF program.

Table 4-3: Action Plan Tasks

TASK	DESCRIPTION	FUNDING SOURCE	TERM
INITIAL DECISION STEPS			
Staff/City Council Decision	Present findings of this report to City Council for decision on whether to proceed.	City	Short
ROW Acquisition	Begin acquisition process for parcel east of the current ROW in coordination with Washington State Department of Transportation and the City's legal counsel.	City	Short
SECURING FUNDING			
Coordination with EPA and Commerce	Meet with EPA and Commerce to discuss BRLF program and confirm eligibility for grant funding.	City	Short
Evaluate Other Grant Programs	Review and evaluate funding programs identified above to fund remainder of improvement and acquisition costs.	City	Short
BRLF Grant Application	Upon property acquisition, pursue BRLF grant funding and enter Ecology's VCP.	City	Medium
Pursue ROW Funds	Pursue additional grant funding for ROW improvements.	City	Medium
DEVELOPMENT FEASIBILITY CONSIDERATIONS			
Development Feasibility Recommendations	Evaluate recommendations presented in the Development Feasibility Analysis (Appendix B), including parking requirements, height limits, and seeking out potential public agency development partners.	City	Medium
DESIGN, CLEANUP, AND CONSTRUCTION			
Design and Permitting	Complete additional ROW and remedial design and secure required permits.	BRLF, SS4A, TIB	Medium
Construction	Execute the Project and cleanup concurrently.	BRLF, SS4A, TIB	Long
Request NFA	Request NFA through Ecology's VCP.	BRLF	Long

Notes
Term refers to the approximate timing of the task. Short-term is 0–2 years, medium-term 2–5 years, and long-term 5+ years.

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APPENDIX A

FOCUSED FEASIBILITY STUDY

FOCUSED FEASIBILITY STUDY

CITY OF STEVENSON COLUMBIA AVENUE REALIGNMENT
STEVENSON, WASHINGTON 98648

MAUL FOSTER ALONGI

Prepared for
CITY OF STEVENSON
February 16, 2023
Project No. M1769.03.002

Prepared by
Maul Foster & Alongi, Inc.
109 East 13th Street, Vancouver, WA 98660

FOCUSED FEASIBILITY STUDY

CITY OF STEVENSON COLUMBIA AVENUE REALIGNMENT
STEVENSON, WASHINGTON

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

02.16.2023

Kathy Lombardi, PE
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Project Geologist

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
the City	the City of Stevenson
CMMP	contaminated media management plan
CSM	conceptual site model
CUL	cleanup level
Ecology	Washington State Department of Ecology
ESA	environmental site assessment
FFS	focused feasibility study
Hunsaker	Hunsaker Oil Stevenson Station
MFA	Maul Foster & Alongi, Inc.
Midstate	Midstate Land Company
MTCA	Model Toxics Control Act
NFA	No Further Action
POC	point of compliance
Project	the City of Stevenson's Columbia Avenue Realignment Project
realignment area	the existing Columbia Avenue ROW between First and Second Street, the western portion of the Midstate Land Company site located at 70 NW Second Street (parcel no. 4440), and the area north adjacent to the Midstate Land Company site
ROW	right-of-way
TPH	total petroleum hydrocarbon
VI	vapor intrusion
WAC	Washington Administrative Code

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA), prepared this focused feasibility study report (FFS) for the City of Stevenson (the City) for the proposed future right-of-way (ROW) of the City's Columbia Avenue Realignment Project (Project) (see Figure 1-1). The realignment area for the Project includes the existing Columbia Avenue ROW between First and Second Street, the western portion of the Midstate Land Company (Midstate) site located at 70 NW Second Street (parcel no. 4440), and the area north adjacent to the Midstate site (realignment area) (see Figure 1-2). This FFS identifies and evaluates potential remedial alternatives for the realignment area based on findings from previous site investigations, technical feasibility and cost, and regulatory requirements.

This FFS has been prepared in accordance with grant agreement No. TCPIPG-1921-StevPW-00028, dated November 30, 2021, between the Washington State Department of Ecology (Ecology) and the City. The agreement provides funding under Ecology's Integrated Planning Grant program.

The analysis provided in this FFS is based on the information provided in the Phase I and Phase II environmental site assessments (ESA) prepared for the Midstate site (MFA 2020a,b) and the *Investigation Report* prepared for the City (MFA 2022).

1.1 Purpose and Objectives

The purpose of this FFS is to identify and evaluate potential remedial alternatives. The specific objectives are as follows:

- Summarize information from previous environmental investigations and existing environmental data.
- Identify feasible remedial technologies to address contamination in soil, groundwater, and soil vapor.
- Assemble remedial technologies into a range of potential remedial alternatives.
- Provide a streamlined evaluation of the remedial alternatives against regulatory criteria.
- Identify the remedial alternative most likely to be selected for implementation.

2 BACKGROUND

This section describes the physical location, history, and characteristics of the realignment area, including the geology and hydrogeology, and summarizes previous environmental investigations.

2.1 Realignment Area Location, History, and Description

The realignment area is located in section 43, townships 2 and 3 north, range 7 east of the Willamette Meridian in Stevenson, Washington (Figures 1-1). The realignment area is comprised of approximately 1.18 acres and includes the existing Columbia Avenue ROW between First and Second Street and the western portion of the Midstate site labeled parcel no. 4440 located southeast of the intersection of Columbia Avenue and Second Street (Figure 1-2).

The *Downtown Plan for SUCCESS!* (City, 2019) has identified the realignment of Columbia Avenue as a priority project to contribute to ongoing revitalization efforts of downtown Stevenson. The Project will realign the ROW segment of Columbia Avenue between First and Second Street to the east onto the Midstate site so that the segment aligns with the Columbia Avenue ROW segment north of Second Street. The northern portion of the Midstate site in the ROW realignment area is currently used as a parking lot for a dentist office at the east-adjacent parcel labeled no. 4439 (Figure 1-2). Previously, a building was present on the northern portion from the 1920s until 1995. The building had been occupied by many businesses, including an auto service, repair, and paint shop; a dry-cleaning establishment and a beauty parlor (MFA 2020a). The southern portion of the Midstate site in the ROW realignment area is vacant. Previously, a residence was located on the southern portion from the 1920s until the 1970s.

On the Midstate site, earthwork during the realignment will include trenching to approximately 12 feet below ground surface (bgs) to accommodate a new sewer line, and excavating to approximately 3 feet bgs for road construction. The road for the existing ROW will likely be removed and the subgrade stabilized with a gravel cap. The land that includes the existing ROW will be conveyed to the west adjacent property owners. Installation of a new stormwater line along First Street will include trenching to approximately 6 feet bgs. The preliminary site plan is provided in the Appendix.

2.2 Previous Environmental Investigations

The Midstate site is listed in Ecology's cleanup site database as cleanup site ID 690 and Facility Site ID 1384. Ecology records indicate that an investigation conducted in 1994 revealed the presence of diesel- and oil-range petroleum hydrocarbons and metals (arsenic, cadmium, and lead) above Model Toxics Control Act (MTCA) cleanup levels (CULs) in soil and groundwater. During the demolition of a building on the northern portion of the Midstate site in 1995, an oily sump was discovered and additional gasoline-, diesel- and oil-range petroleum hydrocarbon contamination was discovered in soil at concentrations above MTCA CULs. Cleanup at the Midstate site was completed in 1995 in two phases. The first phase included removing the building and collecting surface soil confirmation samples from the basement floor after the upper 6 inches of soil under the floor were excavated. During the second phase, additional contaminated soil and groundwater were removed from the northeast corner of the Midstate site and oil from a sump (pool) on the west side of the Midstate site was removed. Confirmation soil sampling from the extent of the excavation indicated that additional gasoline-contaminated soil remained in place and could not be removed without undermining the integrity of Second Street to the north and the dental office building to the east. The Midstate site received a No Further Action (NFA) determination from Ecology in 1999. Conditional to the NFA

determination, an environmental covenant is on file for the Midstate site restricting the use of groundwater or disturbance of soil.

MFA conducted a Phase II ESA at the Midstate site in 2020 to evaluate potential exposure pathways based on current environmental conditions. The assessment activities included the collection of soil, groundwater, and soil gas samples from the subsurface to identify potential contaminant impacts. The Phase II ESA identified MTCA Method A CUL exceedances in soil, groundwater, and soil gas (MFA 2020b, Figure 2-1). Figure 2-1 summarizes sampling and exceedance locations. Analytical results are summarized below:

- Gasoline-range hydrocarbons were detected in soil at concentrations above the MTCA Method A CUL between 10 and 13.5 feet bgs in borings MSLC-005 and MSLC-008. MTCA Method A exceedances were also identified in groundwater at borings MSLC-004 and MSLC-008 for gasoline-range hydrocarbons, diesel- and oil-range hydrocarbons, benzene, and 1-methylnaphthalene.
- Generic total petroleum hydrocarbon (TPH) and/or benzene, n-hexane, 1,3-butadiene were detected in soil gas at concentrations above their respective MTCA Method B CULs between 6 and 10 feet bgs at locations MSLC-003a, MSLC-004a, and MSLC-006a.
- Gasoline-range hydrocarbons, diesel- and oil-range hydrocarbons, benzene, and 1-methylnaphthalene were detected in groundwater above their respective MTCA Method A CULs at 13.5 feet bgs at location MSLC-004 and at 19 feet bgs at location MSLC-008.

MFA conducted a soil and groundwater investigation of the realignment area and northwest adjacent Hunsaker Oil Stevenson Station (Hunsaker) site in 2022. Results identified soil and groundwater MTCA CUL exceedances for gasoline-range hydrocarbons and groundwater MTCA CUL exceedances for total lead. These results are summarized below:

- Gasoline-range hydrocarbons were detected above the MTCA Method A CUL in soil collected from boring B05 (located on the existing Columbia Avenue ROW) at a depth of 1.5 feet bgs.
- Total lead in groundwater collected from borings B07 and B11 (located on Second Street/the Washington State Route 14 ROW) exceeded the MTCA Method A CUL.
- Gasoline-range hydrocarbons were detected above the MTCA Method A CUL in soil collected from boring B06 on the Hunsaker site at a depth of 9 feet bgs. Gasoline-range hydrocarbons and diesel- and oil-range hydrocarbons were detected above their respective MTCA Method A CULs in groundwater collected from boring B06. Apex Laboratories, LLC, personnel reviewed the chromatographic pattern and stated that the hydrocarbon fingerprint of hits in the diesel range were not consistent with diesel and appeared to be overlap from the gasoline detections.

Boring locations with CUL exceedances encountered during previous investigations conducted by MFA are shown in Figure 2-1. Contamination identified during previous investigations has been bounded to include the northern portion of the Midstate site, the area immediately north adjacent to

the Midstate site, and the northern portion of the existing Columbia Avenue ROW. The realignment area does not include the Hunsaker site, therefore, results from boring B06 are not discussed further in this FFS.

2.3 Geology and Hydrogeology

The topography of the realignment area slopes gently to the south, with an elevation of approximately 150 feet above mean sea level on the north end and 140 feet above mean sea level on the south end. The nearest surface water body is the Columbia River, located approximately 670 feet to the south of the realignment area. Based on topography and surface water features, the direction of groundwater flow regionally and locally is inferred to be south toward the Columbia River.[1]

Subsurface soils within the realignment area generally consist of sand with variable amounts of silt and gravel. Groundwater during the 2020 investigation on the Midstate site was encountered between 9 and 19 feet bgs (MFA 2020b). Groundwater during the 2022 investigation was encountered between 9 and 27.5 feet bgs (MFA 2022).

3 ENVIRONMENTAL CONDITIONS AND CLEANUP LEVELS

This section summarizes the sources of contamination, contaminants of concern, data gaps, and results of the previous investigations that were used to develop remedial alternatives. A complete discussion of the previous investigation scopes of work, methods, analytical results, and conclusions for the realignment area are provided in the investigation report (MFA 2022) and Phase II ESA (MFA 2020b), respectively. In addition, historical information for the Midstate site is provided in the Phase I ESA (MFA 2020a).

3.1 Sources

The following sources were identified for the realignment area:

Existing Columbia Avenue ROW. The source of shallow gasoline contamination in soil collected from beneath the existing Columbia Avenue ROW is unknown.

Midstate Site. Based on documented historical uses, historical soil data from the Midstate site, and investigations completed by MFA in 2020 and 2022, it appears that the legacy soil impacts left on the Midstate site following a remedial action in 1995 have contributed to contamination on the Midstate site. Legacy soil impacts may also be leaching to groundwater as groundwater contamination is

[1] Depth-to-groundwater measurements were recorded at each reconnaissance boring during the site investigation. However, since the depths were measured in an open boring relative to the ground surface (rather than a completed monitoring well with a surveyed measure point elevation), the measurements were not used to determine a site-specific groundwater flow direction.

generally colocated with soil contamination. With the exception of borings MSLC-003 and MSLC-004 on the northern portion of the Midstate site, impacts were not observed in downgradient groundwater samples collected from the realignment area. Therefore, gasoline impacts to soil and groundwater on the Midstate site are associated with historical operations on the Midstate site.

Off-site recognized environmental conditions were assessed as part of the Phase II ESA (MFA 2020b). Findings from the realignment area investigation do not suggest that impacts from the Hunsaker site are contributing to contamination within the realignment area.

3.2 Contaminants of Concern

Contaminants of concern for the realignment area are defined as chemicals detected in media at concentrations above their respective MTCA CULs. The following contaminants of concern were identified during the 2020 Phase II on the Midstate site and the 2022 realignment area investigation:

- Soil
  - Gasoline-range hydrocarbons
  - Volatile organic compounds
  - Polycyclic aromatic hydrocarbons
- Groundwater
  - Gasoline-range hydrocarbons
  - Diesel-range hydrocarbons
  - Lube-oil-range hydrocarbons
  - Volatile organic compounds
  - Polycyclic aromatic hydrocarbons
  - Lead
- Soil gas
  - Volatile organic compounds
  - Generic TPH

3.3 Data Gaps

Based on previous investigations conducted within the realignment area, the lateral extent of soil gas impacts on the Midstate site is not known.

3.4 Screening Results

Soil and groundwater sample results were screened against MTCA Method A CULs for unrestricted land use. Where MTCA Method A CULs were not available, the results were screened against MTCA Method B CULs for cancer or noncancer, whichever value is lower. Soil gas results were screened against the MTCA Method B CULs for vapor intrusion (VI). Soil, groundwater, and soil gas analytical results from the site investigations are provided in Tables 3-1 through 3-3. Locations with CUL exceedances in soil, groundwater, and soil gas are also shown in Figure 2-1.

3.4.1 Soil

Gasoline-range hydrocarbons were detected in soil above the MTCA Method A CUL between 10 and 13.5 feet bgs in borings MSLC-003b, MSLC-005, and MSLC-008. Only one soil sample was collected from boring MSLC-003b, however, samples collected at 7.5 feet bgs in borings MSLC-005 and MSLC-008 were below the MTCA Method A CUL for gasoline-range hydrocarbons, which suggests that impacted soil is present below a depth of 7.5 feet bgs in borings MSLC-005 and MSLC-008.

In boring B05, gasoline-range hydrocarbons were detected above the MTCA Method A CUL in the soil sample collected at 1.5 feet bgs but not at 5.5 feet bgs. Therefore, the extent of gasoline-range hydrocarbon impacts at boring B05 are assumed to be shallower than 5.5 feet bgs.

Gasoline-range hydrocarbons were not detected at concentrations that exceed the MTCA Method A CUL at other boring locations within the realignment area. No other chemicals were detected at concentrations above their respective CULs.

3.4.2 Groundwater

Gasoline-range hydrocarbons were detected in groundwater above the MTCA Method A CUL at locations MSLC-003, MSLC-004, and MSLC-008. Benzene was detected in groundwater above the MTCA Method A CUL at locations MSLC-004 and MSLC-008. 1-methylnaphthalene was detected above the MTCA Method B CUL in locations MSLC-003B, MSLC-004, and MSLC-008. Diesel-range hydrocarbons at location MSLC-008 and the sum of diesel and oil at locations MSLC-004 and MSLC-008 were detected above the MTCA Method A CUL.

At borings B07 and B11, located in the portion of the realignment area currently occupied by Second Street/State Route 14, lead concentrations in groundwater exceeded the MTCA Method A CUL. The laboratory noted that the groundwater samples had high turbidity and solids (soil particles) were observed in the sample containers, indicating that the total lead concentrations may be biased high. Downgradient of these borings, there were no CUL exceedances for lead in groundwater.

No other chemicals were detected at concentrations above their respective CULs.

3.4.3 Soil Gas

Generic TPHs, benzene, n-hexane, and 1,3-butadiene were detected in soil gas above their respective MTCA Method B VI CULs at 6 feet bgs at location MSLC-003a, and 10 feet bgs at locations MSLC-004a, and MSLC-006a. As noted above, the lateral extent of soil gas impacts on the Midstate site is a data gap.

No other chemicals were detected at concentrations above the MTCA Method B VI CULs.

3.5 Cleanup Standards and Points of Compliance

According to MTCA, the cleanup standards for a site have two primary components: chemical-specific CULs and points of compliance (POCs). The CUL is the concentration of a chemical in a specific environmental medium that will not pose unacceptable risks to human health or the environment. MTCA provides three different options for establishing CULs for human health: Methods A, B, and C. MTCA Method A is designed for cleanups at relatively simple sites, such as small sites that have only a few hazardous substances. Method B can be used at any site. Method C is used primarily for industrial sites. The realignment area is considered a simple site.

The POC for each environmental media impacted on the realignment area were determined based on site conditions and regulations in the Washington Administrative Code (WAC). The POC is the location where the CUL must be met. CULs and POCs for each media are described in Sections 3.5.1–3.5.3.

3.5.1 Soil

For human health screening, soil was screened against MTCA Method A CULs for unrestricted land use. The Method A values are for protection of human health via the direct-contact or ingestion pathways and protection of groundwater via the soil-leaching-to-groundwater pathway. For certain constituents, MTCA Method A CULs are not available, and Method B CULs were applied. Method B CULs may be used at any site.

The soil POC is the depth at which soil CULs shall be attained. The standard POC in soil based on protection of the environment is from the surface to 15 feet bgs throughout the entire site. A conditional POC may be set for sites with institutional controls to prevent excavation of deeper soil. As described in Section 5, each of the remedial alternatives considered would include institutional controls to prevent exposure to deeper soil. Therefore, the conditional POC is applied to soil within the realignment area.

3.5.2 Groundwater

Groundwater was screened to MTCA Method A CULs. For certain constituents, MTCA Method A CULs are not available, and Method B CULs were applied. For groundwater, the POC is the point or points where the groundwater CULs must be attained for a site to comply with the cleanup standards. Groundwater CULs shall be attained in all groundwater from the POC to the outer boundary of the hazardous-substance plume. No POC is proposed for the following reasons: Ecology previously issued an NFA that included an environmental covenant restricting groundwater use and allowing CUL exceedances in groundwater to remain. All alternatives considered would retain the groundwater use restriction, and investigations have confirmed the groundwater plume is contained within the realignment area.

3.5.3 Soil Gas

Although MTCA does not define a POC for soil gas, the remedy selected in this FFS must address soil contamination in a manner that mitigates or eliminates soil gas sources to ensure protection of future users within the realignment area.

4 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) was developed to describe release mechanisms, environmental transport processes, exposure routes, and receptors for sources of contamination identified within the realignment area (Figure 4-1). The primary purpose of a CSM is to identify potential pathways by which human and ecological receptors could be exposed to site-related chemicals. A complete exposure pathway consists of four necessary elements: (1) a source and mechanism of chemical release to the environment; (2) an environmental transport medium for a released chemical; (3) a point of potential contact with the impacted medium (referred to as the exposure point); and (4) an exposure route (e.g., soil ingestion) at the exposure point. The CSM is based on information collected during investigations completed by MFA in 2020 and 2022 and MFA's understanding of the proposed future use of the realignment area (MFA 2020b, 2022).

The primary mechanisms likely to influence the fate and transport of chemicals within the realignment area include natural biodegradation of organic chemicals, sorption of chemicals to soil, physical dispersion of adsorbed chemicals, leaching of chemicals from soil to groundwater, and volatilization from soil and groundwater to air. The relative importance of these processes varies, depending on the chemical and physical properties of the released contaminant. The properties of the soil and the dynamics and elevation of groundwater also affect contaminant fate and transport.

The realignment area is currently either covered in asphalt (existing Columbia Avenue ROW), gravel (northern portion of Midstate site), or vegetated (southern portion of Midstate site). The soil-to-groundwater migration pathway is complete because of the potential for precipitation and infiltration through unpaved areas within the realignment area into contaminated vadose-zone soil, followed by leaching of contaminants into shallow groundwater.

The topography of the realignment area slopes gently to the south, toward the Columbia River, which is located approximately 670 feet to the south. Based on topography and surface water features, the direction of groundwater flow regionally and locally is inferred to be south toward the Columbia River.

Potable water provided by the City is available for use in the realignment area. Therefore, groundwater beneath the realignment area is not currently used as a drinking water source. Further, there is an environmental covenant on the Midstate site restricting groundwater use; therefore, groundwater is not considered potable or available for use.

Volatile contaminants in soil and groundwater may also partition to the vapor phase, which could result in impacts to air quality. Further, concentrations of contaminants in soil gas exceed applicable

CULs. Therefore, prior to redevelopment of the realignment area, the potential for VI into future buildings should be assessed.

4.1.1 Potential Exposure Scenarios

Current or future exposure pathways that are considered potentially complete are illustrated in Figure 4-1 and include the following:

- Incidental ingestion, dermal contact, and inhalation of soil.
- Incidental dermal contact and inhalation of groundwater.
- Inhalation of vapors in indoor air.

4.1.2 Potential Receptors

Redevelopment plans for the realignment area include removing the existing Columbia Avenue ROW between First and Second streets and stabilizing the subgrade, realigning Columbia Avenue east to the Midstate site, and constructing buildings on the area east and west adjacent to the proposed realignment area. The construction plans for potential future buildings are not known. Therefore, construction workers, occupational workers, visitors, and residents are considered current and future potential receptors. Current and future ecological receptors are unlikely because habitat that is likely to support ecological receptors is absent within the realignment area.

4.1.3 Potentially Complete Exposure Routes

Based on the current or future potentially complete exposure scenarios and potential human receptors to contaminated media described above, there are three potentially complete exposure routes, as shown in Figure 4-1:

- Construction workers may come into contact with contaminated soil via ingestion, dermal contact, or inhalation.
- Construction workers that may come into contact with contaminated groundwater via ingestion, dermal contact, or inhalation.
- Occupational workers, visitors, or residents may come into contact with contaminated indoor air via inhalation.

5 REMEDIAL ALTERNATIVES

The purpose of this FFS is to identify and evaluate the most relevant remedial alternative that reduces or eliminates potentially complete pathways for exposure to chemicals in site media exceeding MTCA CULs. This section identifies feasible remedial technologies and assembles those technologies into potential options for addressing contamination in defined remedial action areas.

5.1 Remedial Action Areas

The remedial action area includes the entirety of the realignment area (1.18 acres). For this FFS, a remedial action may include any or a combination of institutional controls, engineering controls, or soil removal to reduce or eliminate potential exposure to chemicals in site media. These individual remedial action elements may be applied to all or a portion of the remedial action area.

5.2 Soil Remedial Technologies

Since the realignment area is a simple site with a limited number and limited extent of contaminants present in soil, the following remedial technologies were considered for addressing potentially complete pathways for exposure to soil with contaminant concentrations above CULs.

- Engineering controls (i.e., methods to protect receptors by removing hazardous conditions or by placing a barrier between the receptor and the contaminated material)
- Institutional controls (i.e., non-engineering measures intended to prevent or reduce exposure to contaminated material)
- Capping (i.e., placing a cover over contaminated material to prevent or reduce exposure to contaminated material)
- Excavation and off-site disposal (i.e., removal and off-site disposal of contaminated material)

All remedial technologies were considered feasible and were retained during alternative development.

5.3 Groundwater Remedial Technologies

Since the realignment area is a simple site with a limited number and limited extent of contaminants present in groundwater, institutional controls were considered for groundwater with concentrations above CULs. Because the lateral extent of groundwater contamination has been delineated, an environmental covenant restricting the use of groundwater is on file for the Midstate site (and each of the alternatives considered below would retain this restriction), and the Midstate site has received an NFA determination from Ecology, remedial technologies for groundwater outside of institutional controls were not considered.

5.4 Soil Gas Remedial Technologies

The following remedial technologies were considered for addressing soil gas with concentrations above CULs.

- Institutional and engineering controls
- Excavation and off-site disposal of contaminated soil to reduce or eliminate potential exposure to vapors in indoor air

All remedial technologies were considered feasible and were retained during alternative development.

5.5 Potential Remedial Alternatives

The remedial technologies were assembled into several remedial alternatives and compared against each other. For each of the remedial alternatives (2−4), the cost estimates reflect additional work needed specific to each remediation approach. The improvements and construction costs necessary for the ROW realignment project, including removal of existing ROW materials and installation of new underlayment and asphalt, have been excluded from the costs below.

5.5.1 Alternative 1—No Action

Under the no action alternative, the existing ROW would be relocated and adjacent properties would be developed as planned. Future redevelopment of the realignment area (constructing buildings and roads over contaminated soil) would reduce the potential for exposure to contaminated soil. The existing environmental covenant restricting the use of groundwater or disturbance of soil would remain in effect. However, no additional measures would be undertaken to reduce future construction worker exposure to contaminated soil and groundwater or exposure of future building occupants to contaminated indoor air. Alternative 1 does not meet the minimum requirements and is used as a baseline for comparison of alternatives.

5.5.2 Alternative 2—Engineering and Institutional Controls

Alternative 2 uses engineering and institutional controls to reduce direct-contact exposure risks for current and future receptors within the realignment area. It includes the following elements:

Engineering Controls: Following removal of the road materials for the existing Columbia Avenue ROW, cap contaminated soils within the realignment area with demarcation fabric followed by one foot of compacted gravel or soil. The preliminary site plans for the proposed future ROW indicate the road will be constructed with 4-inches of asphalt and an 8-inch gravel base, therefore the road will act as the cap within the footprint of the proposed future ROW and no additional gravel will be required beneath the road.

Institutional Controls: Prepare a contaminated media management plan (CMMP) to include a description of areas with known contamination and outline work procedures, including protection monitoring, for any future ground disturbing activities that may encounter contaminated soil and groundwater to protect future construction workers from exposure. Modify the existing environmental covenant to prevent future use of groundwater throughout the realignment area, state that the CMMP must be followed for any future construction work, state that either soil gas sampling must be conducted to verify potential VI risks to future buildings or that a vapor barrier must be installed and maintained below any future buildings, and state that Ecology must be notified if future work would require disturbance of engineering controls to ensure the controls are maintained.

Cost: The probable cost of Alternative 2 is $116,590 (see Table 5-1). It is assumed that Alternative 2 would be completed simultaneously with the ROW realignment project. It is also assumed that design documents and permits would be incorporated into the ROW realignment project and that a separate bid package is not required. The cost for Alternative 2 includes capping contaminated soil within the

realignment area and implementing institutional controls, and does not include costs for the proposed ROW realignment construction or removal of existing ROW materials. This estimate includes a 30 percent contingency and is considered to have a confidence of -30 to +50% (i.e., the actual cost may range from $81,613 to $174,885).

5.5.3 Alternative 3—Shallow Soil Excavation, Engineering Controls, and Institutional Controls

Alternative 3 includes the same engineering and institutional controls as Alternative 2 with the addition of limited source removal via excavation of shallow soil with CUL exceedances within the existing Columbia Avenue ROW and backfilling with clean fill and a demarcation layer (see Figure 5-1). The alternative includes the following actions:

Soil Excavation and Off-Site Disposal in Columbia Avenue ROW: Following removal of the road materials for the existing Columbia Avenue ROW, implement the CMMP and excavate soil in the vicinity of boring B05 with CUL exceedances to a maximum depth of 5 feet bgs. Conduct confirmation sampling to confirm no CUL exceedances remain. Backfill the excavation with clean, imported fill to existing ground surface and compact. Directly load contaminated soils removed during excavation activities into haul trucks and dispose of off site at a licensed Subtitle D landfill. The excavation is assumed to extend half the distance to adjacent soil borings with no CUL exceedances in shallow soil, resulting in an excavation volume of approximately 370 cubic yards. Groundwater is not expected to be encountered during excavation activities.

Cost: The probable cost of Alternative 3 is $261,370 (see Table 5-2). It is assumed that Alternative 3 would be completed simultaneously with the ROW realignment project. It is also assumed that design documents and permits would be incorporated into the ROW realignment project and that a separate bid package is not required. The cost for Alternative 3 includes removing shallow soil contamination within the existing Columbia Avenue ROW, capping contaminated soil on the northern portion of the Midstate site, and implementing institutional controls, and does not include costs for the proposed ROW realignment construction or removal of existing ROW materials. To account for uncertainty in the extent of impacted soils, this estimate includes a 30 percent contingency and is considered to have a confidence of -30 to +50% (i.e., the actual cost may range from $182,959 to $392,055).

5.5.4 Alternative 4—Deeper Soil Excavation and Institutional Controls

Alternative 4 includes the same institutional controls as Alternative 2 and the shallow soil excavation element of Alternative 3, with the addition of excavation of deeper soils on the Midstate site to remove soil with CUL exceedances and backfilling with clean fill. It is assumed that all soil contamination will be removed under Alternative 4, and therefore engineering controls will not be required. The alternative includes the following actions:

Excavation and Off-Site Disposal of Soil on Midstate Site: Excavate soil on the northern portion of the Midstate site to a maximum depth of 15 feet bgs. Conduct confirmation sampling to confirm no CUL exceedances remain. Stockpile clean overburden removed during excavation activities on site and reuse as clean backfill. Import clean fill and backfill excavation to existing ground surface and

compact, with replacement in kind of disturbed areas. Directly load contaminated soils removed during excavation activities into haul trucks and dispose of off site at a licensed Subtitle D landfill. The excavation is assumed to extend half the distance to adjacent soil borings with no CUL exceedances in deeper soil, resulting in an excavation area of 6,745 square feet and excavation volume of approximately 1,900 cubic yards of clean overburden and 1,900 cubic yards of contaminated soil.

Cost: The probable cost of Alternative 4 is $805,900 (see Table 5-3). It is assumed that Alternative 4 would be completed simultaneously with the ROW realignment project. It is also assumed that design documents and permits would be incorporated into the ROW realignment project and that a separate bid package is not required. The cost for Alternative 4 includes excavating contaminated soil within the existing Columbia Avenue ROW, excavating contaminated soil on the northern portion of the Midstate site, and implementing institutional controls, and does not include costs for the proposed ROW realignment construction or removal of existing ROW materials. To account for uncertainty in the extent of impacted soils, this estimate includes a 30 percent contingency and is considered to have a confidence of -30 to +50% (i.e., the actual cost may range from $564,130 to $1,208,850).

6 EVALUATION OF REMEDIAL ALTERNATIVES

The following discussion describes the evaluation completed for the alternatives presented in Section 5.

6.1 Model Toxics Control Act Requirements

Criteria used to evaluate the remedial alternatives are defined in the MTCA regulation (WAC 173-340-360). These criteria are as follows:

- Threshold requirements:
  - Protect human health and the environment
  - Comply with cleanup standards (WAC 173-340-700 through 173-340-760)
  - Comply with applicable state and federal laws (WAC 173-340-710)
  - Provide for compliance monitoring (WAC 173-340-410 and 173-340-720 through 173-340-760)
- Other requirements:
  - Use permanent solutions to the maximum extent practicable
  - Provide for a reasonable restoration timeframe
  - Consider public concerns (WAC 173-340-600)

Alternative 1 does not meet the threshold requirement for protection of human health and the environment because it does not address future construction worker exposure to contaminated soil and groundwater or exposure of future building occupants to contaminated indoor air.

Alternatives 2 through 4 meet the threshold requirements:

- The alternatives would protect human health and the environment through a combination of institutional controls, engineering controls, and soil removal.
- The alternatives would be designed to comply with cleanup standards.
- The alternatives would be designed to comply with applicable state and federal laws.
- The alternatives would include protection and confirmation monitoring.

6.2 Laws and Regulations Applicable to the Remedial Alternatives

Laws and regulations that are applicable to the remedial alternatives include state environmental law and city municipal codes. Federal, state, and local laws regarding procurement of contractors to implement the remedy will be followed.

All appropriate permits will be obtained prior to the work commencing. It is anticipated that a construction general stormwater permit, a clearing and grading permit, and soil disposal manifests may be required to complete the activities described in the remedial alternatives.

6.3 Comparison of Alternatives

Alternatives 2, 3, and 4 all meet the minimum threshold requirements as defined in MTCA and were retained for further evaluation. Retained alternatives were evaluated for effectiveness, implementability, and cost as described below.

6.3.1 Effectiveness

Alternative 2 effectively eliminates the direct exposure risk by maintaining the requirements of the existing environmental covenant and implementing a CMMP to prevent construction worker exposure to contaminated soil and groundwater. The alternative would allow for natural degradation processes to reduce concentrations of contaminants in soil, soil vapor, and groundwater over time. However, since Alternative 2 does not involve any source removal, the assumed timeline for achieving CULs is significantly longer than Alternatives 3 and 4. Additionally, the protectiveness of Alternative 2 is dependent on compliance with the environmental covenant, which would be revised to require implementation of a CMMP, periodic inspection and maintenance of the cap in the Columbia Avenue ROW, soil gas sampling to verify potential VI risks to future buildings or installation and maintenance of a vapor barrier below any future buildings, Ecology notification of any activities that could disturbed the engineering controls, and repair of those controls if disturbed.

Alternative 3 would remove contaminated soil from beneath the existing Columbia Avenue ROW where the future use (e.g., construction of buildings and parking lots that would otherwise prevent

direct contact with shallow soil) is uncertain at this time. Therefore, compared to Alternative 2, Alternative 3 is more effective because it would need to rely less on compliance with an environmental covenant to prevent exposure to contaminated shallow soil in the ROW. It would also comply with the 6 feet bgs conditional POC in soil.

Alternative 4 is as effective as Alternative 3 because it would also remove contaminated shallow soil in the Columbia Avenue ROW. Alternative 4 would also remove all contaminated soil on the Midstate site, potentially increase the natural rate of contaminant degradation in groundwater, and comply with the 15 feet bgs POC in soil. However, it is not considered significantly more effective than Alternative 3 because the existing environmental covenant is already protective of groundwater exposure, and the proposed realigned ROW of Columbia Avenue would cover the majority of the area on the Midstate site with CUL exceedances in soil vapor and deeper soil.

6.3.2 Implementability

Alternatives 2, 3, and 4 are all technically implementable. Alternative 2 requires the least amount of initial labor but does not include any source removal while Alternative 3 includes some source removal. Since Alternative 4 includes a deep excavation in sandy soil that could abut the realignment area boundary, it is considered the least technically implementable because shoring or other means would likely be necessary to prevent excavation sidewall collapse that could impact adjacent properties and streets. As part of the Columbia Avenue realignment project, subsurface utilities will be relocated during construction and should not inhibit soil removal within the realignment area. If soil impacts are found to extend into existing utility corridors, complete removal may not be feasible.

6.3.3 Cost

Alternative 2 is the least costly but is also the least effective. The cost of implementing Alternative 4 is significantly greater than the cost of Alternative 3, due to the requirement to remove approximately 10 feet of clean soil to access the deeper contaminated soil on the Midstate site. However, with its greater cost, Alternative 4 does not provide significantly greater protection over Alternative 3 because both alternatives would rely on the same institutional and engineering controls, including the proposed realignment of the Columbia Avenue ROW, that are protective against exposure to contaminated soil, groundwater, and indoor air.

Alternative 3 is the preferred alternative because it meets the threshold requirements, is more protective than Alternative 2, is more implementable than Alternative 4, and is as effective as Alternative 4 but at a much lower cost.

7 CONCLUSIONS AND RECOMMENDATIONS

The preferred Alternative 3 consists of implementing institutional and engineering controls, excavating shallow soils within the existing Columbia Avenue ROW with concentrations of

contaminants above CULs, backfilling with clean material, and capping soils with demarcation fabric and a one-foot-thick soil or gravel cap. As feasible, it is recommended that soil removal with the existing ROW be timed around or in conjunction with the proposed realignment construction.

For this FFS, it is assumed that any remedial action would be conducted independently by the City and an NFA letter would be requested through the voluntary cleanup program after completion of remedy implementation. Cost estimates provided in this FFS assume limited reporting would be required during the remedial action design and implementation process. If the City were to enter into a formal agreement with Ecology, it is recommended that these costs be reevaluated.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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TABLES

MAUL FOSTER ALONGI

Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	MSLC-001				MSLC-002			MSLC-003		
Sample Name:				MSLC-001-SB-2.25	MSLC-001-SB-6.75	MSLC-001-SB-6.75-DUP	MSLC-001-SB-11.25	MSLC-002-SB-2.25	MSLC-002-SB-5.25	MSLC-002-SB-11.25	MSLC-003-SB-2.5	MSLC-003-SB-7.25	MSLC-003-SB-12.25
Sample Date:				07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
Sample Depth (ft bgs):				2.25	6.75	6.75	11.25	2.25	5.25	11.25	2.5	7.25	12.25
TPH (mg/kg-ww)													
Gasoline-range hydrocarbons	30[c]	NV	NA	4.65 U	4.17 U	8.47 U	5.2 U	5.46 U	6.07 U	5.81 U	4.33 U	5.54 U	15.2 J
TPH (mg/kg)													
Gasoline-range hydrocarbons	30[c]/100[d]	NV	NA	--	--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	2,000	NV	NA	--	--	--	--	--	--	--	--	--	--
Oil-range hydrocarbons	2,000	NV	NA	--	--	--	--	--	--	--	--	--	--
Diesel+Oil[e]	2,000[f]	NV	NA	--	--	--	--	--	--	--	--	--	--
Total Metals (mg/kg)													
Arsenic	20	NA	7	--	--	--	--	--	--	--	--	--	--
Barium	NV	16,000	NV	--	--	--	--	--	--	--	--	--	--
Cadmium	2	NA	1	--	--	--	--	--	--	--	--	--	--
Chromium	2,000[g]	NA	42	--	--	--	--	--	--	--	--	--	--
Lead	250	NV	17	--	--	--	--	--	--	--	--	--	--
Mercury	2	NV	0.07	--	--	--	--	--	--	--	--	--	--
Selenium	NV	400	NV	--	--	--	--	--	--	--	--	--	--
Silver	NV	400	NV	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg-ww)													
Benzene	0.03	18	NA	0.00929 U	0.00835 U	0.0169 U	0.0104 U	0.0109 U	0.0121 U	0.0116 U	0.00865 U	0.0111 U	0.00881
Ethylbenzene	6	8,000	NA	0.0232 U	0.0209 U	0.0424 U	0.026 U	0.0273 U	0.0303 U	0.0291 U	0.0216 U	0.0277 U	0.323 J
Toluene	7	6,400	NA	0.0465 U	0.0417 U	0.0847 U	0.052 U	0.0546 U	0.0607 U	0.0581 U	0.0433 U	0.0554 U	0.0367 U
Xylenes (total)[h]	9	16,000	NA	0.0697 U	0.0626 U	0.127 U	0.078 U	0.0819 U	0.091 U	0.0872 U	0.0649 U	0.0831 U	0.0551 U
VOCs (mg/kg)													
1,1,1,2-Tetrachloroethane	NV	38	NA	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	2	NA	NA	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	NV	5	NA	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	NV	18	NA	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	NV	180	NA	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	NV	4,000	NA	--	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	64	NA	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	NV	0.0063	NA	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	NV	34	NA	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	NV	800	NA	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	NV	0.23	NA	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane	0.005	NA	NA	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	NV	7,200	NA	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	NV	11	NA	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	NV	27	NA	--	--	--	--	--	--	--	--	--	--

MAUL FOSTER ALONGI

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Sample Date:				07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
Sample Depth (ft bgs):				2.25	6.75	6.75	11.25	2.25	5.25	11.25	2.5	7.25	12.25
1,3,5-Trimethylbenzene	NV	800	NA	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	NV	1,600	NA	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	NV	190	NA	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
2-Butanone	NV	48,000	NA	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	NV	1,600	NA	--	--	--	--	--	--	--	--	--	--
2-Hexanone	NV	400	NA	--	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	NV	1,600	NA	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	NV	6,400	NA	--	--	--	--	--	--	--	--	--	--
Acetone	NV	72,000	NA	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	NV	1.9	NA	--	--	--	--	--	--	--	--	--	--
Benzene	0.03	NA	NA	--	--	--	--	--	--	--	--	--	--
Bromobenzene	NV	640	NA	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	NV	16	NA	--	--	--	--	--	--	--	--	--	--
Bromoform	NV	130	NA	--	--	--	--	--	--	--	--	--	--
Bromomethane	NV	110	NA	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	NV	8,000	NA	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	NV	14	NA	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	NV	1,600	NA	--	--	--	--	--	--	--	--	--	--
Chlorobromomethane	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Chloroethane	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Chloroform	NV	32	NA	--	--	--	--	--	--	--	--	--	--
Chloromethane	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	NV	160	NA	--	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	NV	12	NA	--	--	--	--	--	--	--	--	--	--
Dibromomethane	NV	800	NA	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12)	NV	16,000	NA	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	NA	NA	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	13	NA	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	NV	8,000	NA	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	0.1	NA	NA	--	--	--	--	--	--	--	--	--	--
Methylene chloride	0.02	NA	NA	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	NA	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	NV	4,000	NA	--	--	--	--	--	--	--	--	--	--

MAUL FOSTER ALONGI

Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	MSLC-001				MSLC-002			MSLC-003		
Sample Name:				MSLC-001-SB-2.25	MSLC-001-SB-6.75	MSLC-001-SB-6.75-DUP	MSLC-001-SB-11.25	MSLC-002-SB-2.25	MSLC-002-SB-5.25	MSLC-002-SB-11.25	MSLC-003-SB-2.5	MSLC-003-SB-7.25	MSLC-003-SB-12.25
Sample Date:				07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
Sample Depth (ft bgs):				2.25	6.75	6.75	11.25	2.25	5.25	11.25	2.5	7.25	12.25
n-Propylbenzene	NV	8,000	NA	--	--	--	--	--	--	--	--	--	--
o-Xylene	NV	16,000	NA	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	NV	8,000	NA	--	--	--	--	--	--	--	--	--	--
Styrene	NV	16,000	NA	--	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	NV	8,000	NA	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	0.05	NA	NA	--	--	--	--	--	--	--	--	--	--
Toluene	7	NA	NA	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	NV	1,600	NA	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Trichloroethene	0.03	NA	NA	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	NV	24,000	NA	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	NV	0.67	NA	--	--	--	--	--	--	--	--	--	--
Xylenes, Total[h]	9	NA	NA	--	--	--	--	--	--	--	--	--	--
PAHs (mg/kg)													
1-Methylnaphthalene	NV	34	NA	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	NV	320	NA	--	--	--	--	--	--	--	--	--	--
Acenaphthene	NV	4,800	NA	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Anthracene	NV	24,000	NA	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	NA[i]	0.19	NA	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Carbazole	NV	NV	NA										
Chrysene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	NV	80	NA	--	--	--	--	--	--	--	--	--	--
Fluoranthene	NV	3,200	NA	--	--	--	--	--	--	--	--	--	--
Fluorene	NV	3,200	NA	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Naphthalene	5	NA	NA	--	--	--	--	--	--	--	--	--	--
Phenanthrene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--
Pyrene	NV	2,400	NA	--	--	--	--	--	--	--	--	--	--
cPAH TEQ[j][3]	NA[h]	0.19	NA	--	--	--	--	--	--	--	--	--	--
Naphthalenes, Total[k]	5	NA	NA	--	--	--	--	--	--	--	--	--	--

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	MSLC-003 (cont.)		MSLC-003B	MSLC-004			MSLC-005			MSLC-008	
Sample Name:				MSLC-003-SB-12.25-DUP	MSLC-003-SB-17.25	MSLC-003B-SB-12.25	MSLC-004-SB-2.35	MSLC-004-SB-7.5	MSLC-004-SB-11.5	MSLC-005-SB-7.5	MSLC-005-SB-7.5-DUP	MSLC-005-SB-10.0	MSLC-008-SB-7.5	MSLC-008-SB-13.5
Sample Date:				07/10/2020	07/10/2020	08/27/2020	07/10/2020	07/10/2020	07/10/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020
Sample Depth (ft bgs):				12.25	17.25	12.25	2.35	7.5	11.5	7.5	7.5	10	7.5	13.5
TPH (mg/kg-ww)														
Gasoline-range hydrocarbons	30[c]	NV	NA	18.8 J	4.4 U	--	--	--	--	--	--	--	--	--
TPH (mg/kg)														
Gasoline-range hydrocarbons	30[c]/100[d]	NV	NA	--	--	586	8.03 U	7.92 U	12.2 U	3.94 U	3.93 U	95.1	3.54 U	554
Diesel-range hydrocarbons	2,000	NV	NA	--	--	376 J	26.7 U	27 U	31.4 U	13.3 U	13.2 U	28.6 J	12.5 U	34.7 J
Oil-range hydrocarbons	2,000	NV	NA	--	--	25.9 U	53.4 U	54 U	62.7 U	42.1 J	32.2 J	27.4 U	24.9 U	28.3 U
Diesel+Oil[e]	2,000[f]	NV	NA	--	--	389 J	53.4 U	54 U	62.7 U	48.8 J	38.8 J	42.3 J	24.9 U	48.9 J
Total Metals (mg/kg)														
Arsenic	20	NA	7	--	--	--	--	--	--	--	--	--	--	--
Barium	NV	16,000	NV	--	--	--	--	--	--	--	--	--	--	--
Cadmium	2	NA	1	--	--	--	--	--	--	--	--	--	--	--
Chromium	2,000[g]	NA	42	--	--	--	--	--	--	--	--	--	--	--
Lead	250	NV	17	--	--	--	--	--	--	--	--	--	--	--
Mercury	2	NV	0.07	--	--	--	--	--	--	--	--	--	--	--
Selenium	NV	400	NV	--	--	--	--	--	--	--	--	--	--	--
Silver	NV	400	NV	--	--	--	--	--	--	--	--	--	--	--
VOCs (mg/kg-ww)														
Benzene	0.03	18	NA	0.00926	0.0088 U	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	8,000	NA	0.34 J	0.022 U	--	--	--	--	--	--	--	--	--
Toluene	7	6,400	NA	0.0421 U	0.044 U	--	--	--	--	--	--	--	--	--
Xylenes (total)[h]	9	16,000	NA	0.0631 U	0.066 U	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	NV	38	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,1,1-Trichloroethane	2	NA	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,1,2,2-Tetrachloroethane	NV	5	NA	--	--	0.176 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.327 U
1,1,2-Trichloroethane	NV	18	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,1-Dichloroethane	NV	180	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,1-Dichloroethene	NV	4,000	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,1-Dichloropropene	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
1,2,3-Trichlorobenzene	NV	64	NA	--	--	0.351 U	--	--	--	0.197 U	0.197 U	0.193 U	0.177 U	0.408 U
1,2,3-Trichloropropane	NV	0.0063	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
1,2,4-Trichlorobenzene	NV	34	NA	--	--	0.351 U	--	--	--	0.197 U	0.197 U	0.193 U	0.177 U	0.408 U
1,2,4-Trimethylbenzene	NV	800	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.047 J	0.0354 U	0.0816 U
1,2-Dibromo-3-chloropropane	NV	0.23	NA	--	--	0.351 U	--	--	--	0.197 U	0.197 U	0.193 U	0.177 U	0.408 U
1,2-Dibromoethane	0.005	NA	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
1,2-Dichlorobenzene	NV	7,200	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,2-Dichloroethane	NV	11	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,2-Dichloropropane	NV	27	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[(a)(1)]	MTCA Method B[(a)(b)(1)]	Washington State Background Metals, Statewide[(2)]	MSLC-003 (cont.)		MSLC-003B	MSLC-004			MSLC-005			MSLC-008	
Sample Name:				MSLC-003-SB-12.25-DUP	MSLC-003-SB-17.25	MSLC-003B-SB-12.25	MSLC-004-SB-2.35	MSLC-004-SB-7.5	MSLC-004-SB-11.5	MSLC-005-SB-7.5	MSLC-005-SB-7.5-DUP	MSLC-005-SB-10.0	MSLC-008-SB-7.5	MSLC-008-SB-13.5
Sample Date:				07/10/2020	07/10/2020	08/27/2020	07/10/2020	07/10/2020	07/10/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020
Sample Depth (ft bgs):				12.25	17.25	12.25	2.35	7.5	11.5	7.5	7.5	10	7.5	13.5
1,3,5-Trimethylbenzene	NV	800	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
1,3-Dichlorobenzene	NV	NV	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
1,3-Dichloropropane	NV	1,600	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
1,4-Dichlorobenzene	NV	190	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
2,2-Dichloropropane	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
2-Butanone	NV	48,000	NA	--	--	1.41 U	--	--	--	0.394 U	0.393 U	0.385 U	0.708 UJ	3.35 U
2-Chlorotoluene	NV	1,600	NA	--	--	0.141 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.163 U
2-Hexanone	NV	400	NA	--	--	1.41 U	--	--	--	0.394 U	0.393 U	0.385 U	0.354 U	1.63 U
4-Chlorotoluene	NV	1,600	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
4-Isopropyltoluene	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
4-Methyl-2-pentanone	NV	6,400	NA	--	--	4.5 U	--	--	--	0.394 U	0.393 U	0.385 U	0.354 U	4.12 U
Acetone	NV	72,000	NA	--	--	1.41 U	--	--	--	0.788 U	0.787 U	0.771 U	0.708 U	1.63 U
Acrylonitrile	NV	1.9	NA	--	--	0.281 U	--	--	--	0.0788 U	0.0787 U	0.0771 U	0.0708 U	0.735 U
Benzene	0.03	NA	NA	--	--	0.0141 U	--	--	--	0.00788 U	0.00787 U	0.0208	0.00708 U	0.0163 U
Bromobenzene	NV	640	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
Bromodichloromethane	NV	16	NA	--	--	0.211 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Bromoform	NV	130	NA	--	--	0.141 U	--	--	--	0.0788 U	0.0787 U	0.0771 U	0.0708 U	0.163 U
Bromomethane	NV	110	NA	--	--	1.41 U	--	--	--	0.788 U	0.787 U	0.771 U	0.708 U	1.63 U
Carbon disulfide	NV	8,000	NA	--	--	0.703 U	--	--	--	0.394 U	0.393 U	0.385 U	0.354 U	0.816 U
Carbon tetrachloride	NV	14	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Chlorobenzene	NV	1,600	NA	--	--	0.0703 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0816 U
Chlorobromomethane	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Chloroethane	NV	NV	NA	--	--	0.703 UJ	--	--	--	0.394 U	0.393 U	0.385 UJ	0.708 UJ	0.816 UJ
Chloroform	NV	32	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.163 U
Chloromethane	NV	NV	NA	--	--	0.351 U	--	--	--	0.197 U	0.197 U	0.193 U	0.177 U	0.408 U
cis-1,2-Dichloroethene	NV	160	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
cis-1,3-Dichloropropene	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Dibromochloromethane	NV	12	NA	--	--	0.141 U	--	--	--	0.0788 U	0.0787 U	0.0771 U	0.0708 U	0.163 U
Dibromomethane	NV	800	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Dichlorodifluoromethane (Freon 12)	NV	16,000	NA	--	--	0.141 U	--	--	--	0.0788 U	0.0787 U	0.0771 U	0.0708 U	0.163 U
Ethylbenzene	6	NA	NA	--	--	0.0913	--	--	--	0.0197 U	0.0197 U	0.197	0.0177 U	0.0816 U
Hexachlorobutadiene	NV	13	NA	--	--	0.141 U	--	--	--	0.0788 UJ	0.0787 UJ	0.0771 U	0.0708 U	0.163 U
Isopropylbenzene	NV	8,000	NA	--	--	0.45	--	--	--	0.0394 U	0.0393 U	0.496	0.0354 U	0.313
m,p-Xylene	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0409 J	0.0354 U	0.0816 U
Methyl tert-butyl ether	0.1	NA	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Methylene chloride	0.02	NA	NA	--	--	0.703 U	--	--	--	0.394 U	0.393 U	0.385 U	0.354 U	0.816 U
Naphthalene	5	NA	NA	--	--	0.562 U	--	--	--	0.0788 U	0.0787 U	1.29	0.0708 U	0.327 U
n-Butylbenzene	NV	4,000	NA	--	--	2.92	--	--	--	0.0394 U	0.0393 U	1.05	0.0354 U	2.12

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	MSLC-003 (cont.)		MSLC-003B	MSLC-004			MSLC-005			MSLC-008	
Sample Name:				MSLC-003-SB-12.25-DUP	MSLC-003-SB-17.25	MSLC-003B-SB-12.25	MSLC-004-SB-2.35	MSLC-004-SB-7.5	MSLC-004-SB-11.5	MSLC-005-SB-7.5	MSLC-005-SB-7.5-DUP	MSLC-005-SB-10.0	MSLC-008-SB-7.5	MSLC-008-SB-13.5
Sample Date:				07/10/2020	07/10/2020	08/27/2020	07/10/2020	07/10/2020	07/10/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020
Sample Depth (ft bgs):				12.25	17.25	12.25	2.35	7.5	11.5	7.5	7.5	10	7.5	13.5
n-Propylbenzene	NV	8,000	NA	--	--	2.6	--	--	--	0.0197 U	0.0197 U	1.89	0.0177 U	1.79
o-Xylene	NV	16,000	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
sec-Butylbenzene	NV	8,000	NA	--	--	1.46	--	--	--	0.0394 U	0.0393 U	0.352	0.0354 U	0.816
Styrene	NV	16,000	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
tert-Butylbenzene	NV	8,000	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Tetrachloroethene	0.05	NA	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
Toluene	7	NA	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
trans-1,2-Dichloroethene	NV	1,600	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
trans-1,3-Dichloropropene	NV	NV	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0385 U	0.0354 U	0.0816 U
Trichloroethene	0.03	NA	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
Trichlorofluoromethane (Freon 11)	NV	24,000	NA	--	--	0.141 U	--	--	--	0.0788 U	0.0787 U	0.0771 U	0.0708 U	0.163 U
Vinyl chloride	NV	0.67	NA	--	--	0.0351 U	--	--	--	0.0197 U	0.0197 U	0.0193 U	0.0177 U	0.0408 U
Xylenes, Total[h]	9	NA	NA	--	--	0.0703 U	--	--	--	0.0394 U	0.0393 U	0.0506 J	0.0354 U	0.0816 U
PAHs (mg/kg)														
1-Methylnaphthalene	NV	34	NA	--	--	0.905	--	--	--	0.00367 U	0.0037 U	0.692	0.00335 U	0.0685
2-Methylnaphthalene	NV	320	NA	--	--	0.0689	--	--	--	0.00367 U	0.0037 U	1.3	0.00335 U	0.0136 U
Acenaphthene	NV	4,800	NA	--	--	0.0388 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Acenaphthylene	NV	NV	NA	--	--	0.0194 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Anthracene	NV	24,000	NA	--	--	0.0194 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Benzo(a)anthracene	NV	NV	NA	--	--	0.00648 J	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Benzo(a)pyrene	NA[i]	0.19	NA	--	--	0.0108 J	--	--	--	0.00275 U	0.00277 U	0.011 U	0.00251 U	0.0102 U
Benzo(b)fluoranthene	NV	NV	NA	--	--	0.00971 U	--	--	--	0.00275 U	0.00277 U	0.011 U	0.00251 U	0.0102 U
Benzo(ghi)perylene	NV	NV	NA	--	--	0.00646 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Benzo(k)fluoranthene	NV	NV	NA	--	--	0.00971 U	--	--	--	0.00275 U	0.00277 U	0.011 U	0.00251 U	0.0102 U
Carbazole	NV	NV	NA			0.00971 U	--	--	--	0.00275 U	0.00277 U	0.011 U	0.00251 U	0.0102 U
Chrysene	NV	NV	NA	--	--	0.00646 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Dibenzo(a,h)anthracene	NV	NV	NA	--	--	0.00646 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Dibenzofuran	NV	80	NA	--	--	0.0291 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Fluoranthene	NV	3,200	NA	--	--	0.00962 J	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Fluorene	NV	3,200	NA	--	--	0.0617	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Indeno(1,2,3-cd)pyrene	NV	NV	NA	--	--	0.00646 U	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
Naphthalene	5	NA	NA	--	--	0.121 U	--	--	--	0.00367 U	0.0037 U	1.15	0.00335 U	0.0136 U
Phenanthrene	NV	NV	NA	--	--	0.125	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.00911 J
Pyrene	NV	2,400	NA	--	--	0.0125 J	--	--	--	0.00183 U	0.00184 U	0.00734 U	0.00167 U	0.0068 U
cPAH TEQ[j][3]	NA[h]	0.19	NA	--	--	1.03	--	--	--	0.00367 U	0.0037 U	3.14	0.00335 U	0.0821
Naphthalenes, Total[k]	5	NA	NA	--	--	0.0131 J	--	--	--	0.00275 U	0.00277 U	0.011 U	0.00251 U	0.0102 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B01			B02		B03		B04	
Sample Name:				B01-SB-1.5	B01-SB-6.5	B01-SB-6.5-DUP	B02-SB-2	B02-SB-8	B03-SB-2.5	B03-SB-7	B04-SB-2	B04-SB-6
Sample Date:				10/26/2022	10/26/2022	10/26/2022	10/27/2022	10/27/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022
Sample Depth (ft bgs):				1.5	6.5	6.5	2	8	2.5	7	2	6
TPH (mg/kg-ww)												
Gasoline-range hydrocarbons	30[c]	NV	NA	--	--	--	--	--	--	--	--	--
TPH (mg/kg)												
Gasoline-range hydrocarbons	30[c]/100[d]	NV	NA	10.5	4.18 U	4.18 U	3.97 U	3.39 U	3.11 U	3.39 U	3.09 U	4.28 U
Diesel-range hydrocarbons	2,000	NV	NA	110 U	14.3 U	13.4 U	13.5 U	12.7 U	12.4 U	12.6 U	12.1 U	13.4 U
Oil-range hydrocarbons	2,000	NV	NA	1,500	28.5 U	26.9 U	27 U	25.3 U	24.8 U	40.2 J	24.1 U	26.9 U
Diesel+Oil[e]	2,000[f]	NV	NA	1,555	28.5 U	26.9 U	27 U	25.3 U	24.8 U	46.5 J	24.1 U	26.9 U
Total Metals (mg/kg)												
Arsenic	20	NA	7	--	--	--	--	--	4.67	6.98	4.28	4.56
Barium	NV	16,000	NV	--	--	--	--	--	190	246	221	200
Cadmium	2	NA	1	--	--	--	--	--	0.131 J	0.126 U	0.198 J	0.146 U
Chromium	2,000[g]	NA	42	--	--	--	--	--	21.8	23.5	19.7	15.5
Lead	250	NV	17	--	--	--	--	--	17.9	8.43	10.1	11.4
Mercury	2	NV	0.07	--	--	--	--	--	0.0536 J	0.0504 U	0.0511 U	0.0873 J
Selenium	NV	400	NV	--	--	--	--	--	0.615 U	0.630 U	0.639 U	0.732 U
Silver	NV	400	NV	--	--	--	--	--	0.123 U	0.126 U	0.128 U	0.146 U
VOCs (mg/kg-ww)												
Benzene	0.03	18	NA	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	8,000	NA	--	--	--	--	--	--	--	--	--
Toluene	7	6,400	NA	--	--	--	--	--	--	--	--	--
Xylenes (total)[h]	9	16,000	NA	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)												
1,1,1,2-Tetrachloroethane	NV	38	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,1,1-Trichloroethane	2	NA	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,1,2,2-Tetrachloroethane	NV	5	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,1,2-Trichloroethane	NV	18	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,1-Dichloroethane	NV	180	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,1-Dichloroethene	NV	4,000	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,1-Dichloropropene	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,2,3-Trichlorobenzene	NV	64	NA	--	--	--	--	--	0.155 U	0.17 U	0.154 U	0.214 U
1,2,3-Trichloropropane	NV	0.0063	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,2,4-Trichlorobenzene	NV	34	NA	--	--	--	--	--	0.155 U	0.17 U	0.154 U	0.214 U
1,2,4-Trimethylbenzene	NV	800	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,2-Dibromo-3-chloropropane	NV	0.23	NA	--	--	--	--	--	0.155 U	0.17 U	0.154 U	0.214 U
1,2-Dibromoethane	0.005	NA	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,2-Dichlorobenzene	NV	7,200	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,2-Dichloroethane	NV	11	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,2-Dichloropropane	NV	27	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B01			B02		B03		B04	
Sample Name:				B01-SB-1.5	B01-SB-6.5	B01-SB-6.5-DUP	B02-SB-2	B02-SB-8	B03-SB-2.5	B03-SB-7	B04-SB-2	B04-SB-6
Sample Date:				10/26/2022	10/26/2022	10/26/2022	10/27/2022	10/27/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022
Sample Depth (ft bgs):				1.5	6.5	6.5	2	8	2.5	7	2	6
1,3,5-Trimethylbenzene	NV	800	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,3-Dichlorobenzene	NV	NV	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
1,3-Dichloropropane	NV	1,600	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
1,4-Dichlorobenzene	NV	190	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
2,2-Dichloropropane	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
2-Butanone	NV	48,000	NA	--	--	--	--	--	0.622 UJ	0.679 UJ	0.618 UJ	0.857 UJ
2-Chlorotoluene	NV	1,600	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
2-Hexanone	NV	400	NA	--	--	--	--	--	0.311 U	0.339 U	0.309 U	0.428 U
4-Chlorotoluene	NV	1,600	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
4-Isopropyltoluene	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
4-Methyl-2-pentanone	NV	6,400	NA	--	--	--	--	--	0.311 U	0.339 U	0.309 U	0.428 U
Acetone	NV	72,000	NA	--	--	--	--	--	1.24 UJ	1.36 UJ	1.24 UJ	1.71 UJ
Acrylonitrile	NV	1.9	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
Benzene	0.03	NA	NA	--	--	--	--	--	0.00622 U	0.00679 U	0.00618 U	0.00857 U
Bromobenzene	NV	640	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
Bromodichloromethane	NV	16	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Bromoform	NV	130	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
Bromomethane	NV	110	NA	--	--	--	--	--	0.622 U	0.679 U	0.618 U	0.857 U
Carbon disulfide	NV	8,000	NA	--	--	--	--	--	0.311 U	0.339 U	0.309 U	0.428 U
Carbon tetrachloride	NV	14	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Chlorobenzene	NV	1,600	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
Chlorobromomethane	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Chloroethane	NV	NV	NA	--	--	--	--	--	0.311 U	0.339 U	0.309 U	0.428 U
Chloroform	NV	32	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Chloromethane	NV	NV	NA	--	--	--	--	--	0.155 U	0.17 U	0.154 U	0.214 U
cis-1,2-Dichloroethene	NV	160	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
cis-1,3-Dichloropropene	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Dibromochloromethane	NV	12	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
Dibromomethane	NV	800	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Dichlorodifluoromethane (Freon 12)	NV	16,000	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
Ethylbenzene	6	NA	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
Hexachlorobutadiene	NV	13	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
Isopropylbenzene	NV	8,000	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
m,p-Xylene	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Methyl tert-butyl ether	0.1	NA	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Methylene chloride	0.02	NA	NA	--	--	--	--	--	0.311 U	0.339 U	0.309 U	0.428 U
Naphthalene	5	NA	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
n-Butylbenzene	NV	4,000	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U

Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B01			B02		B03		B04	
Sample Name:				B01-SB-1.5	B01-SB-6.5	B01-SB-6.5-DUP	B02-SB-2	B02-SB-8	B03-SB-2.5	B03-SB-7	B04-SB-2	B04-SB-6
Sample Date:				10/26/2022	10/26/2022	10/26/2022	10/27/2022	10/27/2022	10/26/2022	10/26/2022	10/26/2022	10/26/2022
Sample Depth (ft bgs):				1.5	6.5	6.5	2	8	2.5	7	2	6
n-Propylbenzene	NV	8,000	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
o-Xylene	NV	16,000	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
sec-Butylbenzene	NV	8,000	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Styrene	NV	16,000	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
tert-Butylbenzene	NV	8,000	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Tetrachloroethene	0.05	NA	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
Toluene	7	NA	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
trans-1,2-Dichloroethene	NV	1,600	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
trans-1,3-Dichloropropene	NV	NV	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
Trichloroethene	0.03	NA	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
Trichlorofluoromethane (Freon 11)	NV	24,000	NA	--	--	--	--	--	0.0622 U	0.0679 U	0.0618 U	0.0857 U
Vinyl chloride	NV	0.67	NA	--	--	--	--	--	0.0155 U	0.017 U	0.0154 U	0.0214 U
Xylenes, Total[h]	9	NA	NA	--	--	--	--	--	0.0311 U	0.0339 U	0.0309 U	0.0428 U
PAHs (mg/kg)												
1-Methylnaphthalene	NV	34	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
2-Methylnaphthalene	NV	320	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Acenaphthene	NV	4,800	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Acenaphthylene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Anthracene	NV	24,000	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Benzo(a)anthracene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Benzo(a)pyrene	NA[i]	0.19	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Benzo(b)fluoranthene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Benzo(ghi)perylene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Benzo(k)fluoranthene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Carbazole	NV	NV	NA	--	--	--	--	--	--	--	--	--
Chrysene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Dibenzo(a,h)anthracene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Dibenzofuran	NV	80	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Fluoranthene	NV	3,200	NA	--	--	--	--	--	0.00624 J	0.00622 U	0.00608 U	0.0068 U
Fluorene	NV	3,200	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Indeno(1,2,3-cd)pyrene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Naphthalene	5	NA	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Phenanthrene	NV	NV	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Pyrene	NV	2,400	NA	--	--	--	--	--	0.00741 J	0.00622 U	0.00608 U	0.0068 U
cPAH TEQ[j][3]	NA[h]	0.19	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U
Naphthalenes, Total[k]	5	NA	NA	--	--	--	--	--	0.00603 U	0.00622 U	0.00608 U	0.0068 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B05		B06			B07		B08	
Sample Name:				B05-SB-1.5	B05-SB-5.5	B06-SB-6	B06-SB-9	B06-SB-12	B07-SB-3.5	B07-SB-8	B08-SB-2	B08-SB-9
Sample Date:				10/26/2022	10/26/2022	10/27/2022	10/27/2022	10/27/2022	10/25/2022	10/25/2022	10/26/2022	10/26/2022
Sample Depth (ft bgs):				1.5	5.5	6	9	12	3.5	8	2	9
TPH (mg/kg-ww)												
Gasoline-range hydrocarbons	30[c]	NV	NA	--	--	--	--	--	--	--	--	--
TPH (mg/kg)												
Gasoline-range hydrocarbons	30[c]/100[d]	NV	NA	1,950	3.62 U	3.58 U	376	16.0	3.98 U	3.68 U	3.36 U	5.02 U
Diesel-range hydrocarbons	2,000	NV	NA	157	12.8 U	13.2 U	13.1 U	255	12.8 U	12.4 U	12.8 U	14.2 U
Oil-range hydrocarbons	2,000	NV	NA	25.1 U	25.7 U	26.5 U	26.2 U	119	106	24.9 U	66.6	51.8 J
Diesel+Oil[e]	2,000[f]	NV	NA	170	25.7 U	26.5 U	26.2 U	374	112	24.9 U	73.0	58.9 J
Total Metals (mg/kg)												
Arsenic	20	NA	7	--	--	--	--	--	8.20	3.97	5.79	2.94
Barium	NV	16,000	NV	--	--	--	--	--	271	190	156	183
Cadmium	2	NA	1	--	--	--	--	--	0.142 U	0.165 J	0.132 U	0.241 J
Chromium	2,000[g]	NA	42	--	--	--	--	--	19.1	21.9	21.8	23.8
Lead	250	NV	17	--	--	--	--	--	11.7	8.67	15.0	11.7
Mercury	2	NV	0.07	--	--	--	--	--	0.0571 J	0.0579 U	0.0584 J	0.0614 U
Selenium	NV	400	NV	--	--	--	--	--	0.783 J	0.724 U	0.662 U	0.874 J
Silver	NV	400	NV	--	--	--	--	--	0.142 U	0.145 U	0.132 U	0.154 U
VOCs (mg/kg-ww)												
Benzene	0.03	18	NA	--	--	--	--	--	--	--	--	--
Ethylbenzene	6	8,000	NA	--	--	--	--	--	--	--	--	--
Toluene	7	6,400	NA	--	--	--	--	--	--	--	--	--
Xylenes (total)[h]	9	16,000	NA	--	--	--	--	--	--	--	--	--
VOCs (mg/kg)												
1,1,1,2-Tetrachloroethane	NV	38	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,1,1-Trichloroethane	2	NA	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,1,2,2-Tetrachloroethane	NV	5	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,1,2-Trichloroethane	NV	18	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,1-Dichloroethane	NV	180	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,1-Dichloroethene	NV	4,000	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,1-Dichloropropene	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,2,3-Trichlorobenzene	NV	64	NA	--	--	--	--	--	0.199 U	0.184 U	0.168 U	0.251 U
1,2,3-Trichloropropane	NV	0.0063	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,2,4-Trichlorobenzene	NV	34	NA	--	--	--	--	--	0.199 U	0.184 U	0.168 U	0.251 U
1,2,4-Trimethylbenzene	NV	800	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,2-Dibromo-3-chloropropane	NV	0.23	NA	--	--	--	--	--	0.199 U	0.184 U	0.168 U	0.251 U
1,2-Dibromoethane	0.005	NA	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,2-Dichlorobenzene	NV	7,200	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,2-Dichloroethane	NV	11	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,2-Dichloropropane	NV	27	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B05		B06			B07		B08	
Sample Name:				B05-SB-1.5	B05-SB-5.5	B06-SB-6	B06-SB-9	B06-SB-12	B07-SB-3.5	B07-SB-8	B08-SB-2	B08-SB-9
Sample Date:				10/26/2022	10/26/2022	10/27/2022	10/27/2022	10/27/2022	10/25/2022	10/25/2022	10/26/2022	10/26/2022
Sample Depth (ft bgs):				1.5	5.5	6	9	12	3.5	8	2	9
1,3,5-Trimethylbenzene	NV	800	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,3-Dichlorobenzene	NV	NV	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
1,3-Dichloropropane	NV	1,600	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
1,4-Dichlorobenzene	NV	190	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
2,2-Dichloropropane	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
2-Butanone	NV	48,000	NA	--	--	--	--	--	0.398 U	0.368 U	0.672 UJ	1 UJ
2-Chlorotoluene	NV	1,600	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
2-Hexanone	NV	400	NA	--	--	--	--	--	0.398 U	0.368 U	0.336 U	0.502 U
4-Chlorotoluene	NV	1,600	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
4-Isopropyltoluene	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
4-Methyl-2-pentanone	NV	6,400	NA	--	--	--	--	--	0.398 U	0.368 U	0.336 U	0.502 U
Acetone	NV	72,000	NA	--	--	--	--	--	0.796 U	0.735 U	1.34 UJ	2.01 UJ
Acrylonitrile	NV	1.9	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
Benzene	0.03	NA	NA	--	--	--	--	--	0.00796 U	0.00735 U	0.00672 U	0.01 U
Bromobenzene	NV	640	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
Bromodichloromethane	NV	16	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Bromoform	NV	130	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
Bromomethane	NV	110	NA	--	--	--	--	--	0.796 U	0.735 U	0.672 U	1 U
Carbon disulfide	NV	8,000	NA	--	--	--	--	--	0.398 U	0.368 U	0.336 U	0.502 U
Carbon tetrachloride	NV	14	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Chlorobenzene	NV	1,600	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
Chlorobromomethane	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Chloroethane	NV	NV	NA	--	--	--	--	--	0.398 U	0.368 U	0.336 U	0.502 U
Chloroform	NV	32	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Chloromethane	NV	NV	NA	--	--	--	--	--	0.199 U	0.184 U	0.168 U	0.251 U
cis-1,2-Dichloroethene	NV	160	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
cis-1,3-Dichloropropene	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Dibromochloromethane	NV	12	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
Dibromomethane	NV	800	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Dichlorodifluoromethane (Freon 12)	NV	16,000	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
Ethylbenzene	6	NA	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
Hexachlorobutadiene	NV	13	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
Isopropylbenzene	NV	8,000	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
m,p-Xylene	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Methyl tert-butyl ether	0.1	NA	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Methylene chloride	0.02	NA	NA	--	--	--	--	--	0.398 U	0.368 U	0.336 U	0.502 U
Naphthalene	5	NA	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
n-Butylbenzene	NV	4,000	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B05		B06			B07		B08	
Sample Name:				B05-SB-1.5	B05-SB-5.5	B06-SB-6	B06-SB-9	B06-SB-12	B07-SB-3.5	B07-SB-8	B08-SB-2	B08-SB-9
Sample Date:				10/26/2022	10/26/2022	10/27/2022	10/27/2022	10/27/2022	10/25/2022	10/25/2022	10/26/2022	10/26/2022
Sample Depth (ft bgs):				1.5	5.5	6	9	12	3.5	8	2	9
n-Propylbenzene	NV	8,000	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
o-Xylene	NV	16,000	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
sec-Butylbenzene	NV	8,000	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Styrene	NV	16,000	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
tert-Butylbenzene	NV	8,000	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Tetrachloroethene	0.05	NA	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
Toluene	7	NA	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
trans-1,2-Dichloroethene	NV	1,600	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
trans-1,3-Dichloropropene	NV	NV	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
Trichloroethene	0.03	NA	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
Trichlorofluoromethane (Freon 11)	NV	24,000	NA	--	--	--	--	--	0.0796 U	0.0735 U	0.0672 U	0.1 U
Vinyl chloride	NV	0.67	NA	--	--	--	--	--	0.0199 U	0.0184 U	0.0168 U	0.0251 U
Xylenes, Total[h]	9	NA	NA	--	--	--	--	--	0.0398 U	0.0368 U	0.0336 U	0.0502 U
PAHs (mg/kg)												
1-Methylnaphthalene	NV	34	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
2-Methylnaphthalene	NV	320	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Acenaphthene	NV	4,800	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Acenaphthylene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Anthracene	NV	24,000	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Benzo(a)anthracene	NV	NV	NA	--	--	--	--	--	0.0129 U	0.00658 U	0.015 U	0.00715 U
Benzo(a)pyrene	NA[i]	0.19	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Benzo(b)fluoranthene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00657 J	0.00715 U
Benzo(ghi)perylene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Benzo(k)fluoranthene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Carbazole	NV	NV	NA	--	--	--	--	--	--	--	--	--
Chrysene	NV	NV	NA	--	--	--	--	--	0.0129 U	0.00658 U	0.0162 U	0.00715 U
Dibenzo(a,h)anthracene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Dibenzofuran	NV	80	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Fluoranthene	NV	3,200	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Fluorene	NV	3,200	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Indeno(1,2,3-cd)pyrene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Naphthalene	5	NA	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Phenanthrene	NV	NV	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U
Pyrene	NV	2,400	NA	--	--	--	--	--	0.00763 J	0.00658 U	0.00625 U	0.00715 U
cPAH TEQ[j][3]	NA[h]	0.19	NA	--	--	--	--	--	0.0129 U	0.00658 U	0.005551 J	0.00715 U
Naphthalenes, Total[k]	5	NA	NA	--	--	--	--	--	0.00646 U	0.00658 U	0.00625 U	0.00715 U

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B09		B10		B11		
Sample Name:				B09-SB-2	B09-SB-7.5	B10-SB-1.5	B10-SB-7	B11-SB-2	B11-SB-7	B11-SB-17
Sample Date:				10/27/2022	10/27/2022	10/27/2022	10/27/2022	10/25/2022	10/25/2022	10/25/2022
Sample Depth (ft bgs):				2	7.5	1.5	7	2	7	17
TPH (mg/kg-ww)										
Gasoline-range hydrocarbons	30[c]	NV	NA	--	--	--	--	--	--	--
TPH (mg/kg)										
Gasoline-range hydrocarbons	30[c]/100[d]	NV	NA	2.91 U	3.80 U	3.45 U	4.25 U	3.31 U	4.51 U	--
Diesel-range hydrocarbons	2,000	NV	NA	10.9 U	13.7 U	11.7 U	13.3 U	25.4 U	13.3 U	--
Oil-range hydrocarbons	2,000	NV	NA	28.0 J	27.4 U	23.5 U	26.6 U	335	26.7 U	--
Diesel+Oil[e]	2,000[f]	NV	NA	33.5 J	27.4 U	23.5 U	26.6 U	348	26.7 U	--
Total Metals (mg/kg)										
Arsenic	20	NA	7	2.85	2.68	4.62	8.29	--	--	--
Barium	NV	16,000	NV	59.0	46.0	183	335	--	--	--
Cadmium	2	NA	1	0.113 U	0.137 U	0.120 U	0.146 U	--	--	--
Chromium	2,000[g]	NA	42	9.09	14.6	24.6	16.9	--	--	--
Lead	250	NV	17	7.18	9.45	14.0	15.0	--	--	8.18
Mercury	2	NV	0.07	0.0535 J	0.0612 J	0.0653 J	0.0582 U	--	--	--
Selenium	NV	400	NV	0.565 U	0.686 U	0.622 J	0.728 U	--	--	--
Silver	NV	400	NV	0.113 U	0.137 U	0.120 U	0.146 U	--	--	--
VOCs (mg/kg-ww)										
Benzene	0.03	18	NA	--	--	--	--	--	--	--
Ethylbenzene	6	8,000	NA	--	--	--	--	--	--	--
Toluene	7	6,400	NA	--	--	--	--	--	--	--
Xylenes (total)[h]	9	16,000	NA	--	--	--	--	--	--	--
VOCs (mg/kg)										
1,1,1,2-Tetrachloroethane	NV	38	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,1,1-Trichloroethane	2	NA	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,1,2,2-Tetrachloroethane	NV	5	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,1,2-Trichloroethane	NV	18	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,1-Dichloroethane	NV	180	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,1-Dichloroethene	NV	4,000	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,1-Dichloropropene	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,2,3-Trichlorobenzene	NV	64	NA	0.146 U	0.19 U	0.173 U	0.212 U	--	--	--
1,2,3-Trichloropropane	NV	0.0063	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,2,4-Trichlorobenzene	NV	34	NA	0.146 U	0.19 U	0.173 U	0.212 U	--	--	--
1,2,4-Trimethylbenzene	NV	800	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,2-Dibromo-3-chloropropane	NV	0.23	NA	0.146 U	0.19 U	0.173 U	0.212 U	--	--	--
1,2-Dibromoethane	0.005	NA	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,2-Dichlorobenzene	NV	7,200	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,2-Dichloroethane	NV	11	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,2-Dichloropropane	NV	27	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[(a)(1)]	MTCA Method B[(a)(b)(1)]	Washington State Background Metals, Statewide[(2)]	B09		B10		B11		
Sample Name:				B09-SB-2	B09-SB-7.5	B10-SB-1.5	B10-SB-7	B11-SB-2	B11-SB-7	B11-SB-17
Sample Date:				10/27/2022	10/27/2022	10/27/2022	10/27/2022	10/25/2022	10/25/2022	10/25/2022
Sample Depth (ft bgs):				2	7.5	1.5	7	2	7	17
1,3,5-Trimethylbenzene	NV	800	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,3-Dichlorobenzene	NV	NV	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
1,3-Dichloropropane	NV	1,600	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
1,4-Dichlorobenzene	NV	190	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
2,2-Dichloropropane	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
2-Butanone	NV	48,000	NA	0.582 UJ	0.759 UJ	0.69 UJ	0.849 UJ	--	--	--
2-Chlorotoluene	NV	1,600	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
2-Hexanone	NV	400	NA	0.291 U	0.38 U	0.345 U	0.425 U	--	--	--
4-Chlorotoluene	NV	1,600	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
4-Isopropyltoluene	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
4-Methyl-2-pentanone	NV	6,400	NA	0.291 U	0.38 U	0.345 U	0.425 U	--	--	--
Acetone	NV	72,000	NA	1.16 UJ	1.52 UJ	1.38 UJ	1.7 UJ	--	--	--
Acrylonitrile	NV	1.9	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
Benzene	0.03	NA	NA	0.00582 U	0.00759 U	0.0069 U	0.00849 U	--	--	--
Bromobenzene	NV	640	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
Bromodichloromethane	NV	16	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Bromoform	NV	130	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
Bromomethane	NV	110	NA	0.582 U	0.759 U	0.69 U	0.849 U	--	--	--
Carbon disulfide	NV	8,000	NA	0.291 U	0.38 U	0.345 U	0.425 U	--	--	--
Carbon tetrachloride	NV	14	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Chlorobenzene	NV	1,600	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
Chlorobromomethane	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Chloroethane	NV	NV	NA	0.291 U	0.38 U	0.345 U	0.425 U	--	--	--
Chloroform	NV	32	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Chloromethane	NV	NV	NA	0.146 U	0.19 U	0.173 U	0.212 U	--	--	--
cis-1,2-Dichloroethene	NV	160	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
cis-1,3-Dichloropropene	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Dibromochloromethane	NV	12	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
Dibromomethane	NV	800	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Dichlorodifluoromethane (Freon 12)	NV	16,000	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
Ethylbenzene	6	NA	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
Hexachlorobutadiene	NV	13	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
Isopropylbenzene	NV	8,000	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
m,p-Xylene	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Methyl tert-butyl ether	0.1	NA	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Methylene chloride	0.02	NA	NA	0.291 U	0.38 U	0.345 U	0.425 U	--	--	--
Naphthalene	5	NA	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
n-Butylbenzene	NV	4,000	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--

MAUL FOSTER ALONGI

Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A, Unrestricted Land Use[a][1]	MTCA Method B[a][b][1]	Washington State Background Metals, Statewide[2]	B09		B10		B11		
Sample Name:				B09-SB-2	B09-SB-7.5	B10-SB-1.5	B10-SB-7	B11-SB-2	B11-SB-7	B11-SB-17
Sample Date:				10/27/2022	10/27/2022	10/27/2022	10/27/2022	10/25/2022	10/25/2022	10/25/2022
Sample Depth (ft bgs):				2	7.5	1.5	7	2	7	17
n-Propylbenzene	NV	8,000	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
o-Xylene	NV	16,000	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
sec-Butylbenzene	NV	8,000	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Styrene	NV	16,000	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
tert-Butylbenzene	NV	8,000	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Tetrachloroethene	0.05	NA	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
Toluene	7	NA	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
trans-1,2-Dichloroethene	NV	1,600	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
trans-1,3-Dichloropropene	NV	NV	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
Trichloroethene	0.03	NA	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
Trichlorofluoromethane (Freon 11)	NV	24,000	NA	0.0582 U	0.0759 U	0.069 U	0.0849 U	--	--	--
Vinyl chloride	NV	0.67	NA	0.0146 U	0.019 U	0.0173 U	0.0212 U	--	--	--
Xylenes, Total[h]	9	NA	NA	0.0291 U	0.038 U	0.0345 U	0.0425 U	--	--	--
PAHs (mg/kg)										
1-Methylnaphthalene	NV	34	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
2-Methylnaphthalene	NV	320	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 J	--	--	--
Acenaphthene	NV	4,800	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Acenaphthylene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Anthracene	NV	24,000	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Benzo(a)anthracene	NV	NV	NA	0.00521 U	0.00639 U	0.00818 J	0.00646 U	--	--	--
Benzo(a)pyrene	NA[i]	0.19	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Benzo(b)fluoranthene	NV	NV	NA	0.00521 U	0.00639 U	0.00858 J	0.00646 U	--	--	--
Benzo(ghi)perylene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Benzo(k)fluoranthene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Carbazole	NV	NV	NA	--	--	--	--	--	--	--
Chrysene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Dibenzo(a,h)anthracene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Dibenzofuran	NV	80	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Fluoranthene	NV	3,200	NA	0.00521 U	0.00639 U	0.0106 J	0.00646 U	--	--	--
Fluorene	NV	3,200	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00646 U	--	--	--
Naphthalene	5	NA	NA	0.00521 U	0.00639 U	0.00577 U	0.0116 J	--	--	--
Phenanthrene	NV	NV	NA	0.00521 U	0.00639 U	0.00577 U	0.00991 J	--	--	--
Pyrene	NV	2,400	NA	0.00521 U	0.00639 U	0.0103 J	0.00646 U	--	--	--
cPAH TEQ[j][3]	NA[h]	0.19	NA	0.00521 U	0.00639 U	0.005455 J	0.00646 U	--	--	--
Naphthalenes, Total[k]	5	NA	NA	0.00521 U	0.00639 U	0.00577 U	0.0213 J	--	--	--

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Table 3-1
Summary of Soil Analytical Results
Columbia Avenue Realignment
City of Stevenson

Notes

Washington State Background Metals values are shown for reference only and are not shaded for exceedances.

Shading (color key below) indicates values that exceed screening criteria; non-detects (U or UJ) were not compared with screening criteria.

MTCA Method A

-- = not analyzed.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

Ecology = Washington State Department of Ecology.

ft bgs = feet below ground surface.

J = result is estimated.

mg/kg = milligrams per kilogram.

mg/kg-ww = milligrams per kilogram wet weight.

MTCA = Model Toxics Control Act.

NA = not applicable.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

TEF = toxicity equivalence factor.

TEQ = toxicity equivalency.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the detection limit.

UJ = result is non-detect with an estimated detection limit.

VOC = volatile organic compound.

[a]When MTCA Method A value is available, value is not screened to MTCA Method B. When MTCA Method A value is not available, value is screened against the lowest of MTCA Method B cancer and noncancer values.

[b]Lowest of cancer and noncancer values are shown.

[c]Cleanup level is for gasoline-range hydrocarbons with benzene present.

[d]Screening level for gasoline-range hydrocarbons when no benzene is detected and the total of ethylbenzene, toluene, and xylene does not exceed 1 percent of the gasoline mixture.

[e]Diesel+Oil is the sum of diesel-range and oil-range hydrocarbons. When results are non-detect, half the detection limit is used. When both results are non-detect, the highest detection limit is shown.

[f]Value is the lowest applicable screening value for diesel- and oil-range hydrocarbons.

[g]Screening level for chromium III.

[h]Total xylenes is the sum of m,p-xylene and o-xylene. When both results are non-detect, the highest detection limit is shown.

[i]MTCA Method A value is available but not used for screening. Values are screened to MTCA Method B only.

[j]cPAH TEQ calculated with non-detect results multiplied by one-half. When all cPAH results are non-detect, the highest detection limit is shown.

[k]Total naphthalenes is the sum of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. When all results are non-detect, the highest detection limit is shown.

References

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC).* Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State.* Publication No. 94-115. Washington State Department of Ecology, Toxics Cleanup Program: Olympia, WA. October.

[3]Ecology. 2015. Interested Parties. *Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalence Factors (TEFs). Implementation Memo No. 10.* Publication No. 15-09-049. From Jeff Johnston, Washington State Department of Ecology Toxics Cleanup Program. April 20.

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Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A[a][1]	MTCA Method B[a][b][1]	MSLC-001	MSLC-002	MSLC-003	MSLC-003B	MSLC-004	MSLC-005	MSLC-006		MSLC-007	MSLC-008
Sample Name:			MSLC-001-GW-18.0	MSLC-002-GW-13.0	MSLC-003-GW-16.0	MSLC-003B-GW-19.0	MSLC-004-GW-13.5	MSLC-005-GW-19.0	MSLC-006-GW-18.0	MSLC-006-GW-18.0-DUP	MSLC-007-GW-18.0	MSLC-008-GW-19.0
Sample Date:			07/10/2020	07/10/2020	07/10/2020	08/27/2020	07/10/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020
Sample Depth (ft bgs):			18	13	16	19	13.5	19	18	18	18	19
Dissolved Metals (ug/L)												
Lead	15	NV	--	--	--	--	--	--	--	--	--	--
Total Metals (ug/L)												
Lead	15	NV	--	--	--	--	1.1	--	--	--	--	--
TPH (ug/L)												
Gasoline-range hydrocarbons	1,000[c]	NV	100 U	100 U	7,430	569	4,020	97.5 J	71.7 J	72.8 J	50 U	5,670
Diesel-range hydrocarbons	500	NV	--	--	--	163 J	462 J	44 U	43 U	43.5 U	42.1 U	618 J
Oil-range hydrocarbons	500	NV	--	--	--	84.2 U	168 U	87.9 U	86 U	87 U	280	82.5 U
Diesel+Oil[d]	500[e]	NA	--	--	--	205 J	546 J	87.9 U	86 U	87 U	301	659 J
VOCs (ug/L)												
1,1,1,2-Tetrachloroethane	NV	1.7	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
1,1,1-Trichloroethane	200	NA	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
1,1,2,2-Tetrachloroethane	NV	0.22	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
1,1,2-Trichloroethane	NV	0.77	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
1,1-Dichloroethane	NV	7.7	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
1,1-Dichloroethene	NV	400	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
1,1-Dichloropropene	NV	NV	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
1,2,3-Trichlorobenzene	NV	6.4	--	--	--	1 U	--	1 U	1 U	1 U	1 U	10 U
1,2,3-Trichloropropane	NV	0.00038	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
1,2,4-Trichlorobenzene	NV	1.5	--	--	--	1 U	--	1 U	1 U	1 U	1 U	10 U
1,2,4-Trimethylbenzene	NV	80	--	--	--	22.4	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
1,2-Dibromo-3-chloropropane	NV	0.014	--	--	--	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	25 U
1,2-Dibromoethane	0.01	NA	--	--	--	0.25 U	0.05 U	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
1,2-Dichlorobenzene	NV	720	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
1,2-Dichloroethane	5	NA	--	--	--	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	2 U
1,2-Dichloropropane	NV	1.2	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
1,3,5-Trimethylbenzene	NV	80	--	--	--	1.54	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
1,3-Dichlorobenzene	NV	NV	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
1,3-Dichloropropane	NV	160	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
1,4-Dichlorobenzene	NV	8.1	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
2,2-Dichloropropane	NV	NV	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
2-Butanone	NV	4,800	--	--	--	5 U	--	5 U	5 U	5 U	5 U	100 U
2-Chlorotoluene	NV	160	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
2-Hexanone	NV	40	--	--	--	5 U	--	5 U	5 U	5 U	5 U	50 U
4-Chlorotoluene	NV	160	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
4-Isopropyltoluene	NV	NV	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
4-Methyl-2-pentanone	NV	640	--	--	--	5 U	--	5 U	5 U	5 U	5 U	50 U

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Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A[a][1]	MTCA Method B[a][b][1]	MSLC-001	MSLC-002	MSLC-003	MSLC-003B	MSLC-004	MSLC-005	MSLC-006		MSLC-007	MSLC-008
Sample Name:			MSLC-001-GW-18.0	MSLC-002-GW-13.0	MSLC-003-GW-16.0	MSLC-003B-GW-19.0	MSLC-004-GW-13.5	MSLC-005-GW-19.0	MSLC-006-GW-18.0	MSLC-006-GW-18.0-DUP	MSLC-007-GW-18.0	MSLC-008-GW-19.0
Sample Date:			07/10/2020	07/10/2020	07/10/2020	08/27/2020	07/10/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020
Sample Depth (ft bgs):			18	13	16	19	13.5	19	18	18	18	19
Acetone	NV	7,200	--	--	--	57.9	--	10 UJ	10 UJ	10 UJ	20 UJ	100 UJ
Acrylonitrile	NV	0.081	--	--	--	1 U	--	5 U	1 U	1 U	1 U	70 U
Benzene	5	NA	0.25	0.2 U	2.54	0.19 J	54.3	0.22	0.1 U	0.1 U	0.1 U	6.2
Bromobenzene	NV	64	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
Bromodichloromethane	NV	0.71	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Bromoform	NV	5.5	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Bromomethane	NV	11	--	--	--	5 U	--	5 U	5 U	5 U	5 U	50 U
Carbon disulfide	NV	800	--	--	--	5 U	--	5 U	5 U	5 U	5 U	50 U
Carbon tetrachloride	NV	0.63	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Chlorobenzene	NV	160	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
Chlorobromomethane	NV	NV	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Chloroethane	NV	NV	--	--	--	5 U	--	5 U	5 U	5 U	5 U	50 U
Chloroform	NV	1.4	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Chloromethane	NV	NV	--	--	--	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	25 U
cis-1,2-Dichloroethene	NV	16	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
cis-1,3-Dichloropropene	NV	NV	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Dibromochloromethane	NV	0.52	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Dibromomethane	NV	80	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Dichlorodifluoromethane (Freon 12)	NV	1,600	--	--	--	0.5 UJ	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	5 UJ
Ethylbenzene	700	NA	0.5 U	0.5 U	178	11.2	176	1.69	0.25 U	0.25 U	0.25 U	12.6
Hexachlorobutadiene	NV	0.56	--	--	--	2.5 U	--	2.5 U	2.5 U	2.5 U	2.5 U	25 U
Isopropylbenzene	NV	800	--	--	--	1.76	--	0.5 U	0.5 U	0.5 U	0.5 U	17.3
m,p-Xylene	NV	NV	--	--	--	7.43	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Methyl tert-butyl ether	20	NA	--	--	--	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Methylene chloride	5	NA	--	--	--	5 U	--	5 U	5 U	5 U	5 U	50 U
Naphthalene	160	NA	--	--	--	16.5	83.3	2 U	2 U	2 U	2 U	20 U
n-Butylbenzene	NV	400	--	--	--	2.35	--	0.5 U	0.5 U	0.5 U	0.5 U	38.5
n-Propylbenzene	NV	800	--	--	--	8.51	--	0.44 J	0.25 U	0.25 U	0.25 U	88.2
o-Xylene	NV	1,600	--	--	--	0.25 U	--	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U
sec-Butylbenzene	NV	800	--	--	--	1.32	--	0.5 U	0.5 U	0.5 U	0.5 U	16.7
Styrene	NV	1,600	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
tert-Butylbenzene	NV	800	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Tetrachloroethene	5	NA	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
Toluene	1,000	NA	3.87	1 U	1 U	0.5 U	2.51	0.5 U	0.5 U	0.5 U	0.5 U	5 U
trans-1,2-Dichloroethene	NV	160	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
trans-1,3-Dichloropropene	NV	NV	--	--	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	5 U
Trichloroethene	5	NA	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
Trichlorofluoromethane (Freon 11)	NV	2,400	--	--	--	1 U	--	1 U	1 U	1 U	1 U	10 U
Vinyl chloride	0.2	NA	--	--	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	2 U
Xylenes, Total[f]	1,000	NA	2.9	1.5 U	29.4	7.56	33.3	0.5 U	0.5 U	0.5 U	0.5 U	5 U

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Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A[a][1]	MTCA Method B[a][b][1]	MSLC-001	MSLC-002	MSLC-003	MSLC-003B	MSLC-004	MSLC-005	MSLC-006		MSLC-007	MSLC-008
Sample Name:			MSLC-001-GW-18.0	MSLC-002-GW-13.0	MSLC-003-GW-16.0	MSLC-003B-GW-19.0	MSLC-004-GW-13.5	MSLC-005-GW-19.0	MSLC-006-GW-18.0	MSLC-006-GW-18.0-DUP	MSLC-007-GW-18.0	MSLC-008-GW-19.0
Sample Date:			07/10/2020	07/10/2020	07/10/2020	08/27/2020	07/10/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020	08/27/2020
Sample Depth (ft bgs):			18	13	16	19	13.5	19	18	18	18	19
PAHs (ug/L)												
1-Methylnaphthalene	NV	1.5	--	--	--	5.47	22.2 J	0.0268 J	0.0322 J	0.0359 J	0.0225 U	34
2-Methylnaphthalene	NV	32	--	--	--	7.45	20.1 J	0.0317 J	0.0227 U	0.0206 U	0.0225 U	3.45
Acenaphthene	NV	480	--	--	--	0.0421 U	0.316 UJ	0.0111 U	0.0114 U	0.0206 U	0.0112 U	0.426 U
Acenaphthylene	NV	NV	--	--	--	0.0211 U	0.0684 UJ	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Anthracene	NV	2,400	--	--	--	0.0211 U	0.0737 UJ	0.0111 U	0.0114 U	0.0206 U	0.0112 U	0.426 U
Benzo(a)anthracene	NV	NV	--	--	--	0.0211 U	0.0421 UJ	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Benzo(a)pyrene	NA[g]	0.023	--	--	--	0.0316 U	0.0421 UJ	0.0167 U	0.017 U	0.0155 U	0.0169 U	0.638 U
Benzo(b)fluoranthene	NV	NV	--	--	--	0.0316 U	0.0421 UJ	0.0167 U	0.017 U	0.0155 U	0.0169 U	0.638 U
Benzo(ghi)perylene	NV	NV	--	--	--	0.0211 U	0.0421 UJ	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Benzo(k)fluoranthene	NV	NV	--	--	--	0.0316 U	0.0421 UJ	0.0167 U	0.017 U	0.0155 U	0.0169 U	0.638 U
Carbazole	NV	NV	--	--	--	0.0316 U	--	0.0167 U	0.017 U	0.0155 U	0.0169 U	0.638 U
Chrysene	NV	NV	--	--	--	0.0211 U	0.0421 UJ	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Dibenzo(a,h)anthracene	NV	NV	--	--	--	0.0211 U	0.0421 UJ	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Dibenzofuran	NV	8	--	--	--	0.0211 U	0.119 J	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Fluoranthene	NV	640	--	--	--	0.0211 U	0.0383 J	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Fluorene	NV	320	--	--	--	0.037 J	0.269 J	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Indeno(1,2,3-cd)pyrene	NV	NV	--	--	--	0.0211 U	0.0421 UJ	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
Naphthalene	160	NA	--	--	--	9.01	33.5 J	0.102	0.0909 U	0.0928 U	0.0225 U	4.19
Phenanthrene	NV	NV	--	--	--	0.0248 J	0.52 J	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.524 J
Pyrene	NV	240	--	--	--	0.0211 U	0.0492 J	0.0111 U	0.0114 U	0.0103 U	0.0112 U	0.426 U
cPAHs[h][2]	NA[g]	0.023	--	--	--	21.9	75.8	0.161	0.0890 J	0.0926 J	0.0225 U	41.6
Naphthalenes, Total[i]	160	NA	--	--	--	0.0316 U	0.0421 U	0.0167 U	0.017 U	0.0155 U	0.0169 U	0.638 U

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Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A[a][1]	MTCA Method B[a][b][1]	B01	B02	B03	B04	B05	B06	B07	B08	B09	B11
Sample Name:			B01-GW-10.5	B02-GW-25.5	B03-GW-14	B04-GW-15	B05-GW-28	B06-GW-14	B07-GW-22	B08-GW-16	B09-GW-17.5	B11-GW-18
Sample Date:			10/26/2022	10/27/2022	10/26/2022	10/26/2022	10/26/2022	10/27/2022	10/25/2022	10/26/2022	10/27/2022	10/25/2022
Sample Depth (ft bgs):			10.5	25.5	14	15	28	14	22	16	17.5	18
Dissolved Metals (ug/L)												
Lead	15	NV	0.825	0.1 U	0.242	0.1 U	0.119 J	--	--	6.69	0.890	--
Total Metals (ug/L)												
Lead	15	NV	4.50	0.272	1.46	1.90	0.162 J	5.17	191	14.3	3.48	321
TPH (ug/L)												
Gasoline-range hydrocarbons	1,000[c]	NV	50 U	50 U	50 U	50 U	230	7,140	50 U	50 U	50 U	50 U
Diesel-range hydrocarbons	500	NV	104 U	96.2 U	106 U	130 U	98 U	384 J+	104 U	182 U	105 U	122 U
Oil-range hydrocarbons	500	NV	208 U	192 U	213 U	260 U	196 U	298 J	208 U	364 U	211 U	316 J
Diesel+Oil[d]	500[e]	NA	208 U	192 U	213 U	260 U	196 U	682 J	208 U	364 U	211 U	377 J
VOCs (ug/L)												
1,1,1,2-Tetrachloroethane	NV	1.7	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
1,1,1-Trichloroethane	200	NA	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
1,1,2,2-Tetrachloroethane	NV	0.22	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
1,1,2-Trichloroethane	NV	0.77	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
1,1-Dichloroethane	NV	7.7	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
1,1-Dichloroethene	NV	400	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
1,1-Dichloropropene	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
1,2,3-Trichlorobenzene	NV	6.4	--	--	1 U	1 U	--	--	1 U	1 U	1 U	--
1,2,3-Trichloropropane	NV	0.00038	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
1,2,4-Trichlorobenzene	NV	1.5	--	--	1 U	1 U	--	--	1 U	1 U	1 U	--
1,2,4-Trimethylbenzene	NV	80	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
1,2-Dibromo-3-chloropropane	NV	0.014	--	--	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	--
1,2-Dibromoethane	0.01	NA	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
1,2-Dichlorobenzene	NV	720	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
1,2-Dichloroethane	5	NA	--	--	0.2 U	0.2 U	--	--	1.08	0.2 U	0.2 U	--
1,2-Dichloropropane	NV	1.2	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
1,3,5-Trimethylbenzene	NV	80	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
1,3-Dichlorobenzene	NV	NV	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
1,3-Dichloropropane	NV	160	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
1,4-Dichlorobenzene	NV	8.1	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
2,2-Dichloropropane	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
2-Butanone	NV	4,800	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--
2-Chlorotoluene	NV	160	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
2-Hexanone	NV	40	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--
4-Chlorotoluene	NV	160	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
4-Isopropyltoluene	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
4-Methyl-2-pentanone	NV	640	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--

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Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A[a][1]	MTCA Method B[a][b][1]	B01	B02	B03	B04	B05	B06	B07	B08	B09	B11
Sample Name:			B01-GW-10.5	B02-GW-25.5	B03-GW-14	B04-GW-15	B05-GW-28	B06-GW-14	B07-GW-22	B08-GW-16	B09-GW-17.5	B11-GW-18
Sample Date:			10/26/2022	10/27/2022	10/26/2022	10/26/2022	10/26/2022	10/27/2022	10/25/2022	10/26/2022	10/27/2022	10/25/2022
Sample Depth (ft bgs):			10.5	25.5	14	15	28	14	22	16	17.5	18
Acetone	NV	7,200	--	--	10 U	10 U	--	--	20 U	10 U	20 U	--
Acrylonitrile	NV	0.081	--	--	1 U	1 U	--	--	1 U	1 U	1 U	--
Benzene	5	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bromobenzene	NV	64	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
Bromodichloromethane	NV	0.71	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Bromoform	NV	5.5	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Bromomethane	NV	11	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--
Carbon disulfide	NV	800	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--
Carbon tetrachloride	NV	0.63	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Chlorobenzene	NV	160	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
Chlorobromomethane	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Chloroethane	NV	NV	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--
Chloroform	NV	1.4	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Chloromethane	NV	NV	--	--	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	--
cis-1,2-Dichloroethene	NV	16	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
cis-1,3-Dichloropropene	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Dibromochloromethane	NV	0.52	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Dibromomethane	NV	80	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Dichlorodifluoromethane (Freon 12)	NV	1,600	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Ethylbenzene	700	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.59	0.25 U	0.25 U	0.25 U	0.25 U
Hexachlorobutadiene	NV	0.56	--	--	2.5 U	2.5 U	--	--	2.5 U	2.5 U	2.5 U	--
Isopropylbenzene	NV	800	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
m,p-Xylene	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Methyl tert-butyl ether	20	NA	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Methylene chloride	5	NA	--	--	5 U	5 U	--	--	5 U	5 U	5 U	--
Naphthalene	160	NA	--	--	1 U	1 U	--	--	2 U	1 U	1 U	--
n-Butylbenzene	NV	400	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
n-Propylbenzene	NV	800	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
o-Xylene	NV	1,600	--	--	0.25 U	0.25 U	--	--	0.25 U	0.25 U	0.25 U	--
sec-Butylbenzene	NV	800	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Styrene	NV	1,600	--	--	0.5 U	0.5 U	--	--	1 U	0.5 U	0.5 U	--
tert-Butylbenzene	NV	800	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Tetrachloroethene	5	NA	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
Toluene	1,000	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	NV	160	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
trans-1,3-Dichloropropene	NV	NV	--	--	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--
Trichloroethene	5	NA	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
Trichlorofluoromethane (Freon 11)	NV	2,400	--	--	1 U	1 U	--	--	1 U	1 U	1 U	--
Vinyl chloride	0.2	NA	--	--	0.2 U	0.2 U	--	--	0.2 U	0.2 U	0.2 U	--
Xylenes, Total[f]	1,000	NA	0.75 U	0.75 U	0.5 U	0.5 U	0.75 U	0.75 U	0.5 U	0.5 U	0.5 U	0.75 U

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Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Location:	MTCA Method A[a][1]	MTCA Method B[a][b][1]	B01	B02	B03	B04	B05	B06	B07	B08	B09	B11
Sample Name:			B01-GW-10.5	B02-GW-25.5	B03-GW-14	B04-GW-15	B05-GW-28	B06-GW-14	B07-GW-22	B08-GW-16	B09-GW-17.5	B11-GW-18
Sample Date:			10/26/2022	10/27/2022	10/26/2022	10/26/2022	10/26/2022	10/27/2022	10/25/2022	10/26/2022	10/27/2022	10/25/2022
Sample Depth (ft bgs):			10.5	25.5	14	15	28	14	22	16	17.5	18
PAHs (ug/L)												
1-Methylnaphthalene	NV	1.5	--	--	0.0358 U	0.0431 U	--	--	0.0804 U	0.158 U	0.039 U	--
2-Methylnaphthalene	NV	32	--	--	0.0358 U	0.0431 U	--	--	0.0804 U	0.158 U	0.039 U	--
Acenaphthene	NV	480	--	--	0.0179 U	0.0215 U	--	--	0.0704 J	0.079 U	0.0195 U	--
Acenaphthylene	NV	NV	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
Anthracene	NV	2,400	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
Benzo(a)anthracene	NV	NV	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Benzo(a)pyrene	NA[g]	0.023	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Benzo(b)fluoranthene	NV	NV	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Benzo(ghi)perylene	NV	NV	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
Benzo(k)fluoranthene	NV	NV	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Carbazole	NV	NV	--	--	--	--	--	--	--	--	--	--
Chrysene	NV	NV	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Dibenzo(a,h)anthracene	NV	NV	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Dibenzofuran	NV	8	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
Fluoranthene	NV	640	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
Fluorene	NV	320	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
Indeno(1,2,3-cd)pyrene	NV	NV	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Naphthalene	160	NA	--	--	0.0358 U	0.0431 U	--	--	0.0804 U	0.158 U	0.039 U	--
Phenanthrene	NV	NV	--	--	0.0358 U	0.0431 U	--	--	0.0804 U	0.158 U	0.039 U	--
Pyrene	NV	240	--	--	0.0179 U	0.0215 U	--	--	0.0402 U	0.079 U	0.0195 U	--
cPAHs[h][2]	NA[g]	0.023	--	--	0.00894 U	0.0108 U	--	--	0.0201 U	0.0395 U	0.00975 U	--
Naphthalenes, Total[i]	160	NA	--	--	0.0358 U	0.0431 U	--	--	0.0804 U	0.158 U	0.039 U	--

Table 3-2
Summary of Groundwater Analytical Results
Columbia Avenue Realignment
City of Stevenson

Notes

Shading (color key below) indicates values that exceed screening criteria; non-detects (U) were not compared with screening criteria.

MTCA Method A

-- = not analyzed.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

Ecology = Washington State Department of Ecology.

ft bgs = feet below ground surface.

J = result is estimated.

J+ = result is estimated, but the result may be biased high.

MTCA = Model Toxics Control Act.

NA = not applicable.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

TEF = toxicity equivalence factor.

TEQ = toxicity equivalency.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the detection limit.

ug/L = micrograms per liter.

UJ = result is non-detect with an estimated detection limit.

VOC = volatile organic compound.

[a]When MTCA Method A value is available, value is not screened to MTCA Method B. When MTCA Method A value is not available, value is screened against the lowest of MTCA Method B cancer and noncancer values.

[b]Lowest of cancer and noncancer values are shown.

[c]Screening level for gasoline-range hydrocarbons when no benzene is detected and the total of ethylbenzene, toluene, and xylene does not exceed 1 percent of the gasoline mixture.

[d]Diesel+Oil is the sum of diesel-range and oil-range hydrocarbons. When results are non-detect, half the detection limit is used. When both results are non-detect, the highest detection limit is shown.

[e]Value is the lowest applicable screening value for diesel- and oil-range hydrocarbons.

[f]Total xylenes are reported by the laboratory or are the sum of m,p-xylene and o-xylene. When both results are non-detect, the highest detection limit is shown.

[g]MTCA Method A value is available but not used for screening. Values are screened to MTCA Method B only.

[h]cPAH TEQ calculated with non-detect results multiplied by one-half. When all cPAH results are non-detect, the highest detection limit is shown.

[i]Total naphthalenes is the sum of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. When all results are non-detect, the highest detection limit is shown.

References

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC).* Washington State Department of Ecology, Toxics Cleanup Program. July errata.

[2]Ecology. 2015. Interested Parties. *Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalence Factors (TEFs). Implementation Memo No. 10.* Publication No. 15-09-049. From Jeff Johnston, Washington State Department of Ecology Toxics Cleanup Program. April 20.

Table 3-3
Summary of Soil Gas Analytical Results
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Location:	Method B VI, Sub-Slab[1]	MSLC-003A	MSLC-004A	MSLC-006A	
Sample Name:		MSLC-003A-SV	MSLC-004A-SV	MSLC-006A-SV	MSLC-006A-SV-DUP
Collection Date:		08/27/2020	08/27/2020	08/27/2020	08/27/2020
Collection Depth (ft bgs):		6	7.5	10	10
Permanent Gases (%)					
Carbon Dioxide	NV	11	19	0.23 R	0.24 R
Methane	NV	0.0005	50	0.00054 R	0.00048 R
Nitrogen	NV	79	27	70 R	75 R
Oxygen	NV	9.6	4	18 R	19 R
VOCs (ug/m^3)					
1,1,1-Trichloroethane	76,000	6.7 U	29,000 U	6.7 R	6.9 R
1,1,2,2-Tetrachloroethane	1.4	8.5 U	36,000 U	8.5 R	8.6 R
1,1,2-Trichloroethane	3	6.7 U	29,000 U	6.7 R	6.9 R
1,1-Dichloroethane	52	5 U	21,000 U	5 R	5.1 R
1,1-Dichloroethene	3,000	4.9 U	21,000 U	4.9 R	5 R
1,2,4-Trichlorobenzene	30	37 U	160,000 U	37 R	37 R
1,2,4-Trimethylbenzene	910	22	26,000 U	8.8 R	6.4 R
1,2-Dibromoethane	0.14	9.5 U	41,000 U	9.5 R	9.7 R
1,2-Dichlorobenzene	3,000	7.4 U	32,000 U	7.4 R	7.6 R
1,2-Dichloroethane	3.2	5 U	21,000 U	5 R	5.1 R
1,2-Dichloropropane	23	5.7 U	24,000 U	5.7 R	5.8 R
1,3,5-Trimethylbenzene	NV	6.1	26,000 U	6.1 R	6.2 R
1,3-Butadiene	2.8	8.8	12,000 U	120 R[a]	66 R[a]
1,3-Dichlorobenzene	NV	7.4 U	32,000 U	7.4 R	7.6 R
1,4-Dichlorobenzene	7.6	7.4 U	32,000 U	7.4 R	7.6 R
1,4-Dioxane	NV	18 U	76,000 U	18 R	18 R
2,2,4-Trimethylpentane	NV	7.4	230,000	17 R	16 R
2-Butanone	76,000	14 U	62,000 U	21 R	17 R
2-Hexanone	NV	20 U	87,000 U	20 R	21 R
2-Propanol	NV	12 U	52,000 U	16 R	26 R
4-Ethyltoluene	NV	16	26,000 U	6.5 R	6.2 R
4-Methyl-2-pentanone	46,000	5 U	22,000 U	5 R	5.2 R
Acetone	NV	40	120,000 U	130 R	120 R
Allyl Chloride	NV	15 U	66,000 U	15 R	16 R
Benzene	11	7.7	230,000	45 R[a]	51 R[a]
Benzyl Chloride	1.7	6.4 U	27,000 U	6.4 R	6.5 R
Bromodichloromethane	2.3	8.3 U	36,000 U	8.3 R	8.4 R
Bromoform	76	13 U	55,000 U	13 R	13 R
Bromomethane	76	48 U	200,000 U	48 R	49 R
Carbon disulfide	11,000	15 U	66,000 U	15 R	16 R
Carbon tetrachloride	14	7.8 U	33,000 U	7.8 R	7.9 R
Chlorobenzene	760	5.7 U	24,000 U	5.7 R	5.8 R

Table 3-3
Summary of Soil Gas Analytical Results
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Location:	Method B VI, Sub-Slab[1]	MSLC-003A	MSLC-004A	MSLC-006A	
Sample Name:		MSLC-003A-SV	MSLC-004A-SV	MSLC-006A-SV	MSLC-006A-SV-DUP
Collection Date:		08/27/2020	08/27/2020	08/27/2020	08/27/2020
Collection Depth (ft bgs):		6	7.5	10	10
Chloroethane	150,000	13 U	56,000 U	13 R	13 R
Chloroform	3.6	6 U	26,000 U	6 R	6.2 R
Chloromethane	1,400	26 U	110,000 U	26 R	26 R
cis-1,2-Dichloroethene	NV	4.9 U	21,000 U	4.9 R	5 R
cis-1,3-Dichloropropene	NV	5.6 U	24,000 U	5.6 R	5.7 R
Cyclohexane	NV	4.2 U	500,000	14 R	12 R
Dibromochloromethane	NV	10 U	45,000 U	10 R	11 R
Dichlorodifluoromethane (Freon 12)	1,500	6.1 U	26,000 U	6.1 R	6.2 R
Ethanol	NV	9.3 U	40,000 U	26 R	24 R
Ethylbenzene	15,000	11	23,000 U	5.7 R	5.5 R
Freon 113	76,000	9.5 U	41,000 U	9.5 R	9.6 R
Freon 114	NV	8.6 U	37,000 U	8.6 R	8.8 R
Heptane	NV	9.9	84,000	32 R	31 R
Hexachlorobutadiene	3.8	53 U	230,000 U	53 R	54 R
Isopropylbenzene	6,100	6.1 U	26,000 U	6.1 R	6.2 R
m,p-Xylene	NV	54	23,000 U	25 R	22 R
Methyl tert-butyl ether	320	18 U	76,000 U	18 R	18 R
Methylene chloride	2,200	43 U	180,000 U	43 R	44 R
Naphthalene	2.5	13 U	56,000 U	13 R	13 R
n-Hexane	11,000	17	1,400,000	120 R	91 R
n-Propylbenzene	NV	6.1 U	26,000 U	6.1 R	6.2 R
o-Xylene	NV	20	23,000 U	7.7 R	7.4 R
Styrene	15,000	5.3 U	22,000 U	5.3 R	5.4 R
Tetrachloroethene	320	9.6	36,000 U	8.4 R	8.5 R
Tetrahydrofuran	NV	3.6 U	16,000 U	3.6 R	3.7 R
Toluene	76,000	99	20,000 U	55 R	55 R
trans-1,2-Dichloroethene	NV	4.9 U	21,000 U	4.9 R	5 R
trans-1,3-Dichloropropene	NV	5.6 U	24,000 U	5.6 R	5.7 R
Trichloroethene	11	6.6 U	28,000 U	6.6 R	6.8 R
Trichlorofluoromethane (Freon 11)	11,000	6.9 U	30,000 U	6.9 R	7.1 R
Vinyl chloride	9.5	3.2 U	14,000 U	3.2 R	3.2 R
Xylenes, total[b]	1,500	74	23,000 U	25 R	22 R
VPH (ug/m^3)					
C5-C6 Aliphatic Hydrocarbons	NV	100	18,000,000	2,300 R	1,500 R
C6-C8 Aliphatic Hydrocarbons	NV	100 U	6,700,000	340 R	310 R
C8-C10 Aliphatic Hydrocarbons	NV	140 U	620,000 U	140 R	150 R
C10-C12 Aliphatic Hydrocarbons	NV	210	740,000 U	170 R	180 R
C8-C10 Aromatic Hydrocarbons	NV	120 U	520,000 U	120 R	120 R
C10-C12 Aromatic Hydrocarbons	NV	140 U	580,000 U	140 R	140 R
TPH (ug/m^3)					
TPH, generic[c]	4,700	560	26,232,500	NC	NC

Table 3-3
Summary of Soil Gas Analytical Results
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Notes:

Shading (color key below) indicates values that exceed screening criteria; non-detects (U) were not compared with screening criteria.

Method B VI, Sub-Slab. The lower of cancerous or noncancerous values.

Ecology = Washington State Department of Ecology.

ft bgs = feet below ground surface.

NC = not calculated, results are rejected based on tracer gas detections.

NV = no value.

R = result is rejected, analyte may or may not be present in the sample; see data validation memorandum for discussion.

TPH = total petroleum hydrocarbons.

U = result is non-detect.

ug/m^3 = micrograms per cubic meter.

VI = vapor intrusion.

VOC = volatile organic compound.

VPH = volatile petroleum hydrocarbon.

[a]Detected result exceeds Method B VI cancer screening level; result also qualified as rejected.

[b]Total xylenes is the sum of m,p- and o-xylene. Non-detect results are summed at one-half the detection limit. When both results-are non-detect, the higher reporting limit is used.

[c]Generic TPH is the sum of benzene, ethylbenzene, naphthalene, toluene, m,p-xylene, o-xylene, C5 to C12 aliphatic, and C8 to C12 aromatic hydrocarbons. Non-detect results are summed at one-half the detection limit. The generic TPH screening level does not include C8 aromatic hydrocarbons; however, those results are reported along with C9 aromatic hydrocarbons by the laboratory.

References:

[1]Ecology. 2022. *Cleanup Levels and Risk Calculation (CLARC)* . Washington State Department of Ecology, Toxics Cleanup Program. July errata.

Table 5-1
Alternative 2—Engineering and Institutional Controls Probable Cost
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Title:	**Alternative 2 - Engineering and Institutional Controls Probable Cost**	
Project:	Columbia Avenue Realignment Feasibility Study	
Client:	City of Stevenson	
Project #/Task:	M1769.03.002	Initial
Prepared By:	G. Kalmeta	GRK
Checked By:	J. Faust	JF
Date:	02/15/2023	
Revision #.:	0	

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Cost Estimate Summary - Feasibility Level

Schedule 'A' - Capping		$	38,600
Schedule 'B' - Institutional Controls		$	25,000
Schedule 'C' - Design and Project Management		$	25,990
Schedule 'D' - Contingency		$	27,000
	Total:	**$**	**116,590**

Assumptions:

1. This cost estimate does not include scope of work for existing pavement removal or road alignment work; the gravel cap area excludes the future road realignment area. The new road alignment will act as its own cap.
2. Contamination is assumed to be limited to the realignment area, south of the Second Street right-of-way.
3. Institutional controls will include a contaminated media management plan and environmental covenant.
4. Cost estimate does not include vapor barrier. Vapor barrier for future development to be included in the environmental covenant.
5. A 30% contingency is included to account for unknown site conditions.
6. The projected cost represents an estimate. The actual cost could be -30 to +50% of what has been estimated.

Table 5-1
Alternative 2—Engineering and Institutional Controls Probable Cost
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Schedule 'A' - Capping					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
A.1	Mobilization	20%	LS	-	$ 5,000
A.2	Install Demarcation	1	LS	$ 1,625	$ 1,630
A.3	Gravel Cap Incl. Haul & Installation	888	TON	$ 36	$ 31,970
				Subtotal Schedule 'A':	**$ 38,600**

Schedule 'B' - Institutional Controls					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
B.1	Preparation of Contamination Media Management Plan	1	LS	$ 15,000	$ 15,000
B.2	Preparation of Environmental Covenant	1	LS	$ 10,000	$ 10,000
				Subtotal Schedule 'B':	**$ 25,000**

Schedule 'C' - Project Management and Design					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
C.1	Project management and communications	8%	LS	-	$ 5,090
C.2	Permitting	1	LS	$ 5,000	$ 5,000
C.3	Remedial design	15%	LS	-	$ 9,540
C.4	Construction oversight	10%	LS	-	$ 6,360
				Subtotal Schedule 'C':	**$ 25,990**

Schedule 'D' - Contingency					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
D.1	Contingency (30%)	30%	LS	-	$ 27,000
				Subtotal Schedule 'D':	**$ 27,000**

Table 5-2
Alternative 3—Shallow Soil Excavation, Engineering Controls, and Institutional Controls Probable Cost
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Title:	**Alternative 3 - Shallow Soil Excavation, Engineering Controls, and Institutional Controls Probable Cost**	
Project:	Columbia Avenue Realignment Feasibility Study	
Client:	City of Stevenson	
Project #/Task:	M1769.03.002	Initial
Prepared By:	G. Kalmeta	GK
Checked By:	J. Faust	JF
Date:	2/15/2023	
Revision #.:	0	

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Cost Estimate Summary - Feasibility Level

Schedule 'A' - Site Preparation		$	20,800
Schedule 'B' - Capping		$	33,600
Schedule 'C' - Institutional Controls		$	25,000
Schedule 'D' - Excavation and Disposal for Boring 05		$	59,970
Schedule 'E' - Design and Project Management		$	61,000
Schedule 'F' - Contingency		$	61,000
	Total:	**$**	**261,370**

Assumptions:

1. This cost estimate does not include scope of work for existing road pavement removal or road alignment work; the gravel cap area excludes the future road realignment area. The new road alignment will act as its own cap.
2. Alternative 3 includes engineering and institutional controls from Alternative 2.
3. Contamination is limited to the realignment area, south of the Second Street right-of-way.
4. Soil will be excavated around boring B05, where shallow soil contamination was encountered. It is assumed 50% of the excavated soil is contaminated in this area.
5. Excavation work will be bid with site redevelopment documents, a separate bid package is not required. A contaminants media management plan will be created for the site.
6. A 30% contingency is included to account for unknown site conditions.
7. The projected cost represents an estimate. The actual cost could be -30 to +50% of what has been estimated.

Table 5-2
Alternative 3—Shallow Soil Excavation, Engineering Controls, and Institutional Controls Probable Cost
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Schedule 'A' - Site Preparation					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
A.1	Mobilization/Demobilization	20%	LS	$ -	$ 18,800
A.2	Erosion and Sediment Control	1	LS	$ 2,000	$ 2,000
				Subtotal Schedule 'A':	**$ 20,800**

Schedule 'B' - Capping					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
B.1	Install Demarcation	1	LS	$ 1,630	$ 1,630
B.2	Gravel Cap Incl. Haul	888	TON	$ 36	$ 31,970
				Subtotal Schedule 'B':	**$ 33,600**

Schedule 'C' - Institutional Controls					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
C.1	Preparation of Contamination Media Management Plan	1	LS	$ 15,000	$ 15,000
C.2	Preparation of Environmental Covenant	1	LS	$ 10,000	$ 10,000
				Subtotal Schedule 'C':	**$ 25,000**

Schedule 'D' - Excavation and Disposal for Boring B05					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
D.1	Excavation and contaminated material management	372	BCY	$ 34	$ 12,670
D.2	Remove and Dispose of Asphalt Pavement	223	SY	$ 67	$ 14,980
D.3	Waste characterization and confirmation sampling for total petroleum hydrocarbons	1	LS	$ 2,000	$ 2,000
D.4	Offsite waste transportation and disposal	279	TON	$ 75	$ 20,900
D.5	Backfill Import and Compaction	214	LCY	$ 44	$ 9,420
				Subtotal Schedule 'D':	**$ 59,970**

Schedule 'E' - Project Management and Design					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
E.1	Project management and communications	8%	LS	-	$ 11,150
E.2	Completion Reporting	1	LS	$ 5,000	$ 5,000
E.3	Planning documents	1	LS	$ 10,000	$ 10,000
E.4	Remedial design	15%	LS	-	$ 20,910
E.5	Construction management	10%	LS	-	$ 13,940
				Subtotal Schedule 'E':	**$ 61,000**

Schedule 'F' - Contingency					
Description		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
F.1	Contingency (30%)	30%	LS	-	$ 61,000
				Subtotal Schedule 'F':	**$ 61,000**

Table 5-3
Alternative 4—Deeper Soil Excavation and Institutional Controls Probable Cost
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

Title:	**Alternative 4 - Deeper Soil Excavation and Institutional Controls Probable Cost**	
Project:	Columbia Avenue Realignment Feasibility Study	
Client:	City of Stevenson	
Project #/Task:	M1769.03.002	Initial
Prepared By:	G. Kalmeta	GK
Checked By:	J. Faust	JF
Date:	2/15/2023	
Revision #.:	0	

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Cost Estimate Summary - Feasibility Level

Schedule 'A' - Site Preparation		$	56,500
Schedule 'B' - Excavation and Disposal		$	514,400
Schedule 'C' - Design and Project Management		$	49,000
Schedule 'D' - Contingency		$	186,000
	Total:	**$**	**805,900**

Assumptions:

1. This cost estimate does not include scope of work for existing road pavement removal or road alignment work.
2. Contamination is limited to the realignment area, south of the Second Street right-of-way.
3. Waste Management will haul excavated material to the nearest subtitle D landfill.
4. For the sake of this cost estimate, the excavated soil will be dry and no groundwater will be encountered.
5. Excavation work will be bid with site redevelopment documents, a separate bid package is not required. A site management plan will not be created for the site since all contamination will be removed from the site.
6. A 30% contingency is included to account for unknown site conditions.
7. The projected cost represents an estimate. The actual cost could be -30 to +50% of what has been estimated.

Table 5-3
Alternative 4—Complete Soil Excavation, Engineering Controls, and Institutional Controls Probable Cost
City of Stevenson Columbia Avenue Realignment
Stevenson, Washington

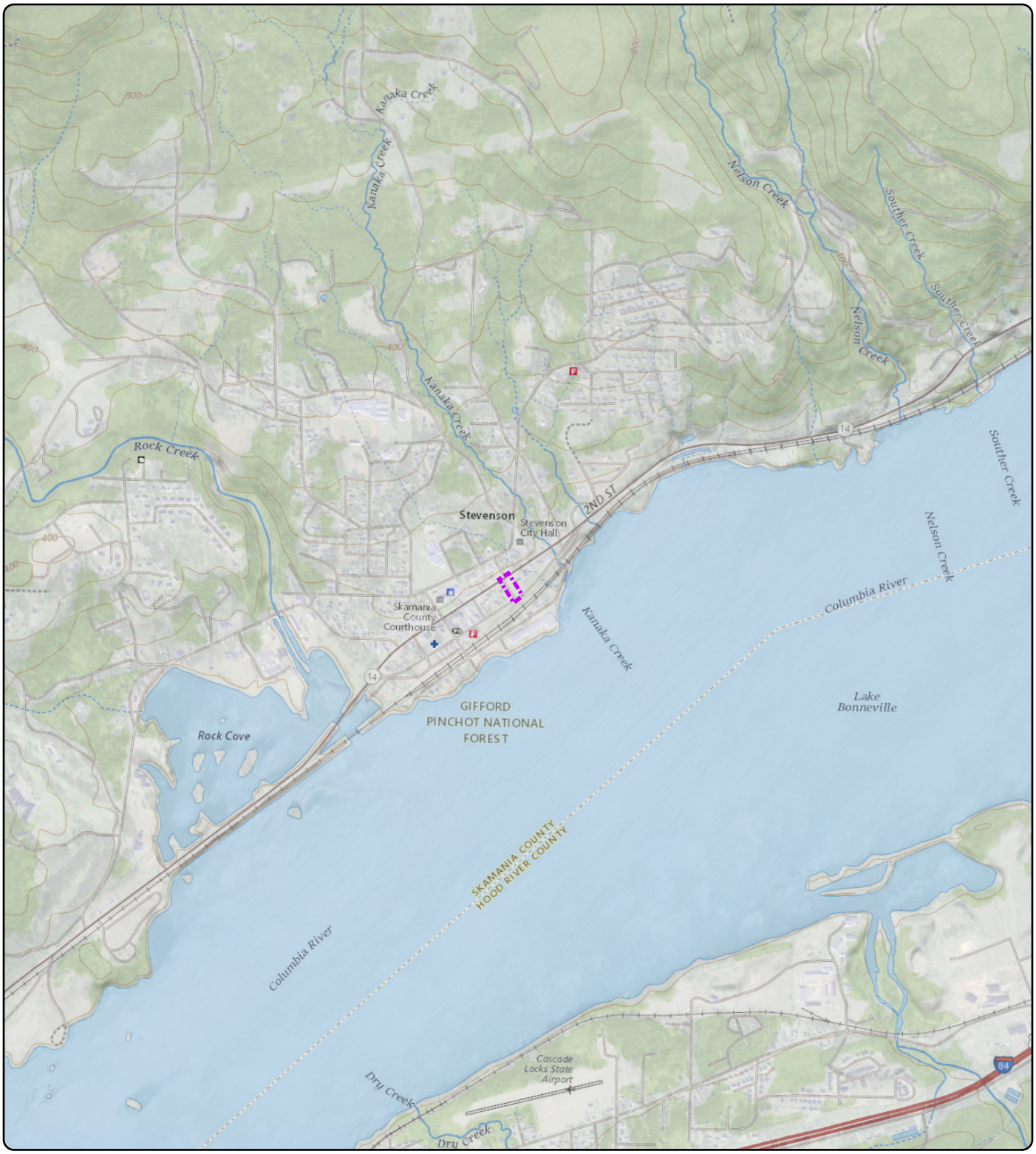
Schedule 'A' - Site Preparation						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
A.1	Mobilization/Demobilization	10%	LS	$	-	$ 51,500
A.2	Erosion and Sediment Control	1	LS	$	5,000	$ 5,000
				Subtotal Schedule 'A':		**$ 56,500**

Schedule 'B' - Excavation and Disposal						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
B.1	Excavation and contaminated material management	3,747	BCY	$	34	$ 127,500
B.2	Sheet Piling for deep excavation	4,928	SF	$	15	$ 74,000
B.3	Waste characterization and confirmation sampling for TPH	1	LS	$	4,000	$ 4,000
B.4	Offsite waste transportation and disposal	2,840	TON	$	75	$ 213,000
B.5	Backfill Material	2,178	LCY	$	44	$ 95,900
				Subtotal Schedule 'B':		**$ 514,400**

Schedule 'C' - Design and Project Management						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
C.1	Project management and communications	8%	LS	-		$ 7,000
C.2	Completion Reporting	1	LS	$	8,000	$ 8,000
C.3	Planning documents	1	LS	$	10,000	$ 10,000
C.4	Remedial design	15%	LS	-		$ 10,000
C.5	Construction management	10%	LS	-		$ 14,000
				Subtotal Schedule 'C':		**$ 49,000**

Schedule 'D' - Contingency						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
D.1	Contingency (30%)	30%	LS	-		$ 186,000
				Subtotal Schedule 'D':		**$ 186,000**

FIGURES



Notes
U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Bonneville Dam.
Townships 2 and 3 north, range 7 east, section 43.

Legend

Realignment Area Boundary

Figure 1-1
Realignment Area Location

Columbia Avenue Realignment
Stevenson, WA

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0 925 1,850
Feet

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Print Date: 2/14/2023
Reviewed By: mpollock
Produced By: jroberts
Project: M1769.03.002

Figure 1-2
Realignment Area Overview

Columbia Avenue Realignment
Stevenson, WA

Hunsaker Oil
Stevenson Station

Columbia Avenue
Second Street
State Route 14
First Street
Columbia Avenue
Burlington Northern Santa Fe Railway

4427
4428
4430
4431
4432
4433
4434
4435
4438
4439
4440
4441
4442
4443
4444
4445
1101
1102
1103
1104
1105
1035
3303
3304
3308
3309
3310
2201

bing

Legend

- Realignment Area
- Midstate Land Company
- Tax Lot

Note
Realignment area boundary is approximate.

0 80
Feet

Data Sources
Aerial photograph obtained from Bing; tax lot data obtained from Skamania County.

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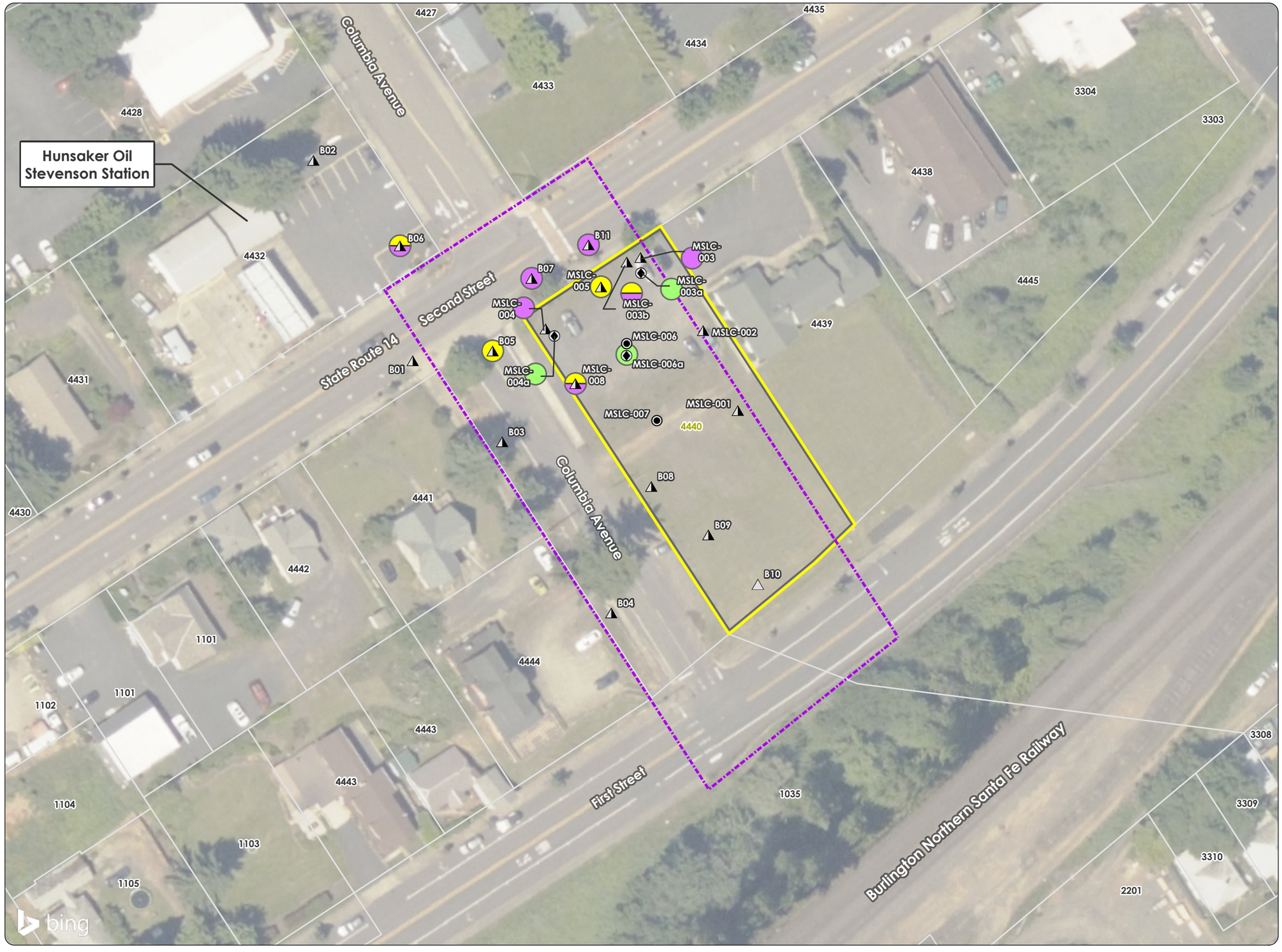

Figure 2-1
CUL Exceedances in Soil, Groundwater, and Soil Gas

Columbia Avenue Realignment
Stevenson, WA

Legend

- Realignment Area
- Midstate Land Company
- Tax Lot

Sample Locations

- Soil Boring
- Soil and Reconnaissance Groundwater Boring
- Reconnaissance Groundwater Boring
- Soil Vapor Boring

MTCA CUL Exceedances

- Soil
- Groundwater
- Soil Gas

Notes

All sample locations are approximate.
Refer to Tables 3-1 through 3-3 for specific CUL exceedances.
CUL = cleanup level.
MTCA = Model Toxics Control Act.

0 80
Feet

Data Sources

Aerial photograph obtained from Bing; tax lot data obtained from Skamania County.

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Figure 4-1
Conceptual Site Model
Columbia Avenue Realignment
Stevenson, WA

Primary Sources	Primary Release Mechanism	Secondary Sources	Secondary Release Mechanism	Point of Potential Contact	Exposure Route	Potential Receptors: Construction Workers	Potential Receptors: Occupational Workers/ Visitors/ Residents	Potential Receptors: Ecological
Historical Releases to On-Site Soil				Soil	Ingestion Dermal Contact Inhalation	✓ ✓ ✓	I I I	I I I
				Indoor air	Inhalation	I	✓	∅
			Volatilization	Outdoor air	Inhalation	I	I	I
	Leaching	Groundwater		Groundwater	Ingestion Dermal Contact Inhalation	✓ ✓ ✓	∅ ∅ ∅	∅ ∅ ∅
				Drinking Water		∅	∅	∅
			Discharge	Surface Water	Ingestion Dermal Contact Inhalation	∅ ∅ ∅	∅ ∅ ∅	∅ ∅ ∅

Notes

- → Primary pathway
- - → Potential pathway
- ✓ Potentially complete exposure route
- ∅ Incomplete exposure route
- I Insignificant exposure route

Figure 5-1
Alternatives 3 and 4 Excavation Areas

Columbia Avenue Realignment
Stevenson, WA

Legend

- Alternative 3 Excavation Area (2,011 square feet)
- Alternative 4 Excavation Area (6,745 square feet)
- Realignment Area
- Midstate Land Company
- Tax Lot

Sample Locations

- Soil Boring
- Soil and Reconnaissance Groundwater Boring
- Reconnaissance Groundwater Boring
- Soil Vapor Boring
- Soil MTCA CUL Exceedance

Notes

All sample locations are approximate.
Refer to Tables 3-1 through 3-3 for specific CUL exceedances.
CUL = cleanup level.
MTCA = Model Toxics Control Act.

0 80
Feet

Data Sources

Aerial photograph obtained from Bing; tax lot data obtained from Skamania County.

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APPENDIX

PRELIMINARY SITE PLAN

COLUMBIA STREET (PUBLIC)

SECOND STREET (PUBLIC)

FIRST STREET (PUBLIC)

DETECTABLE WARNING SURFACE (TYP)

CURB RAMP (TYP) (SEE STD DTL A, SHT C6.0)

8' CEMENT CONCRETE CROSSWALK

8' CEMENT CONCRETE CROSSWALK

08"

LIGHT POLE (TYP)

RELOCATED WATER METER

WATER SAMPLING STATION

20"

RELOCATE EXTG FH

RELOCATED FH

44' ROW VACATION

11'

11'

24' CEMENT CONCRETE COMMERCIAL DRIVEWAY (SEE STD DTL B, SHT C6.0)

8' PARKING LANE (TYP)

ASPHALT CONCRETE (TYP)

44' ROW DEDICATION

10'

6' SIDEWALK

4'X6' TREE WELL (TYP)

1.5' CEM CONC CURB & GUTTER (SEE STD DTL C, SHT C6.0)

CURB RAMP (TYP) (SEE STD DTL A, SHT C6.0)

STAMPED CONCRETE CROSSWALK (TYP)

8' CEMENT CONCRETE CROSSWALK

8' PARKING LANE (TYP)

EXTG 60' ROW

PROP 60' ROW

40'

GRAVEL SURFACE (SEE SECTION DTL, THIS SHT)

BIKE RACK (TYP)

1.5' CEM CONC CURB & GUTTER

15' CEMENT CONCRETE COMMERCIAL DRIVEWAY (SEE STD DTL B, SHT C6.0)

BIORETENTION PLANTER (TYP)

TYPICAL SURFACE SECTION DETAILS

SURFACING LEGEND

8" THICK BASE COURSE CONFORMING TO SECTION 9-03.9(3) OF WSDOT STANDARDS. COMPACT TO MIN. 92% PER ASTM D1557, MODIFIED PROCTOR

SCARIFY SUBGRADE COMPACT TO MIN. 95% PER ASTM D1557 MODIFIED PROCTOR

GRAVEL SECTION

4" THICK HOT-MIX ASPHALT. ½" DENSE GRADED, CONFORMING TO SECTION 5-04 OF WSDOT STANDARDS. INSTALL IN 2, 2" THICK LIFTS

8" THICK BASE COURSE CONFORMING TO SECTION 9-03.9(3) OF WSDOT STANDARDS. COMPACT TO MIN. 92% PER ASTM D1557, MODIFIED PROCTOR

SCARIFY SUBGRADE COMPACT TO MIN. 95% PER ASTM D1557 MODIFIED PROCTOR

ASPHALT CONCRETE PAVEMENT SECTION

PRELIMINARY

MAUL FOSTER ALONGI
109 EAST 13th STREET
VANCOUVER, WA 98660
360.694.2691
www.maulfoster.com

COLUMBIA AVENUE REALIGNMENT

CITY OF STEVENSON

STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
A	02/03/2023	60% DESIGN SET

PROJECT: M1769.03.002

DESIGNED: K. BOON

DRAWN: A. AGUIRRE

CHECKED: S. FROST

SCALE

0 20' 40'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE

SITE PLAN

SHEET

C2.1

PLOTTED ON: 2023-02-03 4:18 PM PLOTTED BY: Alfredo Aguirre FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C2.1 SITE PLAN.dwg

APPENDIX B

DEVELOPMENT FEASIBILITY ANALYSIS

MEMORANDUM

To:	Leana Kinsley City Administrator City of Stevenson	Date:	June 23, 2023
From:	Ben Johnson, Maul Foster & Alongi, Inc.	Project No.:	M1769.03.002
RE:	Development Feasibility Analysis: Columbia Avenue Realignment Project		

The City of Stevenson (City) is currently evaluating the overall feasibility for the potential realignment of Columbia Avenue in downtown Stevenson between 1st Street and 2nd Street. The recent *Downtown Stevenson Plan for Success!* identified the project as a priority because of its potential to improve access, walkability, and circulation in downtown and ultimately to catalyze new development. The following analysis examines the development potential of the lots on either side of Columbia Avenue once the project is completed. This analysis, along with future estimates of local job impacts and tax revenue implications, will assist the City as it decides whether to proceed with the realignment.

DEVELOPMENT SCENARIOS

Once completed, the Columbia Avenue realignment project will shift the existing right-of-way approximately 40 feet northeast, creating new 40-foot-depth lots on either side of the new right-of-way totaling about 12,600 square feet (SF) of developable area east of Columbia Avenue and 10,000 SF of developable area west of Columbia Avenue. The City is interested in exploring potential development opportunities on these new lots. The City hosted an open house in October 2022 to collect community input on the proposed right-of-way improvements and see how residents respond to several different scales of development. As a result of this meeting, two development scenarios were selected for further analysis. The first scenario is a low-rise, two-story, mixed-use concept that aligns with the heights of existing buildings in the area and the City's existing zoning, which includes a 35-foot height limit for multifamily development (SMC 17.25.060). The second is a mid-rise scenario that models heights at the maximum allowed under the City's Zoning Code. While this scenario is currently allowed, the City's recent downtown plan recommends limiting this corridor's maximum allowed building height to 3 stories.[1]

In both scenarios, the 40-foot-deep lots may pose a site planning challenge for developers. Although the City's code does not require any yards or setbacks and allows for 100 percent lot coverage, providing the required parking remains a challenge. For both development concepts, discussed below,

[1]City. 2019. *Stevenson Downtown Plan for Success!* https://www.ci.stevenson.wa.us/planning/page/plan-success

it is not physically feasible to provide the required off-street parking on the narrow lots without building a parking structure. Because parking structures are very cost prohibitive, this memo uses a fee in lieu of on-site parking program being considered by the City or a waiver to address the physically constrained lots.

Low-Rise Concept

The low-rise concept includes two mixed-use buildings with ground-floor retail and residential units above and associated surface parking toward the south near 1st street. This style of mixed-use development aligns with the City's downtown plan and is encouraged under the current zoning, which limits ground-floor residential uses to 50 percent lot coverage (SMC 17.25.050).

East Building—10,000 SF

- Ground-floor retail 5,000 SF
- Upper floor residential 5,000 SF

West Building—10,000 SF

- Ground-floor retail 5,000 SF
- Upper floor residential 5,000 SF

This concept assumes that each building could accommodate up to four two-bedroom apartments for a total of eight residential units. Based on the City's current parking requirements, the retail space would require approximately 40 stalls, or one per 200 SF (excludes back-of-house space). The residential units would require an additional 12 stalls or 1.5 per two-bedroom unit, for a total of 52 required stalls. The rest of the lots can accommodate only 14 surface parking stalls, leaving a deficit of 38 stalls relative to the City's requirements. It is assumed that the off-street parking stalls will be reserved for the residential units.

Mid-Rise Concept

The mid-rise concept models a five-story building on the east side of Columbia Avenue and a three-story building on the northwest corner.

East Building—22,450 SF

- Ground-floor retail 5,000 SF
- Upper four-floor residential 17,450 SF

West Building—15,000 SF

- Ground-floor retail 5,000 SF
- Upper two-floor residential 10,000 SF

For ease of comparison, the buildings shown to the south were excluded from this analysis; instead, this concept assumes that the southern end of the lots would house a 14-stall surface parking lot similar to that of the low-rise concept. It is estimated that the mid-rise concept could accommodate up to 21 two-bedroom housing units. This increases the off-street parking requirement to a total of 72 stalls, creating a deficit of 58 stalls. Again, it is assumed that the off-street parking stalls will be reserved for the residential units.

ANALYSIS ASSUMPTIONS

This preliminary development feasibility study relies on a static pro forma analysis using the following assumptions.

Base Rent Assumptions

The residential and retail lease rates for this analysis were based on both a previous rent study conducted by Johnson Economics and current market data aggregated by CoStar.[2] The Johnson Economics report surveyed nine comparable residential apartments and townhomes and eight commercial properties to identify achievable lease rates for each product. Current market data and rent rates from CoStar were then used to escalate the 2019 rents to reflect changes in the rent rates since 2019. In addition to the residential unit rent, it was assumed that there would be a charge of $100 per month for residential parking spaces.

[2] Johnson Economics. 2019. *Task 4.1: Existing Conditions Residential, Commercial, and Hospitality Markets, Downtown Stevenson, Washington*, provided by the City. July.
Costar. 2023. Property and Market Data. Accessed February 1, 2023. https://www.costar.com/

Table 1: Residential Rent by Unit Size

Unit Type	Size (SF)	Rent	Rent/SF
0 bed/1 bath	400	$1,121	$2.80
1 bed /1 bath	550	$1,207	$2.19
1 bed /1 bath	700	$1,292	$1.85
2 bed /1 bath	800	$1,350	$1.69
2 bed /2 bath	1,000	$1,463	$1.46
Total/Average	690	$1,286	$2.00

Notes:
Calculations based on Johnson Economics, 2019, and Costar, 2023.

Similarly, the assumed ground-floor commercial lease rates are based on the 2019 Johnson Economics study and are scaled to current rates based on market data.

Table 2: Ground-Floor Commercial Rents per SF (Annual, NNN)

Location	Low	High
2nd Street	$18.61	$21.09
1st Street/Russell Avenue	$16.13	$18.61
Other streets	$14.89	$17.37
Average	$16.54	$19.02

Calculated based on Johnson Economics, 2019, and Costar, 2023

Cost Assumptions

Development cost assumptions were derived from limited outreach to local developers and consultants. There have been no recent similar mixed-use development projects in Stevenson. The closest comparable projects are in the Portland/Vancouver metro area. Future analysis could benefit from additional engagement with developers or contracting with a cost estimator to better understand potential development and building operations costs. Building operations costs assumptions were based on market reporting for the Portland/Vancouver metro area, where operations costs are typically 36 percent of total revenue.

Table 3: Assumed Development Costs per SF

Cost Type	Low	High
Hard costs	$180	$230
Soft costs	$30	$80
Total	$210	$310

Based on limited outreach to developers.

The assumed land costs are based on two comparable sales of residentially zoned parcels within the past three years. Both sales took place in 2021, and the average price per SF of land was $3.34. Based on the square footage of the new lots on either side of the realigned Columbia Avenue right-of-way, the approximate purchase price is estimated to be $75,655.

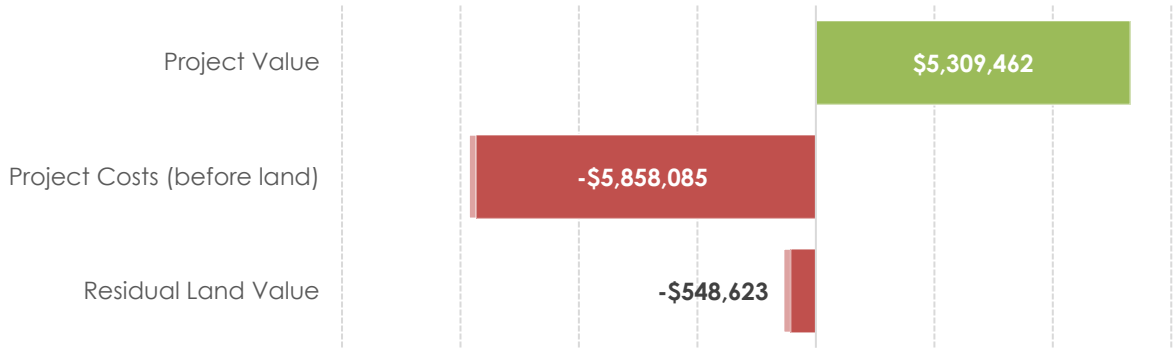
RESULTS

These analyses used static pro forma modeling to better understand preliminary development feasibility metrics. The results are summarized based on (1) whether there is sufficient residual land value to justify a developer purchasing the property, and (2) the profit potential after factoring in the land purchase. Both analyses rely on a comparison of the estimated cost of development to the value of the property based on the net operating income and the market capitalization rate of 4.7 percent.

Low-Rise Concept

Under the base assumptions, the low-rise scenario generates $249,545 in net operating income. Based on the market cap rate of 4.7 percent, the project value based on this income would be $5.31 million. However, the estimated project cost before factoring in land purchase is $5.86 million, resulting in a deficit of about $548,623 (Figure 1).

Figure 1: Low-Rise Concept Results



In this concept, the City-proposed fee in lieu of parking program of $3,200 per deficient stall adds $121,600 to the project, represented by the light red shading in Figure 1. Removing the proposed fee in lieu of parking does not generate enough savings to make the project pencil.

Table 4 models the net value of the project as a percentage of the total project cost including the land purchase and adds a sensitivity to variable rent and construction costs. The rent and cost ranges are based on the assumptions in Tables 1 through 3. If development costs are held constant, the net value reaches a break-even point when the blended rental rate is $23.08 per SF per year, representing $19.64 per SF per year for the retail space and $2.21 per SF per month for the residential units. Both of these

rent levels are within the upper ranges identified above in Tables 1 and 2, respectively. The level of residential rent would equate to $1,216 per month for a 550-square-foot, one-bedroom apartment.

Table 4: Low-Rise Net Value as a Percentage of Total Cost

Blended Retails/Residential Rents (per SF per year)

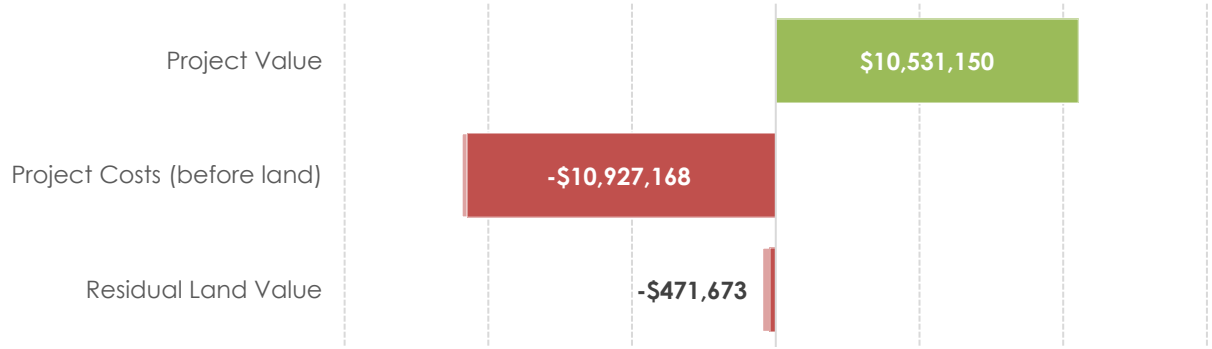
Hard Costs (per SF)	$17.03	$18.96	$20.89	$23.60	$26.31
$ 180	-17.7%	-8.7%	0.3%	13.0%	25.7%
$ 193	-21.9%	-13.3%	-4.7%	7.3%	19.4%
$ 205	-25.6%	-17.4%	-9.2%	2.2%	13.7%
$ 218	-29.0%	-21.2%	-13.4%	-2.4%	8.5%
$ 230	-32.1%	-24.6%	-17.1%	-6.7%	3.8%

Cells with darker outline indicate the base rent and cost assumptions described above.

Mid-Rise Concept

Under the base assumptions, the mid-rise scenario generates $494,964 in net operating income. Using the market cap rate of 4.7 percent, the project value based on this income would be $10.53 million. However, the estimated project cost before factoring in land purchase is $10.93 million, resulting in a deficit of $471,673 (Figure 2).

Figure 2: Mid-Rise Concept Results



In this concept, the City-proposed fee in lieu of parking cost totals $185,600 for the 58 deficient stalls. Because of the more modest deficit in value and higher total fee, waiving the parking fee is more impactful in this concept; however, it still results in a negative residual land value of $210,418.

Similar to the earlier tables, Table 5 models the net value of the project as a percentage of the total project cost including the land purchase and adds variable rent and construction costs. The rent ranges in Table 5 are higher than those included in the low-rise concept because a greater share of the overall

revenue is coming from the expanded residential square footage, which commands higher rents. If development costs are held constant, the net value reaches a break-even point when the blended rental rate is $23.34 per SF per year, representing about $18.58 per SF per year for the retail space and $2.09 per SF per month for the residential units. Both of these rent levels are well within the range identified above in Tables 1 and 2, respectively, and are elevated to just above the base rent assumptions. The level of residential rent would equate to $1,150 per month for a 550-square-foot, one-bedroom apartment.

Table 5: Mid-Rise Net Value as a Percentage of Total Cost

Hard Costs (per SF) \ Blended Retails/Residential Rents (per SF per year)	$17.26	$19.80	$22.34	$26.02	$29.71
$ 180	-12.6%	0.3%	13.2%	32.0%	50.7%
$ 193	-20.0%	-8.1%	3.7%	20.9%	38.1%
$ 205	-26.2%	-15.2%	-4.3%	11.5%	27.4%
$ 218	-31.5%	-21.3%	-11.2%	3.5%	18.2%
$ 230	-36.1%	-26.6%	-17.2%	-3.4%	10.3%

Cells with darker outline indicate the base rent and cost assumptions described above.

IMPLICATIONS

Both concepts struggle to meet baseline development feasibility metrics using base rent assumptions, which were set up to reflect the midpoint of the cost and rent ranges identified from the Johnson study and from engagement with developers. The mid-rise concept is much closer to the break-even point in terms of initial value. This finding, combined with the lack of comparable recent developments in the Stevenson area, may indicate a weak market for mixed-use retail and housing development. In both concepts, relatively modest increases in rent that still fall within the range identified in the assumptions research can push the project over the break-even point. However, risk-averse developers may be reluctant to take this optimistic view of potential rents or look to more proven markets closer to the Vancouver/Portland Metro area. The physical constraints of the lot, parking requirements, and environmental concerns contribute further to a tenuous case for redevelopment.

Lot Dimensions

The 40-foot lot depths present a significant physical constraint, as mixed-use and residential buildings a typically at least 40 deep. The building configurations used in both concepts are less than ideal because the residential unit parking is located adjacent to the building rather than tucked behind or under the building, where it would be steps away from the associated apartments. Potential residential renters may view this as a strike against the property and choose to locate elsewhere or expect to pay less rent than for properties with more integrated parking layouts. Developers could seek to overcome this challenge by purchasing the adjacent properties to allow for more space within the development.

Parking Requirements

As mentioned previously, it is not feasible to fit the required parking for both projects on the site, with even the low-rise concept being deficient by 38 stalls. The City should consider revising their parking standards or creating parking requirements specific to the downtown area that reduce off-site parking requirements. Hood River, Oregon, for example, offers a fee in lieu program in their central business district ($3,000 per deficient stall), but also requires only 1.5 parking stalls per 1,000 SF of floor area for commercial uses, less than half the current standard in Stevenson (Hood River Municipal Code Ch. 17.24). Hood River was cited by City staff as an example of a similarly situated city that has been successful in attracting new development.

Environmental Challenges

After the City relocates and improves the Columbia Avenue right-of-way and in the process excavates impacted shallow soil in the existing roadway, an environmental covenant is likely to remain in place on the eastern lot, limiting use of groundwater from the property and the deep excavation. Although the resulting impact on future development is anticipated to be minimal, the presence of an environmental covenant may be enough to scare away some potential developers, casting further doubt on redevelopment feasibility.

CONCLUSION

Given the challenging case for private development, the City may choose to reduce barriers to development using one or more of the following strategies:

- Consider reducing parking standards in downtown Stevenson.
- Continue to allow for additional building height similar to the mid-rise concept.
- Consider selling excess publicly owned land, if any exists after the realignment, at a discount to reduce overall development costs.
- Engage with potential developers to educate them about previous cleanup efforts and convey the minimal risks associated with the properties.
- Identify other public or nonprofit development partners that could leverage state and federal grant resources to assist with the buildout and that may be less driven by the project's bottom line.

APPENDIX C

EXISTING CONDITIONS REPORT

EXISTING CONDITIONS REPORT

COLUMBIA AVENUE REALIGNMENT

MAUL FOSTER ALONGI

Prepared for
SKAMANIA COUNTY
July 16, 2020
Project No. 0405.05.02

Prepared by
Maul Foster & Alongi, Inc.
109 E 13th Street, Vancouver, WA 98660

CONTENTS

EXECUTIVE SUMMARY

In 2017, Skamania County was awarded a U.S. Environmental Protection Agency Community-Wide Assessment Grant to fund environmental assessment and brownfield redevelopment at strategic properties within the county. In their recent Stevenson Downtown Plan for Success, The City of Stevenson (City) identified the realignment of Columbia Avenue as a priority project to improve pedestrian circulation and safety. The properties adjacent to the section of Columbia Avenue proposed for relocation have environmental issues due to past and present uses. The purpose of this project is to explore the existing conditions in the Columbia Avenue realignment area and to identify the best approach to implementing the street realignment while also addressing environmental concerns.

The Columbia Avenue realignment area consists of ten parcels totaling over 4 acres. The area includes several single-family homes, small multifamily residences, and commercial uses. The analysis of existing conditions focused on natural resources, infrastructure, and regulatory and environmental conditions that may impact the realignment project and future development in the area.

SUMMARY OF FINDINGS AND IMPLICATIONS FOR THE PROJECT

Natural Resources	• Several areas in the realignment area include have steep slopes, which could pose a challenge to redevelopment • Kanaka Creek runs through the easternmost parcel in the realignment area. The area surrounding the creek is in the 100-year floodplain. To protect the creek, development in this area is subject to additional review and restrictions.
Infrastructure	• Water and sanitary sewer located within the existing Columbia Avenue right of way are generally sized appropriately for existing and future development but will have to be moved if the street is relocated. • There are existing stormwater connections in First and Second Streets, but currently there is no stormwater infrastructure in Columbia Avenue. Stormwater treatment and control infrastructure will have to be constructed. • A new, realigned Columbia Avenue would include two lanes of traffic, parking, and continuous sidewalks on both sides of the road. • There are existing overhead power and underground telephone lines in Columbia Avenue that will have to be relocated to the realigned right-of-way.

Regulatory	• The area is currently zoned Commercial 1 and allows for a variety of uses, including commercial and residential activities. • The pending Stevenson Downtown Plan for Success proposes to add overlay zones to the area to encourage mixed-use development and a walkable downtown. Should these overlay zones be adopted, future development will need to comply with them. • The realignment area contains several Environmentally Critical Areas, including steep slopes, wetlands, and streams. Several steep slopes are located directly adjacent to the existing Columbia Avenue right-of- way. The realignment project and future development in these areas will have to comply with the City's Critical Areas Ordinance.
Environmental	• The following sites were identified for further review of their potential to impact the Columbia Avenue realignment area: Midstate Land Co, Hunsaker Oil Stevenson Station, and Stevenson Commerce Site: – The Midstate Land Co and Hunsaker Oil Stevenson Station are in the Columbia Avenue realignment area and have confirmed or suspected contamination in soil and/or groundwater. – A Phase II environmental site assessment was conducted at the Midstate Land Co site in July 2020. The activities included collecting soil and groundwater samples from the subsurface (via push-probe drilling) to identify potential contaminant impacts. The purpose of this assessment is to evaluate potential exposure pathways associated with construction and the developed use, based on current environmental conditions. – Further investigation of the Hunsaker Oil Stevenson Station would be beneficial to determine if soil and/or groundwater contamination is present. However, the property owner would need to provide the direction to do so. – The Stevenson Commerce Site does not have confirmed contamination, received a No Further Action determination in 2006, and is crossgradient of the Columbia Avenue realignment area. Therefore, this site is unlikely to have the potential to impact the Columbia Avenue realignment area.

1 INTRODUCTION

Stevenson is a small but growing city of 1,465 people, located in the Columbia River Gorge in southwest Washington State. Stevenson is a hub for Skamania County's government operations, including the County Courthouse and the County Sheriff's department. In 2017, Skamania County was awarded a U.S. Environmental Protection Agency Community-Wide Assessment Grant to fund environmental assessment and brownfield redevelopment at strategic properties in the county. The City of Stevenson (City) in the process of completing the Stevenson Downtown Plan for Success. The draft plan identified the realignment of Columbia Avenue as a priority project to improve pedestrian circulation and safety. The properties adjacent to the section of Columbia Avenue proposed for relocation have environmental concerns due to past and present uses. The purpose of this project is to explore the existing conditions in the Columbia Avenue realignment area and identify the best approach to implementing the street realignment while also addressing environmental concerns.

Site History

Stevenson has been home to Native American settlements for thousands of years. The area served as a hub for trade and fishing because of its location above the Upper Cascade Rapids of the Columbia River. The first European explorers and settlers used the Columbia River to navigate through the Cascade Mountains. These travelers would often land in the Stevenson area to portage around the treacherous Upper Cascade Rapids. In the 1800s, the Stevenson family settled in the area and founded the town of Stevenson.[1] George Stevenson purchased the original town site in 1893. In 1908 the town was incorporated, and the Spokane, Portland and Seattle Railroad arrived. Stevenson gradually moved upland with the arrival of the railroad and later because of inundation resulting from the construction of the Bonneville Dam.[2]

The draft Stevenson Downtown Plan for Success has identified the realignment of Columbia Avenue as a catalyst project that would improve downtown access and circulation and allow for additional mixed-use development. The project area is located between First Street and Second Street (SR 14) in downtown Stevenson (figure 1-1). Based on historical aerial photography, areas northwest of the realignment area have been predominantly residential, while areas to the southeast have been predominantly commercial since at least 1935. During the downtown planning process, the City created conceptual illustrations showing how Columbia Avenue could be realigned and ultimately redeveloped (Figure 1-2). This initial concept shows the Columbia Avenue right-of-way being relocated about 40 feet to the northeast and widened to 60 feet. The redevelopment concept shows new mixed-use development, with commercial uses on the ground floor and residential uses above.

[1] Skamania County Chamber of Commerce. "Stevenson History," accessed June 16, 2020, https://skamania.org/history/#1496983641788-67c6bfc3-e78f.

[2] Ibid.

Ownership

The Columbia Avenue realignment area consists of ten parcels totaling just over 4 acres (Table 1-1). The area includes a single-family home, small multifamily residences, and commercial uses; the last group includes a gas station located on the northwest corner of the realignment area, a dentist office northeast of Columbia Avenue, and a hardware store on the eastern corner of the realignment area. The area proposed to accommodate the realignment is directly northeast of Columbia Avenue, between First and Second Streets, and currently serves as parking for the dentist office on the adjacent parcel (figure 1-3).

Table 1-1: Parcel Area

Parcel ID	Address	Description	Area (Acres)
3303	24 NE Second St	Columbia Hardware	0.98
3304	10 NW Second St	Columbia Hardware	0.38
4432	91 NW Second St	Gas Station	0.51
4433	80/82 NW Columbia Ave	Single-Family Home	0.30
4438	40 NW Second St	Apartments	0.27
4439	52 NW Second St	Dentist Office	0.47
4440	70 NW Second St	Dentist Office Parking Lot	0.51
4441	90 NW Second St	2-4 Unit Multifamily	0.27
4444	73 NW First St	Big T's Grill	0.26
4445	First St	Vacant Lot	0.19
		Total	**4.14**

Natural Resources

Because the Columbia Avenue realignment area is small and is located in an urban area, there are limited natural resource issues to consider. The area is about 650 feet north of the Columbia River and is separated from the river by the BNSF railroad and a steep embankment south of First Street (Figure 1-3).

There are two primary natural resource concerns. The first arises from several small areas in the alignment area that have steep slopes of more than 25 percent, including an area directly west of Columbia Avenue. These areas are regulated by the Stevenson Critical Area ordinance to ensure that development activities do not destabilize the slopes. The second concern is that Kanaka Creek flows along the eastern edge of the area. The realignment area surrounding Kanaka Creek falls within the 100-year floodplain and is fish bearing, making it a designated Critical Area with additional regulations that govern development that takes place nearby.

2 INFRASTRUCTURE ASSESSMENT

There are several utilities, in varying states of repair, currently located in the roadway of the existing section of Columbia Avenue between First Street and Second Street. It will be necessary to relocate and improve infrastructure in the roadway, as described in detail below.

Municipal Water

The City owns and operates the Group A Community water system that supplies potable water to residents, businesses, and public institutions within the city limits. The City's 1-million-gallon-per-day (gpm) water treatment plant is supplied from LaBong Creek, Cedar Springs, and Rock Creek. Other sources include the 650-gpm Hegewald Well (used as a backup supply) and the currently unused Iman Springs supplemental water source. The City has been proactively replacing old and undersized water distribution mains throughout the system in recent years, and the City's water distribution system is in good condition, according to the Water System Plan Update produced by Murray Smith in November 2017. Other major components of the City's water system include three reservoirs, storing 0.96 million gallons of water, and one booster pump station.

The section of Columbia Avenue between First Street and Second Street contains an existing 8-inch-diameter water main and an existing fire hydrant (figure 2-1). It is unclear what material the water main pipe is comprised of, but it may be asbestos cement or ductile iron. The Water System Plan Update does not indicate any conveyance capacity issues with this section of water main, nor are there issues concerning water supply to serve future development along the realigned Columbia Avenue. Realignment of Columbia Avenue would require an in-kind replacement of this existing water main, fire hydrant, and any existing water services in the new roadway section.

Wastewater

The City owns and operates the public sanitary sewer system that serves residents, businesses, and public institutions within city limits. The system consists of approximately 55,000 feet of gravity sewer mains, 2,100 feet of force main, and four pump stations. There are no permitted significant industrial users; however, multiple large commercial users, such as restaurants and beverage producers, are major sources of wastewater flow. In the December 2017 General Sewer Plan Update, Tetra Tech identified several sections of existing sewer pipe that required replacement, either because they were deteriorating or because they did not have enough capacity. The existing 8-inch-diameter concrete gravity sewer main located in Columbia Avenue in the project area has sufficient capacity for future development (figure 2-2). However, this section of pipe is in an area of known infiltration and inflow (I/I). Realignment of Columbia Avenue would require replacement of this section of sanitary sewer pipe with an 8-inch-diameter pipe composed of polyvinyl chloride (PVC), or equivalent material, in the new roadway section. Replacing the concrete pipe with PVC will help decrease I/I in this area.

Stormwater

It appears that no stormwater infrastructure currently exists in the Columbia Avenue project area; however, storm catch basins are located in First and Second Streets, near the intersection of Columbia Avenue (figure 2-3). Stormwater infrastructure will have to be designed and constructed to City standards in the realigned Columbia Avenue to provide conveyance and treatment of stormwater runoff from the roadway prism.

Transportation

Between First and Second Streets, Columbia Avenue is a paved, two-lane roadway with incomplete sections of sidewalk on either side of the road. The intersection at Second Street is currently offset from the northern section of Columbia Avenue. Realignment of the southern section of Columbia Avenue would allow the intersection to continue straight across Second Street, increasing the safety of the intersection. The new right-of-way would be 60 feet wide and would include two lanes of traffic, with street parking and continuous sidewalks on both sides of the roadway.

Power and Telecommunications

Skamania County Public Utility District 1 is the electrical power purveyor in the area. Existing overhead power runs along the northwest section of Columbia Avenue to an existing light pole on the east side of the road. To remain in the public right-of-way with the Columbia Avenue realignment, the overhead power will have to be relocated, including the existing light pole to avoid conflict with a potential future road prism.

An existing underground telephone line runs along the western side of the existing Columbia Avenue (figure 2-4). This line will fall outside the public right-of-way with the Columbia Avenue realignment and will have to be relocated to remain in the right-of-way.

3 REGULATORY ANALYSIS

The regulatory analysis examined existing plans and development regulation and their impact on the realignment area. The Stevenson Comprehensive plan was adopted in 2018, and a downtown subarea plan is nearing adoption. The area is within a Commercial 1 (C1) zone district and also contains designated Critical Areas that may impact the redevelopment and realignment process.

Stevenson Comprehensive Plan

The Stevenson Comprehensive Plan, adopted in 2013, identified four cornerstone principles that summarize the desires of Stevenson's citizens: high quality of life, natural/scenic beauty, healthy economy, and active waterfront. Goal 4 of the plan outlines the City's vision for the downtown: "A vibrant and attractive downtown is home to diverse businesses and welcoming to residents and visitors." The objectives for goal 4 include revising the downtown plan, creating better connections

between downtown and the waterfront, and enhancing the area's attractiveness by encouraging the burial of power lines and the preservation of street trees. The comprehensive plan envisions the future land use of the Columbia Avenue project area as High-Intensity Trade. These areas are characterized by dense, highly intensive urban development with an emphasis on pedestrian and bicyclist access to downtown.

Stevenson Downtown Plan for Success

The City is currently in the process of updating their downtown subarea plan called the Stevenson Downtown Plan for Success. The plan builds on the comprehensive plan's vision to better connect downtown and the riverfront by proposing additional pedestrian connection to the riverfront, i.e., creating a walking loop and transforming the waterfront into a destination with open space and complementary uses.

The draft plan also identifies several catalyst projects, including the Columbia Avenue Realignment. The realignment of Columbia Avenue would address existing safety concerns, and the road would also be widened to 60 feet to match the existing right-of-way to the north. This widening would accommodate vehicle traffic, street parking, pedestrian access, and a landscape buffer. Redevelopment of the parcels adjacent to this section of Columbia Avenue would include ground floor retail and minimal setbacks to align with the commercial main street aesthetic outlined in the plan. This area is also identified as a potential location for public parking serving the downtown.

The draft plan proposes new overlay zones to regulate downtown development. Most of the project area would be in a Commercial Mainstreet (CMS) overlay, with the eastern parcels in a Commercial Destination (CDU) overlay. As proposed, CMS zones is intended to foster walkability and window-shopping for residents and visitors to downtown. It would include ground floor retail and storefronts with opportunities for multifamily residential units above. The CDU overlay would provide space for uses that serve greater Skamania County and require greater motor vehicle access. CDU zones would allow for commercial uses, such as anchor retail, and multifamily residential uses.

Zoning Code

The Columbia Avenue relocation study area is in a C1 zone (Figure 3-1). C1 zones allow for a range of uses, summarized in Table 3-1. The zone is intended to contribute to a vibrant downtown area that combines residential, commercial, and community uses.

Table 3-1: C1 District Allowable Uses

Use Category	Use Description
Residence or Accommodations Uses	Most dwelling units are permitted, from single-family homes to multifamily units. Most residential care facilities and overnight accommodations are permitted.
General Sales and Service Uses	Retail, bank, and financial institutions, carwash, food service, childcare, and personal service uses are permitted in C1 zones.
Manufacturing and Wholesale Trade Uses	Minor wireless telecommunications facilities are the only permitted use in this category, with other uses such as light industrial as conditional uses.

Other	Public assembly uses, as well as pet and kennel uses, are permitted in C1 zones. Education, public administration, health care, and other institutional uses are conditional uses.

In addition to the dimensional standards summarized in Table 3-2, development in C1 zones is subject to further design standards. Certain buildings that front a public sidewalk are required to have 50 percent of their front wall occupied by doors or windows to prevent blank walls. Landscaping is also required between the street and the building. Off-street parking requirements are specific to each use, with residential structures requiring two spaces per dwelling unit—except for one-bedroom units, which require only one space. Retail uses are required to provide one parking space per 200 square feet (sf) of floor area.

Table 2-2: C1 District Dimensional Standards

Standard	Single-family residential	All other uses
Maximum building height	25 feet (ft)	50 ft
Minimum setbacks		
Front	15 ft	0 ft
Side	5 ft	0 ft
Rear	0 ft	0 ft
Maximum setback		
Front	20 ft	10 ft
Side	none	10 ft
Density		
Minimum lot area	6,000 sf	none[a]
Minimum lot width	60 ft	none
Minimum lot depth	100 ft	none
Maximum lot coverage	50%	100%

[a] Except for multifamily, which requires 1,200 sf per unit.

Critical Areas

According to the City's 2018 Critical Areas Map, the study area contains several potential critical areas(figure 3-2). Although the Stevenson Critical Areas map provides information about the potential location of critical areas, many of them have not been formally designated or delineated. The presence of critical areas will be determined at the time of project review. The easternmost parcels occupied by Columbia Hardware are adjacent to Kanaka Creek, which is fish bearing. The area surrounding the creek is also identified as a Debris Flow Hazard Zone. Additionally, there is one delineated wetland located on the Columbia Hardware parcels. If development takes place in these areas, it will have to comply with Stevenson's critical areas ordinance, including a 100-foot buffer from Kanaka Creek.

Finally, the Critical Areas Map identifies, in the study area, several landslide hazard areas with slopes of 25 percent or greater, which are considered potentially unstable steep slopes. One steep sloping area is adjacent to Columbia Avenue to the west. These conditions may require the Columbia Avenue realignment project, as well as future development in the study area, to undergo a critical area permit

process as well as additional geotechnical analysis to ensure that the steep slopes remain stable during and after the relocation project.

4 ENVIRONMENTAL CONSIDERATIONS

A Phase I environmental site assessment (ESA) of the site at 70 NW Second Avenue, Stevenson, Washington 98648 was conducted in February 2020. Information for this existing conditions report is summarized from the Phase I ESA report.

Maul Foster & Alongi, Inc. (MFA) contracted Environmental Data Resources, Inc. (EDR) to search Washington State Department of Ecology (Ecology) and federal agency record sources for information regarding the Columbia Avenue realignment area and nearby sites. Based on MFA's review, the following sites were identified for further review of their potential to impact the Columbia Avenue realignment area: Midstate Land Co, Hunsaker Oil Stevenson Station, and Stevenson Commerce Site.

The remaining sites identified by EDR have no reported releases, have reported that cleanup is complete, have received No Further Action (NFA) determinations from Ecology, and/or have little potential to impact the Columbia Avenue realignment area based on their proximity or elevation.

Areas of Concern

Areas of concern are places where historical operations and documentation indicate that there is suspected or confirmed contamination. The following areas of concern have been identified (see Figure 4-1).

MIDSTATE LAND CO

70 NW Second Street—This site is listed in Ecology's Cleanup Site Database as Cleanup Site ID (CSID) 690 (Midstate Land Co) and Facility Site ID 1384.

According to a Phase I ESA conducted for the site in 1994, there was a 5,000-sf building on the site occupied by various businesses, including an auto service, repair, and paint shop; a dry-cleaning establishment; and a beauty parlor. According to a local resident quoted in the 1994 ESA report, the concrete block building was constructed at least 75 years ago. The building was demolished in 1995. The upper 6 inches of soil was excavated; confirmation soil sampling did not show metals exceedances but did show gasoline-range petroleum hydrocarbons, xylenes, ethylbenzene, and benzene exceedances. Following this, the lateral and vertical extent of the gasoline-range petroleum hydrocarbons in soils was investigated by excavation of ten test pits to a depth of approximately 5 feet below ground surface. Gasoline-range petroleum hydrocarbons were observed or detected at nearly all locations in a gray soil lens where it was encountered in the field.

A remedial action was conducted in May 1995 to address the lens of contaminated soil and groundwater. The action included (1) designing/implementing a temporary dewatering system to

permit soil excavation, (2) emergency removal of the contaminated soils after dewatering, (3) collecting confirmation samples from the excavated areas, and (4) drilling several borings and collecting soil samples to determine if hydrocarbon contamination had occurred off site. The excavated area contained approximately 13,870 cubic yards of soil.

During construction excavation, an oily sump was encountered on the west side of the site. The sump was sampled and pumped out. Contaminated soil was removed and confirmation samples were collected. Approximately 6,185 cubic yards of soil was removed from the excavation.

In total, approximately 20,115 cubic yards of soil was removed from the site and approximately 9,750 gallons of contaminated groundwater was pumped from the site. Three areas of contamination were found and remediated at the site: (1) surface soil in the basement where metals and oil-range petroleum hydrocarbon contamination was localized and confined to the surface; (2) the gray lens in the northeast corner of the site where gasoline-range petroleum hydrocarbon was removed but existing structures limited complete removal to the north and east; and (3) the oily sump on the west side where oil-range petroleum hydrocarbon was confined by the clayey soils and was readily removed. After the final cleanup, the impacts in soil (480 milligrams per kilogram [mg/kg] to 570 mg/kg) exceeded the gasoline-range petroleum hydrocarbon cleanup level of 100 mg/kg at three locations near the site's property boundary. Confirmation soil sampling from the extent of the excavation indicated that additional gasoline-contaminated soil remained in place and could not be removed without undermining the integrity of existing structures: the existing road to the north and the existing dental office building to the east.

On May 12, 1997, Ecology issued an NFA determination for the site that required one year of groundwater monitoring for gasoline-range petroleum hydrocarbons. After receiving the required groundwater monitoring results, which were all below cleanup levels, Ecology issued a second NFA determination for the site on March 30, 1999. A restrictive covenant was recorded for the site on November 3, 1998, because the remedial action had resulted in residual soil concentrations of total petroleum hydrocarbon (gasoline) that exceeded the Model Toxics Control Act (MTCA) Method A residential cleanup level. It was determined that protection against the remaining contamination could be achieved using institutional controls. The restrictive covenant states that the owner shall not alter, modify, or remove existing or new structure(s) in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology.

Ecology completed a periodic review report for the site in July 2017. The report noted that cleanup levels had changed for several compounds because of modifications made to MTCA in 2001. Of importance to the site, the MTCA Method A cleanup level for soil has been updated to 100 parts per million (ppm or mg/kg) if benzene is not present and 30 ppm if benzene is present. The periodic review report concludes:

- The cleanup actions completed at the site appear to be protective of human health and the environment.
- Soils cleanup levels have not been met at the site; however, under Washington Administrative Code 173-340-740(6)(f), the cleanup action is determined to comply with cleanup standards,

since the long-term integrity of the containment system is ensured and the requirements for containment technologies have been met.

- The restrictive covenant for the site is in place and will be effective in protecting public health from exposure to hazardous substances as well as protecting the integrity of the cleanup action.

The Midstate Land Co site is currently vacant and is used as vehicle parking for the dental office located east of the Midstate Land Co site.

HUNSAKER OIL STEVENSON STATION

Second Street and Columbia Street—This site is listed in Ecology's Cleanup Site database as CSID 8497 (Hunsaker Oil Stevenson Station) and Facility Site ID 25886634. Ecology records indicate that a leaking underground storage tank (LUST) at the site was reported to Ecology in 1998. The site status is "Cleanup Started" under the independent action process. There is confirmed benzene and gasoline contamination in soil, suspected diesel contamination in soil and groundwater, suspected gasoline contamination in groundwater, and confirmed "other" petroleum contamination in groundwater.

An early notice letter from Ecology dated February 12, 2013, indicates their review confirms soil and/or groundwater were contaminated because of a release from a LUST, and the documentation provided to Ecology thus far does not demonstrate MTCA cleanup standards were achieved. Specifically, Ecology's review noted soil and groundwater contaminated with gasoline-range petroleum hydrocarbons was left in place above MTCA cleanup levels in the area of the former underground storage tanks (USTs). No documentation demonstrating cleanup standards were achieved for soil or groundwater is known to have been provided to Ecology. Therefore, the site was added to Ecology's cleanup site list.

Ecology's early notice letter notes four USTs at the site (three 6,000-gallon gasoline and one 4,000-gallon diesel) were removed in 1998. The highest gasoline exceedance was 2,810 ppm and the highest benzene exceedance was 1.2 ppm. There was a diesel tank at the site, but no samples were analyzed for diesel.

Because of its distance from, and its upgradient relationship to, the Columbia Avenue realignment area, this site has the potential to impact the Columbia Avenue realignment area. Confirmation of the presence or absence of soil and groundwater contamination would be gained through an environmental site assessment. However, the property owner would need to provide access for evaluation.

STEVENSON COMMERCE SITE

167 NW Second Street—This site is immediately west of the Columbia Avenue realignment area and is listed in Ecology's Cleanup Site Database as CSID 1507 (Stevenson Commerce Site) and Facility Site ID 3010189. Ecology records indicate that an initial investigation/federal preliminary assessment was completed on August 2, 2005. The site status was changed to NFA on August 7, 2006. Petroleum contamination was below the cleanup level in soils and was suspected in groundwater.

On January 24, 2020, Ms. Emily Hess of MFA interviewed Ms. Kirsten Wecker, toxics cleanup project manager at Ecology, for information regarding the Stevenson Commerce Site. After review of Ecology documents, Ms. Wecker indicated that she plans to rescind the NFA determination for the site. According to Ms. Wecker, soil contamination may have been left in place, and the investigation did not sample groundwater. She noted that, as there is a water well less than 0.25 mile upgradient of the site and that water at that location is approximately 14 feet below ground surface, there are concerns regarding possible contamination in groundwater at the Stevenson Commerce Site.

Given that the site is inferred crossgradient and there is no confirmed contamination on the site, this site is unlikely to have the potential to impact the Columbia Avenue realignment area.

Cleanup Process

Of the three identified sites that were evaluated, only one site, Midstate Land Co, is currently involved in a cleanup process.

MIDSTATE LAND CO

On January 30, 2020, Ms. Hess interviewed Mr. Panjini Balaraju, Ecology project manager, for information regarding the Midstate Land Co and surrounding area. Mr. Balaraju provided the following three options for addressing the vapor migration issue prior to the site development:

- Install a vapor barrier within the whole footprint of the building(s) so that volatile organic compound (VOC) vapors cannot migrate/enter the building(s). Mr. Balaraju indicated that this could be done during the early construction stage. This option would involve long-term monitoring and would require preparation of a work plan to be reviewed by Ecology.
- Drill temporary soil borings, collect an appropriate number of soil at each boring location, and analyze these samples for contaminants of potential concern. If detected concentrations are below the current MTCA cleanup levels, Ecology can issue a final NFA letter and remove the restrictive covenant.
- If the results of the above soil investigation show that contaminant concentrations are still above the current MTCA cleanup levels, conduct a localized cleanup (excavate and dispose of the contaminated soils) and collect confirmation (post-excavation) soil samples to demonstrate the compliance. Once this is done, Ecology can issue a final NFA letter and remove the restrictive covenant.

A Phase II ESA was conducted for the Midstate Land Co site in July 2020. The purpose of this assessment was to evaluate potential exposure pathways associated with construction and the developed use, based on current environmental conditions. The activities include collecting soil and groundwater samples from the subsurface (via push-probe drilling) to identify potential contaminant impacts and assessing samples for contaminants of potential concern:

- Near the soil contamination left in place on the Midstate Land Co site: gasoline-range petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes.

- Near the Hunsaker Oil Stevenson site: gasoline-range petroleum hydrocarbons, diesel- and oil-range petroleum hydrocarbons, VOCs, polycyclic aromatic hydrocarbons, lead, and polychlorinated biphenyls. As part of the February 2020 Phase I ESA for the Midstate Land Co property, neighboring properties were assessed to determine if they had the potential to impact the Midstate Land Co property. Given the proximity of the Midstate Land Co property to the Hunsaker Oil Stevenson site, it was determined there was the potential for the Midstate Land Co property to be impacted. Therefore, as part of the Midstate Land Co Phase II ESA, a boring was advanced on the northwest corner of the Midstate Land Co property closest to the Hunsaker Oil Stevenson site to determine if the Midstate Land Co property is impacted by the Hunsaker Oil Stevenson site.

5 IMPLICATION FOR DEVELOPMENT

This provides an overview of the findings of the existing conditions report along with their implications for the realignment project and redevelopment in the surrounding area.

Natural Resources	• Several areas in the realignment area include have steep slopes, which could pose a challenge to redevelopment • Kanaka Creek runs through the easternmost parcel in the realignment area. The area surrounding the creek is in the 100-year floodplain. To protect the creek, development in this area is subject to additional review and restrictions.
Infrastructure	• Water and sanitary sewer located within the existing Columbia Avenue right of way are generally sized appropriately for existing and future development but will have to be moved if the street is relocated. • There are existing stormwater connections in First and Second Streets, but currently there is no stormwater infrastructure in Columbia Avenue. Stormwater treatment and control infrastructure will have to be constructed. • A new, realigned Columbia Avenue would include two lanes of traffic, parking, and continuous sidewalks on both sides of the road. • There are existing overhead power and underground telephone lines in Columbia Avenue that will have to be relocated to the realigned right-of-way.

Regulatory	• The area is currently zoned Commercial 1 and allows for a variety of uses, including commercial and residential activities. • The pending Stevenson Downtown Plan for Success proposes to add overlay zones to the area to encourage mixed-use development and a walkable downtown. Should these overlay zones be adopted, future development will need to comply with them. • The realignment area contains several Environmentally Critical Areas, including steep slopes, wetlands, and streams. Several steep slopes are located directly adjacent to the existing Columbia Avenue right-of- way. The realignment project and future development in these areas will have to comply with the City's Critical Areas Ordinance.
Environmental	• The following sites were identified for further review of their potential to impact the Columbia Avenue realignment area: Midstate Land Co, Hunsaker Oil Stevenson Station, and Stevenson Commerce Site: – The Midstate Land Co and Hunsaker Oil Stevenson Station are in the Columbia Avenue realignment area and have confirmed or suspected contamination in soil and/or groundwater. – A Phase II environmental site assessment was conducted at the Midstate Land Co site in July 2020. The activities included collecting soil and groundwater samples from the subsurface (via push-probe drilling) to identify potential contaminant impacts. The purpose of this assessment is to evaluate potential exposure pathways associated with construction and the developed use, based on current environmental conditions. – Further investigation of the Hunsaker Oil Stevenson Station would be beneficial to determine if soil and/or groundwater contamination is present. However, the property owner would need to provide the direction to do so. – The Stevenson Commerce Site does not have confirmed contamination, received a No Further Action determination in 2006, and is crossgradient of the Columbia Avenue realignment area. Therefore, this site is unlikely to have the potential to impact the Columbia Avenue realignment area.

NEXT STEPS

This existing conditions report is the first step in planning for the realignment of Columbia Avenue. Next steps include engagement with property owners in the realignment area and development of a site plan depicting the new alignment, street design, and relocated utilities. The overall goal is to develop recommended strategy and action steps for moving forward with the relocation of Columbia Avenue.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

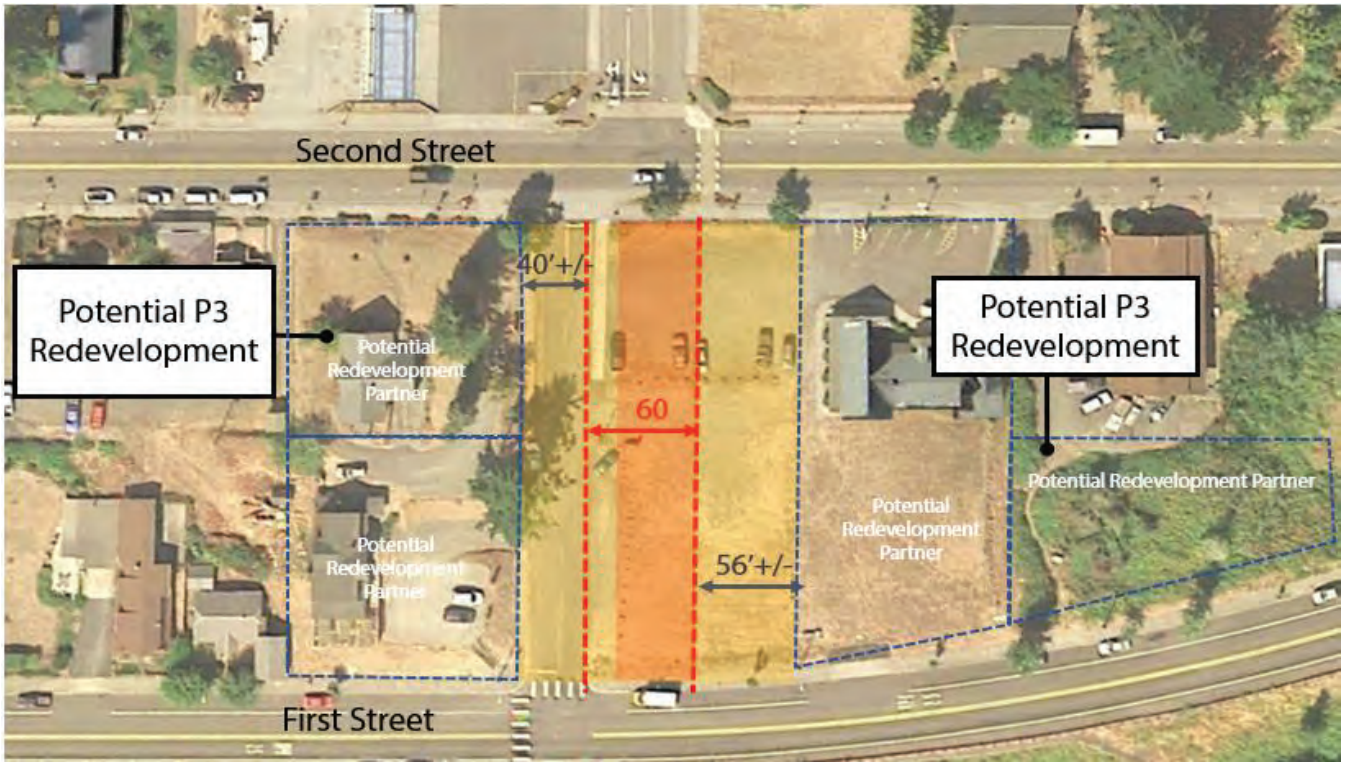
Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

FIGURES

Figure 1-1: Columbia Avenue Realignment Area--Stevenson, WA

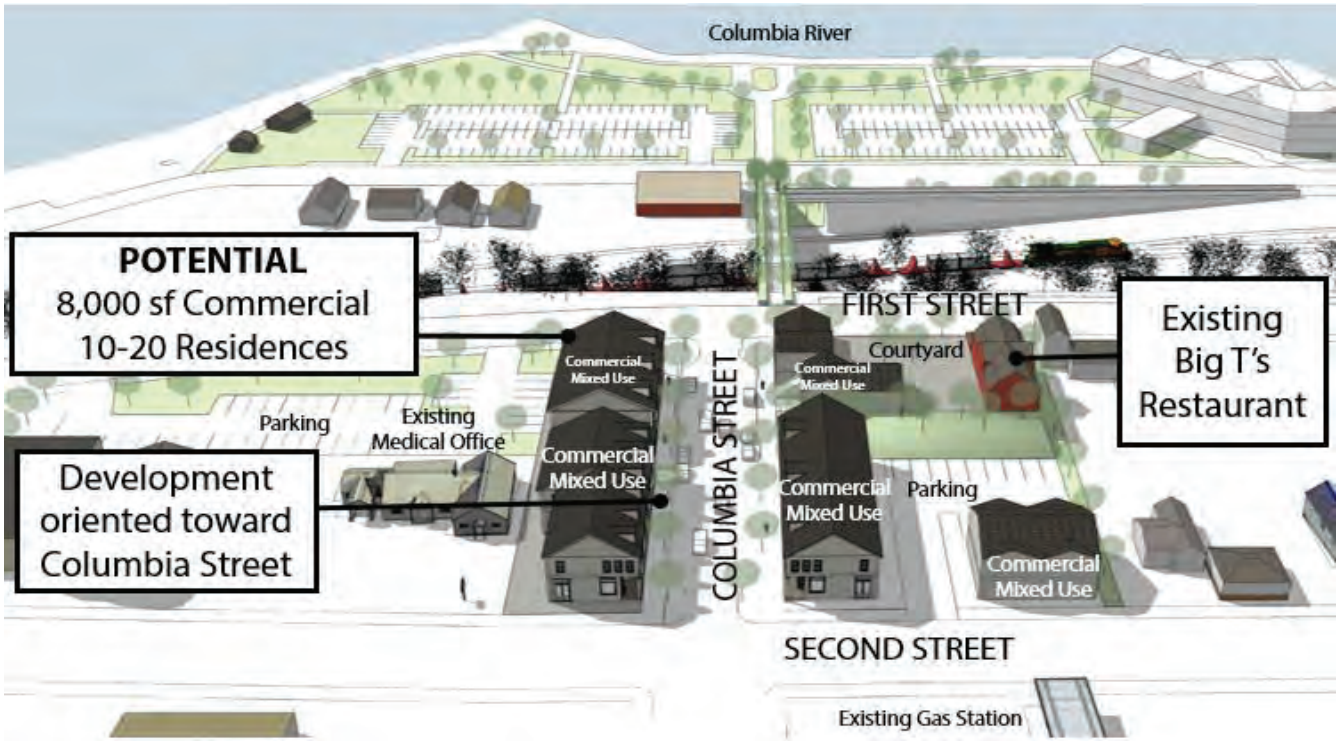
Figure 1-2: Columbia Avenue Realignment Conceptual Plans

Realignment Concept



Source: Stevenson Downtown Plan for Success, 2019

Redevelopment Concept



Source: Stevenson Downtown Plan for Success, 2019

Figure 1-3: Columbia Avenue Aerial Photo

Image Credit: Trulia.com

N

Figure 2-1
Site Infrastructure: Municipal Water
Stevenson, Washington

Legend

- Municipal Water
- Realignment Area
- Tax Lots

NOTE:
All features are approximate.

0 75 150
Feet

Source: Aerial photograph obtained from Esri, ArcGIS Online

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0405.05\02\Project\Fig2_1_Municipal_Water_Infrastructure.mxd
Print Date: 6/22/2020
Approved By:
Produced By: mjosef
Project:

Figure 2-2
Site Infrastructure: Wastewater

Stevenson, Washington

Legend

- Wastewater
- Realignment Area
- Tax Lots

NOTE:
All features are approximate.

0 75 150
Feet

Source: Aerial photograph obtained from Esri, ArcGIS Online

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Path: X:\0405.05\02\Project\Fig2_2_Wastewater_Infrastructure.mxd
Print Date: 6/22/2020
Approved By:
Produced By: mjosef
Project:

Figure 2-3
Site Infrastructure: Stormwater
Stevenson, Washington

Legend

- Stormwater
- Realignment Area
- Tax Lots

NOTE:
All features are approximate.

0 75 150
Feet

Source: Aerial photograph obtained from Esri, ArcGIS Online

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Print Date: 6/22/2020
Approved By:
Produced By: mjosef
Project:

Figure 2-4
Site Infrastructure: Communications

Stevenson, Washington

Legend

- Electric / Communications
- Realignment Area
- Tax Lots

NOTE:
All features are approximate.

0 75 150
Feet

Source: Aerial photograph obtained from Esri, ArcGIS Online

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Print Date: 6/22/2020
Approved By:
Produced By: mjosef
Project:

Figure 3-1: Realignment Area Zoning Map

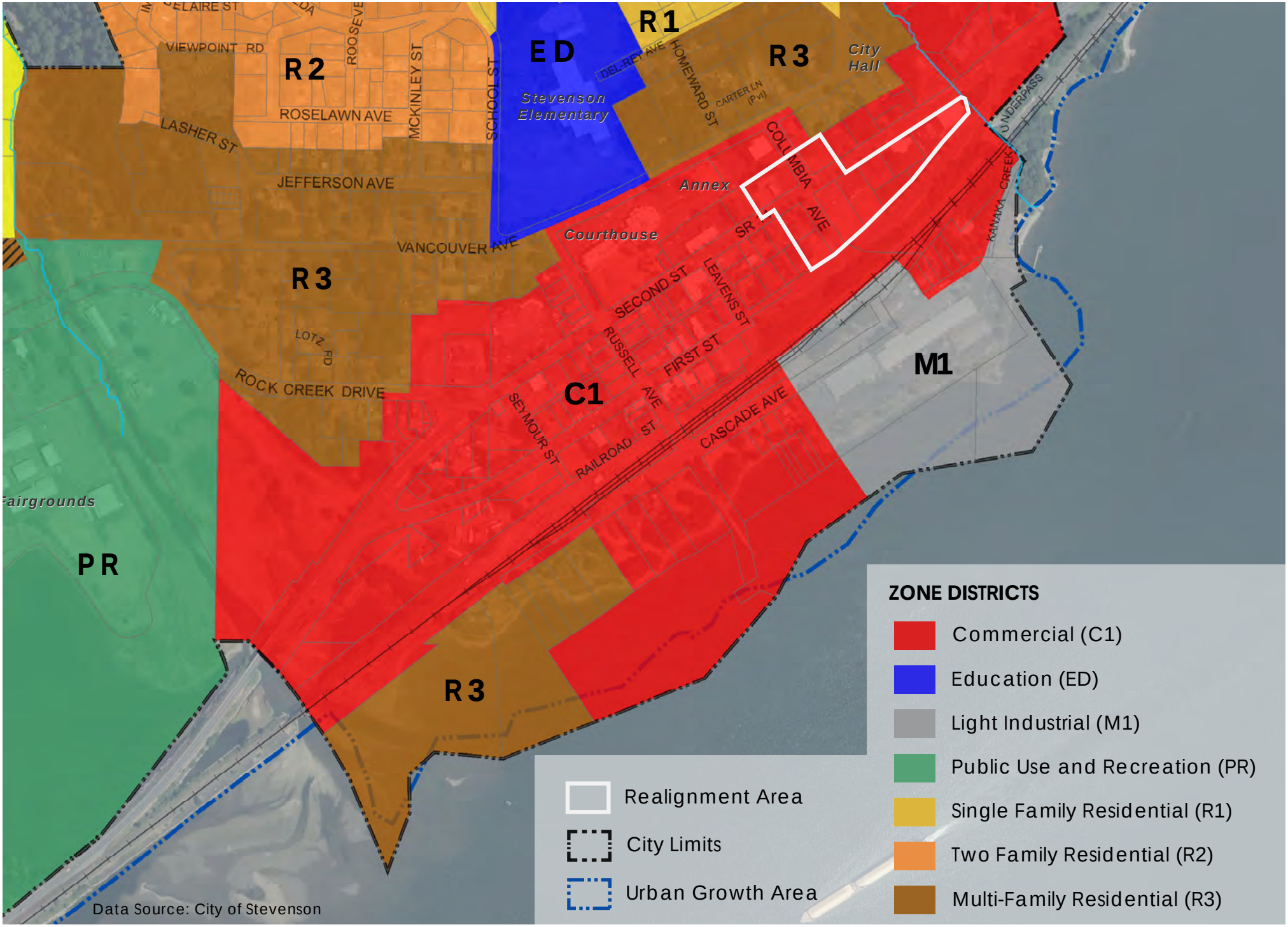

Figure 3-2: Critical Areas Map

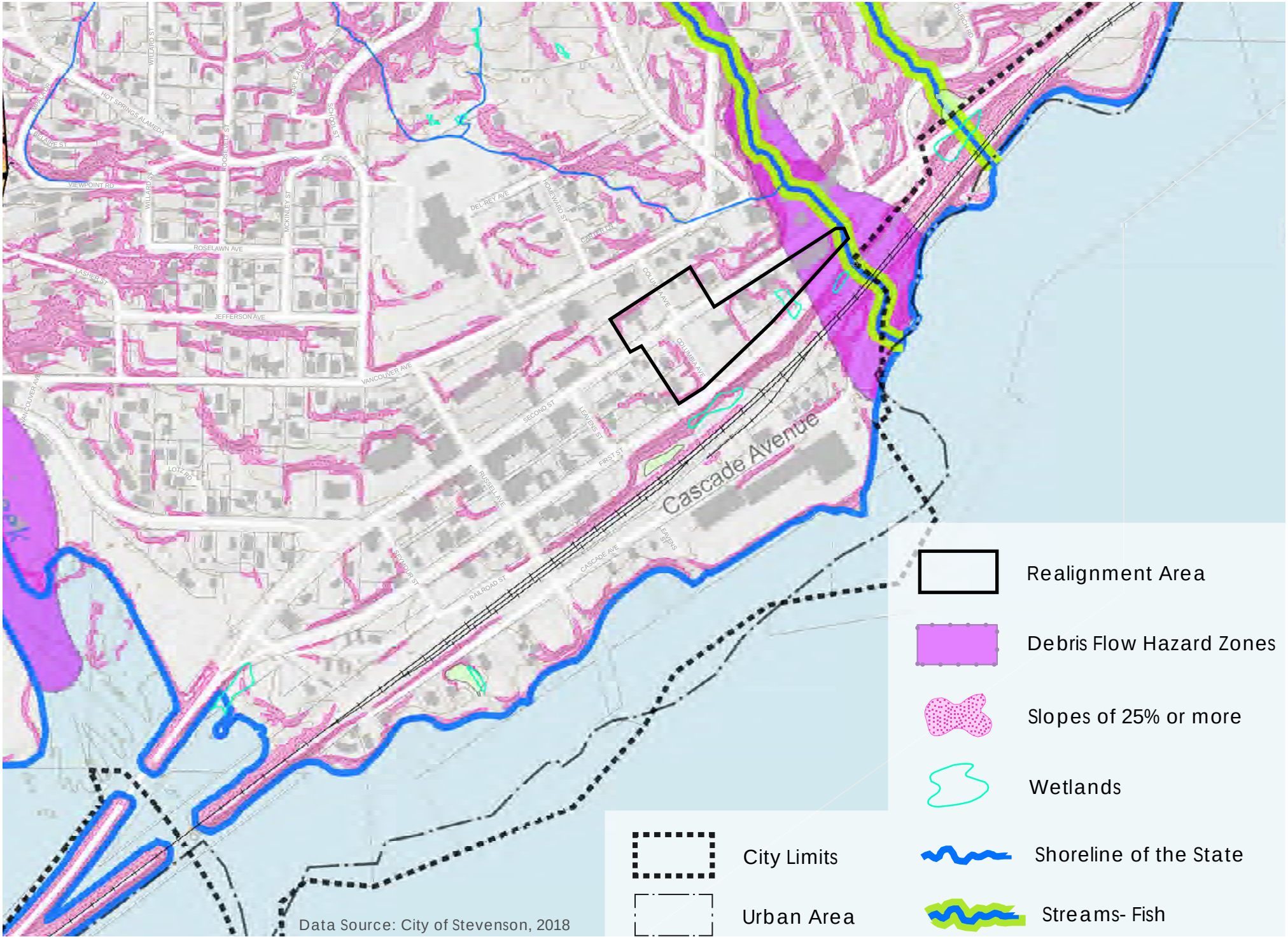

Figure 4-1: Environmental Areas of Concern, **Columbia Avenue Realignment Area--Stevenson, WA**

APPENDIX D

COLUMBIA AVENUE REALIGNMENT PLAN SET

COLUMBIA AVENUE REALIGNMENT

PREPARED FOR:

CITY OF STEVENSON

LOCATED IN SE $\frac{1}{4}$ SE $\frac{1}{4}$, SEC. 36, T. 3 N., R. 7 E., W.M., SKAMANIA COUNTY, STEVENSON, WASHINGTON

PROJECT CONTACTS

CLIENT
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BEN SHUMAKER
BEN@CI.STEVENSON.WA.US

CIVIL ENGINEER
MAUL, FOSTER & ALONGI, INC.
109 EAST 13TH STREET
VANCOUVER, WA 98660
P: (360)694-2691
KRISTI BOON, PE
KBOON@MAULFOSTER.COM

SURVEYOR
S&F LAND SERVICES
2300 E 3RD LOOP
SUITE 100
VANCOUVER, WA 98661
P: (360) 326-2334

PROJECT SUMMARY

SITE ADDRESS:
COLUMBIA AVENUE
SKAMANIA COUNTY
STEVENSON, WA 98648

WORK DESCRIPTION:
THE CITY OF STEVENSON IS PROPOSING TO REALIGN THE ROAD AND RIGHT-OF-WAY SECTION OF COLUMBIA AVENUE BETWEEN FIRST STREET AND SECOND STREET WITH ALL SUPPORTING INFRASTRUCTURE.

VICINITY MAP

NOT TO SCALE

SHEET INDEX

GENERAL NOTES

1. SURVEY PERFORMED BY S&F LAND SERVICES ON SEPTEMBER 21, 2022.
2. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM SOUTH ZONE, NAD 83(2011), US SURVEY FEET. ELEVATION DATUM: NAVD 88.
3. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION. A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CALL 811 (UTILITY NOTIFICATION CENTER) FOR LOCATION MARK-UP OF EXISTING UTILITIES.
4. ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STANDARDS AND PRACTICES OF THE CITY OF STEVENSON AND THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION" PREPARED BY WSDOT/APWA.
5. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT WILL PREVAIL.
6. ANY CHANGES TO THE DESIGN AND/OR CONSTRUCTION SHALL BE APPROVED BY THE OWNER OR ENGINEER.
7. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE AN APPROVAL OF ANY OTHER CONSTRUCTION NOT SPECIFICALLY SHOWN ON THE PLANS. PLANS FOR STRUCTURES SUCH AS BRIDGES, BUILDINGS, TANKS, VAULTS, ROCKERIES, AND RETAINING WALLS MAY REQUIRE A SEPARATE REVIEW AND APPROVAL BY THE BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.
8. A COPY OF THESE APPROVED PLANS SHALL BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.
10. PUBLIC AND PRIVATE DRAINAGE WAYS SHALL BE PROTECTED FROM POLLUTION. NO MATERIAL IS TO BE DISCHARGED TO OR DEPOSITED IN STORMWATER SYSTEMS THAT MAY RESULT IN VIOLATION OF STATE OR FEDERAL WATER QUALITY STANDARDS.
11. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL HAVE AN APPROVED PUBLIC RIGHT-OF-WAY WORK PERMIT PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN THE RIGHT-OF-WAY.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION. TWO-WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES ON THE ADJACENT PUBLIC STREETS.
13. ANY PUBLIC OR PRIVATE CURB, GUTTER, SIDEWALK, OR ASPHALT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO CITY OF STEVENSON STANDARDS AND PRACTICES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ADJACENT UTILITIES WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WATER, SANITARY SEWER, STORMWATER, POWER, TELEPHONE, CABLE TV, GAS, IRRIGATION, AND STREET LIGHTING. THE CONTRACTOR SHALL NOTIFY RESIDENTS AND BUSINESSES 48 HOURS IN ADVANCE OF ANY WORK AFFECTING ACCESS OR SERVICE AND SHALL MINIMIZE INTERRUPTIONS TO DRIVEWAYS FOR RESIDENTS AND BUSINESSES ADJACENT TO THE PROJECT.
15. ALL LAWN AND VEGETATED AREAS DISTURBED WILL BE RESTORED TO ORIGINAL CONDITION. ANY DISTURBANCE OR DAMAGE TO OTHER PROPERTY ON ADJACENT PARCELS OR IN THE PUBLIC RIGHT OF WAY SHALL ALSO BE REPAIRED OR RESTORED TO ORIGINAL CONDITION.

PRELIMINARY

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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
B	11/16/2023	CITY OF STEVENSON RESUBMITTAL
A	05/05/2023	60% DESIGN SET

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE

SHEET TITLE
COVER SHEET

SHEET
C0.0

PLOTTED ON: 2023-11-16 10:46 AM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C0.0 COVER SHEET.dwg

CONSTRUCTION NOTES

EROSION AND SEDIMENT CONTROL

1. ALL GRADING AND EROSION CONTROL MATERIALS, WORKMANSHIP AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE "EROSION AND SEDIMENT CONTROL MANUAL" PREPARED BY THE [redacted] DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE EXISTING PROJECT NPDES 1200-C PERMIT, EPA NO. [redacted]. EROSION CONTROL SHALL BE PER THE SPECIFICATIONS AND DETAILS CONTAINED THEREIN AND SHALL TAKE PRECEDENCE OVER OTHER STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL MAINTAIN AN ON-SITE WRITTEN DAILY LOG OF EROSION CONTROL AND MAINTENANCE.
3. DURING THE PERIOD FROM OCTOBER 1ST TO APRIL 30TH, NO SOIL SHALL BE EXPOSED FOR MORE THAN TWO (2) DAYS, FROM MAY 1ST TO SEPTEMBER 30TH, NO SOILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN (7) DAYS.
4. THE CONSTRUCTION ENTRANCE MAY BE REDUCED TO LESS THAN 100' WITH APPROVAL OF THE EROSION CONTROL INSPECTOR.
5. INLET PROTECTION FABRIC SHALL BE INSTALLED UNDER GRATES FOR INLETS IN LANDSCAPED AREAS.
6. THE CONTRACTOR WILL PROVIDE APPROPRIATE PROACTIVE EROSION CONTROL DURING CONSTRUCTION TO PREVENT THE EROSION CONTROL SYSTEMS FROM FAILING DUE TO SILT. THE CONTRACTOR SHALL ENSURE THAT SEDIMENT DOES NOT IMPACT THE ADJACENT PROPERTIES OR THE SURROUNDING PUBLIC ROADS DURING CONSTRUCTION.
7. THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, AND VEGETATION IS ESTABLISHED.
8. CARE SHOULD BE TAKEN TO NOT DISTURB MORE AREA THAN NEEDED FOR CONSTRUCTION REQUIREMENTS. ALL DISTURBED SOILS SURFACES ARE TO BE STABILIZED. STABILIZATION OF DISTURBED SOIL AREAS SHALL CONSIST OF: HYDROSEEDING OR HANDSEEDING, MULCHING, PLACING OF EROSION CONTROL BLANKETS OR PLASTIC IN LANDSCAPING SOIL AREAS. IT WILL ALSO CONSIST OF PAVING AND CONCRETE WORK IN DRIVING, PARKING, AND SIDEWALK AREAS. ALL SEEDED AREAS ARE TO BE FERTILIZED, WATERED, AND MAINTAINED TO ENHANCE THE IMMEDIATE REGROWTH OF VEGETATION.
9. MATERIAL STOCKPILES ARE TO BE PROTECTED FROM PRECIPITATION BY THE FOLLOWING MEANS:

   • TEMPORARY - COVER PILES WITH TARPS OR PLASTIC SHEETING WEIGHTED WITH TIRES, LUMBER, OR CONCRETE BLOCKS.

   • PERMANENT - COVER PILES WITH TARPS OR PLASTIC, OR RESEED. PERIMETER AREAS AROUND PILES ARE TO BE SURROUNDED WITH EROSION CONTROL FILTER FABRIC FENCES UNTIL SOILS SURFACE IS STABILIZED WITH RESEEDING.
10. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE CONTINUOUS FUNCTIONING. INSPECTION AND MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO:

    • VERIFYING THAT ALL AREAS ARE GRADED SUCH THAT ALL RUNOFF IS DIRECTED TO A SEDIMENTATION TRAP FACILITY BEFORE BEING DISCHARGING TO SURFACE.

    • REMOVAL OF TRAPPED SILTS AT SILT BARRIERS, SILT TRAPS, OR POINTS OF ACCUMULATION.

    • ADDITIONAL PROTECTIVE MEASURES, AS REQUIRED, DUE TO JOB SITE CONDITIONS.

    • STABILIZED CONSTRUCTION ENTRANCES INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. MONITORING OF VEHICLES LEAVING THE SITE TO MINIMIZE TRANSMISSION OF LOOSE SOILS TO THE PUBLIC ROADWAYS.

    • IF SEDIMENT IS TRANSPORTED ONTO A ROAD SURFACE, THE SURFACE IS TO BE CLEANED THOROUGHLY AT THE END OF EACH DAY.
11. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
12. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
13. THIS SEDIMENTATION AND EROSION CONTROL PLAN IS INTENDED TO BE UTILIZED AS A GUIDE TO CONTROL THE TRANSPORTATION OF LOOSE SOILS FROM THE PROPERTY THAT CAUSE WATER QUALITY AND NUISANCE PROBLEMS OUTSIDE OF THE CONSTRUCTION AREA.
14. DEPENDING ON THE CONTRACTOR'S CONSTRUCTION PRACTICES, SOME PORTIONS OF THE PROPOSED EROSION CONTROL PLAN MAY BE VARIED ACCORDING TO THE JOB SITE CONDITION. ALL CHANGES TO THE PLAN MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ADJUSTMENT.

SITE GRADING

15. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE GEOTECHNICAL REPORT PREPARED BY [redacted] FOR THE SITE. THE CONTRACTOR SHALL FOLLOW ALL RECOMMENDATIONS REGARDING EARTHWORK AS DETAILED IN THE REPORT.
16. ALL PORTIONS OF THE SITE WITHIN THE LIMITS OF THE WORK SHALL BE MOWED AND STRIPPED TO REMOVE ALL GRASS, ROOTS, ORGANIC SOIL, AND CONSTRUCTION FILL DEBRIS PRIOR TO THE BEGINNING OF ANY GRADING OPERATIONS. THE CONTRACTOR SHALL SALVAGE AND STOCKPILE ENOUGH SELECT TOPSOIL TO ACCOMMODATE LANDSCAPING NEEDS.
17. FOLLOWING STRIPPING AND GRUBBING, THE EXPOSED SOILS SHALL BE PROOF ROLLED TO REVEAL WEAK, ORGANIC, OR OTHER UNSUITABLE SOILS. UNSUITABLE SOILS SHALL BE EXCAVATED TO FIRM GROUND AND FILLED TO GRADE WITH SUITABLE NATIVE OR IMPORTED STRUCTURAL FILL.
18. EXPOSED SUBGRADE SOILS ON AREAS TO RECEIVE STRUCTURAL FILL SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES.
19. IF FILLS ARE NEEDED FOR STRUCTURAL SUPPORT, THEY SHALL BE INSTALLED IN NO MORE THAN 8-INCH LIFTS, AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY FOR FINE GRAINED NATIVE SOILS UNLESS OTHERWISE SPECIFIED ON THE PLAN. THE TOP LIFT OF FILL SHALL BE COMPACTED TO 92%. ALL OTHER SOILS SHALL BE COMPACTED TO NO LESS THAN 85%.
20. COMPACTION TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM D 698 (STANDARD PROCTOR).
21. AT THE END OF THE GRADING OPERATION, THE STOCKPILED STRIPPINGS SHALL BE DISTRIBUTED ON THE LANDSCAPED AREAS IN A COMPACTED DEPTH NOT TO EXCEED 12".
22. ALL SURFACES SHALL BE GRADED SMOOTH AND FREE OF IRREGULARITIES THAT MIGHT ACCUMULATE SURFACE WATER.
23. ALL GRADING OPERATIONS AND DISTURBED SURFACE STABILIZATION SHALL BE IN ACCORDANCE WITH THE PROJECT EROSION CONTROL PLAN.

TRANSPORTATION

24. THE MOST CURRENT EDITIONS OF THE [redacted] DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS AND STANDARD DETAILS AND THE MOST CURRENT EDITIONS OF THE CITY OF [redacted] DESIGN STANDARDS SHALL BE UTILIZED IN THE CONSTRUCTION OF TRANSPORTATION ELEMENTS OF THESE PLANS.
25. STREET SIGNING AND STRIPING SHALL BE INSTALLED BY THE DEVELOPER. ALL STREET SIGNS AND STRIPING SHALL BE INSTALLED PER THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S.DEPARTMENT OF TRANSPORTATION AND LATEST ADOPTED EDITION OF THE STATE OF OREGON SUPPLEMENT TO THE MUTCD.
26. ALL CONSTRUCTION WITHIN THE RIGHT-OF-WAY SHALL HAVE AN APPROVED TRAFFIC CONTROL PLAN AND RIGHT-OF-WAY PERMIT PRIOR TO ANY ON-SITE CONSTRUCTION ACTIVITY.
27. PAVING WITHIN THE PUBLIC RIGHT-OF-WAY WILL NOT BE ALLOWED DURING WET OR COLD WEATHER, PER DOT SPECIFICATIONS.
28. ALL PAVEMENT SHALL BE STRAIGHT CUT PRIOR TO PAVING. EXISTING PAVEMENT SHALL BE REMOVED AS NECESSARY TO PROVIDE A SMOOTH TRANSITION FOR BOTH RIDE AND DRAINAGE.
29. ALL ADA PEDESTRIAN RAMPS SHOWN ON THE PLANS AND ON THE DETAIL SHEETS SHALL BE CONSTRUCTED WITH THE PROJECT.
30. CONTRACTOR SHALL REPORT ALL DAMAGES IMMEDIATELY TO THE CITY'S PUBLIC WORKS DEPARTMENT OR CONTACT THE INSPECTOR ON THE JOB.
31. PUBLIC RIGHTS-OF-WAY SHALL BE KEPT IN A CLEAN AND SERVICEABLE CONDITION AT ALL TIMES. IN THE EVENT MATERIALS ARE INADVERTENTLY DEPOSITED ON ROADWAYS, THE MATERIAL SHALL BE PROMPTLY REMOVED. MATERIALS ARE TO BE SWEPT AND REMOVED WITH A VACUUM SWEEPER.

STORM SEWER CONSTRUCTION

32. ALL MATERIALS AND INSTALLATION OF STORM SEWERS AND DRAINAGE SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS IN THE LATEST EDITION OF THE "O[redacted] STANDARD SPECIFICATIONS FOR CONSTRUCTION" BY THE AMERICAN PUBLIC WORKS ASSOCIATION AND THE [redacted] DEPARTMENT OF TRANSPORTATION. WHEREVER THE STANDARD SPECIFICATIONS REFER TO THE "STATE", "SECRETARY", OR WHEN REFERENCE IS MADE TO THE DEPARTMENT OF TRANSPORTATION IT SHALL BE UNDERSTOOD THAT THE STANDARD SPECIFICATIONS SHOULD READ THE "OWNER". ADDITIONALLY, ALL MATERIALS AND INSTALLATION OF STORM SEWERS AND DRAINAGE SYSTEMS IN THE RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS IN THE MOST CURRENT EDITIONS OF THE CITY OF [redacted] DESIGN STANDARDS.
33. PIPE LENGTHS SHOWN ON THE PLANS ARE TO THE CENTER OF THE STRUCTURE.
34. PRE-PAVING AS-BUILTS ARE REQUIRED FOR STORMWATER, WATER, AND SANITARY FACILITIES. PROVIDE AS-BUILT INFORMATION TO THE CONSTRUCTION INSPECTOR AND CONSTRUCTION ENGINEER FOR APPROVAL PRIOR TO ANY PAVING.
35. MATERIALS FOR STORM SEWER INLET LATERALS AND MAINS SHALL BE DUAL-WALLED, SMOOTH INTERIOR, CORRUGATED POLYETHYLENE STORM SEWER PIPE, UNLESS OTHERWISE SPECIFIED ON PLANS.
36. SEE THE [redacted] STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION [redacted] FOR STORM SEWER PIPE MATERIALS AND PLANS.
37. PERFORATED PIPE MATERIALS SHALL BE PERFORATED CORRUGATED POLYETHYLENE STORM SEWER PIPE.
38. CATCH BASINS SHALL BE TYPE 1 H-20 OR PROJECT APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED ON PLANS.
39. TRENCH EXCAVATION SHALL MEET THE REQUIREMENTS OF [redacted] STANDARD SPECIFICATIONS FOR CONSTRUCTION BY THE AMERICAN PUBLIC WORKS ASSOCIATION AND THE [redacted] DEPARTMENT OF TRANSPORTATION SECTION 00405.41.
40. STORM SEWER PIPE BEDDING AND BACKFILL SHALL MEET THE REQUIREMENTS OF SECTIONS [redacted]. PIPE BEDDING MATERIALS SHALL BE ¾" - 0 AGGREGATE BEDDING PER SECTION [redacted] AND PIPE BACKFILL MATERIALS SHALL BE CLASS A OR CLASS B PER SECTION [redacted] AS APPROVED BY THE INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). NATIVE BACKFILL MAY BE USED UPON APPROVAL FROM THE INSPECTOR. STORM SEWER PIPE SHALL BE INSTALLED IN THE RIGHT OF WAY IN ACCORDANCE TO THE "UTILITY TRENCH" CITY OF [redacted] STANDARD DETAIL.
41. STORM SEWER INLETS, AS NOTED ON THE PLANS, SHALL BE FITTED WITH AN APPROVED TRAP.

SANITARY SEWER CONSTRUCTION

42. SANITARY SEWER LATERALS SHALL BE 6" IN SIZE, INSTALLED AT A MINIMUM SLOPE OF 0.01 FT/FT UNLESS OTHERWISE SPECIFIED ON THE PLAN.
43. MATERIALS FOR SANITARY SEWER PIPE SHALL BE PVC PIPE CONFORMING TO ASTM D3034 OR GREEN COLORED PVC-C900 DR 14, HDPE PIPE DR 21, OR DUCTILE IRON, AS NOTED ON THE PLANS.
44. PIPE LENGTHS SHOWN ON THE PLANS ARE TO THE CENTER OF THE STRUCTURE.
45. SANITARY SEWER PIPE BEDDING AND BACKFILL SHALL MEET THE REQUIREMENTS OF SECTIONS [redacted]. PIPE BEDDING MATERIALS SHALL BE ¾" - 0 AGGREGATE BEDDING PER SECTION [redacted] AND PIPE BACKFILL MATERIALS SHALL BE CLASS A OR CLASS B PER SECTION [redacted] AS APPROVED BY THE INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). NATIVE BACKFILL MAY BE USED UPON APPROVAL FROM THE INSPECTOR. SANITARY SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE TO THE "TRENCH BACKFILL, BEDDING, PIPE ZONE, AND MULTIPLE INSTALLATIONS" STANDARD DETAIL. SANITARY SEWER PIPE SHALL BE INSTALLED IN THE RIGHT OF WAY IN ACCORDANCE TO THE "UTILITY TRENCH" CITY OF [redacted] STANDARD DETAIL.
46. CONTRACTOR TO MAINTAIN A MINIMUM 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN ALL EXISTING AND PROPOSED WATER AND SANITARY SEWER MAINS.
47. ALL SANITARY MANHOLES SHALL BE 48" Ø UNLESS OTHERWISE SPECIFIED ON PLANS.
48. LOCATOR TAPE TO BE LOCATED EIGHTEEN (18) INCHES ABOVE A SEWER MAIN AND TWELVE (12) INCHES ABOVE A SERVICE LINE.
49. THE LOCATOR TAPE SHALL BE MARKED WITH CONTINUOUS THREE (3) INCH WIDE GREEN SIX (6) MIL THICK LOCATOR TAPE THREE (3) INCH HIGH BLACK LETTERS EVERY THREE (3) FEET WITH "WARNING - BURIED SANITARY SEWER".
50. A CONTINUOUS TONING WIRE SHALL BE ATTACHED TO THE TOP OF THE SANITARY SEWER SERVICE LINE. THE TONING WIRE SHALL BE COATED #14 AWG (MIN.) SOLID COPPER WIRE, OR APPROVED EQUAL. THE TONING WIRE SHALL END IN THE VALVE BOX WITH A MINIMUM OF ONE (1) FOOT COILED OF WIRE. THE TONING WIRE SHALL BE TESTED FOR CONTINUITY PRIOR TO ACCEPTANCE. ALL SPLICES WILL BE SOLDERED A MINIMUM OF TWO (2) INCHES IN LENGTH AND ENCASED WITH 3M SCOTCH #220 VINYL MASTIC PADS (3 ½" BY 4 ½") OR 3M SCOTCH 33 ELECTRICAL TAKE AND COATED WITH SCOTCHKOTE ELECTRICAL COATING #1485 (REPEAT PROCESS AFTER FIRST COATING DRIES), OR APPROVED EQUAL.

WATER SYSTEM CONSTRUCTION

51. MATERIALS FOR WATER PIPE SHALL BE DUCTILE IRON CL-52 OR PVC PIPE CONFORMING TO PVC-C900 DR 25, UNLESS OTHERWISE SPECIFIED ON PLANS.
52. PIPE BEDDING MATERIALS SHALL BE ¾" - 0 AGGREGATE BEDDING PER SECTION [redacted] COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). BACKFILL FOR WATER TRENCHES SHALL BE CLASS A OR CLASS B PER SECTION [redacted] AS APPROVED BY THE DIRECTOR, UNLESS OTHERWISE SPECIFIED ON THE PLANS. NATIVE BACKFILL MAY BE USED UPON APPROVAL FROM THE INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). WATER PIPE SHALL BE INSTALLED IN THE RIGHT OF WAY IN ACCORDANCE WITH THE CITY OF [redacted] STANDARD DETAIL.
53. CONTRACTOR TO MAINTAIN A MINIMUM 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN ALL EXISTING AND PROPOSED WATER AND SANITARY SEWER MAINS.
54. ANY SIGNIFICANT DEVIATION FROM THE PLANS WILL REQUIRE A REQUEST FROM THE APPLICANT'S ENGINEER AND APPROVAL FROM THE CITY'S ENGINEER AND CITY INSPECTOR.

BACKFLOW PREVENTION DEVICE NOTES

55. ALL COMMERCIAL WATER METERS SHALL BE PROTECTED WITH A STATE-APPROVED BACKFLOW DEVICE.
56. STATE APPROVED BACKFLOW PROTECTION SHALL BE REQUIRED ON FIRE SPRINKLER AND IRRIGATION SYSTEMS. ALL HOSEBIBS SHALL BE PROTECTED WITH VACUUM BREAKERS. FURTHER BACKFLOW PREVENTION SHALL BE REQUIRED DEPENDING ON WATER USAGE IE - BOILERS, CHILLERS, CHEMICAL ADDITIONS, BOOSTER PUMPS, WELLS, ETC.

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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE

SHEET TITLE

C1.0 GENERAL NOTES - CONSTRUCTION NOTES

SHEET

PLOTTED ON: 2023-11-16 10:46 AM PLOTTED BY: Billy Tockett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C1.0 GENERAL NOTES.dwg

ABBREVIATIONS

AC	ACRE, ASPHALT CONCRETE PAVEMENT
ACOE	ARMY CORPS OF ENGINEERS
AD	AREA DRAIN
AGG	AGGREGATE
AIR	AIR RELIEF
AMSL	ABOVE MEAN SEA LEVEL
AP	ANGLE POINT
APN	APPARENT PARCEL NUMBER
APPD	APPROVED
APPROX, ±	APPROXIMAT(-E, -LY)
ASPH	ASPHALT
ASSY	ASSEMBLY
BCR	BEGIN CURB RETURN
BF	BUTTERFLY
BGS	BELOW GROUND SURFACE
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCHMARK
BMP	BEST MANAGEMENT PRACTICE
BO	BLOW-OFF
BOC	BACK OF CURB
BOT, BTM	BOTTOM
B.O.W.	BOTTOM OF WALL
BVC	BEGING VERTICAL CURVE
CB	CATCH BASIN
CDF	CONTROLLED DENSITY FILL
CEM	CEMENT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CIP	CAST IRON PIPE
CIR	CIRCLE
CK	CHECK
CL, ℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COMP	COMPACTION
CONC	CONCRETE
CPE	CORRUGATED POLYETHYLENE
CPL	COUPLING
CT	COURT
CTR	CENTER
CULV	CULVERT
CY	CUBIC YARD
D	DEPTH
DEG	DEGREE(-S)
DI	DUCTILE IRON
DIA	DIAMETER
DIM.	DIMENSION(-S)
DIP, D.I.P.	DUCTILE IRON PIPE
DOT	DEPARTMENT OF TRANSPORTATION
DR	DIMENSION RATIO
DTL	DETAIL
DWG(S)	DRAWING(-S)
E	EAST
EA	EACH
ECR	END CURB RETURN
EG	EXISTING GROUND
EL, ELEV	ELEVATION
ELB, ELL	ELBOW
ELEC	ELECTRIC(-AL)
ENGR	ENGINEER
ENTR	ENTRANCE
EP, EOP	EDGE OF PAVEMENT
EQ	EQUAL(-LY)
ESC	EROSION CONTROL
ESMT	EASEMENT
EST	ESTIMATE(-D)
EVC	END VERTICAL CURVE
EXC	EXCAVATE
EX., EXTG.	EXISTING
EW	EACH WAY
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FLG	FLANGE
FM	FORCE MAIN
FT	FEET, FOOT
GAL	GALLON(-S)
GM	GAS METER
GND	GROUND
GP	GUARD POST
GPM	GALLONS PER MINUTE
GRD	GRADE
GV	GAS VALVE, GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HGT, HT	HEIGHT
HP	HORSEPOWER
HORZ	HORIZONTAL
HYD	HYDRANT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH(-ES)
INTX	INTERSECTION
INV	INVERT
IP	IRON PIPE
L	LENGTH
LAT	LATERAL
LB	POUND(-S)
LF	LINEAR FEET
LONG.	LONGITUDINAL
LT	LEFT
MAX	MAXIMUM
MFA	MAUL FOSTER & ALONGI, INC.
MFR	MANUFACTURER
MH	MANHOLE
MIC	MONUMENT (IN CASE)
MIN	MINIMUM; MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT (SURFACE)
MW	MONITORING WELL
N	NORTH
N/A	NOT APPLICABLE
NAT G, NG	NATURAL GAS
NE	NORTHEAST
NO.	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHP	OVERHEAD POWER
OT	OWNERSHIP TIE
P	PIPE
P TRAN	PAD MOUNTED TRANSFORMER
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PEN.	PENETRATION
PERF	PERFORAT(-E, -ED, -ES, -ION)
P.L., PL	PROPERTY LINE, PLACE
POW V	POWER VAULT
PP	POWER POLE
PROP.	PROPOSED
PS	PUMP STATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENT
PV	PLUG VALVE
PVI	POINT OF VERTICAL INTERSECTION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R, RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RED	REDUCER
REQD	REQUIRED
REQT	REQUIREMENT
REV	REVISION
R/W, ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH, SLOPE
SB	SOIL BORING
SCH	SCHEDULE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SE	SOUTHEAST
SF	SQUARE FEET
SHT	SHEET
SL	SLOPE
SPEC	SPECIFICATIONS
SQ	SQUARE
SQ IN	SQUARE INCHES
SRF	SURFACE
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STRM	STORM
STRUCT	STRUCTUR(-E, -AL)
SSWR	SANITARY SEWER
SW,S/W	SIDEWALK, SOUTHWEST
TB	THRUST BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TEL, TELE	TELEPHONE
TEMP	TEMPORARY
TP	TOP OF PAVEMENT, TEL POLE, TURNING POINT
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UTIL	UTILITY
VC	VERTICAL CURVE
VERT	VERTICAL
VOL	VOLUME
W	WIDTH; WIDE; WEST
W/	WITH
WATR	WATER
WM	WATER METER
W/O	WITHOUT
WSE	WATER SURFACE ELEVATION
WV	GATE/GENERAL WATER VALVE
YD	YARD
YR	YEAR

GENERAL LEGEND

GAS/POWER/TELEPHONE SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		GAS METER
		GAS VALVE
		PAD MOUNTED TRANSFORMER
P		POWER VAULT
		TRANSMISSION TOWER
		UTILITY POLE
		UTILITY POLE ANCHOR
		TELEPHONE RISER
T		TELEPHONE VAULT
		LIGHT POLE

SURVEY SYMBOLS

SYMBOL THEOR./ EXIST.	SYMBOL FOUND/ PROP.	DESCRIPTION
		ANGLE POINT
		BENCH MARK
		BLOCK CORNER
		IRON PIPE
		MONUMENT
		OWNERSHIP TIE
		SECTION DATA:
		SECTION CENTER
		SECTION CORNER
		QUARTER CORNER
		SIXTEENTH CORNER
		CLOSING CORNER
MC WC	MC WC	MEANDER CORNER
		WITNESS CORNER
		SOIL BORING
		SPOT ELEVATION

27	EXISTING GRADE MAJOR CONTOUR
27	EXISTING GRADE MINOR CONTOUR
SD_x	EXISTING STORM DRAIN PIPE
W_x	EXISTING WATER PIPE
SS_x	EXISTING SANITARY SEWER PIPE
	EXISTING AC PAVEMENT
	EXISTING CONCRETE SURFACING
	EXISTING GRAVEL SURFACING
	EXISTING BUILDING
	EXISTING FENCE LINE
	EXISTING ROAD CENTERLINE
	EXISTING RIGHT-OF-WAY
PL	EXISTING PROPERTY LINE

WATER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		CAP/PLUG
		COUPLING
		GUARD POST / BOLLARD
		REDUCER
		THRUST BLOCK
		WATER METER
		DOUBLE CHECK VALVE ASSEMBLY
		FIRE HYDRANT
		AIR RELIEF
		BLOW-OFF VALVE
		CHECK VALVE
		GATE VALVE
		BENDS:
		90 DEGREE BEND
		45 DEGREE BEND
		22.5 DEGREE BEND
		11.25 DEGREE BEND
		VERTICAL BEND
		TEE
		CROSS

SANITARY/STORM SEWER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		SAN. SEWER CLEAN OUT
	S	SAN. SEWER MANHOLE
		STORM DRAIN CATCH BASIN
		STORM DRAIN CULVERT
	D	STORM DRAIN MANHOLE
		DRY WELL
		AREA DRAIN
		OVERFLOW BEEHIVE GRADE

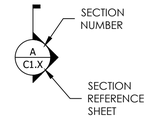
27	PROPOSED GRADE MAJOR CONTOUR (5.0' INTERVAL)
27	PROPOSED GRADE MINOR CONTOUR (1.0' INTERVAL)
	PROPOSED STORM DRAIN PIPE
	PROPOSED WATER PIPE
	PROPOSED SANITARY SEWER PIPE
	PROPOSED BIORETENTION PLANTER
	PROPOSED AC PAVEMENT
	PROPOSED CONCRETE SURFACING
	PROPOSED GRAVEL SURFACING
	PROPOSED BUILDING
	PROPOSED FENCE LINE
	PROPOSED ROAD CENTERLINE
	PROPOSED RIGHT-OF-WAY
PL	PROPOSED PROPERTY LINE

CHANNELIZATION SYMBOLS

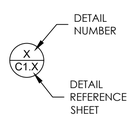
SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		BIKE PATH
		HANDICAP SYMBOL
STOP	STOP	STOP
		RAISED MARKERS:
		LANE MARKERS TYPE I
		LANE MARKERS TYPE II
		SIGN

MISCELLANEOUS SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		MONITORING WELL
		INLET PROTECTION PILLOW
		CONSTRUCTION ENTRANCE
	FG 83.88	PROPOSED SPOT SHOT



TYPICAL SECTION CALLOUT



TYPICAL DETAIL CALLOUT

SF	PROPOSED SEDIMENT FENCE
OR	PROPOSED FLOW DIRECTION
	PROPOSED GRADE BREAK
	PROPOSED DITCH FLOW LINE
	PROPOSED COMPOST SOCK
	PROPOSED PAINT STRIPE
	PROPOSED TRUNCATED DOMES
	EXISTING FLOW DIRECTION
P	EXISTING OVERHEAD POWER
E_x	EXISTING UNDERGROUND POWER
T	EXISTING UNDERGROUND TELEPHONE
G	EXISTING UNDERGROUND GAS

PRELIMINARY

MAUL FOSTER ALONGI
109 EAST 13th STREET
VANCOUVER, WA 98660
360.694.2691
www.maulfoster.com

COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

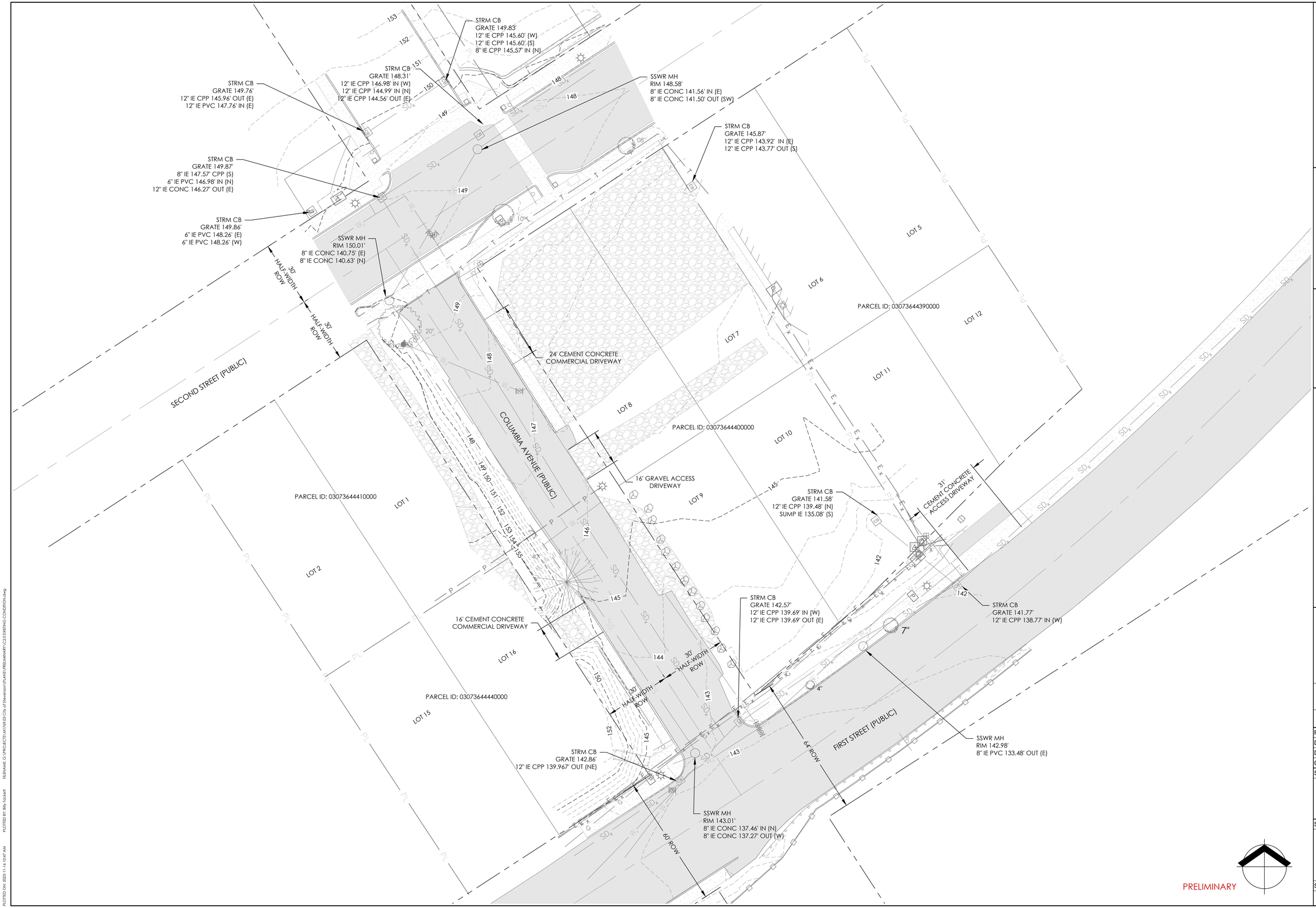
ISSUE	DATE	DESCRIPTION
A	05/05/2023	90% DESIGN SET

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE

SHEET TITLE
MASTER LEGEND

SHEET
C 1.1

PLOTTED ON: 2023-11-16 10:47 AM PLOTTED BY: Billy Tockett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C1.1 MASTER LEGEND.dwg



PRELIMINARY

PLOTTED ON: 2023-11-16 10:47 AM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY C2.0 EXISTING CONDITION.dwg

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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
A	05/05/2023	60% DESIGN

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST

SCALE
0 20' 40'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
EXISTING CONDITION PLAN

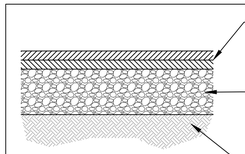
SHEET
C2.0

NOTE:
ADDITIONAL ANALYSIS REQUIRED ON CURB RETURNS TO ACCOMMODATE VEHICLE TURNING MOVEMENTS. SEE VEHICLE TURNING MOVEMENT FIGURES ON SHT C6.2.

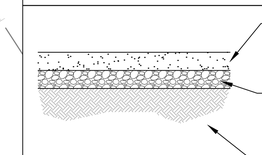
COLUMBIA STREET (PUBLIC)
SECOND STREET (PUBLIC)
COLUMBIA AVENUE (PUBLIC)
FIRST STREET (PUBLIC)
DETECTABLE WARNING SURFACE (TYP)
CURB RAMP (TYP) (SEE STD DTL A, SHT C6.0)
8' CEMENT CONCRETE CROSSWALK
SEE NOTE, THIS SHT
LIGHT POLE (TYP)
RELOCATED WATER METER
WATER SAMPLING STATION
RELOCATE EXTG FH
44' ROW VACATION
RELOCATED FH
8' PARKING LANE (TYP)
15' CEMENT CONCRETE COMMERCIAL DRIVEWAY (SEE STD DTL B, SHT C6.0)
EXTG 60' ROW
RELOCATED POWER POLE W/ LIGHTING
PROP 60' ROW
44' ROW DEDICATION
6' SIDEWALK
4'X6' TREE WELL (TYP)
10' CONC SW
1.5' CEM CONC CURB & GUTTER (SEE STD DTL C, SHT C6.0)
CURB RAMP (TYP) (SEE STD DTL A, SHT C6.0)
EXTG POWER POLE W/ LIGHTING
15' CEMENT CONCRETE COMMERCIAL DRIVEWAY (SEE STD DTL B, SHT C6.0)
BIKE RACK (TYP)
1.5' CEM CONC CURB & GUTTER
BIORETENTION PLANTER (TYP)
RELOCATED STOP SIGN
STAMPED CONCRETE CROSSWALK (TYP)
7"
FUTURE DEVELOPMENT (BY OTHERS)
ASPHALT CONCRETE (TYP)
RELOCATE STOP SIGN
8' CEMENT CONCRETE CROSSWALK

PRELIMINARY

TYPICAL SURFACE SECTION DETAILS



ASPHALT CONCRETE PAVEMENT SECTION



ASPHALT CONCRETE PAVEMENT SECTION

SURFACING LEGEND

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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

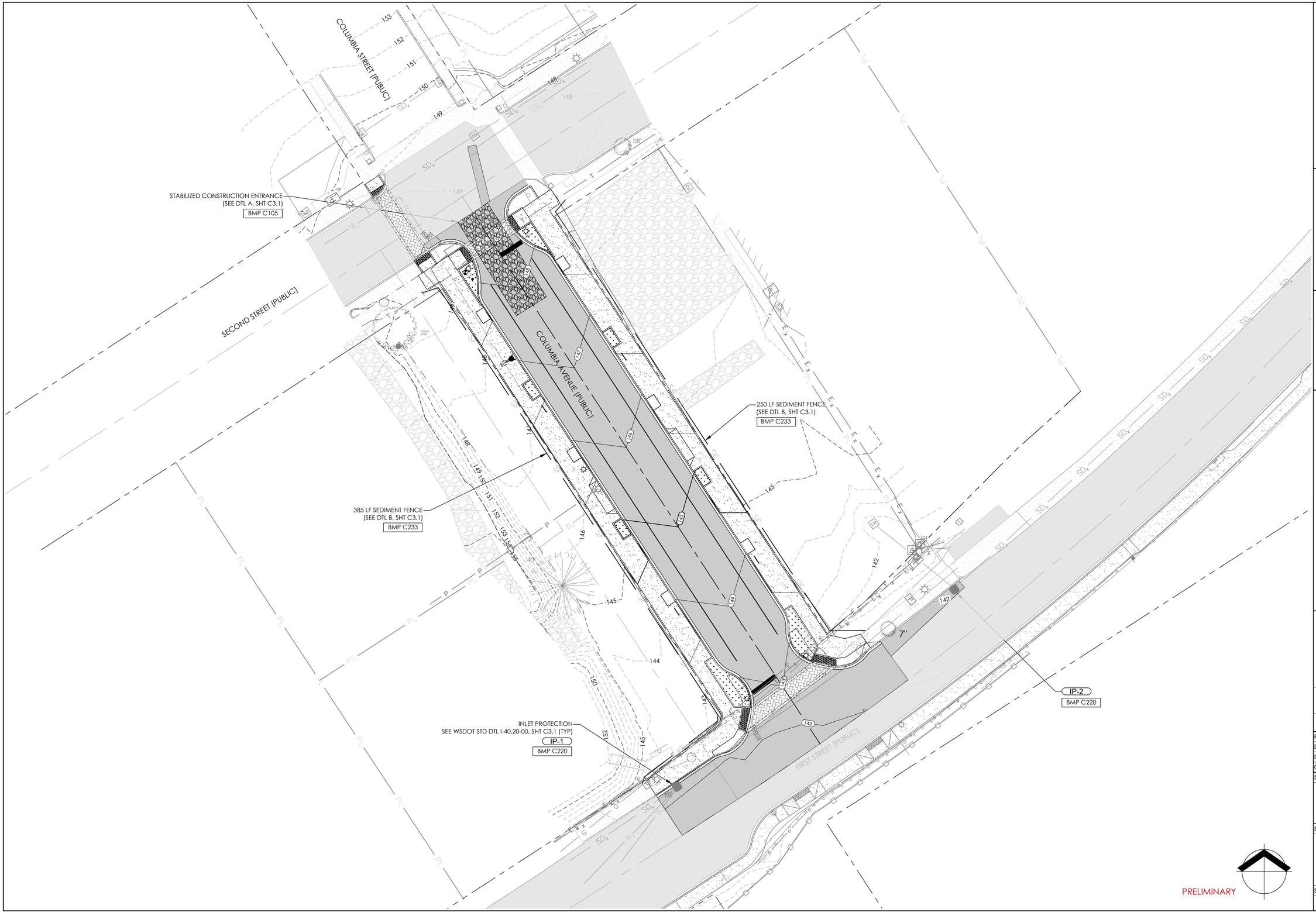
ISSUE	DATE	DESCRIPTION
B	11/16/2020	CITY OF STEVENSON RESUBMITTAL
A	05/05/2020	60% DESIGN SET

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE
0 20' 40'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
SITE PLAN

SHEET
C2.1

PLOTTED ON: 2023-11-20 12:08 PM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C2.1 SITE PLAN.dwg



MAUL FOSTER ALONGI
3140 NE BROADWAY STREET
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PHONE: 971.544.2139
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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
A	05/05/2023	60% DESIGN PLANS

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
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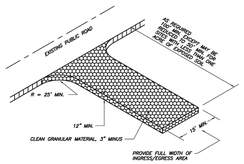
SCALE
0 20' 40'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
GRADING AND EROSION CONTROL PLAN

SHEET
C3.0

PLOTTED ON: 2023-11-16 10:48 AM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C3.0 GRADING AND EROSION CONTROL PLAN.dwg



CONSTRUCTION SPECIFICATIONS

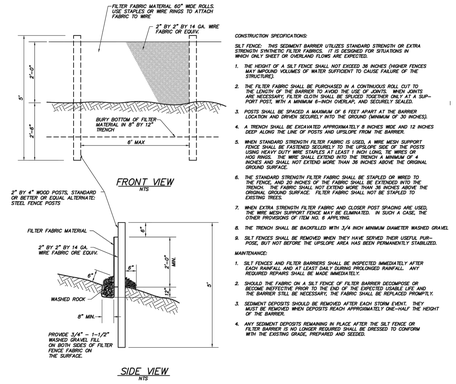
THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WORK-ING ON A PUBLIC ROAD SHALL BE CONSTRUCTED BEFORE THE ENTRANCE WORKS ARE. THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFI-CATIONS.

MAINTENANCE

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK-ING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2–INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

A STABILIZED CONSTRUCTION ENTRANCE

Scale: NTS



CONSTRUCTION SPECIFICATIONS:

SILT FENCE: THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING. USE FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.)
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUP-PORT POST, WITH A MINIMUM 6–INCH OVERLAP, AND SECURELY SEALED.
3. POSTS SHALL BE SPACED A MAXIMUM OF 8 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE OTHER PROVISIONS OF ITEM NO. 6 APPLYING.
8. THE TRENCH SHALL BE BACKFILLED WITH 3/4 INCH MINIMUM DIAMETER WASHED GRAVEL.
9. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PUR-POSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

MAINTENANCE:

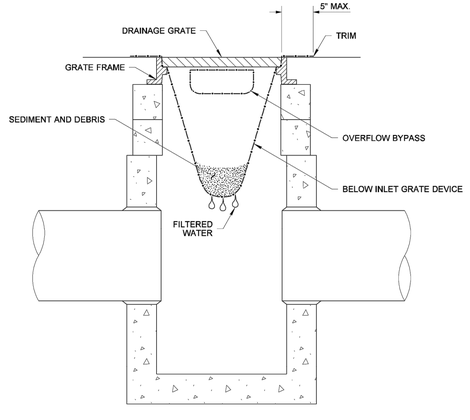
1. SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC ON A SILT FENCE OF FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE PERIOD AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE–HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

B SEDIMENT FENCE

Scale: NTS

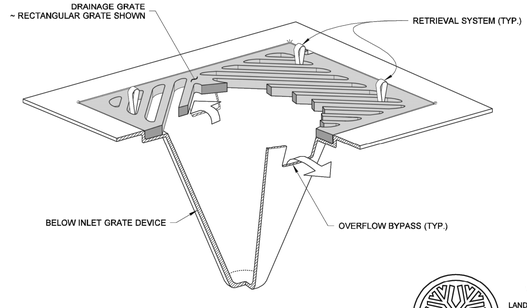
NOTES

1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system must allow removal of the BIGD without spilling the collected material.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).



SECTION VIEW

NOT TO SCALE



ISOMETRIC VIEW

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCU-MENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPART-MENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

STORM DRAIN INLET PROTECTION

STANDARD PLAN I-40.20-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Pasco Bakotich III STATE DESIGN ENGINEER — *09-20-07* DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD

PRELIMINARY

MAUL FOSTER ALONGI
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PHONE: 360.694.2691
www.maulfoster.com

COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
A	05/05/2023	60% DESIGN PLANS

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE
DRAWING NOT TO SCALE

SHEET TITLE
EROSION AND SEDIMENT CONTROL DETAILS

SHEET
C3.1

PLOTTED ON: 2023-11-16 10:49 AM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C3.1 EROSION AND SEDIMENT CONTROL DETAILS.dwg

COLUMBIA STREET (PUBLIC)

SECOND STREET (PUBLIC)

COLUMBIA AVENUE (PUBLIC)

FIRST STREET (PUBLIC)

UTILITY CROSSING MAINTAIN MIN 1' VERTICAL CLEARANCES (TYP)

23 LF 8" STRM @S= 0.0200

STRM MH A-1
STA 0+35.95
RIM 148.19'
8" IE 142.73' IN (SW)
8" IE 142.73' IN (NE)
12" IE 142.23' OUT (SE)

11 LF 8" STRM @S= 0.0200

STRM OVERFLOW B-1
STA 0+36.08
GRATE 147.71'
8" IE 142.96' OUT (NE)
(SEE DTL G, SHT C6.0)

STRM OVERFLOW B-2
STA 0+89.97
GRATE 146.58'
8" IE 142.35' OUT (NE)
(SEE DTL G, SHT C6.0)

16 LF 8" STRM @S= 0.0100

15 LF 8" STRM @S= 0.0100

BIORETENTION PLANTER
SEE DTL 1, SHT C6.1 (TYP)

STRM OVERFLOW B-3
STA 1+64.88
GRATE 144.83'
8" IE 141.60' OUT (NE)
(SEE DTL G, SHT C6.0)

STRM MH A-4
STA 2+50.00
RIM 143.18'
6" IE 140.59' IN (SW)
6" IE 140.59' IN (NE)
12" IE 140.09' IN (NW)
12" IE 140.09' OUT (SE)

11 LF 8" C900 STRM @S= 0.0050

STRM OVERFLOW B-4
STA 2+50.00
GRATE 142.68'
8" IE 140.64' OUT (NE)
(SEE DTL G, SHT C6.0)

59 LF 12" STRM @S= 0.0034

STRM CB-1
STA 2+75.93
GRATE 142.93'
12" IE 139.93' OUT (NE)

STRM OVERFLOW C-1
STA 0+35.70
GRATE 147.81'
8" IE 143.20' OUT (SW)
(SEE DTL G, SHT C6.0)

STRM MH A-2
STA 0+97.38
RIM 146.93'
6" IE 142.19' IN (SW)
6" IE 142.19' IN (NE)
12" IE 141.69' IN (NW)
12" IE 141.69' OUT (SE)

STRM OVERFLOW C-2
STA 0+89.97
GRATE 146.58'
8" IE 142.47' OUT (SW)
(SEE DTL G, SHT C6.0)

54 LF 12" STRM @S= 0.0150

28 LF 8" STRM @S= 0.0100

25 LF 12" STRM @S= 0.0100

STRM MH A-3
STA 1+65.38
RIM 145.19'
6" IE 141.44' IN (SW)
6" IE 141.44' IN (NE)
12" IE 140.94' IN (NW)
12" IE 140.94' OUT (SE)

STRM OVERFLOW C-3
STA 1+64.83
GRATE 144.83'
8" IE 141.72' OUT (SW)
(SEE DTL G, SHT C6.0)

28 LF 8" STRM @S= 0.0100

83 LF 12" STRM @S= 0.0100

STRM OVERFLOW C-4
STA 2+50.00
GRATE 142.70'
8" IE 140.70' OUT (SW)
(SEE DTL G, SHT C6.0)

23 LF 8" C900 STRM @S= 0.0050

82 LF 12" STRM @S= 0.0100

STRM MH A-6 W/ GRATE
STA 2+69.09
GRATE 142.63'
12" IE 138.77' IN (SW)
EXTG 12" IE 138.77' OUT (NE)

STRM MH A-5
STA 2+86.01
RIM 143.09'
12" IE 139.73' IN (NW)
12" IE 139.73' IN (SW)
12" IE 139.73' OUT (NE)

PRELIMINARY

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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
B	11/16/2023	CITY OF STEVENSON RESUBMITTAL
A	05/05/2023	60% DESIGN SET

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE

0 20' 40'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE

STREET AND STORM DRAINAGE PLAN

SHEET

C4.0

PLOTTED ON: 2023-11-16 10:49 AM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C4.0 STORMWATER PLAN.dwg

COLUMBIA STREET (PUBLIC)

SECOND STREET (PUBLIC)

EXTG SSWR MH
EXTG RIM 148.58'
EXTG 8" IE CONC 141.56' IN (E)
PLUG EXTG 8" CONC 141.50' OUT (SW)
8" IE 141.36' OUT (S)

UTILITY CROSSING MAINTAIN
MIN 1' VERTICAL CLEARANCES (TYP)

8" CONC SSWR TO BE ABANDONED IN PLACE

28 LF 8" PVC SSWR @S= 0.0075

0+00

SSWR MH 1
STA: 0+11.61
RIM: 148.68
8" IE 141.15' IN (N)
8" IE 140.95' OUT (SE)

RELOCATE EXTG
WATER METER

RELOCATED
WATER METER

REMOVE EXTG SSWR MH
EXTG RIM 150.01'

12'

159 LF 8" PVC SSWR @S= 0.0122

SSWR STUB MARKER
6" IE 139.42
MIN 6' COVER

1+00

29 LF 6" SSWR @S= 0.0100

SSWR MH 2
STA: 1+10.47
RIM: 146.45
6" IE 138.71' IN (NE)
6" IE 138.71' IN (SW)
8" IE 138.71' IN (NW)
8" IE 138.51' OUT (SE)

RELOCATED FIRE HYDRANT
6" FLG TEE
6" FLG X MJ GATE VALVE
4 LF 6" WATR DIP
(SEE STD DTLS D, E, & F SHT, C6.0)

STRM MH (TYP)

41 LF 6" SSWR @S= 0.0100

COLUMBIA AVENUE (PUBLIC)

109 LF 8" PVC SSWR @S= 0.0200

8" CONC SSWR TO BE ABANDONED IN PLACE

SSWR STUB MARKER
6" IE 139.66
MIN 6' COVER

EXTG WATER METER

SSWR STUB MARKER
6" IE 136.80
MIN 6' COVER

2+00

29 LF 6" SSWR @S= 0.0246

41 LF 6" SSWR @S= 0.0232

68 LF 8" PVC SSWR @S= 0.0235

SSWR STUB MARKER
6" IE 137.04
MIN 6' COVER

SSWR MH 3
STA: 2+15.74
RIM: 144.00
8" IE 136.09" IN (NW)
6" IE 136.09" IN (NE)
6" IE 136.09" IN (SW)
8" IE 135.89" OUT (SE)

33 LF 8" PVC SSWR @S= 0.0200

EXTG SSWR MH
ADJUST RIM TO MATCH FG
RIM 143.02'
8" IE 133.68' IN (SW)
EXTG 8" IE PVC 133.48' OUT (E)

2+86

EXTG SSWR MH
EXTG RIM 143.01'
PLUG EXTG 8" IE CONC 137.46' IN (N)
ABANDON IN PLACE

SSWR MH 4
STA: 2+73.55
RIM: 142.79
8" IE 134.54' IN (NW)
8" IE 134.34' OUT (NE)

FIRST STREET (PUBLIC)

PRELIMINARY

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COLUMBIA AVENUE REALIGNMENT
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SCALE
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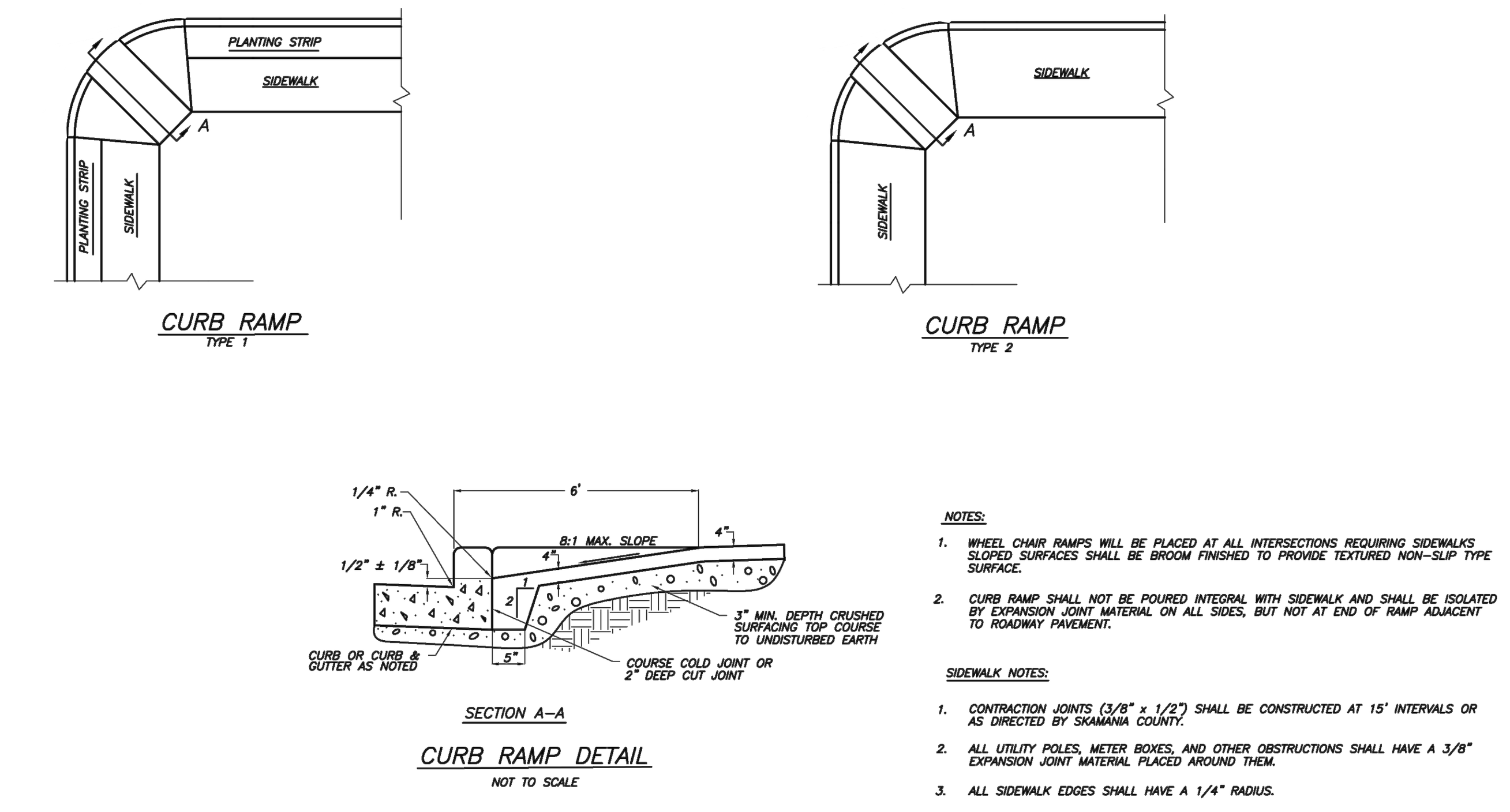
SHEET TITLE
WATER AND SANITARY SEWER PLAN

SHEET
C5.0

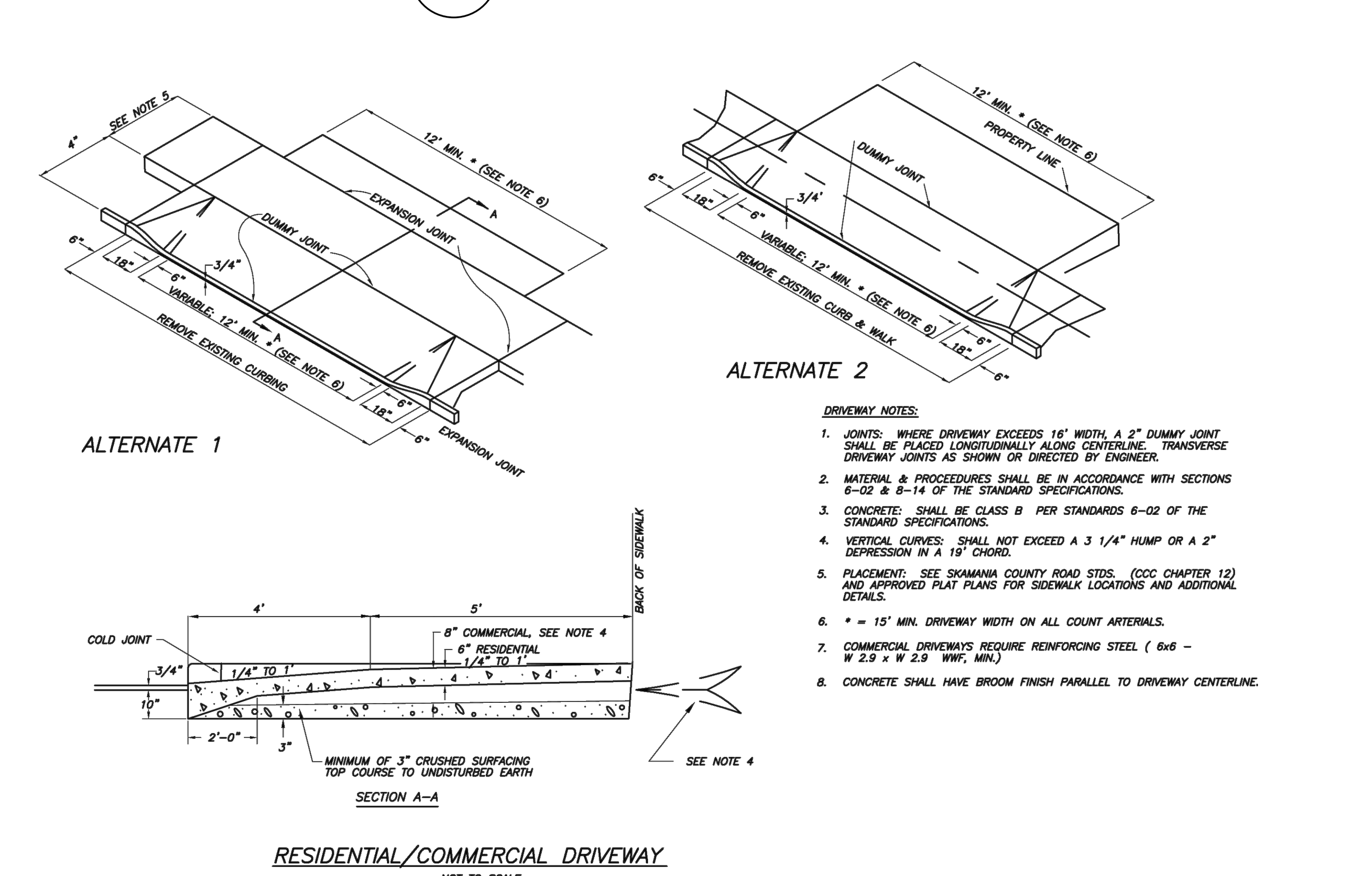
PLOTTED ON: 2023-11-16 10:50 AM PLOTTED BY: Billy Tackett FILENAME: G:\PRO\ECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C5.0 WATER AND SANITARY SEWER PLAN.dwg

CITY OF STEVENSON WATER NOTES

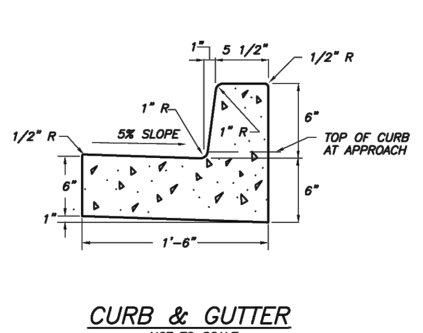
GENERAL NOTES & REQUIREMENTS



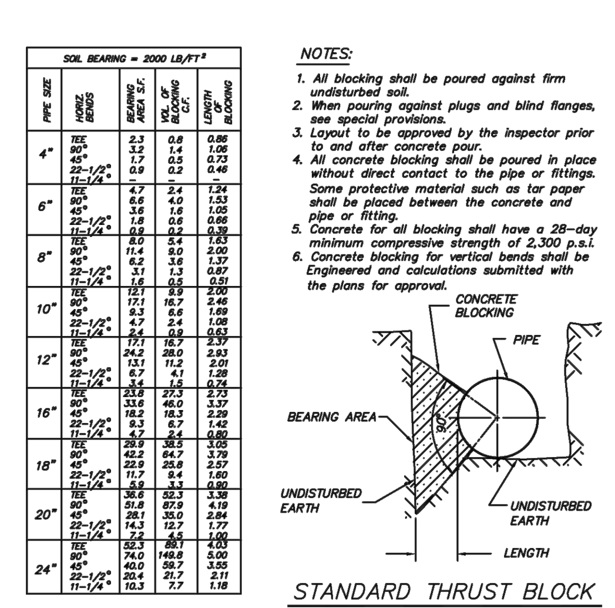
A CURB RAMP



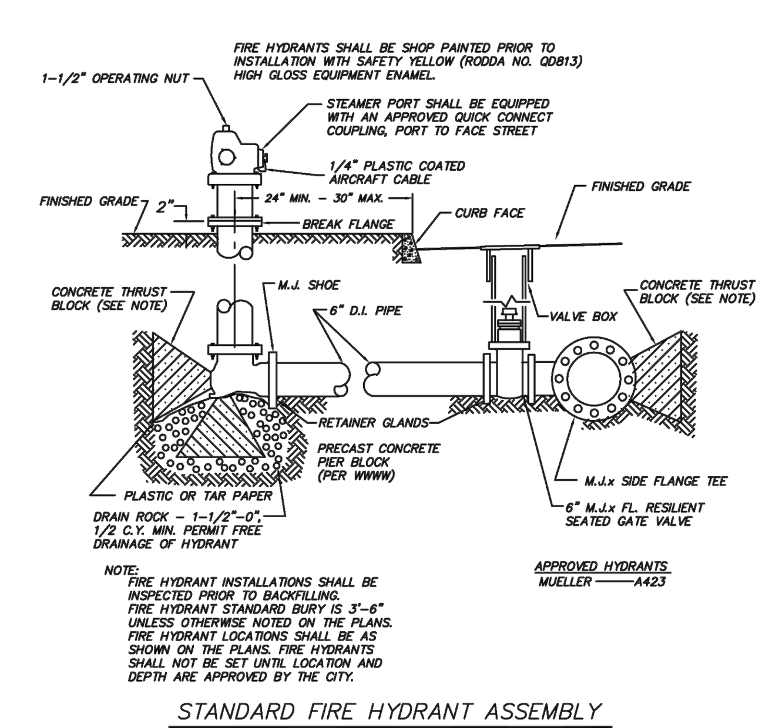
B COMMERCIAL DRIVEWAY



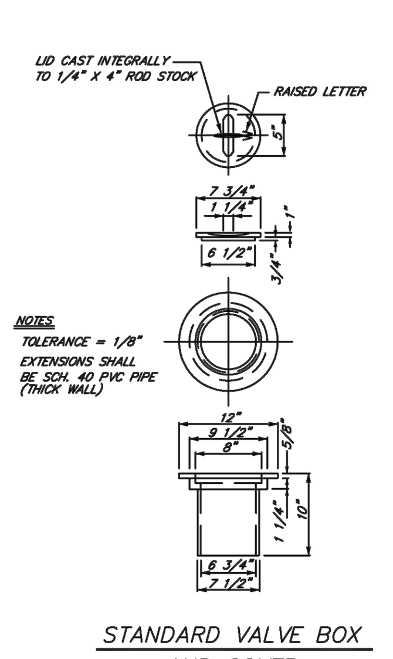
C CEM CONC CURB & GUTTER



D THRUST BLOCK



E FIRE HYDRANT

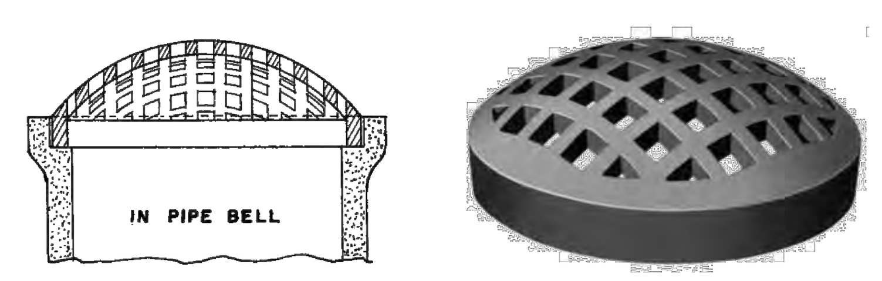


F VALVE BOX

R-4350 Series
Beehive Grate for Sewer Pipe Bell

Heavy Duty

CATALOG NUMBER	GRATE TYPE	SQ. FT. OPEN	WEIR PERIMETER LINEAL FEET
R-4350-1	Beehive	0.3	2.7
R-4350-A	Beehive	0.3	3.1
R-4350-B	Beehive	0.4	3.9
R-4350-C	Beehive	0.6	4.8
R-4350-D	Beehive	1.0	5.8
R-4350-E	Beehive	1.7	7.6

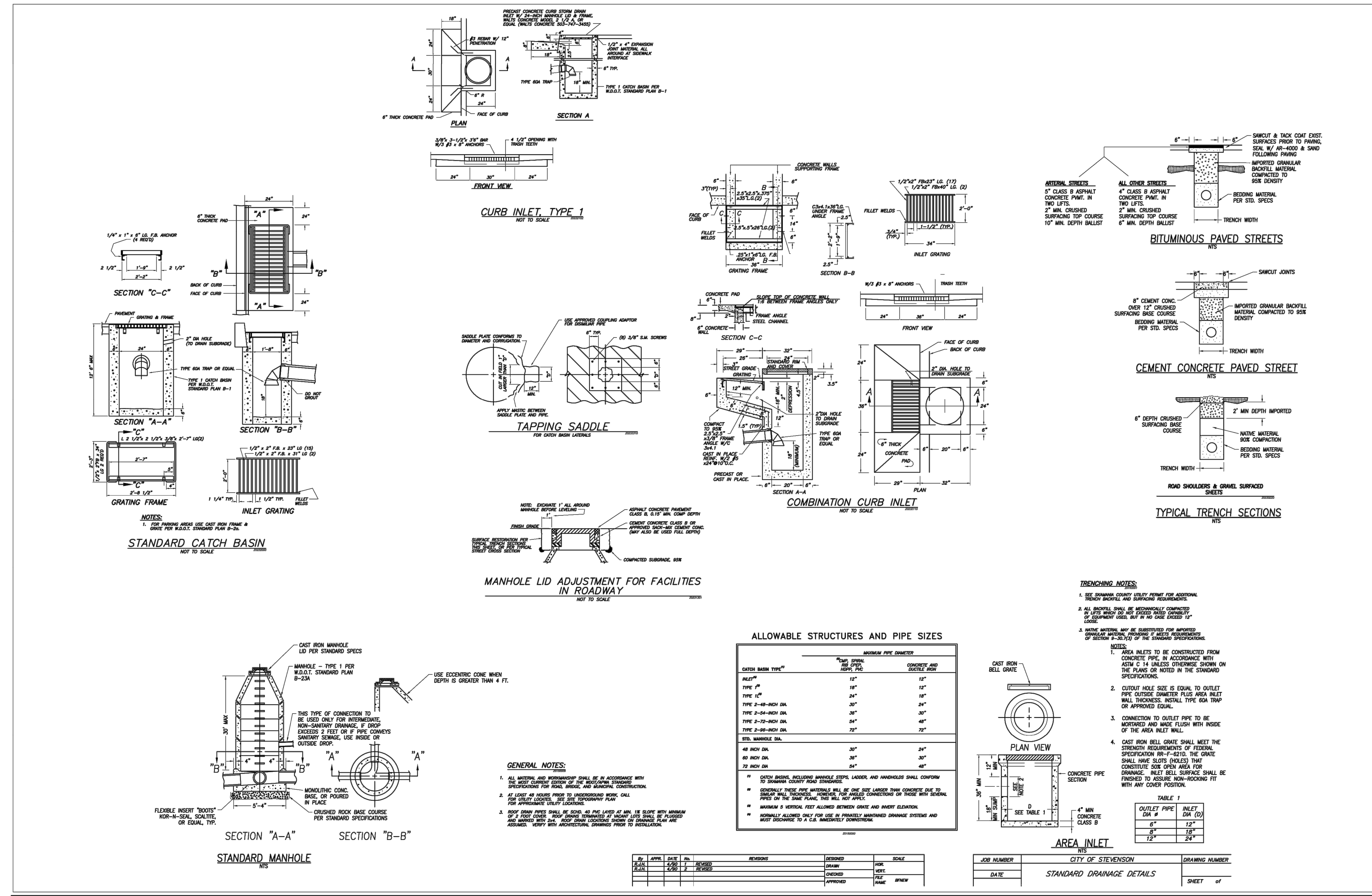


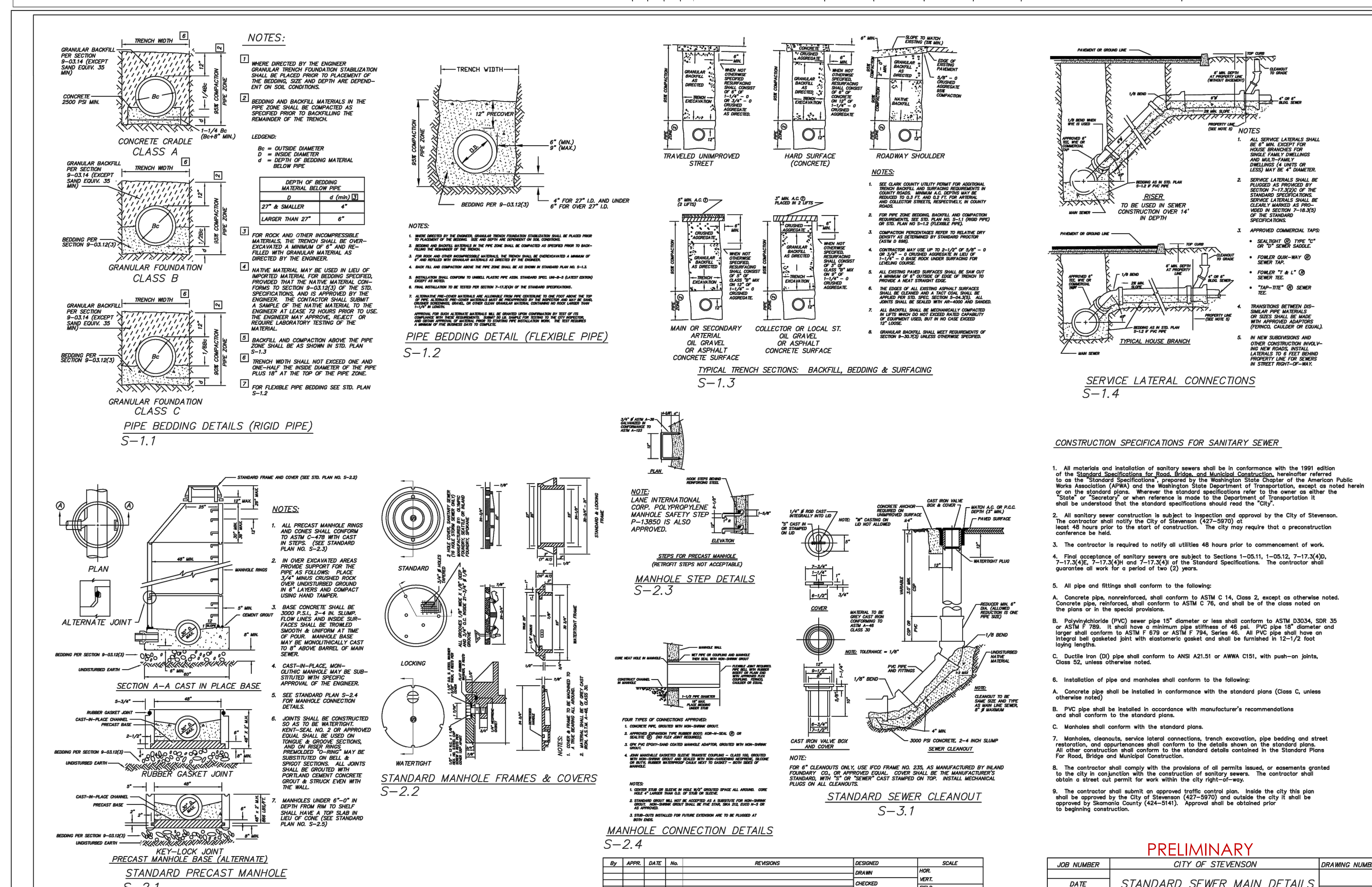
Bell and spigot vitrified clay and concrete pipe are made under many specifications and dimensions vary. Check the grate sizes in the table to be sure they will fit the pipe you are using.

Dimensions in inches

Catalog No.	Pipe Size	Diameter	Thickness at Rim	Overall Height
R-4350-1	8	10 3/8	2	4
R-4350-A	10	12	1	4
R-4350-B	12	14 3/4	2 1/2	5 1/2
R-4350-C	15	18 1/4	2 1/2	6 1/4
R-4350-D	18	22	3	7 1/2
R-4350-E	24	29	3	9

G OVERFLOW BEEHIVE GRATE



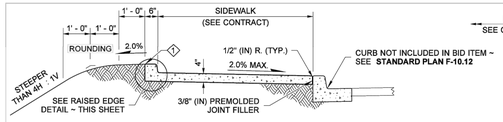


MAUL FOSTER ALONGI
109 EAST 13th STREET
VANCOUVER, WA 98660
360.694.2691
www.maulfoster.com

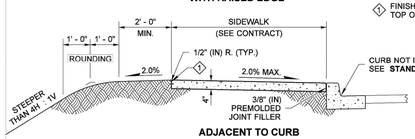
COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
A	05/05/2023	60% DESIGN SET

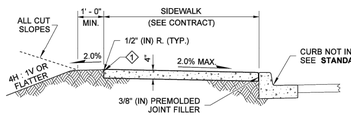
PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE
DRAWING NOT TO SCALE
SHEET TITLE
DETAILS I
SHEET
C6.0



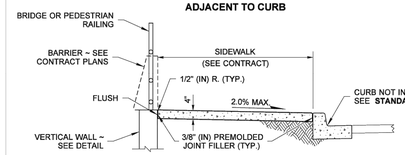
WITH RAISED EDGE



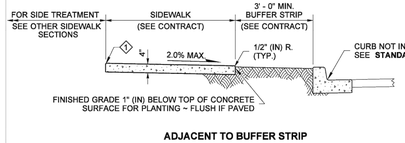
ADJACENT TO CURB
(STEEP FILL SLOPES)



ADJACENT TO CURB

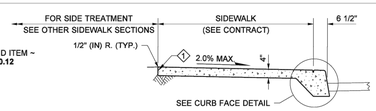


ADJACENT TO CURB AND RAILING OR WALL



ADJACENT TO BUFFER STRIP

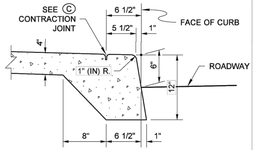
1 FINISHED GRADE 1" (IN) BELOW TOP OF CONCRETE SURFACE



MONOLITHIC CEMENT CONCRETE CURB AND SIDEWALK

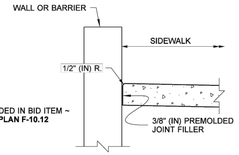
NOTE

1. Gratings, Access Covers, Junction Boxes, Cable Vaults, Pull Boxes and other appurtenances within the sidewalk must have slip resistant surfaces, be flush with surface, and match grade of the sidewalk.

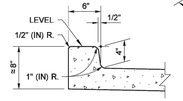


CURB FACE DETAIL

EXTEND SIDEWALK TRANSVERSE EXPANSION JOINTS TO INCLUDE CURB (FULL DEPTH)

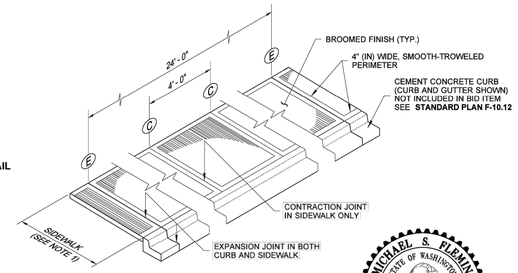


SIDEWALK ADJACENT TO WALL DETAIL



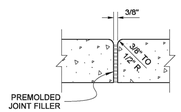
RAISED EDGE DETAIL

EXTEND SIDEWALK TRANSVERSE JOINTS TO INCLUDE RAISED EDGE

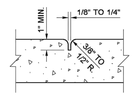


ISOMETRIC VIEW

JOINT AND FINISH DETAIL



E EXPANSION JOINT



C CONTRACTION JOINT

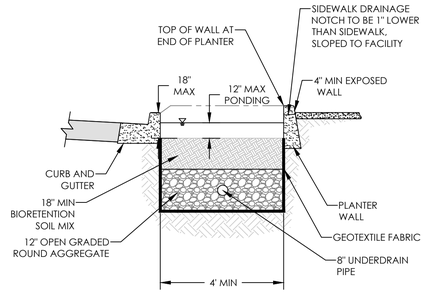
Michael S Fleming
Digitally signed by Michael S Fleming
Date: 2020.09.24 07:40:16 -07'00'

CEMENT CONCRETE SIDEWALK

STANDARD PLAN F-30.10-04

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Date: 2020.09.25 15:43:50 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation



1 BIORETENTION PLANTER W/ LINER DETAIL
Scale:NTS

PRELIMINARY

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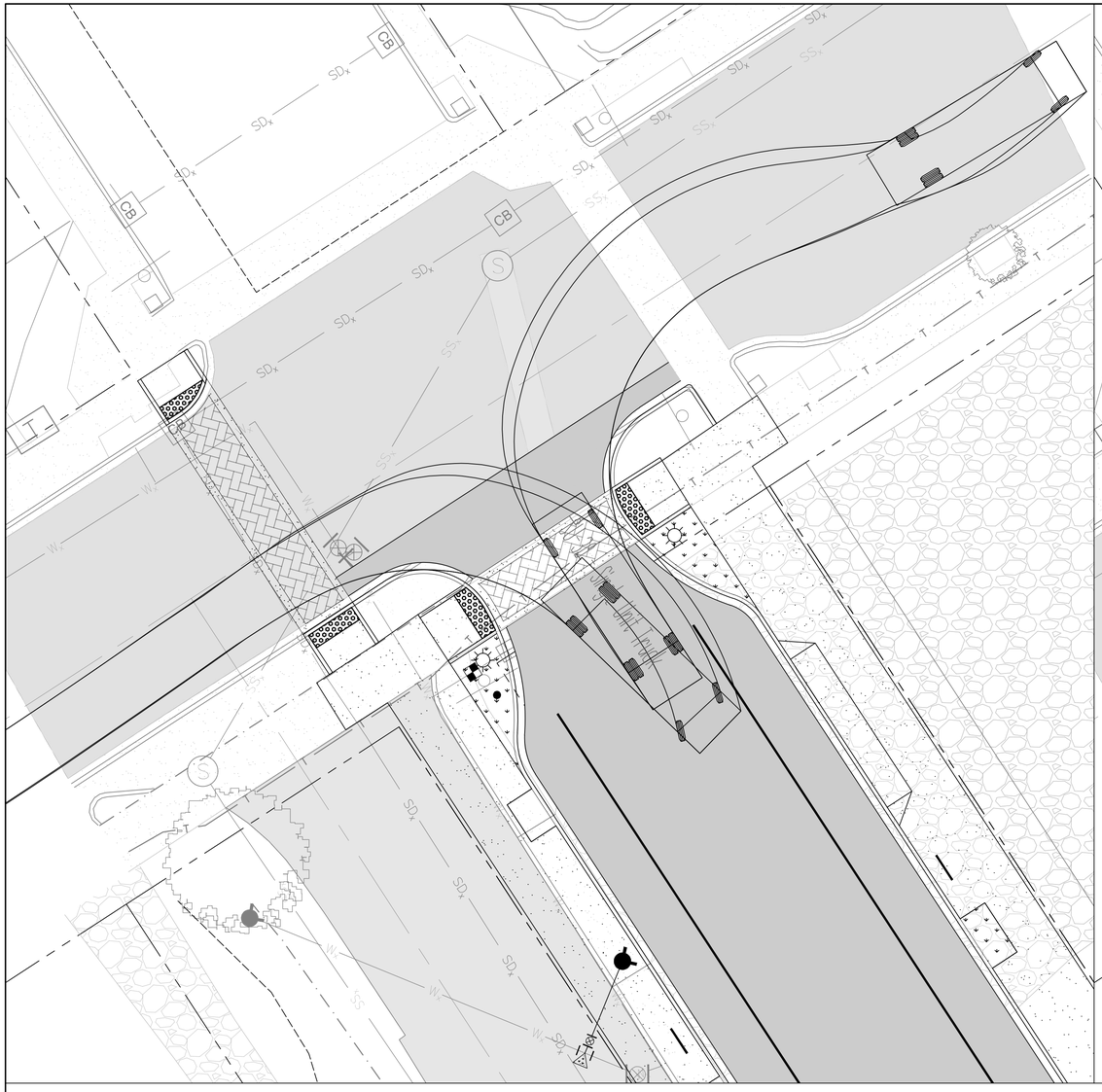
COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

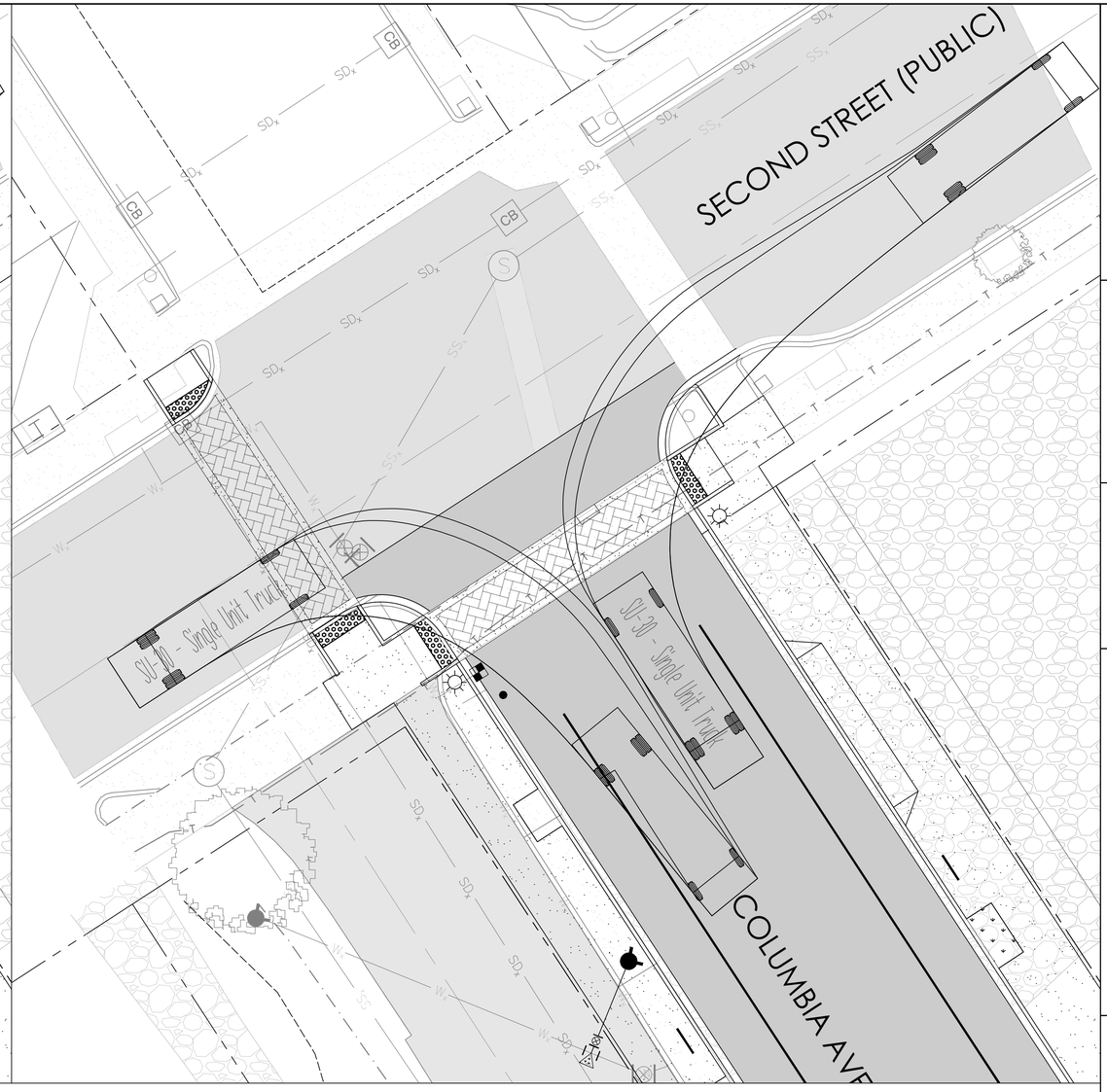
ISSUE	DATE	DESCRIPTION
A	05/05/2023	60% DESIGN SET

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE
DRAWING NOT TO SCALE
SHEET TITLE
DETAILS II
SHEET
C6.1

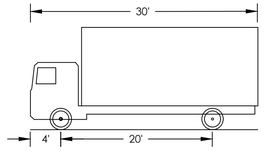
PLOTTED ON: 2023-11-16 10:51 AM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C6.1 DETAILS II.dwg



1 TURNING RADIUS ALTERNATIVE 1
Scale: 1"=10'



2 TURNING RADIUS ALTERNATIVE 2
Scale: 1"=10'



SU-30 - SINGLE UNIT TRUCK	
OVERALL LENGTH	30'
OVERALL WIDTH	8'
OVERALL BODY HEIGHT	13.5'
MIN BODY GROUND CLEARANCE	1.367'
TRACK WIDTH	8'
LOCK-TO-LOCK TIME	5.0 SEC
MAX STEERING ANGLE	31.8°

3 TURNING RADIUS DESIGN VEHICLE
Scale: 1"=10'

PRELIMINARY

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VANCOUVER, WA 98660
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COLUMBIA AVENUE REALIGNMENT
CITY OF STEVENSON
STEVENSON, WASHINGTON

ISSUE	DATE	DESCRIPTION
B	11/16/2023	CITY OF STEVENSON RESUBMITTAL

PROJECT: M1769.03.002
DESIGNED: K. BOON
DRAWN: A. AGUIRRE
CHECKED: S. FROST
SCALE
DRAWING NOT TO SCALE
SHEET TITLE
DETAILS III
SHEET
C6.2

PLOTTED ON: 2023-11-20 12:26 PM PLOTTED BY: Billy Tackett FILENAME: G:\PROJECTS\M1769.03 City of Stevenson\PLANS\PRELIMINARY\C6.2 DETAILS III.dwg

APPENDIX E

ECONOMIC IMPACTS AND ASSUMPTIONS

Stevenson Columbia Ave Mixed-Use Development

Economic & Fiscal Impacts

Source: Maul Foster & Alongi. Estimates are preliminary and for illustrative purposes only, as of build-out in 2023 dollars.

Description	Mid-Rise	Low-Rise	Comments
Development Program			
Land Area (Acres)	0.5	0.5	
Number of Buildings	2	2	
Residential Building Area (SF)	27,450	10,000	
Housing Units	21	8	Based on typical 2-bedroom, 1-bath
Retail Building Area (SF)	10,000	10,000	
Total Building Area (SF)	37,450	20,000	
Construction Cost			
Hard Costs	$8,681,800	$4,636,500	
Soft Costs	$2,245,400	$1,218,400	
Total Cost	**$10,927,200**	**$5,854,900**	
Retail Employment (@ Build-Out)			
Jobs Metric	1058	1,058	Based on national Commercial Building Energy Consumptions Survey
	Sq ft/job	Sq ft/job	
On-Site Employment	9	9	
Average Annual Wage	$30,800	$30,800	Per Washington Employment Security, 2023 reporting for Skamania County
Total Annual Wages	**$277,200**	**$277,200**	On-site employment times average annual wage
Annual Taxable Retail Sales Revenues (@ Build-Out)			
Sales Volume Metric	$149,900	$149,900	Based on reported sales of similar businesses in Stevenson and Cascade Locks
	Per employee	Per employee	from DataAxel
Occupancy Rate	95%	95%	Based on typical market assumptions
Annual Taxable Revenues	**$1,281,600**	**$1,281,600**	Sales volume per employee times number of employees
Tax Revenues During Construction			
Sales Tax from Construction (Hard Costs Only):			
City of Stevenson	$104,200	$55,600	At 1.2% local share assuming materials are purchased in Stevenson
State of Washington	$564,300	$301,400	At 6.5% state share
Subtotal Sales Tax	**$668,500**	**$357,000**	
Annual Tax Revenues at Occupancy			
Property Tax:			
City of Stevenson	$17,000	$9,100	at 1.55 per $1,000 City Levy Rate
Skamania County	$11,500	$6,100	at 1.05 per $1,000 County Levy Rate
Other Local Districts/Levies	$68,000	$36,500	
Subtotal Property Tax	**$96,500**	**$51,700**	at 8.83 per $1,000 Overall Levy Rate
Sales Tax from Operations:			
City of Stevenson	$15,400	$15,400	At 1.2% local share
State of Washington	$83,300	$83,300	At 6.5% state share
Subtotal Sales Tax	**$98,700**	**$98,700**	
Combined Tax Totals:			
Annual Tax Revenues + Construction Sales Tax			
City of Stevenson	$136,600	$80,100	
Skamania County	$11,500	$6,100	
Other Local Districts/Levies	$68,000	$36,500	
State of Washington	$647,600	$384,700	
Total Above Tax Sources	**$863,700**	**$507,400**	
Ten Year Total Annual Tax Revenues + Construction Sales Tax			
City of Stevenson	$428,200	$300,600	
Skamania County	$115,000	$61,000	
Other Local Districts/Levies	$680,000	$365,000	
State of Washington	$1,397,300	$1,134,400	
Total Above Tax Sources	**$2,620,500**	**$1,861,000**	

APPENDIX F

OPINION OF PROBABLE COSTS

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST

Title:	**Opinion of Probable Construction Cost**	
Project:	Columbia Avenue Realignment	
Client:	City of Stevenson	
Project No./Task:	M1769.03.002	Initial
Prepared By:	A. Aguirre	ALA
Checked By:	S. Frost	SJF
Date:	5/10/2023	
Revision No.:	0	

MAUL FOSTER ALONGI

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Vancouver, WA 98660
360.694.2691 (p)
360.906.1958 (f)
www.maulfoster.com

Cost Estimate Summary—Feasibility Level

Schedule A—	General	$	82,700
Schedule B—	Grading	$	65,000
Schedule C—	Surface Finish	$	155,200
Schedule D—	Stormwater	$	57,600
Schedule E—	Sanitary Sewer	$	55,700
Schedule F—	Water	$	6,900
Schedule G—	Traffic	$	17,000
Schedule H—	Soft Cost	$	81,500
	Total:	**$**	**521,600**

Assumptions:

1. Excludes the cost of gas, landscaping, power, irrigation, and street lighting.
2. Existing native soils are classified as hydrological soil group B.

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST

Maul Foster Alongi, Inc.

Schedule A							
General		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
A.1	Mobilization (8%)	1	LS	$	32,590.00	$	32,590.00
A.2	Construction Staking	1	LS	$	5,000.00	$	5,000.00
A.3	Traffic Control	1	LS	$	10,000.00	$	10,000.00
A.4	Clearing and Grubbing	1	LS	$	3,000.00	$	3,000.00
A.5	Stabilized Construction Entrance	85	SY	$	20.00	$	1,700.00
A.6	Silt Fence	640	LF	$	6.00	$	3,840.00
A.7	Inlet Protection	2	EA	$	125.00	$	250.00
A.8	Sawcut Extg AC and Cem Conc Surfaces	380	LF	$	8.00	$	3,040.00
A.9	Remove Existing Asphalt Concrete	1,170	SY	$	12.00	$	14,040.00
A.10	Remove Existing Cem Conc Sidewalk	260	SY	$	13.00	$	3,380.00
A.11	Remove Existing Cem Conc Curb	83	LF	$	10.00	$	830.00
A.12	Remove Structures and Obstructions	1	LS	$	5,000.00	$	5,000.00
					Subtotal Schedule A:	**$**	**82,700**

Schedule B							
Grading		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
B.1	Excavation Including Haul	1,080	CY	$	40.00	$	43,200.00
B.2	Subgrade Preparation	2,200	SY	$	1.10	$	2,420.00
B.3	Crushed Surfacing Base Course	689	TN	$	28.00	$	19,293.20
B.4						$	-
B.5						$	-
					Subtotal Schedule B:	**$**	**65,000**

Schedule C							
Surface Finish		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
C.1	Hot Mix Asphalt	289	TN	$	125.00	$	36,178.13
C.2	Cement Concrete Sidewalk	608	SY	$	68.00	$	41,328.89
C.3	Cement Concrete Curb & Gutter	645	LF	$	50.00	$	32,250.00
C.4	Cement Concrete Stamped Crosswalk	88	SY	$	120.00	$	10,506.67
C.5	Detectable Warning Surface	120	SF	$	50.00	$	6,000.00
C.6	Cement Concrete Driveway Entrance	140	SY	$	90.00	$	12,600.00
C.7	Cement Concrete Curb Ramps	6	EA	$	2,500.00	$	15,000.00
C.8	Seeding, Fertilizing, and Mulching	0.15	AC	$	8,500.00	$	1,268.37
					Subtotal Schedule C:	**$**	**155,200**

Schedule D							
Stormwater		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
D.1	Beehive Grate	8	EA	$	500.00	$	4,000.00
D.2	Storm Sewer 48" Manhole, Type II	6	EA	$	4,500.00	$	27,000.00
D.3	6 In. Diameter PVC Storm Pipe	132	LF	$	40.00	$	5,280.00
D.4	12 In. Diameter PVC Storm Pipe	250	LF	$	65.00	$	16,250.00
D.5	6 In. Diameter C900 Storm Pipe	23	LF	$	80.00	$	1,840.00
D.6	Adjust Existing Stormwater Catch Basin	2	EA	$	600.00	$	1,200.00
D.7	Connect to Extg Stormwater Catch Basin	2	EA	$	1,000.00	$	2,000.00
D.8						$	-
					Subtotal Schedule D:	**$**	**57,570**

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST

Maul Foster Alongi, Inc.

Schedule E							
Sanitary Sewer		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
E.1	Sanitary Sewer 48" Manhole, Type II	4	EA	$	5,500.00	$	22,000.00
E.2	8 In. PVC Sanitary Sewer Pipe	323	LF	$	70.00	$	22,610.00
E.3	6 In. PVC Sanitary Sewer Pipe	140	LF	$	50.00	$	7,000.00
E.4	Plug and Abandon Existing 8 In. Diam. Pipe	2	EA	$	500.00	$	1,000.00
E.5	Connect Existing Sanitary Sewer Manhole	2	EA	$	1,200.00	$	2,400.00
E.6	Adjust Existing Sanitary Sewer Manhole	1	EA	$	600.00	$	600.00
					Subtotal Schedule E:	**$**	**55,610**

Schedule F							
Water		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
F.1	Relocate Existing Water Meter	1	EA	$	1,500.00	$	1,500.00
F.2	6 In Diam Ductile Iron Pipe for Water Main	4	LF	$	90.00	$	360.00
F.3	Relocate Existing Fire Hydrant	1	EA	$	5,000.00	$	5,000.00
F.4						$	-
F.5						$	-
					Subtotal Schedule F:	**$**	**6,860**

Schedule G							
Traffic		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
G.1	Signing and Striping	1	LS	$	5,000.00	$	5,000.00
G.2	Relocate Exisitng Stop Sign	2	EA	$	1,000.00	$	2,000.00
G.3	Relocate Exisiting Power Pole w/ Lighting	1	EA	$	10,000.00	$	10,000.00
G.4						$	-
G.5						$	-
					Subtotal Schedule G:	**$**	**17,000**

Schedule H							
Soft Cost		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
H.1	Contingency (20%)	1	LS	$	81,464.00	$	81,464.00
H.2						$	-
H.3						$	-
H.4						$	-
H.5						$	-
					Subtotal Schedule G:	**$**	**81,464**


STEVENSON
WASHINGTON