



## AGENDA

### City Council Joint Study Session with Parks & Recreation Commission and Special Meeting

6:30 PM - Tuesday, November 13, 2018

City Hall Council Chambers, Sammamish, WA

Page		Estimated Time
	<b>CALL TO ORDER</b>	6:30 pm
	<b>ROLL CALL</b>	
	<b>PLEDGE OF ALLEGIANCE</b>	
	<b>APPROVAL OF AGENDA</b>	
	<b>PUBLIC COMMENT</b>	6:35 pm
	<p><b>Note:</b> <i>This is an opportunity for the public to address the Council. Three-minutes limit per person or five-minutes if representing the official position of a recognized community organization. If you would like to show a video or PowerPoint, it must be submitted or emailed by 5 pm, the end of the business day, to the City Clerk, Melonie Anderson at <a href="mailto:manderson@sammamish.us">manderson@sammamish.us</a>. Please be aware that Council meetings are videotaped and available to the public.</i></p>	
	<b>JOINT STUDY SESSION WITH PARKS &amp; RECREATION COMMISSION</b>	7:05 pm
3 - 26	1. <b>Discussion:</b> King County Parks Levy Funding & Land Conservation Initiative Update <a href="#">View Agenda Item</a>	
27 - 64	2. <b>Discussion:</b> Lower Commons Master Plan Update and Town Center Plaza <a href="#">View Agenda Item</a>	
	<b>PRESENTATION</b>	8:20 pm

- 65 - 466 3. **Discussion:** Public Works Standards Bi-Annual Update  
[View Agenda Item](#)

**UNFINISHED BUSINESS**

**8:55 pm**

- 467 - 480 4. **Discussion:** Roadway Corridor and Segment Capacities, and  
LOS (Level of Service) Standard Options  
[View Agenda Item](#)

**COUNCIL REPORTS/ COUNCIL COMMITTEE REPORTS**

**CITY MANAGER REPORT**

**9:45 pm**

- 481 - 492 5. City Manager's Report  
[View Agenda Item](#)

**EXECUTIVE SESSION – IF NECESSARY**

**ADJOURNMENT**

**10:00 pm**

**LONG TERM CALENDAR**

- 493 - 496 [View Calendar](#)

City Council meetings are wheelchair accessible. American Sign Language (ASL) interpretation is available upon request. Please phone (425) 295-0500 at least 48 hours in advance. Assisted Listening Devices are also available upon request.

**Agenda Bill**  
 City Council Joint Meeting  
 November 13, 2018



<b>SUBJECT:</b>	King County Parks Levy Funding & Land Conservation Initiative Update														
<b>DATE SUBMITTED:</b>	November 05, 2018														
<b>DEPARTMENT:</b>	Parks & Recreation														
<b>NEEDED FROM COUNCIL:</b>	<input type="checkbox"/> Action <input type="checkbox"/> Direction <input checked="" type="checkbox"/> Informational														
<b>RECOMMENDATION:</b>	Provide feedback on the proposed King County Parks Levy Funding and Land Conservation Initiative.														
<b>EXHIBITS:</b>	<a href="#">1. Exhibit 1 - King County Parks Levy Funding Development Presentation</a> <a href="#">2. Exhibit 2 - Land Conservation Initiative Handout</a>														
<b>BUDGET:</b>	<table border="0"> <tr> <td>Total dollar amount</td> <td>N/A</td> <td><input type="checkbox"/></td> <td><b>Approved in budget</b></td> </tr> <tr> <td>Fund(s)</td> <td>N/A</td> <td><input type="checkbox"/></td> <td><b>Budget reallocation required</b></td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/></td> <td><b>No budgetary impact</b></td> </tr> </table>			Total dollar amount	N/A	<input type="checkbox"/>	<b>Approved in budget</b>	Fund(s)	N/A	<input type="checkbox"/>	<b>Budget reallocation required</b>			<input type="checkbox"/>	<b>No budgetary impact</b>
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		<input type="checkbox"/>	<b>No budgetary impact</b>												
<b>WORK PLAN FOCUS AREAS:</b>	<table border="0"> <tr> <td><input type="checkbox"/>  Transportation</td> <td><input type="checkbox"/>  Community Safety</td> </tr> <tr> <td><input type="checkbox"/>  Communication &amp; Engagement</td> <td><input checked="" type="checkbox"/>  Community Livability</td> </tr> <tr> <td><input type="checkbox"/>  High Performing Government</td> <td><input checked="" type="checkbox"/>  Culture &amp; Recreation</td> </tr> <tr> <td><input checked="" type="checkbox"/>  Environmental Health &amp; Protection</td> <td><input type="checkbox"/>  Financial Sustainability</td> </tr> </table>			<input type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety	<input type="checkbox"/> Communication & Engagement	<input checked="" type="checkbox"/> Community Livability	<input type="checkbox"/> High Performing Government	<input checked="" type="checkbox"/> Culture & Recreation	<input checked="" type="checkbox"/> Environmental Health & Protection	<input type="checkbox"/> Financial Sustainability				
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<input checked="" type="checkbox"/> Environmental Health & Protection	<input type="checkbox"/> Financial Sustainability														

**NEEDED FROM COUNCIL:**  
 Shall the City Council and Parks & Recreation Commission provide feedback on the proposed King County Parks Levy Funding and Land Conservation Initiative?

**KEY FACTS AND INFORMATION SUMMARY:**  
 King County staff will present on both the upcoming King County Parks Levy (2020-25) as well as the King County Land Conservation Initiative (LCI) at the upcoming Joint Meeting with the Parks & Recreation Commission. Below is a short summary compiled from material provided by County staff.

King County Parks has evolved from 150 acres in 1938 to more than 28,000 acres today. Their mission is to steward, enhance and acquire parks to inspire healthy communities. Today, their system consists of more than 200 parks, 175 miles of regional trails, and 215 miles of backcountry trails. From regional

parks such as Marymoor Park and Cougar Mountain Regional Wildland Park to amenities such as athletic fields, regional trails, and pools, there is something for everyone in King County Parks.

**King County Levy:**

King County Parks is largely funded through a six-year property tax levy, which the voters of King County approved on August 6, 2013 by more than 70 percent. It replaced two parks levies, the King County Parks Levy and the Open Space and Trails Levy, which expired at the end of 2013. The 2014-19 levy funds the maintenance and development of local and regional parks, trails and natural areas. Seven percent (7%) of the proceeds, net an administrative fee, are made available for repairing, replacing, and improving local parks and trails in King County's Cities.

This parks levy expires in 2019 and King County is in the process of developing funding for a 2020-2025 King County Parks Levy and getting feedback on the funding development. An exhibit attached with this agenda bill provides more detail on this proposed levy.

**King County Land Conservation Initiative:**

The vision of this initiative is to protect the remaining high conservation value lands and secure our regional trail network within a generation or 30 years. As one of the fastest growing regions in the country, we risk losing to development the natural lands and green spaces that contribute to our high quality of life.

The Initiative strives to sustain the livability and ecological integrity of our region, both urban and rural. The goal is to achieve this by protecting 65,000 acres that has been mapped, priced, and prioritized across the six land categories of Farmlands, Forests, Natural Lands, Rivers, Trails and Urban Green Space. Of these, 2,500 acres are within cities. The path forward to achieve is this goal is summarized in an exhibit attached to this agenda bill and will be elaborated on by King County staff at the upcoming meeting.

**FINANCIAL IMPACT:**

N/A

**OTHER ALTERNATIVES CONSIDERED:**

N/A

**RELATED CITY GOALS, POLICIES, AND MASTER PLANS:**

[2018 Parks & Recreation Open Space \(PRO\) Plan](#)

[2017 Land Acquisition Strategy and Implementation Program](#)



**King County**

**DRAFT**

**PARKS**

**Your Big Backyard**

# 2020-2025 Funding Development



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Joint Study Session with Parks & Recreation Commission #1.



2002: Parks Business Transition Plan

2004: KC O&M levy

2008: KC O&M renewal AND OS/Trails/Zoo levies

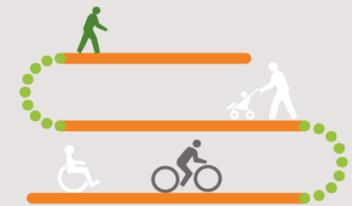
2014: KC replacement levy (combines 2 levies)

2020: Renewal levy + enhancements?

# King County Parks & Recreation Vision and Mission



**Vision:** Parks, trails and natural lands for all; sustained with the cooperative efforts of our community.



**Mission:** We steward, enhance and acquire parks to inspire a healthy community.



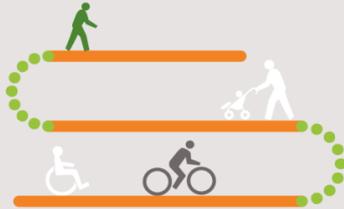
# Continue to make progress on the following goals:

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## Goal 1

Take care of King County's existing system of parks and trails



## Goal 2

Improve regional trails and mobility



## Goal 3

Grow and connect regional open space



## Goal 4

Make parks and recreation more accessible

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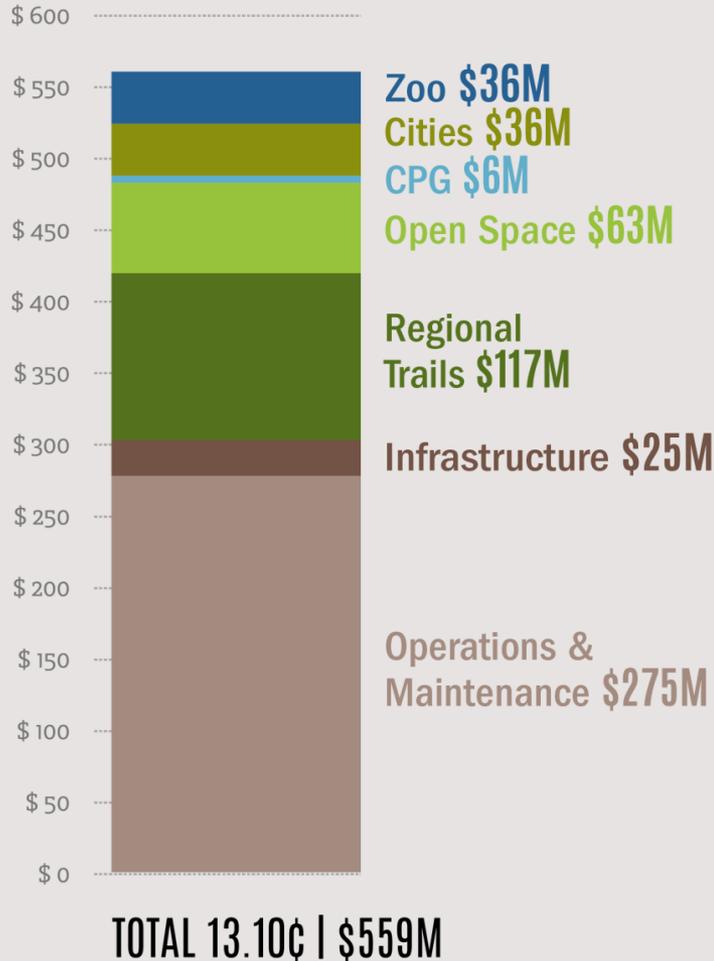


We're planning for population growth, the increasing cost of land and a growing & aging parks system

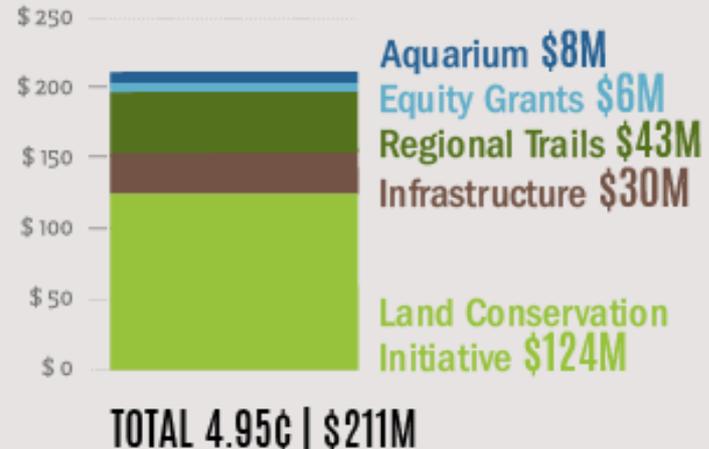
# 6-year parks levy renewal and enhancement options

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## STATUS QUO



## ENHANCEMENT OPTIONS





## Goal 1

# Take care of King County's existing system of parks and trails

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KING COUNTY PARKS OPERATIONS & MAINTENANCE		
	Cost	What you get
STATUS QUO	<ul style="list-style-type: none"> <li>• 6.45¢</li> <li>• \$275M over 6 years</li> </ul>	<p>Operate and maintain the King County Parks system of parks and trails with:</p> <ul style="list-style-type: none"> <li>• <b>200</b> parks</li> <li>• <b>175</b> of regional trails</li> <li>• <b>215</b> miles of backcountry trails</li> <li>• <b>30,000</b> acres of parks and open space</li> </ul>



## Goal 1

# Take care of King County's existing system of parks and trails

DRAFT

ASSET MANAGEMENT & INFRASTRUCTURE REPAIR		
	Cost	What you get
STATUS QUO	<ul style="list-style-type: none"> <li>• 0.58¢</li> <li>• \$25M over 6 years</li> </ul>	Critical infrastructure repairs & replacements: <ul style="list-style-type: none"> <li>• <b>6 play areas</b> rehabilitation</li> <li>• <b>10 bridge</b> repairs and replacements</li> <li>• <b>3 trailhead access</b> improvements</li> <li>• Infrastructure repairs at least at <b>5 sites</b></li> </ul>
ENHANCEMENT OPTIONS	<ul style="list-style-type: none"> <li>• +0.70¢</li> <li>• \$30M over 6 years</li> </ul>	Additional critical infrastructure repairs & replacements: <ul style="list-style-type: none"> <li>• <b>11 turf ballfields</b> replacements</li> <li>• <b>Backcountry trail</b> rehabilitations for hiking, mountain biking and equestrian uses</li> <li>• Rehabilitation and repair of:               <ul style="list-style-type: none"> <li>• Parking lots at <b>4 sites</b></li> <li>• Restrooms at <b>7 sites</b></li> </ul> </li> </ul>

2020-2025  
**PARKS**  
 Infrastructure Projects

DRAFT

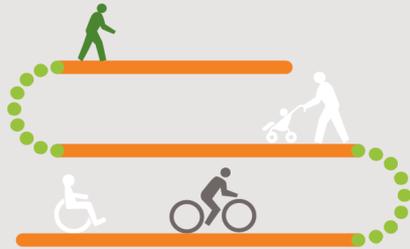


2020-2025 LEVY  
 PROPOSED PROJECTS

- Status Quo**
- Infrastructure Repair
  - Play Area Rehab
  - Trailhead Parking Improvement

- Enhancements**
- Ballfield Replacement
  - Backcountry Trail Rehab
  - Restroom Rehab
  - Parking Lot Repair

- Parks**
- King County Park
  - Other Park



## Goal 2

# Improve regional trails and mobility

DRAFT

REGIONAL TRAILS SYSTEM		
	Cost	What you get
STATUS QUO	<ul style="list-style-type: none"> <li>• 2.74¢</li> <li>• \$117M over 6 years</li> </ul>	Connecting segments: <ul style="list-style-type: none"> <li>• 5 designed, constructed &amp; completed</li> </ul> Critical crossings: <ul style="list-style-type: none"> <li>• 3 designed, constructed &amp; completed</li> </ul> Mobility connections, pavement resurfacing, ADA, safety
ENHANCEMENT OPTIONS	<ul style="list-style-type: none"> <li>• +1.00¢</li> <li>• \$43M over 6 years</li> </ul>	Additional connecting segments: <ul style="list-style-type: none"> <li>• 7 designed, constructed and completed</li> </ul> Additional critical crossings: <ul style="list-style-type: none"> <li>• 1 designed, constructed &amp; completed</li> </ul>



Wilburton Trestle



Foothills: Boise Creek to White River

2020-2025  
**TRAIL**  
 Projects

2020-2025 LEVY  
 PROPOSED PROJECTS

Status Quo

-  Regional Trail Connection
-  Critical Crossing
-  Bridge Repair

Enhancements

-  Regional Trail Connection
-  Critical Crossing

King County Trails

-  Existing Regional Trail
-  On-street Trail Connection
-  Future Regional Trail

- Parks
-  King County Park
  -  Other Park





### Goal 3

# Grow and connect regional open space

# DRAFT

OPEN SPACE AQUISITION		
	Cost	What you get
STATUS QUO	<ul style="list-style-type: none"> <li>• 1.48¢</li> <li>• \$63M over 6 years</li> </ul>	<p>Acquire up to <b>2,000 acres</b> of King County land conservation priorities.</p>
ENHANCEMENT OPTIONS	<p>Land Conservation Initiative (LCI) acquisitions:</p> <ul style="list-style-type: none"> <li>• +2.00¢</li> </ul> <p>O&amp;M of LCI acquisitions:</p> <ul style="list-style-type: none"> <li>• +0.91¢</li> </ul> <ul style="list-style-type: none"> <li>• \$124M over 6 years</li> </ul>	<ul style="list-style-type: none"> <li>• Accelerates conservation of up to <b>9,200 acres</b></li> <li>• Provides funding of O&amp;M for LCI acquisitions</li> </ul>



## Goal 4

# Make parks and recreation more accessible

DRAFT

COMMUNITY PARTNERSHIPS AND GRANTS (CPG)		
	Cost	What you get
STATUS QUO	<ul style="list-style-type: none"> <li>• 0.15¢</li> <li>• \$6M over 6 years</li> </ul>	Partnerships to design, build or program new/enhanced public recreation facilities on KC-owned lands
ENHANCEMENT OPTIONS	<ul style="list-style-type: none"> <li>• +0.15¢</li> <li>• \$6M over 6 years</li> </ul>	Equity-focused grants to increase access to and use of public recreation facilities in communities that have no or little access



## Goal 4

# Make parks and recreation more accessible

DRAFT

CITIES		
	Cost	What you get
STATUS QUO	King County Cities • 0.85¢	Continued flexible funding and support towards city parks and the zoo
	Woodland Park Zoo • 0.85¢ \$72M over 6 years	
ENHANCEMENT OPTIONS	Seattle Aquarium • + 0.19¢ \$8M over 6 years	Capital construction support for the aquarium Ocean Pavilion

# Summary of Enhancement Options

+4.95¢ | +\$211M over 6 years

DRAFT

## Land Conservation

**Initiative:** accelerates land conservation acquisitions including O&M

(+ 2.91¢ | \$124M)

## Infrastructure:

infrastructure repair and replacement

(+0.70¢ | \$30M)

## Regional Trails System:

accelerates progress on legacy projects and begins new trails

(+1.00¢ | \$43M)

**Equity Grants:** increase parks access/use in underserved communities

(+0.15¢ | \$6M)

**Seattle Aquarium:** capital construction support for the Ocean Pavilion

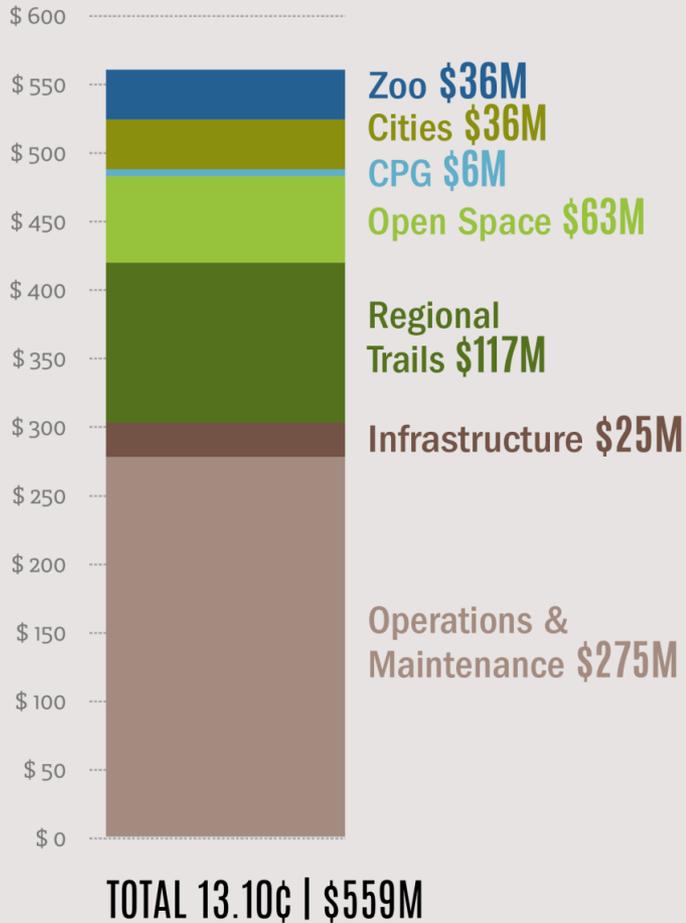
(+0.19¢ | \$8M)

**STATUS QUO: 13.10 ¢ | \$559M OVER 6 YEARS**

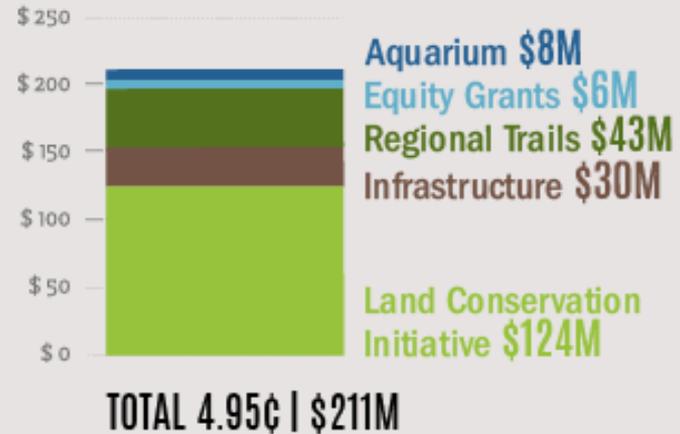
# 6-year parks levy renewal (up to 18.05¢ | \$770M )

DRAFT

## STATUS QUO



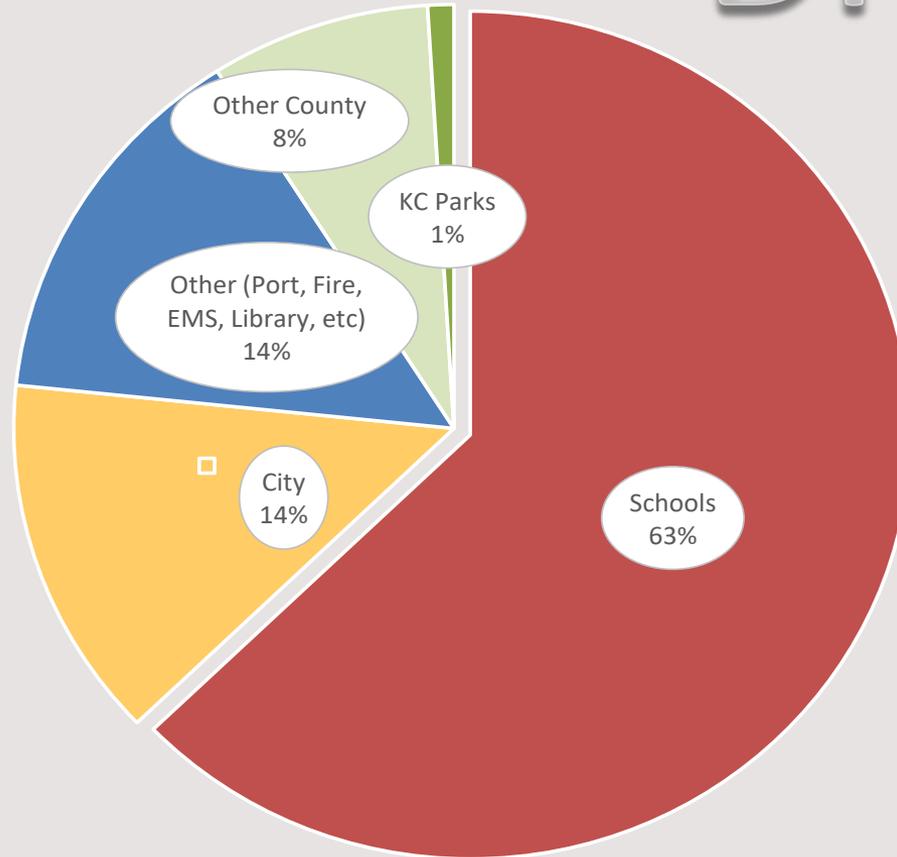
## ENHANCEMENT OPTIONS



Estimated annual impact on a \$500K valued home: **\$66 - \$92**

# What % of property tax bill would support KC Parks system?

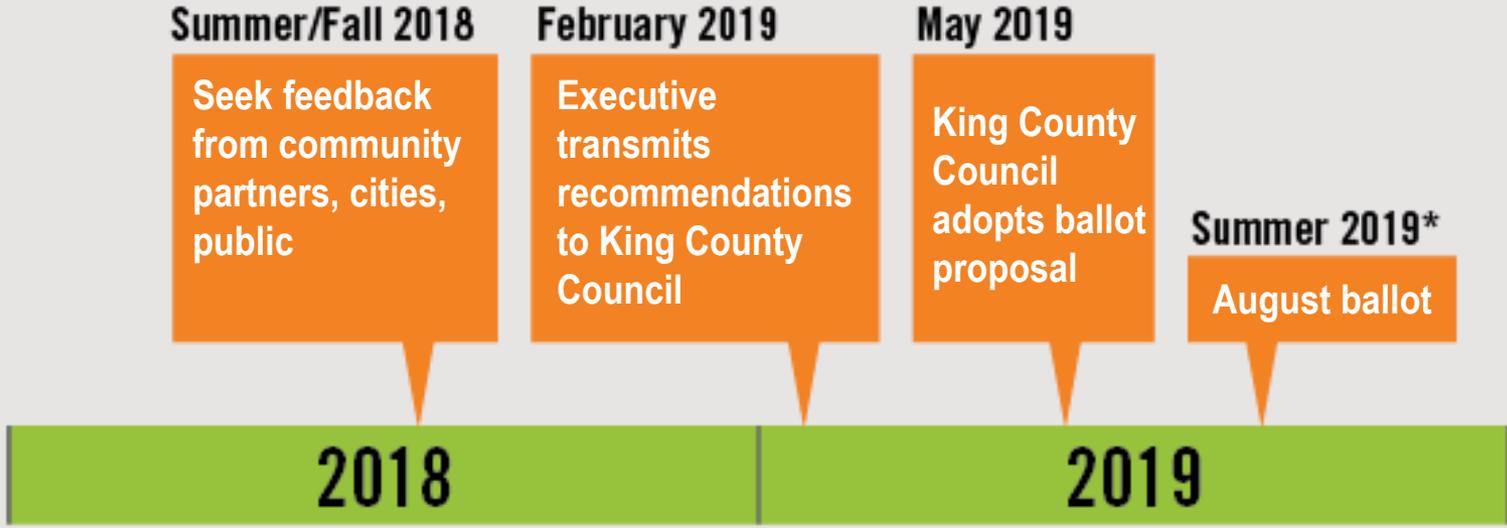
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Estimated for property with AV ~\$500,000 (rate = 18.05¢/\$1,000AV or \$92/year)

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# Timeline



\* Schedule for an August ballot which has not yet been decided

**ANY QUESTIONS?**

# Feedback (handout)



1. Please rate the status quo components in the 2020-2025 Parks Levy renewal.

- \_\_\_\_\_ Operations & Maintenance
- \_\_\_\_\_ Infrastructure Repair/Asset Management
- \_\_\_\_\_ Regional Trails
- \_\_\_\_\_ Open Space Acquisition
- \_\_\_\_\_ Community Partnerships & Grants
- \_\_\_\_\_ Cities Allocations
- \_\_\_\_\_ Woodland Park Zoo

2. Please rate the proposed enhancement options in the 2020-2025 Park Levy renewal.

- \_\_\_\_\_ Land Conservation Initiative (Acquisition & O&M)
- \_\_\_\_\_ Infrastructure Repair/Asset Management
- \_\_\_\_\_ Regional Trails
- \_\_\_\_\_ Equity Grant Program
- \_\_\_\_\_ Seattle Aquarium

3. Is there anything missing from your perspective?

4. Do you have any other comments, questions or concerns?



King County

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# PARKS

**Your Big Backyard**

Thank you

Contact - [heidi.kandathil@kingcounty.gov](mailto:heidi.kandathil@kingcounty.gov)

For more information about the Parks Levy:  
[kingcounty.gov/parks/levy](http://kingcounty.gov/parks/levy)



# Land Conservation Initiative

## THE VISION

Protect the region's remaining and most vital greenspaces & trails – for everyone – *within a generation* (i.e. 30 years)



## THE NUMBERS

The Initiative strives to sustain the livability and ecological integrity of our region, both urban and rural. Together we will achieve this by protecting 65,000 acres that has been mapped, priced, and prioritized across six land categories shown above.

- 2,500 urban acres identified by cities
- 60,600 acres identified by the County
- 55 new urban green spaces needed to eliminate disparities in open space access
- 125 miles of added trails for recreation & access to transit

### Costs:

The 30 year cost = \$4.5 B

- Cost figure includes inflation, real estate app, & transaction costs
- Approximately 50% of costs are for land inside cities & 50% of costs are for land in County areas (*rural county acquisition priorities cost less on a per acre basis than more expensive urban city priorities*)

### Revenues:

County + Cities' existing 30 year funding sources = \$2.25 B

### Funding Gap:

Initiative seeks to bridge a \$2.25 B funding gap over the next 30 years

### Savings:

*70 year Status Quo Cost = \$20 Billion*

*Savings = \$15 Billion by accelerating the pace of acquisition to 30 years*

## THE PATH FORWARD

The Land Conservation Vision will require a series of steps and actions over the next three decades – this is a long-term, multi-step, multi-year effort. As such, we will be working with you to build a coalition of city partners, non-profit partners, and corporate partners who together stand in support of this work now and into the future.

October 2018

The initial steps to begin this work are as follows:

**STEP 1: 2018**

- The King County Executive proposed and King County Council adopted legislation during Summer 2018 to initiate the Land Conservation Initiative. This legislation accomplished two specific things:
  1. Modify debt financing policies to allow, in the near future, increased bond financing with conservation futures tax (CFT) dollars. This will allow King County to increase funding for land conservation inside cities, and across the County, by up to \$148 million over the next several years. The CFT Advisory Committee will continue to make funding allocation recommendations to KC Executive & Council.
  2. The legislation also amended King County Code by removing the 50% local funding match requirement for CFT when funding is applied to projects in priority open space equity areas (i.e. open space projects in communities that simultaneously have low income and poor health metrics, and do not live within easy access to an existing park, trail, or greenspace).
- In addition to the legislation, in 2018 the County is working on the following:
  - Taking steps to access additional CFT bond-backed funds in 2019 in order to accelerate the pace of acquisitions.
  - Establish an Open Space Equity Cabinet to be the region's "Voice" on the issue of open space equity to guide policy and investments for meaningful equity outcomes. Cabinet report by year-end will provide recommendations on potential code changes, refinements to norms and practices, and metrics to use in reviewing open space equity area match waiver proposals.
  - Outreach to cities and partners about potential new CFT bond funding and match waivers available in 2019.
  - Strengthen existing and develop new nonprofit and private sector funding partnerships.

**STEP 2: 2019**

- In early 2019, the Executive will transmit to council King County Parks levy proposal. The proposal may include additional funding to further the goals of the LCI, including funding for open space acquisitions, associated operations & maintenance, and/or equity-focused grants to increase access to and use of public recreation facilities in communities that have little or no access.
- Legislation to update CFT code and motion to help implement LCI.
- Anticipated increased CFT funding available using bond-backed funds.

**STEP 3: 2020 - 2025**

- Bond against new CFT debt capacity in 2024/25 (approximately \$120M)
- Consider restoration of CFT levy rate from its current rate of 3.8 cents/\$1000 AV back to its original levy rate and state-authorized cap of 6.25 cents/\$1000 AV. The CFT levy rate has eroded 40% since 2003 due to the 1% cap on revenue growth.

October 2018

**Agenda Bill**  
 City Council Joint Meeting  
 November 13, 2018



<b>SUBJECT:</b>	Lower Commons Master Plan Update and Town Center Plaza	
<b>DATE SUBMITTED:</b>	November 05, 2018	
<b>DEPARTMENT:</b>	Parks & Recreation	
<b>NEEDED FROM COUNCIL:</b>	<input type="checkbox"/> Action <input checked="" type="checkbox"/> Direction <input type="checkbox"/> Informational	
<b>RECOMMENDATION:</b>	Provide preliminary feedback on the update to the Lower Commons Master Plan and proposed Town Center Plaza, as a result of the Town Center development and Regional Stormwater facilities impacting the park.	
<b>EXHIBITS:</b>	<a href="#">1. Exhibit 1 - Presentation Lower Commons Master Plan Update</a>	
<b>BUDGET:</b>		
Total dollar amount	\$100,000	<input checked="" type="checkbox"/> <b>Approved in budget</b>
Fund(s)	302-379-594-76-63-00	<input type="checkbox"/> <b>Budget reallocation required</b>
		<input type="checkbox"/> <b>No budgetary impact</b>
<b>WORK PLAN FOCUS AREAS:</b>		
<input type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety	
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<input type="checkbox"/> High Performing Government	<input checked="" type="checkbox"/> Culture & Recreation	
<input checked="" type="checkbox"/> Environmental Health & Protection	<input type="checkbox"/> Financial Sustainability	

**NEEDED FROM COUNCIL:**

City staff is requesting the City Council and Parks & Recreation Commission share their preliminary thoughts of the Update to the Lower Commons Master Plan and proposed Town Center Plaza.

**KEY FACTS AND INFORMATION SUMMARY:**

**LOWER COMMONS PARK**

‘Sammamish Commons’ refers to the entire 39-acres of the City’s Civic Campus that comprises the Upper Commons with City Hall, the Sammamish Community & Aquatic Center, King County Library and Skate Park as well as the Lower Commons Park. The 20-acre Lower Commons Park is comprised of two parcels were purchased in 2002. Located at the north-east of the property, is the previous home of the

Sween family, built in 1974. The site has rolling topography and the southern half is encumbered with wetlands and their associated buffers.

The original master plan was completed in 2003 and the park was constructed and opened to the public in 2006. Primary access to the park is from 222nd Place SE on the west. Lower Commons Park includes picnic shelters, a loop trail, spray park, portable restroom and a native plant demonstration garden. Since then the park has seen a few changes. The Sween House was remodeled for the CrossPath Counseling and Consultation Center which opened in 2010. The Counseling Center leases the building from the City. Alongside these improvements, a parking lot for 47 cars was constructed and a few years later, a Community Garden was built in 2013 at the north-west corner of the park.

For most of the year, the park has a passive use. On the other hand, in the summer, the picnic shelters, spray park and community garden are all actively used. Sammamish Commons is the venue for the *Fourth on the Plateau*, an event that draws an estimated crowd of 11,000 people.

#### **TOWN CENTER – GREEN SPINE**

Sammamish Commons is located within the boundary of the Town Center (TC) and is zoned TC D or the Civic Zone. The northern edge of the Lower Commons Park abuts the TC A-1 mixed use zone as well as a small fraction of the TC B and TC C residential zones. The TC A-1 zone could see development of buildings up to 70 feet in height. The Town Center Plan, adopted in 2008, shows a potential road wrapping around the north and east edge of Lower Commons Park, which is likely to impact the Sween House.

The Town Center Infrastructure Plan adopted in 2009 shows a 120-foot wide Green Spine or linear open space, running in the north-south direction and terminating in the Lower Commons Park. An undeveloped 1.4-acre parcel of land (referred to as the “notch”) at the south end of the Green Spine belongs to the City and will play a vital role in connecting these two significant open spaces. The Green Spine will serve as public open space and will vary in size and character from block to block and provide an organizing structure for new urban development, add a visual and recreation amenity, and was also intended to treat stormwater runoff.

#### **REGIONAL STORMWATER**

Regional stormwater facilities are designed to detain and/or treat stormwater runoff from multiple projects, providing development with an alternative solution to on-site stormwater management for each project. Many regional facilities are administered through city-sponsored programs and private development often assists in financing the facility.

In 2017, a Feasibility Analysis for a Regional Stormwater System within Town Center was completed and presented to City Council. This included locating facilities based on topography, approximating size and volume capacities, estimating cost to design and construct, and evaluating funding options both by the public and private sector.

Based on rough estimates of run-off, Lower Commons Park could end up housing up to three such regional facilities in the form of underground vaults, one under the notch, a second in the vicinity of the Community Garden and a third near the spray park. An alternate to the third vault would be an

open pond, with an estimated footprint of 0.67 acres, not inclusive of grading, to accommodate surrounding site slopes. Very roughly, this translates to 100 feet by 400 feet. To help visualize this, a soccer field measures 210 feet by 330 feet.

**NEXT STEPS**

In addition to factoring in the changes to the park with the north-south Green Spine and the east-west potential road, the Lower Commons Master Plan Update will have to account for the re-design of the Community Garden and possibly the Spray Park and related picnic shelter, to accommodate the regional storm water facilities. Based on guidance received from City Council and the Parks & Recreation Commission, staff will put together a scope of work for an update to the Lower Commons Master Plan and proposed Town Center Plaza.

**FINANCIAL IMPACT:**

A total of \$100,000 is allocated in the Parks Capital (CIP) budget for the Lower Commons Master Plan Update.

**OTHER ALTERNATIVES CONSIDERED:**

N/A

**RELATED CITY GOALS, POLICIES, AND MASTER PLANS:**

[2018 Parks Recreation & Open Space \(PRO\) Plan](#)

[2009 Town Center Infrastructure Plan](#)

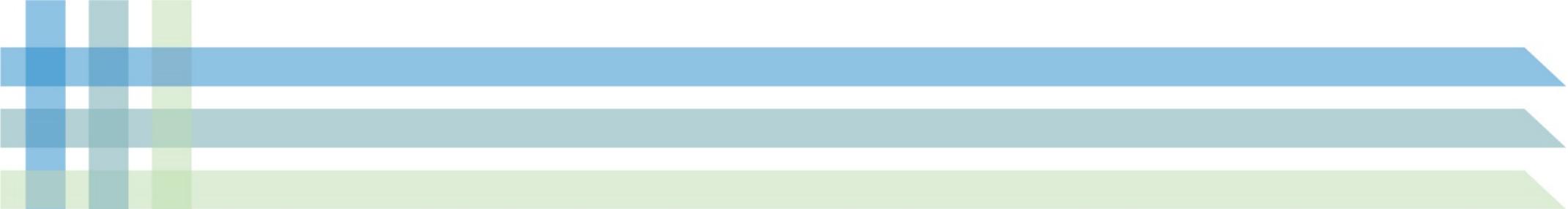
[2017 Sammamish Town Center Regional Stormwater Analysis](#)



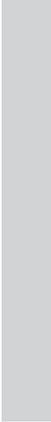
# Lower Commons Master Plan Update

Joint Study Session with City Council and  
the Parks & Recreation Commission  
November 13, 2018





## Presentation Topics

- 
- Project Background
  - Town Center
  - Regional Stormwater
  - Next Steps
  - Hopes, Dreams, and Concerns

# Tonight's Discussion

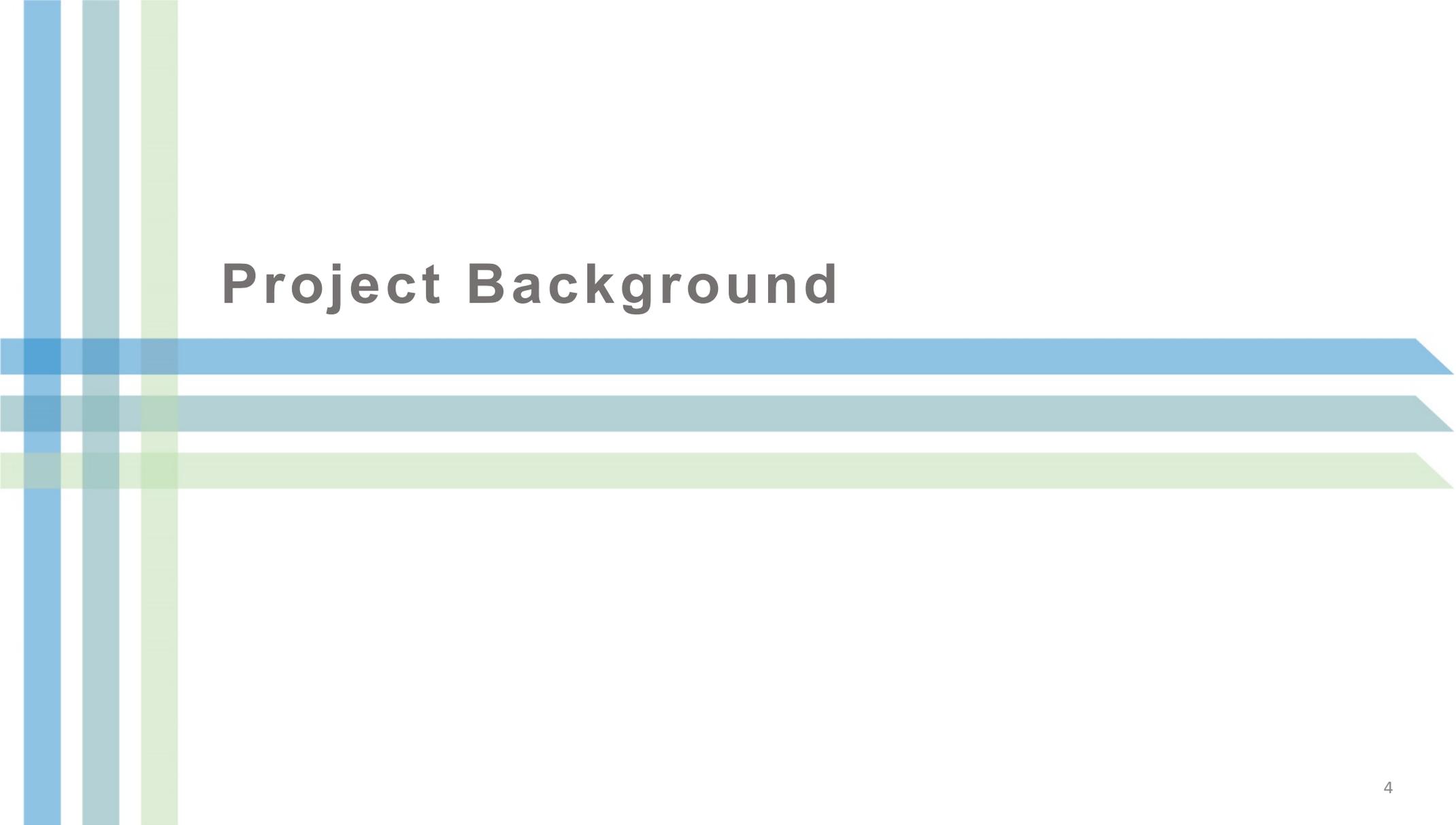


Share your Hopes, Dreams and Concerns as they relate to:

1. Town Center Development
2. Green Spine
3. Regional Storm Water

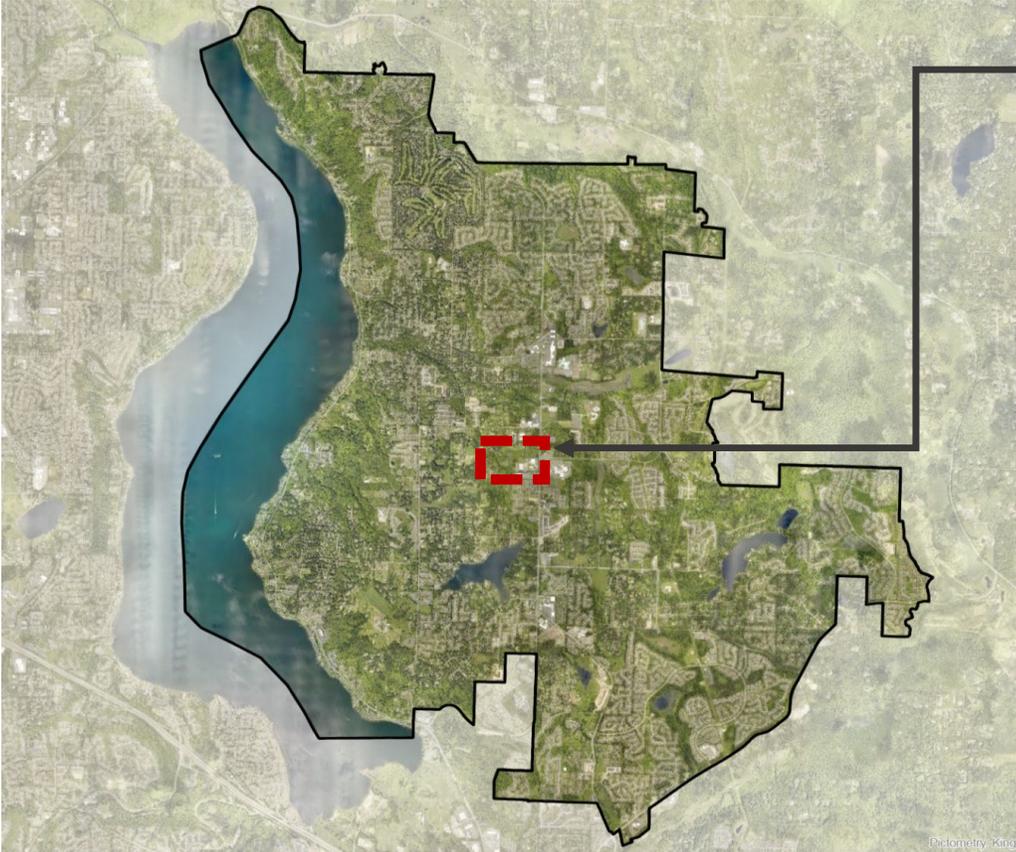
*Photo from Fourth on the Plateau, which draws roughly 11,000 people*

3



# Project Background

# City of Sammamish



## Sammamish Commons



# Sammamish Commons



*Lower Commons*

*Upper Commons*

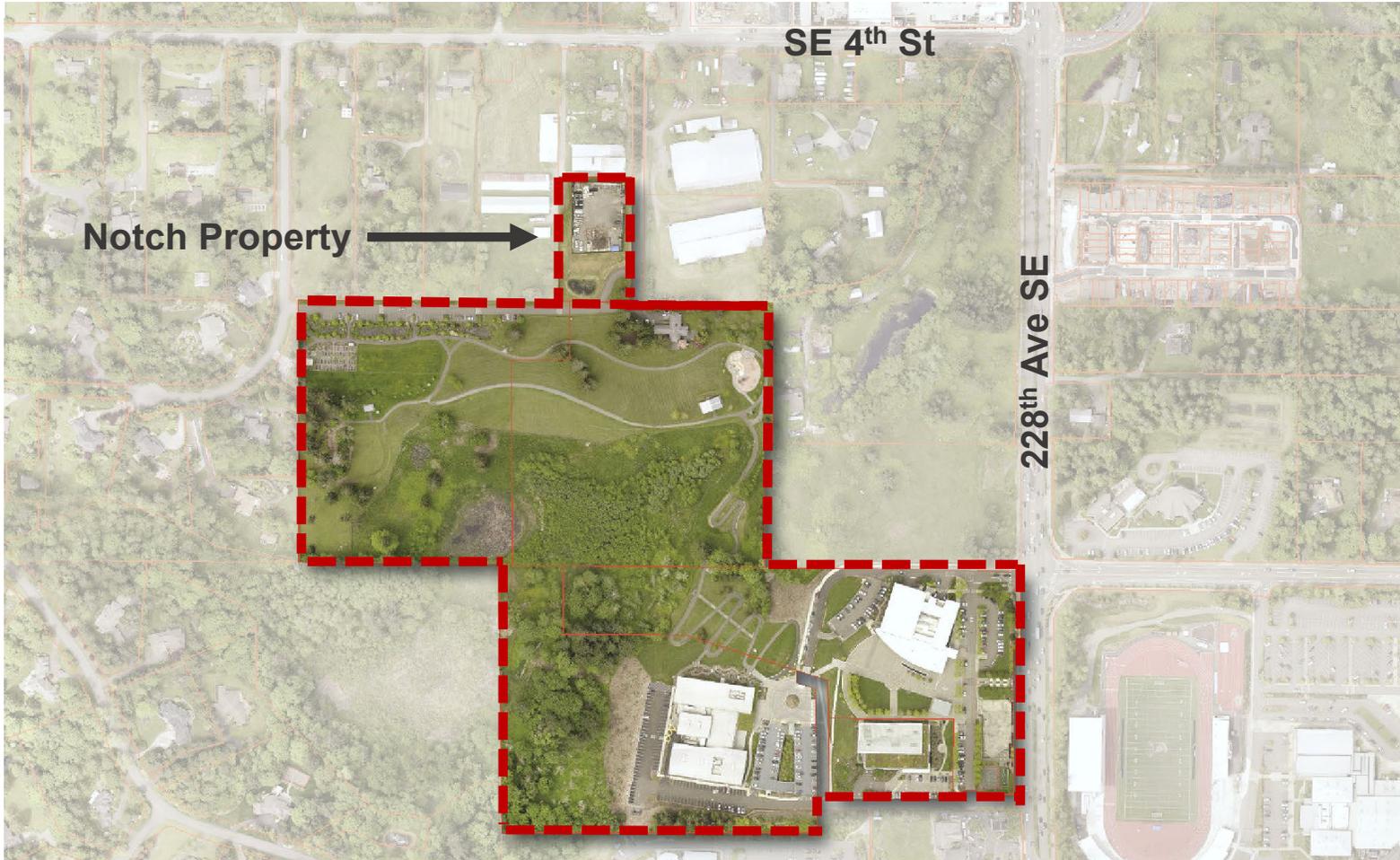
# Lower Commons



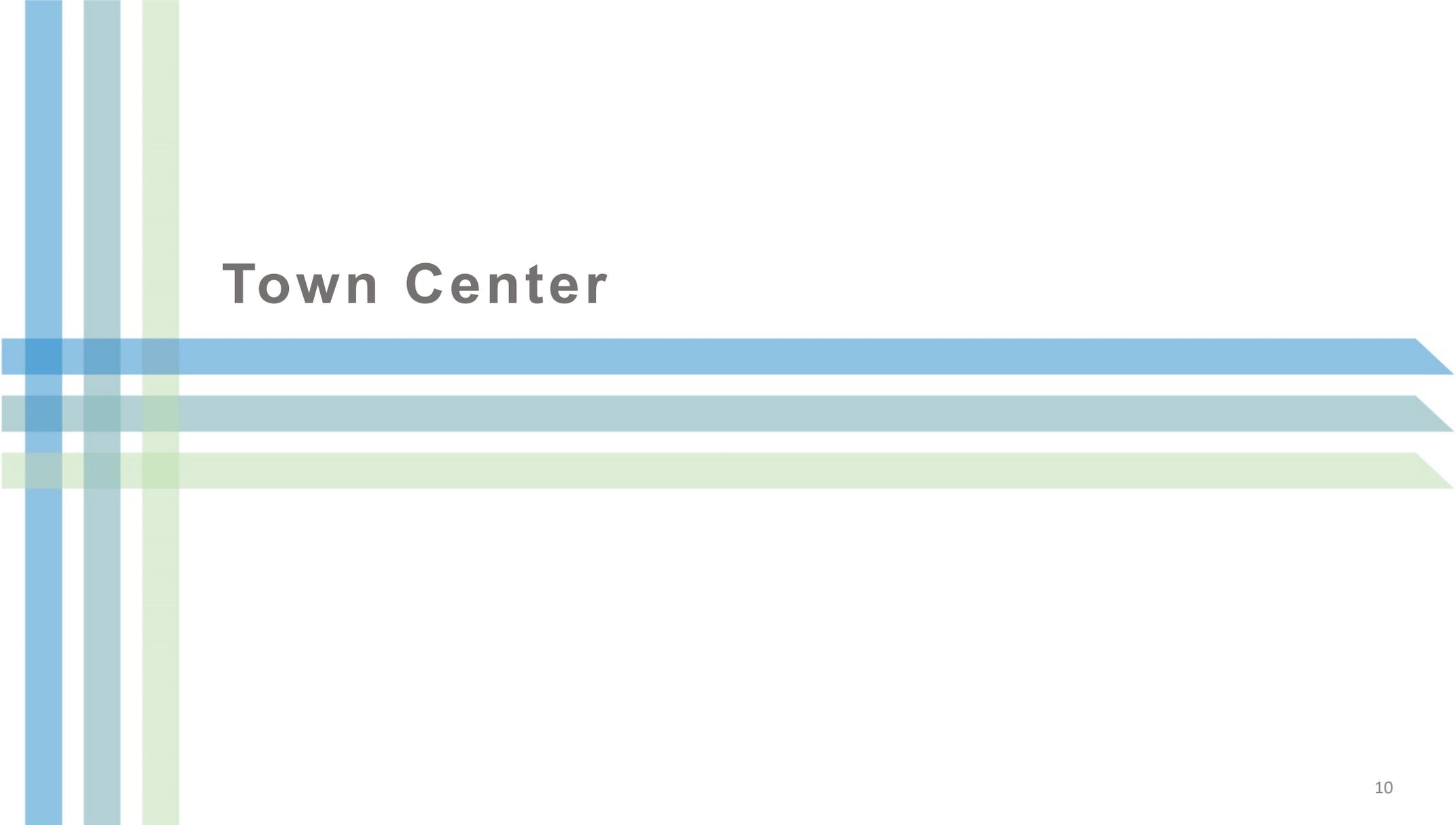
# Lower Commons



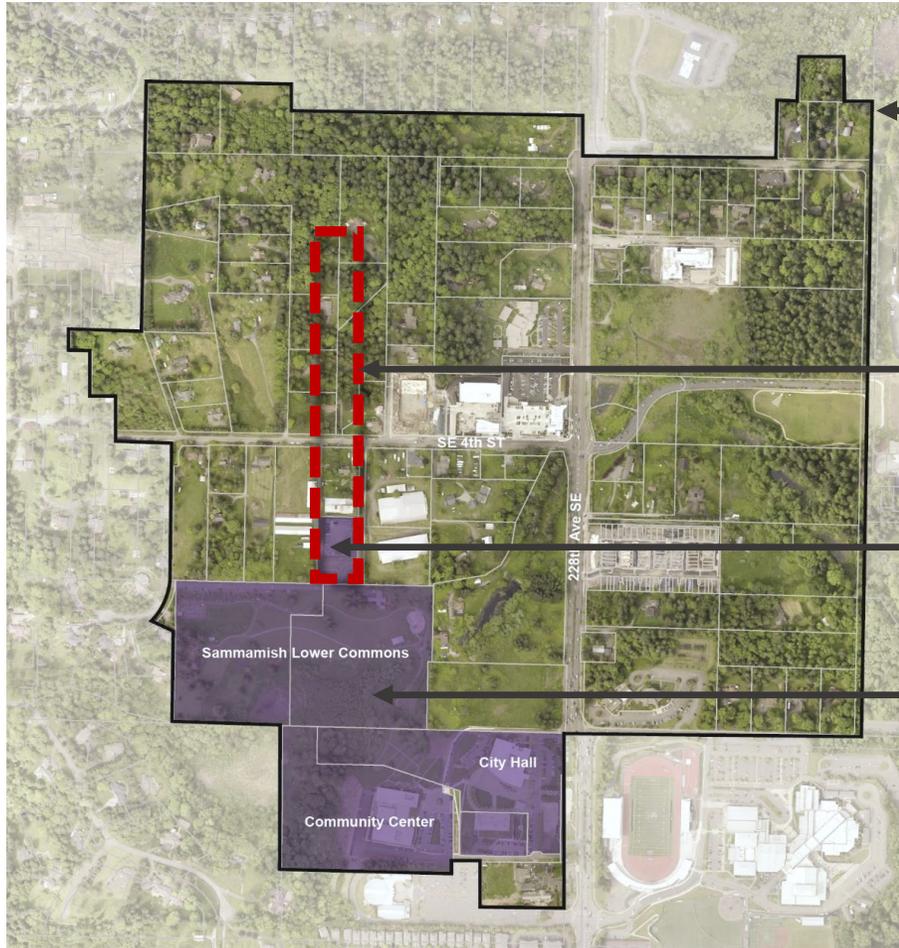
# Undeveloped City Property – “Notch Property”



# Town Center



# Town Center Overview



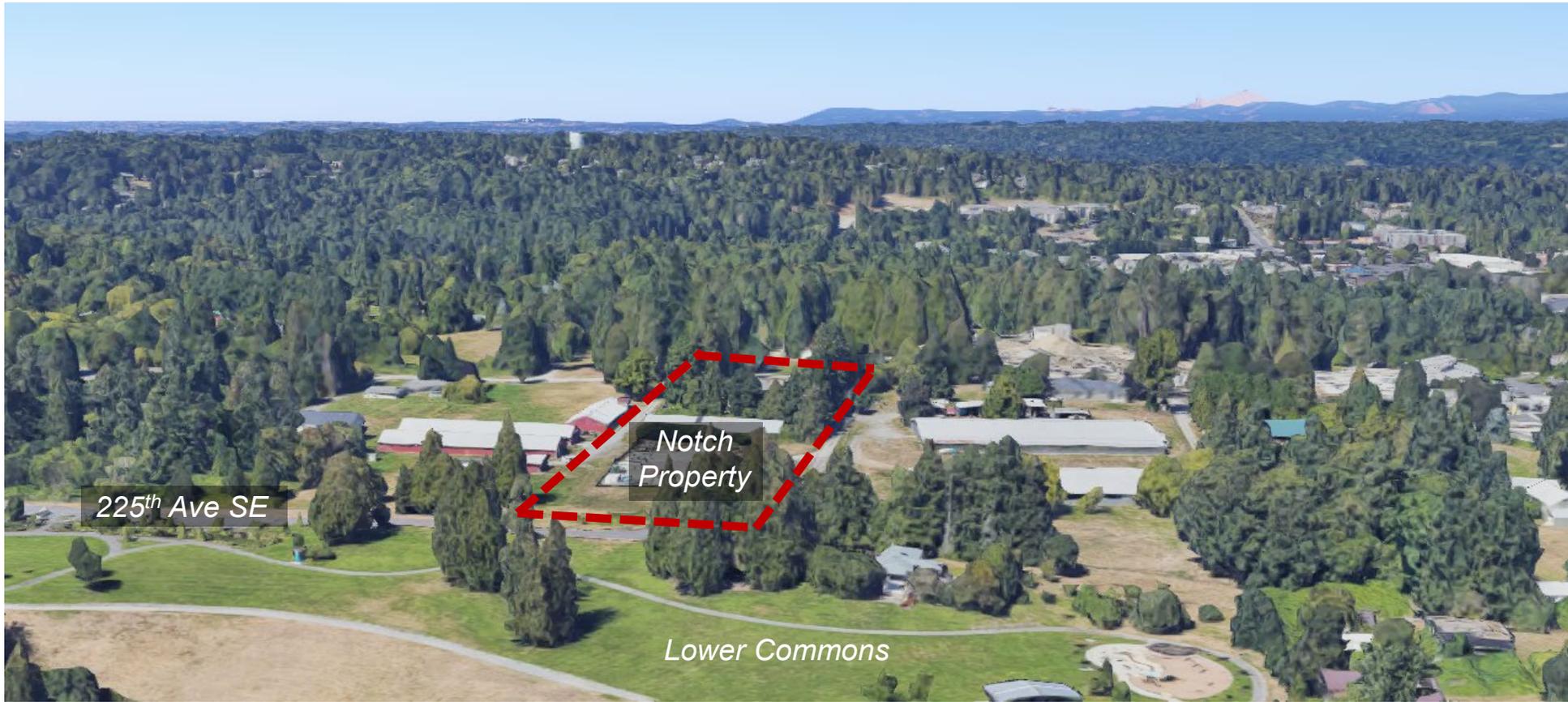
Town Center Outline

Approximate Green Spine location

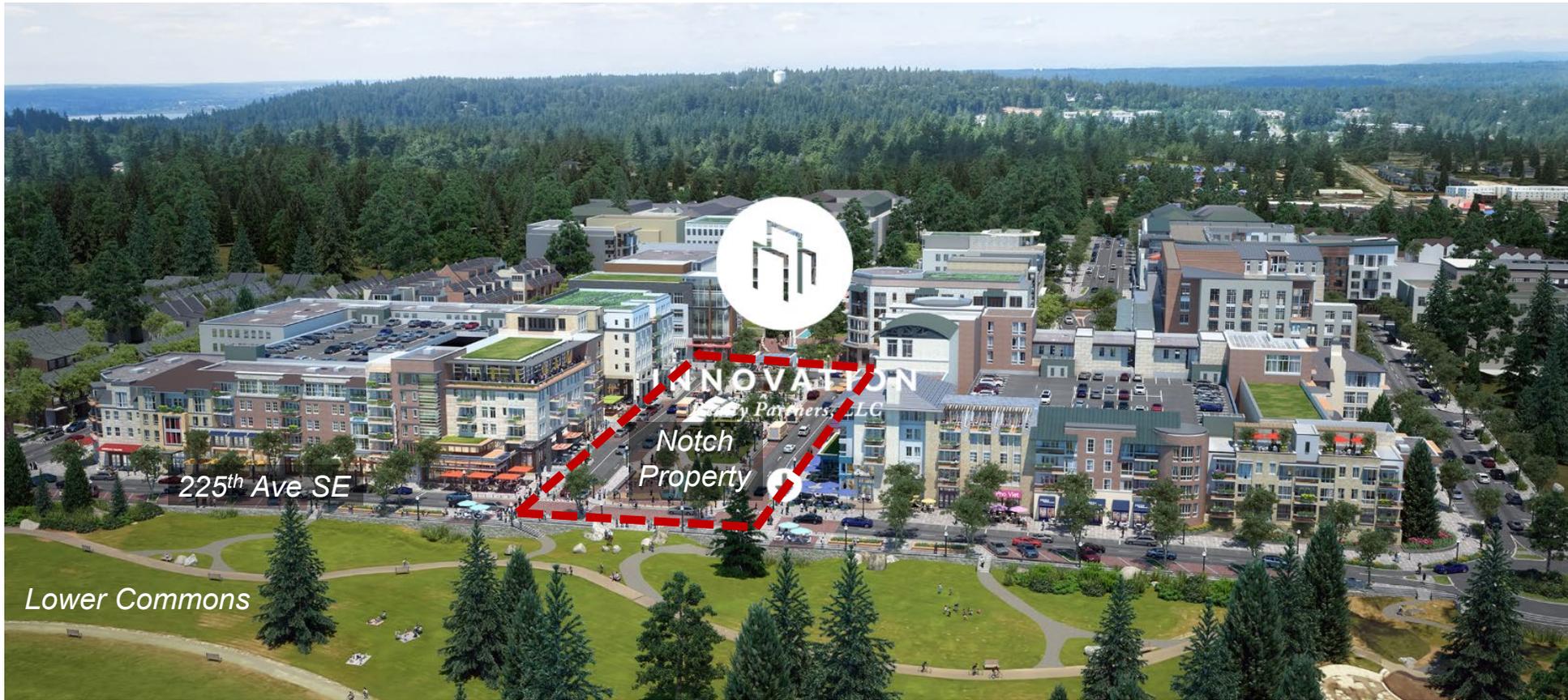
Notch property

Lower Commons Park

# Town Center Vision



# Town Center Vision



# Town Center Vision



# Green Spine Vision

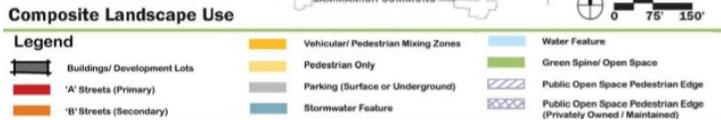
## Town Center Infrastructure Plan (2009)



Green Spine

Notch Property

Lower Commons



# Green Spine Vision



120' wide  
(60' on each adjacent parcel)

Approximate Green  
Spine Location

Notch Property is the transition

# Green Spine Vision



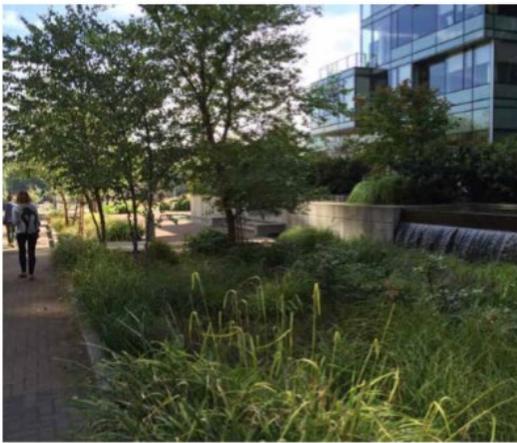
# Green Spine Overview – Three Zones



## Primary Zone

- Notch property
- Vibrant, active, social
- Walking, seating, amenities
- Hardscape
- “City Square”

# Green Spine Overview – Three Zones



## Secondary Zone

- Park-like
- Cafes, retail
- Softscape
- Pocket plazas
- Quiet gatherings
- Raingardens

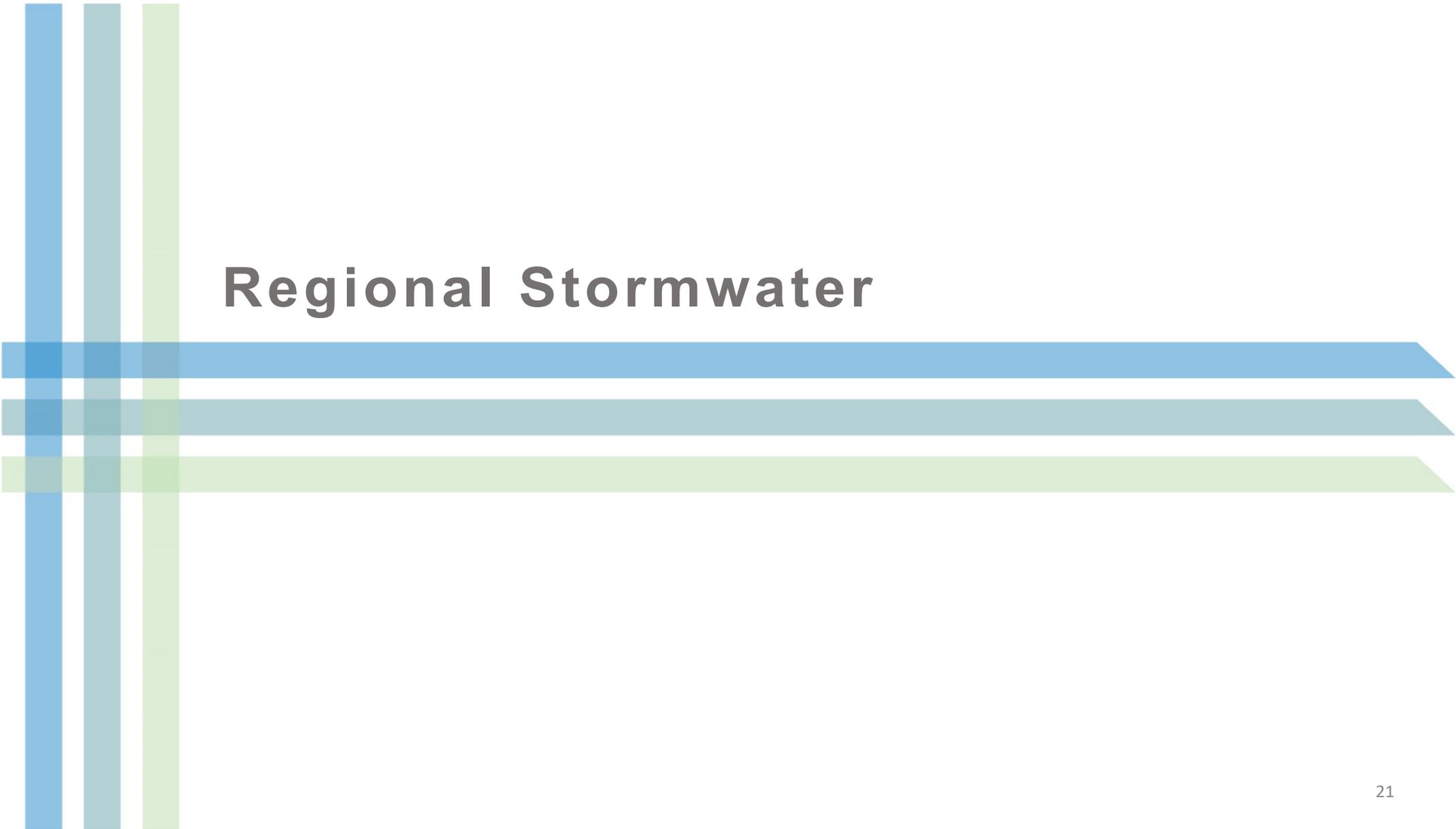
# Green Spine Overview – Three Zones



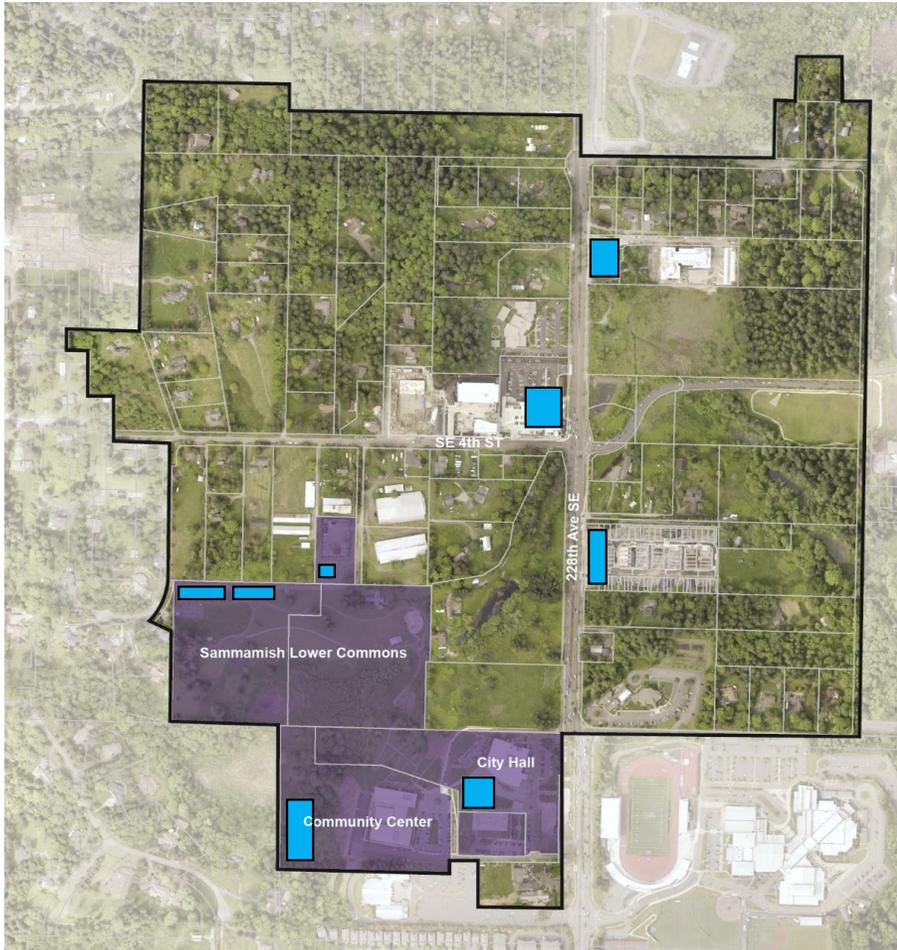
## Neighborhood Transition Zone

- Passive
- Planting and lawn
- Trail

# Regional Stormwater



# Regional Stormwater Feasibility

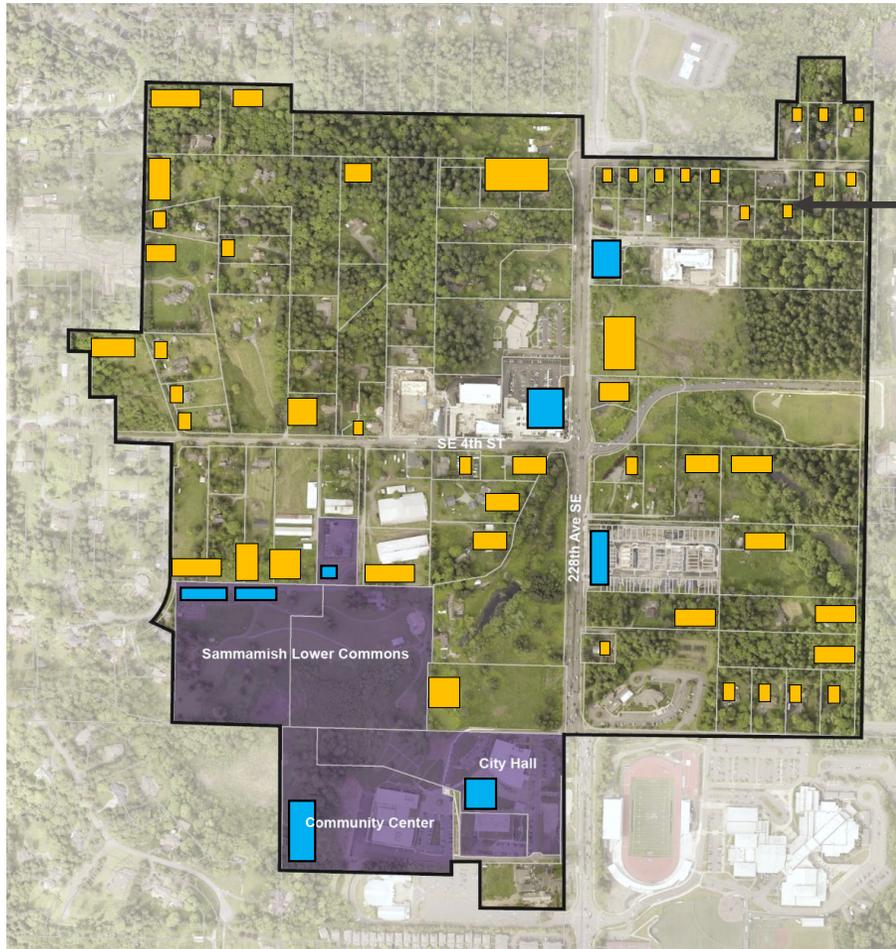


## Detention Pond/Vault Locations

 Existing

 Conceptual

# Regional Stormwater Feasibility



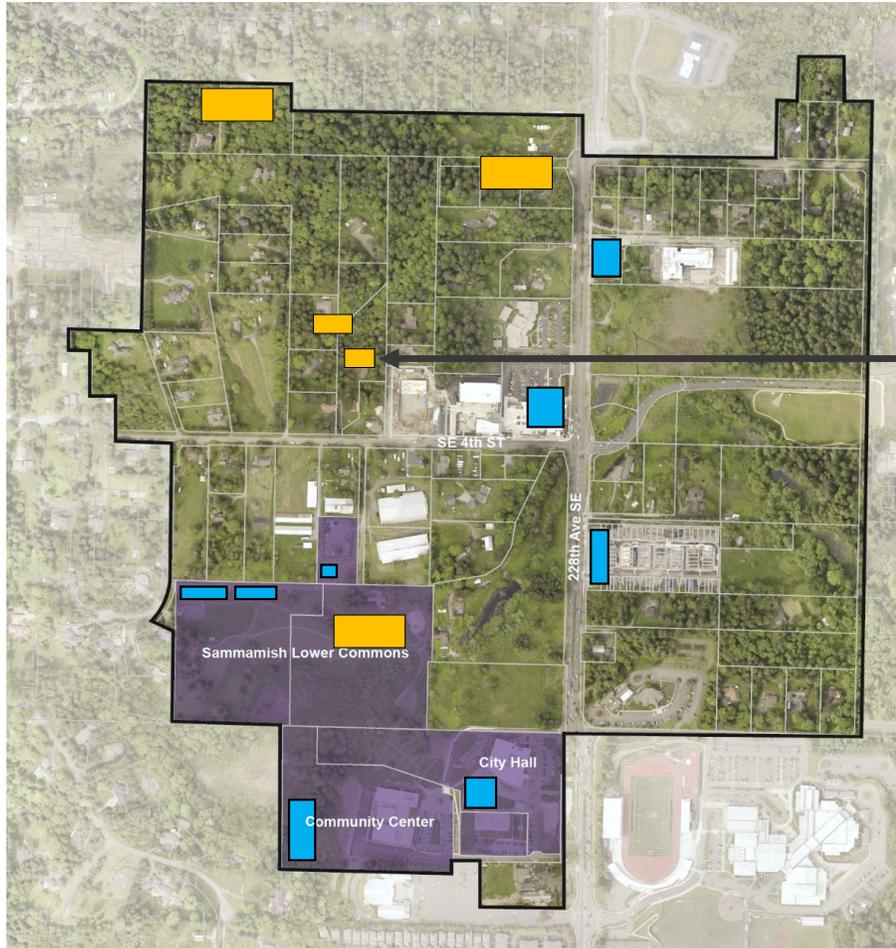
Conceptual On-Site Solutions

Detention Pond/Vault Locations

 Existing

 Conceptual

# Regional Stormwater Feasibility



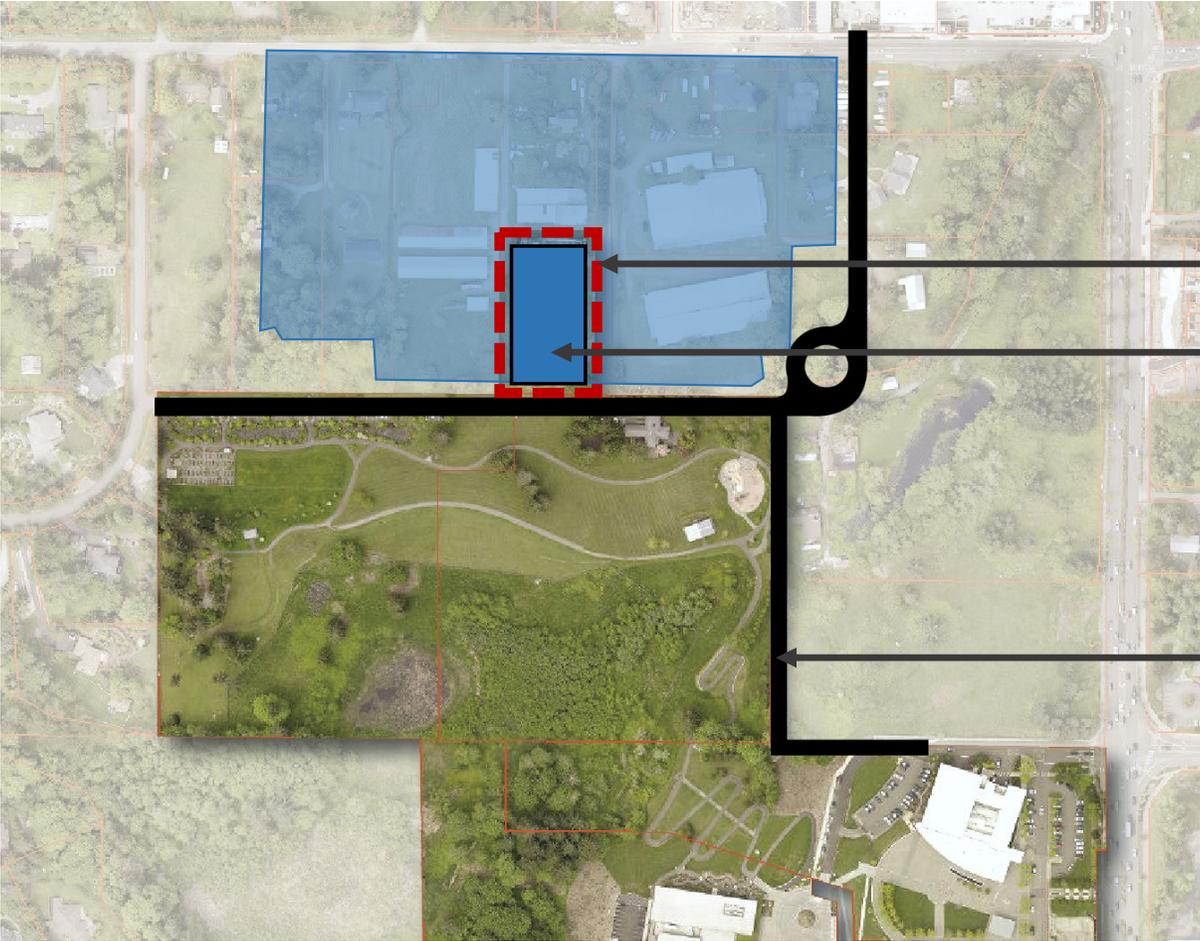
Conceptual  
Regional Solutions

Detention Pond/Vault Locations

 Existing

 Conceptual

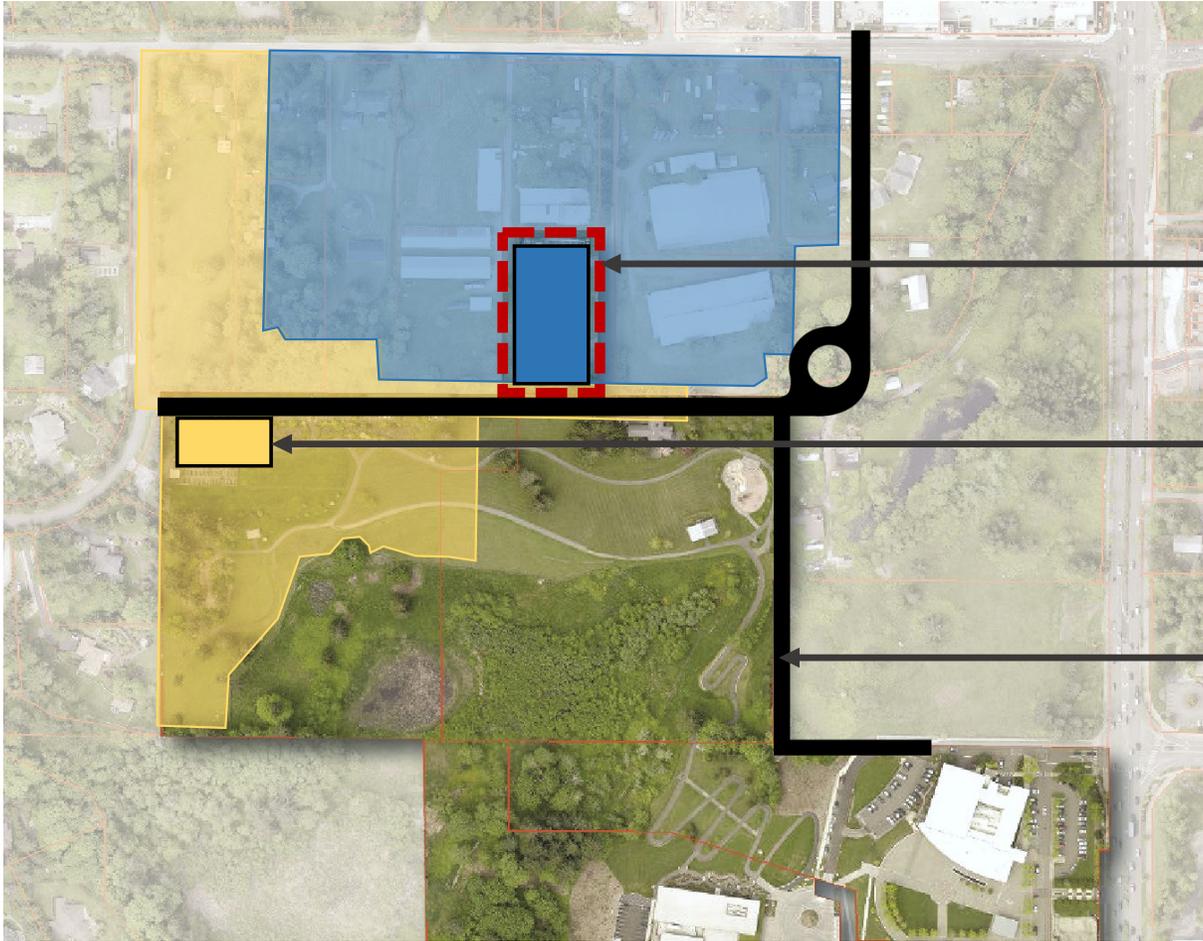
# Lower Commons Impact



Notch Property  
Conceptual  
Detention Vault

Potential Road

# Lower Commons Impact

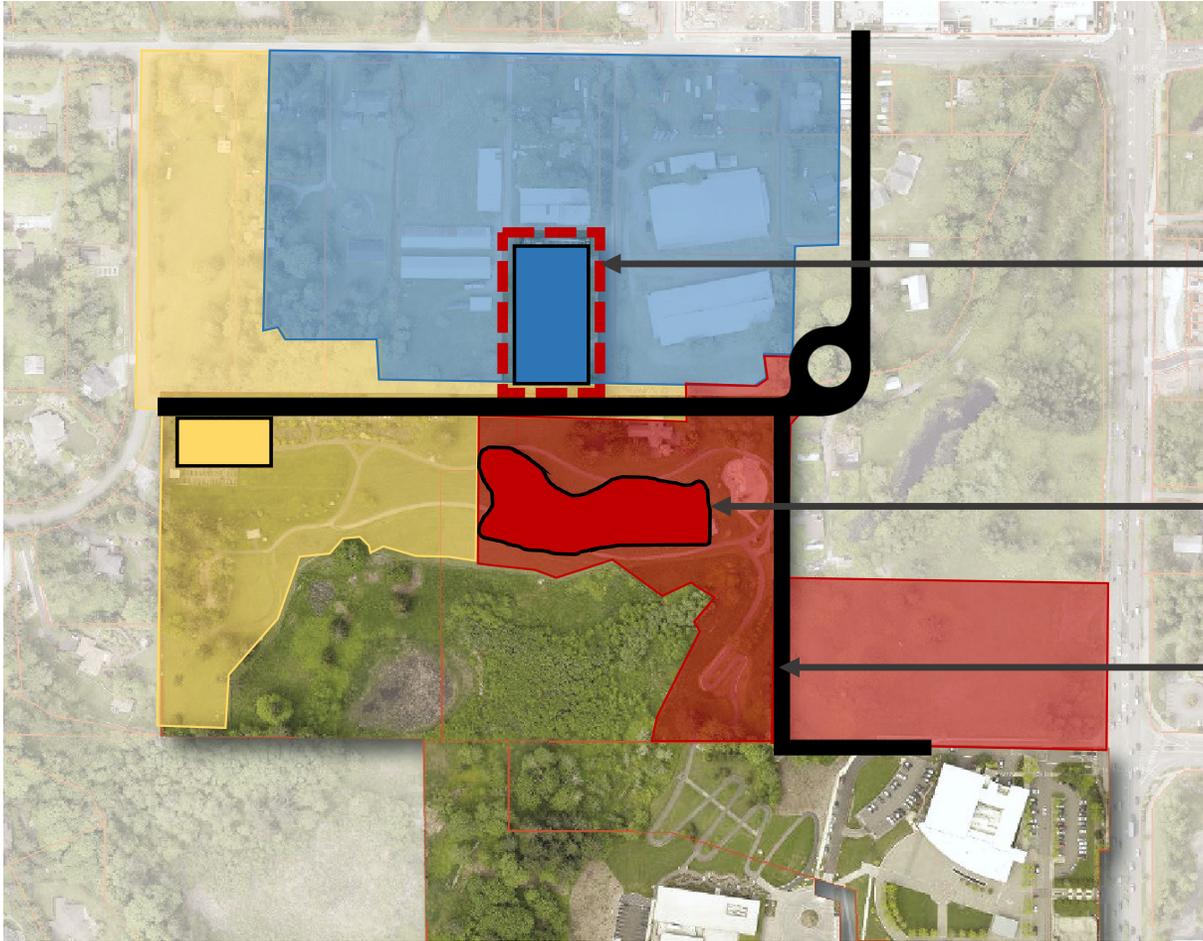


Notch Property

Conceptual  
Detention Vault

Potential Road

# Lower Commons Impact

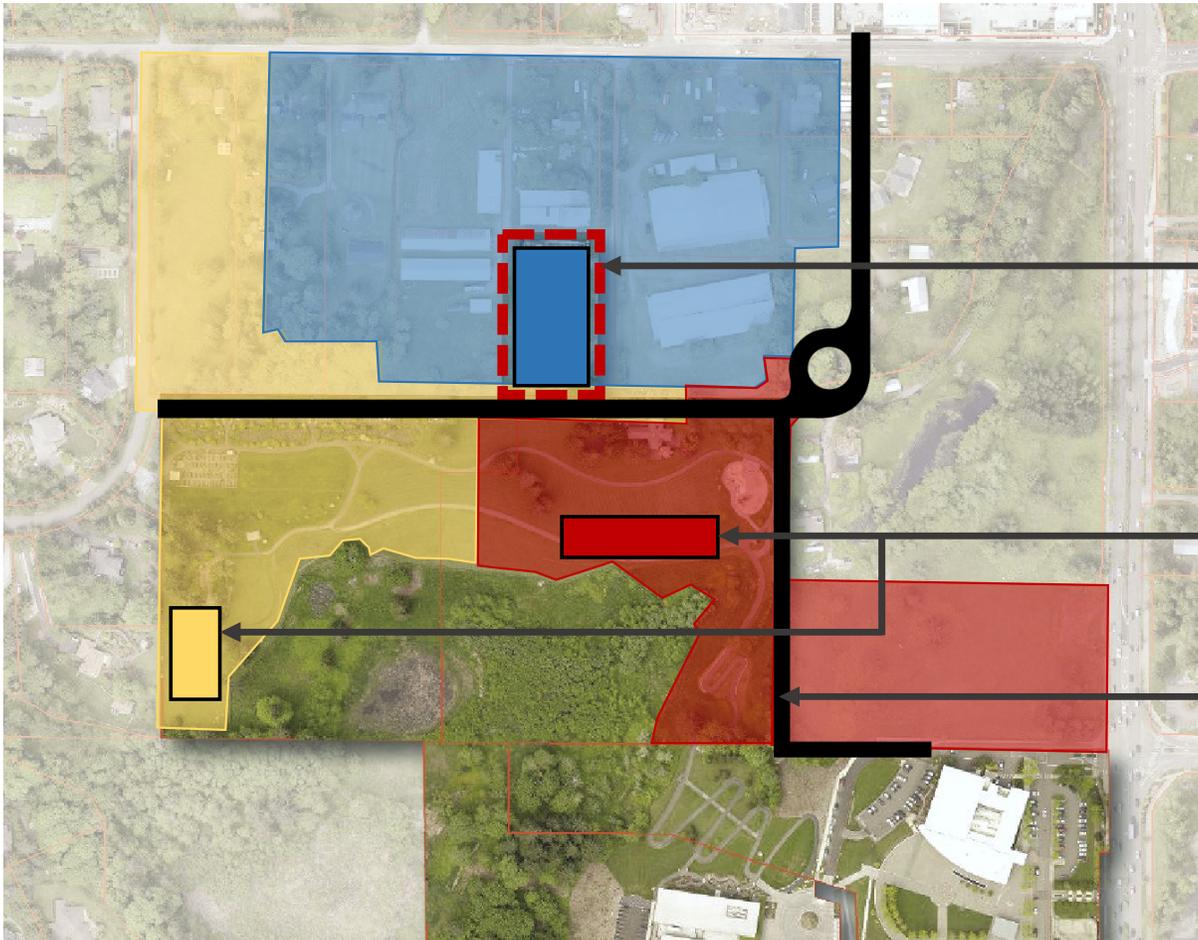


Notch Property

Conceptual  
Detention Pond

Potential Road

# Lower Commons Impact



Notch Property

Conceptual  
Detention Vault

Potential Road

# Open Pond Stormwater System



## Advantages

- Well-sited regional facilities can serve as a recreational amenity

## Disadvantages

- Occupy significant amount of land
- Require coordination with multiple property owners



# Vault Stormwater System



## Advantages

- Below ground, making it possible to utilize the space above

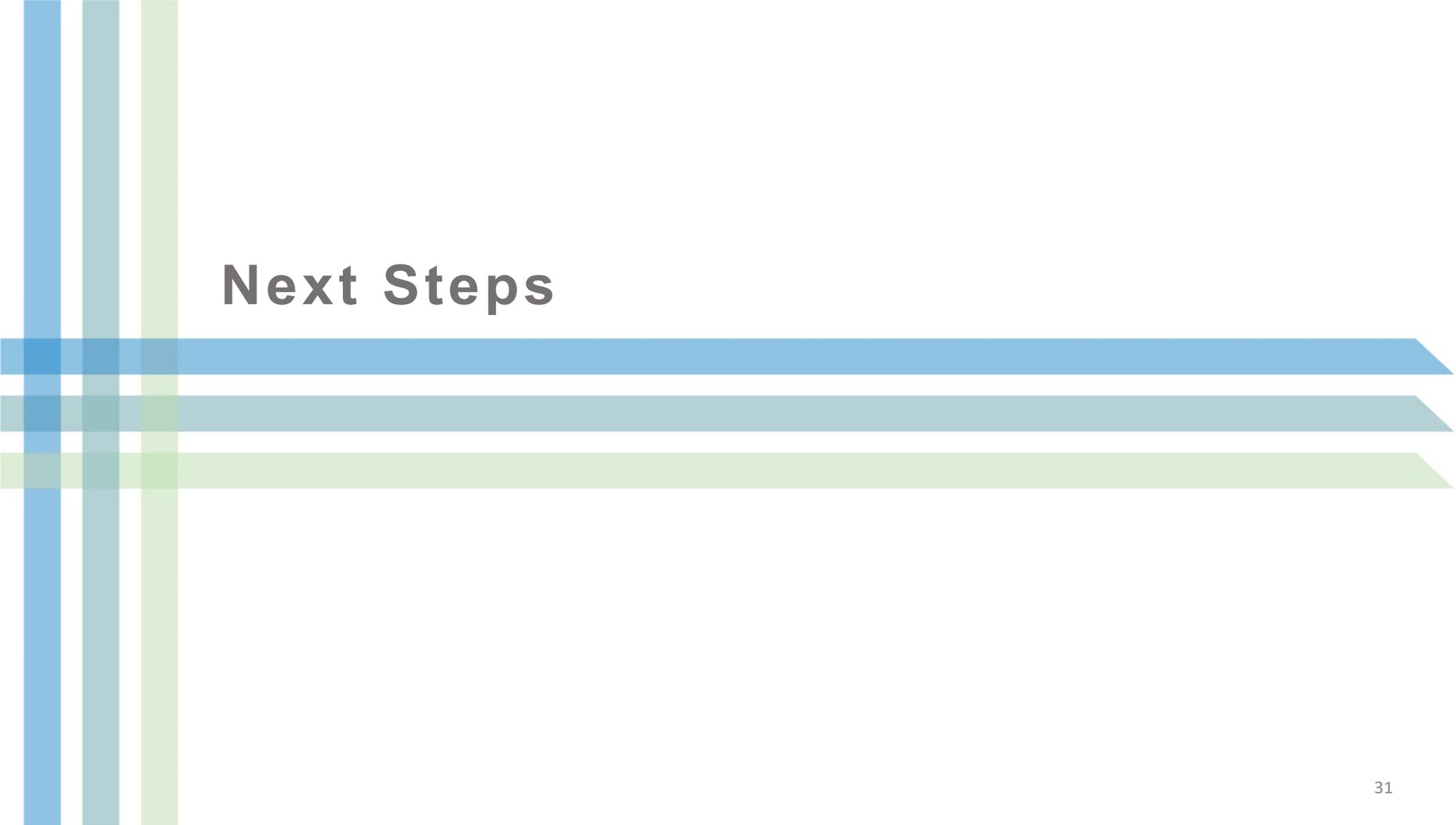
## Disadvantages

- Expensive to construct
- Require coordination with multiple property owners



*Overlake South Village Detention Vault*

# Next Steps



# Next Steps



- Lower Commons Master Plan Update
  - Changes with Town Center
  - Green Spine Development
  - Regional Stormwater
- Who goes first?
  - Developer
  - City

# Hopes, Dreams, and Concerns

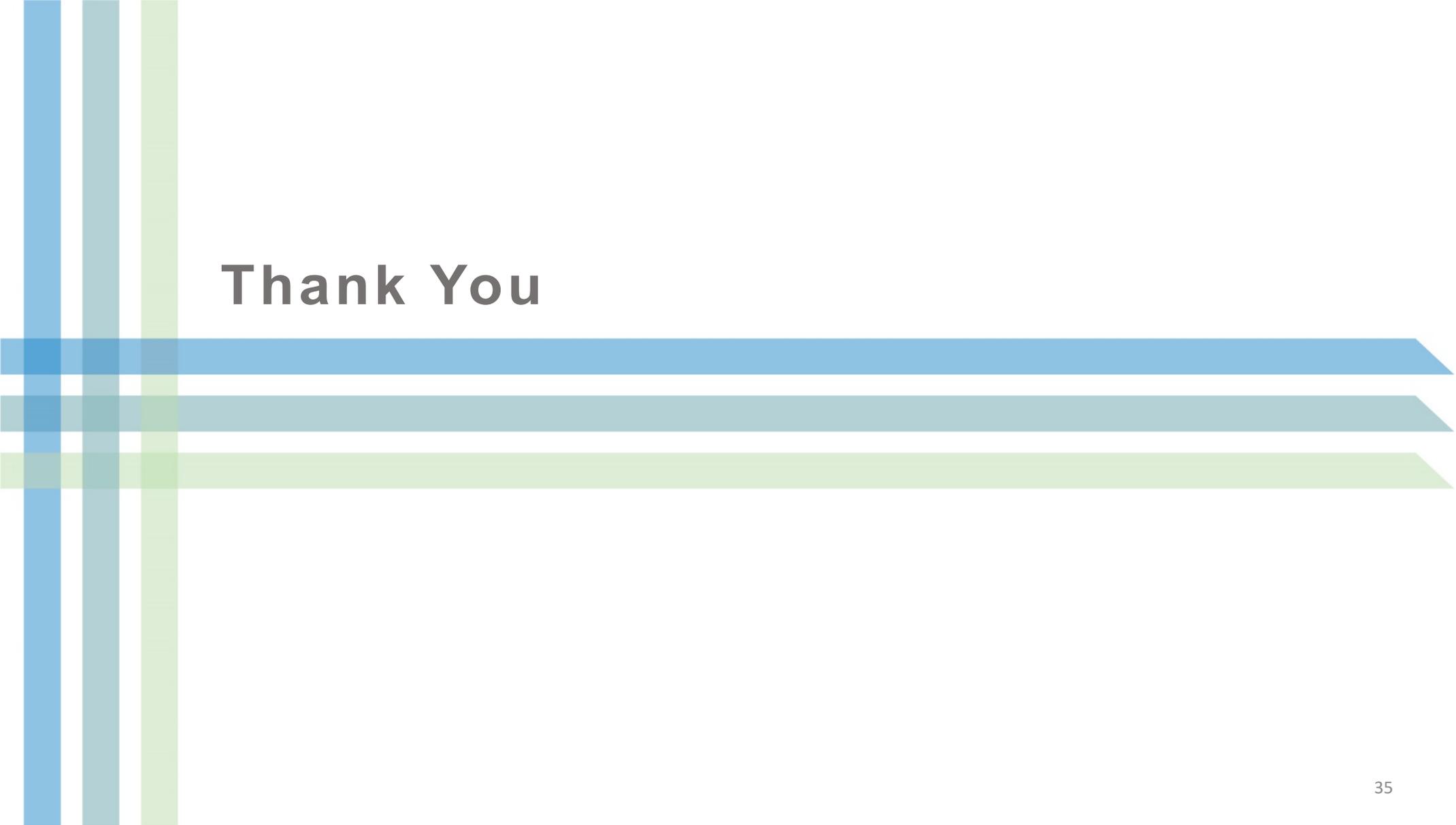
# Hopes, Dreams, and Concerns



State your Hopes, Dreams and Concerns as they relate to:

1. Town Center Development
2. Green Spine
3. Regional Storm Water

*Photo from Fourth on the Plateau, which draws roughly 11,000 people*



**Thank You**



Periodically, City staff will recommend modest updates to the current Public Works Standards in order to correct grammatical errors, provide additional clarification where needed, as well as provide technical updates. Now that the 2016 Public Works Standards have been in use for almost two years, staff is proposing changes based on clarifications needed during development review and capital project development, as well as comments from the general public. In addition to these changes, the requirements of the Traffic Impact Analysis Report must be updated to match recent policies adopted by the City Council.

This agenda item introduces the proposed changes and defines the schedule for adoption. Because the Public Works Standards are approved through the Municipal Code, the process requires a SEPA Determination of Non-Significance (DNS), a public hearing, and an adopted ordinance.

#### **FINANCIAL IMPACT:**

N/A

#### **OTHER ALTERNATIVES CONSIDERED:**

City Council could choose not to update the current standards at this time. This could result in difficulties interpreting the current standards and will create a failure to clearly address policies defined by the City Council related to development and traffic. Not updating the Public Works Standards on a regular basis reduces the City's ability to maintain compatibility with changing local, state, and federal standards.

#### **RELATED CITY GOALS, POLICIES, AND MASTER PLANS:**

##### [Comprehensive Plan- Transportation](#)

- Goal T.3 Operations, Maintenance, Management and Safety: As a high priority, maintain, preserve, and operate the city's transportation system in a safe and functional state.
- Goal T.4 Sustainability: Design and manage the city's transportation system to minimize the negative impacts of transportation on the natural environment, to promote public health and safety, and to achieve optimum efficiency.

## Public Works Standards Draft Comments

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
1	Cover	Revise date to reflect revision.	
25	3.6.C.	Add Note D:	"Public notification about upcoming construction must be provided to all properties directly neighboring the project at least 24 hours prior to the start of construction. "
29	4.3.A.3.	Change "North American Vertical Datum 1998" to "North American Vertical Datum 1988 "	
31	4.7	Add "and Washington State Modifications to the MUTCD" and remove "or WSDOT Standard Plans" into the first paragraph.	"Prior to beginning any activity which may affect City right-of-way, the Applicant shall provide the City, for review and approval as part of any permit, a traffic control plan that meets <i>the</i> Manual of Uniform Traffic Control Devices (MUTCD) standards <i>and the Washington State Modifications to the MUTCD.</i>
33	4.14	Add the word "drawings" to the end of the the fifth sentence.	"The maintenance/ defect period begins with the acceptance of the installation of the required improvements and approval of the as-built <i>drawings</i> ."
39	Chapter 6 Intro.	Remove: D. City of Sammamish Non-Motorized Plan Add: D. City of Sammamish Transportation Master Plan E. <i>Parks Plan</i>	
40	6.1.A.	"Public Right-of-Way Accessibility Guidelines (PROWAG), U.S. Access Board" should be 'Note 8' under 6.1.A. Transportation Design Standards.	
40	6.1.B.	"Surface Water Design Standards" should be 'Note B'.	
40	6.1.B.1.	Update hyperlink to <a href="https://www.sammamish.us/government/departments/public-works/storm-and-surface-water-management-program/">https://www.sammamish.us/government/departments/public-works/storm-and-surface-water-management-program/</a>	
44	7.5.C.	Remove word "point".	"When a connecting road serves 100 residential units or more, a secondary access shall be required."
45-46	7.7.	Note 'B' should be labeled as Note 'A. 1.' and Note 'C' should be changed to Note 'B'.	
47	7.8.E.	Change "will" with "shall" and "outside" with "beyond" in the second sentence.	"Transitions to existing conditions <i>shall occur beyond</i> the development frontage."
47	7.8.H.	Remove "(" and replace with a ", ". Put parenthesis around "IBC".	"...or Group U occupancy, as defined in the International Building Code ( <i>IBE</i> ), to the construction of any..."
48	7.9.A.	Replace for both Notes A and B.	"Dedication shall occur at the time of recording. <i>See Section 4.11 for requirements.</i> "
48	7.10.A	Add text "on non-arterial streets" in first sentence. Add text "The City owns and maintains street lighting on arterial streets." after the first sentence.	"Puget Sound Energy (PSE) designs, installs, and maintains street lighting <i>on non-arterial streets</i> within the City of Sammamish right-of-way. <i>The City owns and maintains street lighting on arterial streets.</i> "

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
48	Table 7.1	Revise Maintenance Fees from "HOA" to "HOA or property owners"	
49	7.10.D.6.	Add text 'flat' in sentence one. Add sentence "Street lights shall be 35 feet high."	"Poles to be owned and maintained by the City shall be per WSDOT standard plan for davit arm and pole and shall have a <i>flat</i> black powder coat finish. <i>Street lights shall be 35 feet high.</i> "
49	7.10.D.7.	Remove "on CD ROM" and mylars. Move "on 22-inch by 34-inch" to before "Portable Document Format".	"As-built street lighting plans for City-owned systems shall be provided to the City <i>in CAD and on 22-inch by 34-inch Portable Document Format (PDF)</i> prior to final occupancy or final plat approval."
49	7.10.D.10.	Change "Public Works Director" to "City Engineer".	
50	7.11.B.	Change "Public Works Director" to "City Engineer".	
51	7.12.B.	Update "Ord. 2000-61" to "Ord. 2010-282".	
51	7.13	Revise the first sentence.	The following applies to <i>any</i> work (such as a <i>utility</i> system repair or expansion) within the right-of-way.
51	7.13	Add Note C.	<i>Any streets that are outside the five year no-cut moratorium, but is still considered in good shape (PCI value of 85 or above) will require a grind and overlay as specified in the HMA Pavement Overlay for Trench Repair detail. Street conditions can be found of the City's Trench Restoration Map.</i>
53	Chapter 8 Intro.	Add "AM or" into first sentence.	"Any development proposal that generates 10 or more new vehicle trips during the <i>AM or PM</i> peak hour is required..."
56	Table 9.1	Replace "Public Works Director" with "City Engineer" x4.	
56	Table 9.1	Update all columns of "Half Street Width" to "28 feet min"	
56	Table 9.1	Replace ">15,000" with ">20,000" in the Daily Volumes (ADT) row of the principal arterial column.	
58	Table 9.2	Remove "Neighborhood Collector" column.	
58	Table 9.2	Change bullets from red color to black color.	
58	Table 9.2	Change Sidewalk Width from "5 feet" to "5 feet, 6 feet when adjacent to curb".	
58	Table 9.2	Change Planter Strip Width to "5 feet min".	
58	Table 9.2	Change Daily Volumes (ADT) from "<1500" to "<2500"	
59	9.3.D.	Remove ", based on a ten-foot structure setback from property line or edge of tract (easement)" from first sentence.	
59	9.3.I.	Change "Public Works Director" to "City Engineer".	
60	9.4.G.	Replace "alley" with "woonerf" in Note G.	"When a <i>woonerf</i> is to be provided with utilities, the <i>woonerf</i> shall be located within a utility easement."
60	9.4.H	Remove "(easement if circumstances require)"	
60	9.4.J.	Remove "or any 90 degree bends" in first sentence.	
60	9.4.J.	Change "Public Works Director" to "City Engineer" in second sentence.	

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
60	9.4.K.	Add Notes L., M., and N.	"L. The vehicle driving path of the woonerf shall follow a meandering alignment. The pathway shall be determined by the use of design additions that include, but not limited to, plants, furniture, etc. M. The pavement material shall be different than what was used in the public right-of-way. N. Woonerfs shall not dead end. They must contain an entrance and exit onto the public right of way."
63	10.1.A.	Change "Public Works Director" to "City Engineer".	
65	10.2.B.	Change "Public Works Director" to "City Engineer".	
67	11.2	Change "Public Works Director" to "City Engineer".	
67	11.2	Remove last sentence.	
69	11.4	Add Note E:	"No driveway shall be directly across the roadway from areas reserved for parking locations."
70	11.5.10	Add Note 10.	"No driveway shall be located within the limits of an intersection, including 3-way intersections."
73	12.3.A.	Revise first sentence.	"A. The minimum vertical <i>design</i> profile is one half (0.5) percent for concrete and one (1.0) percent for HMA. "
75	12.4.C.2	Change "by" to "to".	
75	Table 12.2	Widen "Downgrade" to include 3% through 9%	
75	Table 12.2	Updated sight distances.	
75	Table 12.2	Add row for 50 mph.	
77		Change '84 feet' to '90 feet'	"114 feet in a permanent cul-de-sac, 90 feet in a temporary cul-de-sac."
77	12.6.B.2.	Add "a temporary" to the first sentence.	"Minimum diameter of surfacing across a temporary bulb: 90 feet..."
77	12.6.B.2.	Replace "8'" with "16'" in the second sentence.	"The diameter shall be increased a minimum of 16' for on street parking..."
77	12.6.B.3.	Add "and amenity strips" to the first sentence.	Sidewalks <i>and amenity strips</i> shall be constructed on both sides...
78	12.6.H.	Updated standard plan reference from "Standard Plan 2-32" to "Standard Plan 2-21".	
79	Table 12.4	Change Sanitary Main Note from "water main" to "sewer/sanitary".	
81	12.8.D.	Add Note E:	"Private streets cannot have an inverted crown"
81	Table 12.5	Remove "OR EASEMENT" in second column title.	
81	Table 12.5	Add "Min" to the second and third column titles.	"Min Pavement/Traveled Way Width (ft)"
81	Table 12.5	Fix spacing issue in Private Street (5 to 9 dwelling units)	
81	Table 12.5	Update alley pavement/traveled way width to 16'.	16'
81	Table 12.5	Add additional row for Woonerfs. Same Information as Alley.	20', 16', and 400' max.
82		Change '84 feet' to '90 feet'	"114 feet in a permanent cul-de-sac, 90 feet in a temporary cul-de-sac."
82	12.6.B.2.	Replace "8'" with "16'" in the second sentence.	"The diameter shall be increased a minimum of 16' for on street parking..."

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
86	13.4.C.	Add "approved by the City Engineer"	...of larger design vehicles may be required <i>as approved by the City Engineer</i> depending on roadway classifications..."
89	13.8.E.	Add note 5.	" <i>Curb ramps widths shall match the width of the adjacent sidewalk.</i> "
90	13.9.A.1.	Change "threefeet" to "three feet" and "tenfeet" to "ten feet".	
90	13.9.A.1.	Remove the last sentence.	
90	13.9.A.1.	Include "fencing" in list of obstructions.	"Landscaping, street furniture, marquees, awnings, <i>fencing</i> , or other such obstructions..."
91	13.9.B.	Change bolded section to say: "Uncontrolled or Yield-Controlled Intersections"	
91	13.9.B.	Change "See standard details." to "See Standard Detail Fig 02-19B."	
91	13.9.C.	Change "See standard details." to "See Standard Detail Fig 02-19A."	
91	13.11	Modify list.	"...WSDOT Design Manual, <i>MUTCD</i> , and WSDOT/APWA Standard Specifications..."
91	13.12	Modify list.	"...WSDOT Design Manual, <i>MUTCD</i> , and WSDOT/APWA Standard Specifications..."
94	14.2.I.	Add note I.	" <i>When a sidewalk is adjacent to a curb, the width shall be increased to a minimum of 6'.</i> "
100	15.2	Revise last sentence in the second paragraph to add "in the public right-of-way".	"This chapter only applies to trees where noted <i>in the public right-of-way</i> ".
101	15.2.B.4.	Add sentence at the end of Note 4.	" <i>If existing locations conflict with the required improvements, an approved standard deviation shall be required when the intent is to preserve the existing trees.</i> "
102	15.2.C.6.ii	Replace Note ii	" <i>In the center of the amenity strip.</i> "
102	15.2.D	Add Note 8.	" <i>Grass seed shall be a mixture of 70% ryegrass and 30% fine fescues.</i> "
103	15.5.A.	Updated standard plan reference from "Standard Plan 3-24" to "Standard Plan 3-15".	
104	15.7	Change "Public Works Director" to "City Engineer".	
105	15.8.D.	Change "Public Works Director" to "City Engineer".	
107	16.1	Add Note D:	" <i>½" HMA shall be used for the pavement base layer, and the final lift of ACP shall not be placed until 80% of plat home build out to allow time for the observation and repair of failures in the subgrade and base ACP lift unless otherwise approved by the City Engineer. The ACP base layer must stay exposed for a minimum 12 months even if home construction is completed before that time period.</i> "

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
107	16.1	Add Note E:	<i>E. Paving Restrictions Shall conform with WSDOT Standards 1. Final lift shall not occur between October 1st and March 31st unless approved by the City Engineer. a. The minimum surface temperature must be 45 degrees and rising. b. Daily low temperature must remain above 40 degrees for three consecutive days after pavement has been placed. c. No final lift paving will occur between November 1st and February 28th.</i>
108	16.3.B	Change "Public Works Director" to City Engineer" in the third sentence.	
109	17.A	Replace the second sentence.	<i>"All plans showing channelization and signage shall be prepared by a licensed engineer.</i>
109	17.A	Add "and the Washington State Modifications to the MUTCD,".	<i>"The first sentence should say: "All traffic control devices shall conform to the Manual of Uniform Traffic Control Devices (MUTCD), and the Washington State Modifications to the MUTCD ."</i>
117	19.2.A.	Add Note 2.	<i>"Major roadways have been imposed with additional restrictions, contact the City Engineer for the current information."</i>
119	19.2.D.1.	Replace "City Inspector" with "Traffic Engineer".	
120	19.3.A.	Remove "for long periods".	
120	19.3.D.	Revise the first sentence.	<i>"The traffic control plan shall be consistent with the requirements of Section 4.7."</i>
121	19.3.E	Move bullets 1 through 3 out to become Sections F, G and H.	
121	19.3	Add Note I.	<i>"Uniformed Police Officers are required when working within signalized intersections. The City does not provide police officers for traffic control. Off duty officers for traffic control are scheduled through the King County Police Officers Guild. For more information go to www.kcpog.com."</i>
121	19.3	Add Note J.	<i>"Arterials shall have variable message boards in place at least one week in advance of work informing the public to any lane or roadway closures."</i>
123	19.5.C.2	Replace section 28.4 with Section 19.3.	
123	19.6.A.	Formatting text alignment.	
123	19.6.B	Add sentence at the end of note B.	<i>"All splicing of traffic signal loops should be inspected and approved by City signal technician."</i>
123	19.7.A.	Formatting text alignment.	
123	19.7.B.2.i.	Change "Standard Plan 3-09" to "Standard Plan 3-08"	

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
125	19.8	Add Note C.	C. Mulch 1. Medium Bark Mulch that consists of shredded hemlock/fir bark and wood. a. Maximum length of any individual component is two inches (2"). 75% of the mulch shall pass through a one inch (1") screen. b. Mulch shall be free of germination-inhibiting ingredients. c. Mulch shall have characteristics of retaining moisture, forming a mat not susceptible to spreading by wind or rain, and providing a good growth medium for plants. d. Can contain up to 50% shredded wood material. Wood chips are not acceptable. e. Bark mulch shall be free of soil, rocks, and weeds. f. Minimum bark mulch thickness is 2". 2. Other mulches must be approved by the City Engineer or Maintenance Department.
126	19.9.B	Replace "Tree pits" with "Tree Wells"	
126	19.10.A	Change "Standard Plan 3-12" to "Standard Plan 3-08a"	
126	19.10.E	Change "Public Works Director" to "City Engineer".	
131	Chap 20 Intro, A	Revise Note A:	"Inspections of the City's capital improvement projects (CIP) are governed by the CIP contract and <i>may include duties not addressed in this manual.</i> "
141	Definitions	New: Block	<b>Block.</b> <i>A typical length of 330' measured from center of intersection to center of intersection.</i>
143	Definitions	<b>Design speed:</b> Add sentence at the end.	<i>"Unless other noted, the design speed should be 5 miles per hour over the posted speed limit."</i>
143	Definitions	Replace last sentence of <b>Development (Land Use)</b> with "See SMC Chapter 19A"	
147	Definitions	<b>Landing:</b> Replace definition.	<i>"An approach or refuge area immediately adjacent to a physical ramp."</i>
165	Appendix C	Delete the last paragraph.	
187	App E, B.1.	Replace last sentence.	"The public works department requires analysis of both the a.m. and/or p.m. peak hour of adjacent street, and/or peak hour generator."
187	App E, B.2.	Remove section.	
188	App E, B.4.	Revise the first sentence.	"Where the increase in traffic volume as measured by ADT, peak hour, or peak hour of the critical movement is more than 10 percent and the Public Works Department determined a TIA is required."
188	App E, B.4.	Remove last sentence from Note 4 and relocate as a new paragraph below the list matching the formatting of paragraph before the list.	
188	App E, C.	Remove "and who is a member of the Institute of Transportation Engineers (ITE)" from the section sentence.	

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
189	App E, D.3.	Replace "and" with "or" in the first sentence of the second paragraph.	"...peak hour(s) on the adjacent streets <i>or</i> intersections shall apply."
191	App E, D.4.i.	Replace second sentence.	"Future traffic volumes shall be estimated applying an <i>appropriate</i> annual growth rate, <i>determined by Public Works</i> , to baseline traffic volumes."
191	App E, D.4.i.	Remove the fourth sentence.	
191	App E, D.4.ii.	Replace the fourth sentence:	"A figure will be required showing <i>site generated</i> daily and deak period turning movement volumes for each traffic study intersection <i>and roadway</i> ."
191	App E, D.5.i.4	Move Note 4 to the first sentence of Note ii below. Change wording.	"LOS results table for each traffic volume scenario should be provided."
192	App E, D.5.ii	Remove "for signalized intersections and LOS conditions" from the second sentence.	
192	App E, D.5.ii	Add "movement" in the third sentence.	"...vehicle delay shall be provided for each approach <i>movement</i> and the intersection as a whole."
192	App E, D.5.ii	Replace last sentence:	" <i>Traffic</i> signal system operational data <i>may</i> be made available by the City of Sammamish."
192	App E, D.5.iii.	Add "the entire completed project as well as for" to the first sentence.	"...the TIA shall conduct a LOS analysis <i>for the entire completed project as well as for</i> each separate development phase."
192	App E, D.5.iv.	Remove the first two sentence.	
192	App E, D.5.iv.	Add "other" to fifth sentence.	"For <i>other</i> unsignalized intersections, the methodology..."
192	App E, D.5.iv.	Move sixth sentence up before the fifth sentence.	
192	App E, D.6	Change "may" to "shall" in the second sentence.	"The mitigation <i>shall</i> be either the..."
193	App E, D.6	Replace "Level of service "E" and "F"" with "LOS standards as defined by most current Sammamish Comprehensive Plan adopted by Council" in the third sentence.	
193	App E, D.6	Replace "D" with "equivalent to LOS standard" in the fourth sentence.	
193	App E, D.6.i.	Replace last sentence:	"An agreement <i>shall</i> be formulated by the applicant for reimbursement of mitigating costs.
193	App E, D.6.ii.	Add text "not related to the City's Concurrency Program" to the first paragraph.	: "On transportation facilities programmed for improvements <i>not related to the City's Concurrency Program</i> as part of a City project..."
193	App E, D.6.ii.	Remove last sentence and extend the second to last sentence.	"...peak hour development traffic generated through the intersection <i>to the peak hour volumes on the impacted approaches</i> . "
193	App E, D.6.iii	Replace note iii:	"If transportation facilities currently operates at less than <i>standard</i> level of service, the development <i>shall</i> be required to make <i>improvements to the facility to meet</i> the level of service <i>standard</i> or better. The cost of the improvements <i>shall</i> be borne by the developer ."
194		Replace "D" with "standards" in the first sentence.	

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
194	App E, D.6.iv	Replace "an acceptable level of service "D" condition or" to " <i>a condition that meets LOS standards or remove their application and</i> " in the first sentence.	
194	App E, D.6.v	Replace note v:	"Unsignalized intersections that currently operate less than <i>adopted</i> level of service <i>standard</i> condition shall be analyzed for the traffic signal, <i>roundabout</i> , and intersection improvements. If traffic signal warrant is <i>met</i> , signal, roundabout, or intersection improvements <i>shall</i> be required as a mitigating measure for the development."
194	App E, D.6.vi	Replace first sentence:	"Signalized intersections where the projected level of service condition <i>meets LOS standards</i> , but where one or more of the level of service conditions <i>for any approach movement</i> falls below level of service <i>standard</i> , mitigating measure <i>shall be provided</i> to improve capacity and traffic operations at the intersection."
195	App E, D.6.vii	Delete entire note.	
219	App G, Records, D.1.	Delete item 1 and update note numbering.	
220	App G, CAD, A.1.	Replace "AutoCAD Civil 3D 2014" with "AutoCAD 2016".	
227	App H, Application	Add a line for the date.	
229	App H, Application	Change "variance" to "deviation"	
233	App I, Intro	Remove "and" from the third sentence.	
234	App I, D.2.	Replace "within" with "when"	
235	App I, G.2.	Replace "11 by 14 inches" with "11 by 17".	
236	App I, J.1.	Typos "eh" needs to be changed to "the" and "form" needs to be changed to "from" in the fourth sentence.	
239-244	Standard Details	Restart page numbering.	
241-244	Standard Details	Updated table with any changes to Standard Details.	
245	Fig 01-01	Add Note 5.	"5. Schedule 80 PVC conduit is required for all roadway crossings."
246	Fig 01-02	Add Note 5.	"5. Schedule 80 PVC conduit is required for all roadway crossings."
247	Fig 01-03	Add Note 5.	"5. Schedule 80 PVC conduit is required for all roadway crossings."
251	Fig 01-07	Add Note 6.	"6. Future roadway crown locations will vary depending on zoning. The crown will be 18' off of the existing curb face (2' removal of pavement above) for a R6. The crown will be 10' off of the existing curb face (10' removal of pavement above) for a R4."
256	Fig 02-05a	Updated cross section to reflect Fig 01-01 through Fig 01-04	
256	Fig 02-05a	Updated all references to feet and converted them into inches	
256	Fig 02-05a	Updated backfill material for patches within our roadways.	
256	Fig 02-05a	Labeled the two different cross sections.	
256	Fig 02-05a	Replaced "A.C.P." with HMA in note 1.	
256	Fig 02-05a	Updated reference "9-03.16" with "9-03.12(3)" in note 2.	

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
256	Fig 02-05a	Updated "85%" with "90%" in note 3.	
262	Fig 02-11a	Format notes. Add numbers.	
262	Fig 02-11a	Added note 3.	<i>"3. Riser rings are only allowed to be installed on non-arterial roadways. They are not allowed on major, minor or collector arterial roadways."</i>
265	Fig 02-15	Capitalize letters in general notes.	
266	Fig 02-18	Enlarged text.	
266	Fig 02-18	Add ", 24" deep" to call out about root control system.	
267	Fig 02-19A	Updated formatting of the table. Combined column 2 and 3. Changed the heading "Entering Sight Distance (FT)"	
267	Fig 02-19A	Rename the first column heading from "Speed Limit" to "Posted Speed"	
267	Fig 02-19A	Replace "50 MPH" with "45 MPH"	
267	Fig 02-19A	Remove general notes.	
268	Fig 02-19B	Updated title.	<i>"Uncontrolled or Yield-Controlled Intersections"</i>
268	Fig 02-19B	Labeled streets "Major Street" and "Minor Street" on the diagram.	
268	Fig 02-19B	Updated formatting of the table. Combined column 2 and 3. Changed the heading "Sight Distance (FT)"	
268	Fig 02-19B	Rename the first column heading from "Speed Limit" to "Posted Speed"	
268	Fig 02-19B	Removed general notes.	
269	Fig 02-20	Change "10' Min" to "5' Min" on setback.	
270	Fig 02-21	Removed note 2.	
277	Fig 03-05	Change stakes to 2" diameter <i>Hemlock Stakes</i> ".	
277	Fig 03-05	Replace note about plastic ties.	<i>"Wire tree tie. "</i>
277	Fig 03-05	Add " <i>by 15' long</i> " to note about root barrier.	
277	Fig 03-05	Remove note about 18" root barrier.	
278	Fig 03-06	Update key to only have two different call-outs. Expansion joints @ max. 15' C-C, 10' TYP, 15' max, along curb.	
278	Fig 03-06	Remove note 1. Add notes 2, 3, and 4.	<i>"2. Maximum spacing between expansion joints is 15'. 3. Expansion joints must be on both sides of a catch basin. 4. All concrete must be a minimum of 4000 psi mix."</i>
278	Fig 03-06	Update callouts on detail to reflect change on the key.	
278	Fig 03-06	Change detail to reflect that ramps are required at intersection.	
280	Fig 03-08a	Add cement concrete traffic curb detail.	
280	Fig 03-08a	Add note 2.	<i>"2. Cement concrete traffic curb shall not replace Type A Curb and Gutter along the side of the roadway. Cement concrete traffic curb is only to be used as a curb barrier within the roadway and must receive approval by the City Engineer before it can be used."</i>
286	Fig 03-13a	Update font to capitalize all words.	
286	Fig 03-13a	Update figure name " <i>Raingarden</i> Curb Extension Section"	

Page	Chapter/Section	Proposed Amendment to PWS	Proposed Text Change
287	Fig 03-13b	Update figure name " <i>Raingarden</i> Curb Extension Section"	
295	Fig 04-02	Change WSDOT Detail number to M-9.50-02	
295	Fig 04-02	Add note 4 for bike symbol.	"4. Bike rider symbol and arrow shall be thermoplastic."
295	Fig 04-02	Remove "wide lane line" and replace with "white paint line" on bike symbol detail.	
296	Fig 04-03A	Remove Travel Direction Alternate Lane Markings detail.	
296	Fig 04-03A	Rename "Wide Line" to "Wide Lane Line"	
296	Fig 04-03A	Add "20' Spacing" on RPM note on the Wide Lane Line detail.	
296	Fig 04-03A	Rename "Centerline" to "Centerline - Principal Arterials"	
296	Fig 04-03A	Add "40' Spacing" on RPM notes on Centerline detail.	
296	Fig 04-03A	Add new detail "Centerline - Non-Principal Arterials"	
297	Fig 04-03B	Add row in table for TYPE 2BB for hydrant reflectors.	
298	Fig 04-04	Replace "Thermoplastic plastic wide line" with " <i>painted wide line with Type 2W RPMs</i> " twice on the Island Line Detail.	
299	Fig 04-05	Change to Fig 04-05a.	
299	Fig 04-05	Add in WSDOT Type 6 and Type 6S Traffic Arrow Striping Details.	
299	Fig 04-05	Remove High Occupancy Vehicle (HOV) detail.	
299	Fig 04-05	Add note 2.	"2. More information can be found on WSDOT standard plan M-24.20-02 and M-24.40.02."
299	Fig 04-05	Add in WSDOT 'SCHOOL' Striping details for one lane and two lanes on new page Fig 04-05b.	
299	Fig 04-05	Add in WSDOT 'xx MPH' Striping details for one lane and two lanes on new page Fig 04-05b.	
301	Fig 04-07	Replace "RMP" with "RPM" on note 1.	
301	Fig 04-07	Rename figure to "Curb Extension Channelization"	
304	Fig 05-03	Replace figure with KCRSD Fig 05-018.	
310	Fig 07-03	Replace ASTM A38 with ASTM A36.	
324	Fig 07-17	Add note 4.	"4. Grate shall not be used within the roadway."
337	Fig 08-02	Change to Fig 03-05c.	
337	Fig 08-02	Change the cross section to reflect overlay patch on top of trench. Add notes on detail saying " <i>HMA patch per Fig 2-05A</i> " and " <i>HMA patch overlay per Fig 2-05B</i> "	
337	Fig 08-02	Updated note on detail to say "Sawcut, sal top of joint with AR4000W asphalt cement. Tacck face of sawcut <i>and bench</i> ."	
337	Fig 08-02	Add label showing "Utility Trench Width".	
337	Fig 08-02	Add notes 5 and 6.	5. See 2-05a for trench restoration information. 6. See 2-05b for HMA pavement overlay for trench repair widths.
356	Fig 09-19	Rename figure to "Pull Box Lid".	

# 2016

## PUBLIC WORKS STANDARDS



~~December 31, 2016~~  
December xx, 2018

**Public Works Department**

City of Sammamish

801 228th Ave SE

Sammamish, WA 98075



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**APPENDICES**

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**APPENDIX B - SURVEY CRITERIA**

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**APPENDIX E - TRAFFIC IMPACT ANALYSIS REPORT GUIDELINES**

**APPENDIX F - RIGHT-OF-WAY STREET TREE LIST**

**APPENDIX G - RECORD DRAWING CRITERIA**

**APPENDIX H - ENGINEERING DEVIATION CRITERIA**

**APPENDIX I - RIGHT OF WAY VACATION**

**STANDARD DETAILS**

## FOREWORD

The Public Works Standards contained in this document provide information to the development community to help with the processes, administration, engineering, and inspection that apply to private development within Sammamish. Land Use codes related to development can be found in Titles 21A and 21B of the Sammamish Municipal Code (SMC).

This manual has four divisions:

**Division 1: Administration**

Contains information related to permits.

**Division 2: Right-of-Way**

Presents standards and other information related to development within the right-of-way.

**Division 3: Surface Water**

Contains surface, storm water, as well as design standards.

**Division 4: Construction and Inspection**

Provides the basics regarding construction and inspection in the City right-of-way.

The appendices contain information that supplements the four referenced divisions.

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# **DIVISION 1 – ADMINISTRATION**

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## **Chapter 1. Introduction**

### **1.1. General Authority**

Sammamish Municipal Code Chapter 14.01 authorizes the creation of Public Works Standards (PWS).

This manual addresses permitting and engineering requirements for site and right-of-way work related to development within the City of Sammamish. While this manual is directed toward the developer and the design/development engineer, it is intended to provide information to a wide group of users, including the development of Capital Projects by the City.

The manual sets forth minimum engineering criteria and specifications, and supplements the Sammamish Municipal Code. It does not replace the Code. These standards do not substitute for engineering design, nor are these standards intended to limit innovative design where equal performance in value, safety, and maintenance can be demonstrated. These Standards cannot provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. It is expected that land surveyors, engineers, and architects will bring to each project the best of skills from their respective disciplines. These Standards are also not intended to limit unreasonably any innovative or creative effort that could result in better quality, better cost savings, or both. Any proposed departure from the Standards will be judged, however, on the likelihood that such deviation will produce a compensating or comparable result, in every way adequate for the City and its residents.

The Public Works Director may substitute more stringent design standards and specifications where special conditions warrant pursuant to SMC 21A. The City Manager or his or her designee shall have the authority to amend these standards without further City Council action, provided that any such amendments shall be in writing and shall be limited in scope and effect to procedural or clarifying amendments intended to update these standards to address changes in technology or construction practices, and other non-substantive amendments. An example of such a permitted amendment would be to replace a reference to the bottom lift of asphalt used in street construction from ATB (asphalt treated base) to HMA (hot mix asphalt).

The City's website provides access to the PWS, the Sammamish Municipal Code (SMC), informational handouts, permit applications, and other guidance documents. The Development Code is contained in SMC 21A and 21B.

City of Sammamish website: <http://www.sammamish.us/>

Public Works Standards: <http://www.sammamish.us/government/departments/public-works/>

Sammamish Municipal Code:

<http://www.codepublishing.com/WA/Sammamish/?SammamishNT.html>

Development Handouts and Permit Applications: <http://www.sammamish.us/permits-regulations/permit-center/building-permit-resources/>

## **1.2. Vesting**

- A. A project is vested when the permit application is determined to be complete by the City. The vesting date is determined by state law. Refer to Submittal Checklists for guidance on complete applications.
1. The City periodically reviews and revises the PWS. In the case that a code or standard has been revised more recently than the update cycle for this manual, the most current code or standard supersedes the information provided in this manual.
  2. A permit that has been canceled is no longer vested. If the Applicant wishes to continue with the project, a new application must be submitted and the project will be subject to the regulations in place at the time the new complete application is received by the City.
  3. The edition of this manual that applies to a particular project is the edition in effect when the proposed project is vested. If a newer version of the PWS is published after a project is vested, either the newer version of the PWS in its entirety or the older version in its entirety may be used.

## **1.3. Copy of the PWS**

The Public Works Standards are available online at  
<http://www.sammamish.us/government/departments/public-works/>

The PWS is also available digitally. Please contact the Public Works Department for a copy.

## **1.4. Contact Information**

The contact information in Table 1.1 is provided for assistance during project planning and development and is not a comprehensive list of contacts. Also, refer to the directory available through the City of Sammamish website: <http://www.sammamish.us/government/about/contact-us/>

Table 1.1 Contact Information

<p>Community Development 801 228th Ave SE Sammamish, WA 98075 <a href="http://www.sammamish.us/government/departments/community-development/">http://www.sammamish.us/government/departments/community-development/</a> (425) 295-0500</p>	<p>Public Works Department 801 228th Ave SE Sammamish, WA 98075 <a href="http://www.sammamish.us/government/departments/public-works/">http://www.sammamish.us/government/departments/public-works/</a> (425) 295-0500</p>
<p>Eastside Fire &amp; Rescue 175 Newport Way NW Issaquah, WA 98027 <a href="http://eastsidefire-rescue.org/">http://eastsidefire-rescue.org/</a> (425) 313-3200</p>	<p>Sammamish Police Department 801 228th Ave SE Sammamish, WA 98075 <a href="http://www.sammamish.us/government/departments/police/">http://www.sammamish.us/government/departments/police/</a> (425) 295-0770</p>
<p>Sammamish Plateau Water &amp; Sewer District 1510 228th Ave SE Sammamish, WA 98075 <a href="http://spwater.org/">http://spwater.org/</a> (425) 392-6256</p>	<p>Northeast Sammamish Sewer &amp; Water District 3600 Sahalee Way NE Sammamish, WA 98074 <a href="http://www.nesswd.org/">http://www.nesswd.org/</a> (425) 868-1144</p>
<p>Electrical Permits and Boilers in Excess of 200k Btu/hr.: State of Washington Department of Labor and Industries <a href="http://www.lni.wa.gov/TradesLicensing/Electrical/default.asp">http://www.lni.wa.gov/TradesLicensing/Electrical/default.asp</a> (425) 996-1496 <b>NOTE: As of 7/1/17 All Electrical Inspections will be the responsibility of the City of Sammamish please contact the Permit County for information.</b></p>	<p>Waste Management of Washington, Inc. PO Box 541008, PO Box 541065 Los Angeles, CA 90054 <a href="http://www.wmnorthwest.com/sammamish/index.html">http://www.wmnorthwest.com/sammamish/index.html</a> (800) 592-9995</p>
<p>Electric Purveyor: Puget Sound Energy 10885 NE 4th Street, P.O. Box 97034 Bellevue, WA 98009-9734 <a href="http://www.pse.com/Pages/default.aspx">http://www.pse.com/Pages/default.aspx</a> (888) 225-5773</p>	<p>Natural Gas Purveyor: Puget Sound Energy 10885 NE 4th Street, P.O. Box 97034 Bellevue, WA 98009-9734 <a href="http://www.pse.com/Pages/default.aspx">http://www.pse.com/Pages/default.aspx</a> (888) 225-5773</p>

Septic and Wells: Seattle/King County Public Health 14350 SE Eastgate Way Bellevue, WA 98007 <a href="http://directory.kingcounty.gov/ServiceDetail.asp?ServiceID=6768">http://directory.kingcounty.gov/ServiceDetail.asp?ServiceID=6768</a> (206) 296-4932	Republic Services of Bellevue 1600 127th Avenue NE Bellevue, WA 98005 <a href="http://site.republicservices.com/site/bellevue/en/pages/home.aspx">http://site.republicservices.com/site/bellevue/en/pages/home.aspx</a> (425) 452-4762
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## Chapter 2. Permits

The information in this chapter summarizes the requirements in the City of Sammamish Municipal Code (SMC). If there are any conflicts, the SMC shall prevail. Prior to beginning a residential, commercial, or industrial development, or a project requiring construction of public infrastructure within the City, the proponent must prepare and submit a complete application, including permit application, plans, and specifications to the Department of Community Development (DCD) for review and approval.

### 2.1. Public Utilities

Public utilities owned by the city, are exempt from right-of-way permits.

### 2.2. Other Agencies

- A. Utility and similar districts within the City are separate entities that are not owned or operated by the City (water and sewer district, fire district, and other utility providers). It is the Applicant's responsibility to obtain permits from other agencies. Prior to issuing City of Sammamish permit(s), verification that the Applicant has obtained other required permits may be required.
- B. Sammamish Plateau Water, Northeast Sammamish Sewer and Water District, Eastside Fire and Rescue, and Puget Sound Energy are examples of entities that are separate from the City of Sammamish. In order to ensure coordination between these utilities, the proposed locations of water, sewer, gas, telephone, cable television, and power in the right-of-way must be approved by each provider as part of the permit review process.
- C. The permit plans must show the right-of-way installation locations as approved by each provider. Each utility only needs to approve the proposed locations. Approval shall consist of signature/initials with phone number and date from a representative of each provider on a civil plan showing the proposed utility location.
- D. Permits from other agencies (see Chapter 1 for contact information) may include, but are not limited to:
  - 1. Electrical Permits: City of Sammamish.

2. Electrical Service Permit: Puget Sound Energy.
3. Propane Tanks: Eastside Fire and Rescue.
4. Sewer connection services and related information: Sammamish Plateau Water and Sewer District or Northeast Sammamish Sewer and Water District.
5. Water connection services and related information: Sammamish Plateau Water and Sewer District or Northeast Sammamish Sewer and Water District.
6. Natural gas connection services and related information: PSE
7. Washington Department of Fish and Wildlife
  - i. Any work below the Ordinary High Water Mark (OHWM) of waters of the state including intermittent streams (work that uses, diverts, obstructs or changes natural flow or bed of State waters);
  - ii. Any work that uses, diverts, obstructs, or changes the natural flow or bed of any of the salt or fresh waters of the state requires a Hydraulic Project Approval (HPA) permit. Download the application for an individual permit, called a Joint Aquatic Resource Permit Application (JARPA), from the Department of Fish and Wildlife website.
8. Department of Ecology
  - i. An NPDES (National Pollutant Discharge Elimination System) Construction Permit Notice of Intent is required from the Washington State Department of Ecology for all soil disturbing activities (including clearing, grading, and/or excavation), and stormwater will be directly discharged to a receiving water (e.g., wetlands, creeks, unnamed creeks, rivers, marine waters, ditches, estuaries) or to storm drains that discharge to a receiving water. If all stormwater is retained on-site and cannot enter surface waters of the state under any condition, the project may not trigger a permit.
  - ii. Water Quality Certification (401) ensures that limits placed in a permit on the quantity and concentration of pollutants discharged are not exceeded.

9. U.S Army Corps of Engineers

- i. Activities that may affect endangered species shall be reviewed for permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The Army Corps of Engineers coordinates with the NOAA Fisheries and U.S. Department of Fish and Wildlife to ensure Endangered Species Act consistency.

10. Others

- i. Federal Emergency Management Agency (FEMA) administers programs related to flood protection.

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## Chapter 3. Permit Process

This chapter describes how the Applicant and the City work together during the permit process. Each permit application submitted to the Department of Community Development (DCD) is assigned a project manager. The project manager or permit center can provide process information related to a specific permit. Contact DCD for more information.

### 3.1. Permit Issuance

Before a permit is issued, all requirements as stated by the Sammamish Municipal Code (SMC) and DCD for issuance must be met. These may include proof of required local, state, and federal permit approvals, liability insurance, financial guarantees, recorded covenants, easements, or dedications, and/or payment of any outstanding fees. When all conditions for issuance are met, and the permit is ready to issue, a representative from DCD will notify the Applicant that the permit is ready, and what fees are must be paid prior to issuance of the permit.

### 3.2. Pre-construction Meeting

Projects may require a pre-construction meeting. Depending on the project scope, more than one meeting may be required. Construction may begin only **after** the required pre-construction meeting(s) have been held. The Permittee is responsible for scheduling the pre-construction meeting(s) with the City. Directions for scheduling a pre-construction meeting(s) are found on the issued permit(s).

### 3.3. Permit Inspections

- A. Refer to Chapter 20, Inspection, of the PWS for more information on inspections.
- B. Inspections are performed by representatives of the City and shall be coordinated by the Permittee with the assigned inspector.
- C. Inspections are usually performed Monday through Friday, from 8:00 a.m. to 4:00 p.m. Any requested inspections beyond the weekday work hours of the City must be requested at a minimum of 48 hours in advance.
- D. Some projects may require special inspections performed by pre-approved third parties. Costs are the responsibility of the applicant.

### 3.4. Final Project Approval

Contact the project manager or DCD for specific information related to final project approval.

- A. **Fees.** If, during construction, the number of estimated inspections is exceeded, or if revisions to approved plans have been submitted for review, additional fees may apply. All inspection, plan revision review, and other fees due to the City must be paid prior to final project approval.
- B. **Permanent Stabilization.** All disturbed areas must have permanent stabilization in place and functioning before final project approval.
- C. **Financial Guarantee.** Refer to the DCD for more information on Financial Guarantees.
- D. **Declaration of Covenant.** Prior to the final project approval, executed covenants that have been recorded at the time of permitting must be verified to be in conformance with the constructed items.
- E. **Record Drawings.** Record drawings (as-builts) must be provided for all public and private stormwater facilities, site grading, for right-of-way work, and for landscaping, recreation, required environmentally critical area mitigation or restoration. Refer to Appendix G, Record Drawing Criteria, of the PWS for more information.
- F. **Inspections.** All inspections must be completed. Upon completion of all site or right-of-way work and associated conditions approved under a permit, the Permittee shall request a final inspection.
- G. **Work Completion.** The permit process is complete upon final inspection approval by the City.
- H. **Maintenance/ Defect Bonds.** Refer to SMC 27A for information on required maintenance and defect bonds.

### 3.5. Permit Timing and Expiration

Contact the project manager or DCD for specific information.

### 3.6. Right-of-Way Use Notification

- A. When required, at the time of application for a right-of-way permit, the Applicant shall notify all public and private utility entities known to be using or proposing to use the same right-of-way of the proposed timing of such construction. Within seven days of receiving this notification, any such entity notified may request a delay of the proposed construction to coordinate other right-of-way construction with the Applicant.
- B. **Notification is required** for any project that has the potential to disturb encroachments into the right-of-way. The permit applicant will notify and work with the abutting property owner(s) when there are encroachments that adversely affect installation of right-of-way improvements. For City Projects Public Works will be responsible for notification of the abutting property owners.
- C. For closures and extended impacts to the public within the right-of-way, the applicant will be responsible for any additional notifications and advance warnings to the public as conditioned in the appropriate permit.
- D. Public notification about upcoming construction must be provided to all properties directly neighboring the project at least 24 hours prior to the start of construction.

### 3.7. Franchises, Electric and Communication Facilities

In addition to a specific franchise agreement and the standards contained herein, requirements for the construction in and use of the right-of-way by utility providers can be found in SMC 14.

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## Chapter 4. Permit Submittals

Depending on particular project elements, the City may request submittals in addition to those described herein. To be considered for continued processing and review, all applications must be deemed complete by the project manager. Not all projects are required to submit all of the information listed below. Additional information is available on permits and development on the City's website: <http://www.sammamish.us/permits-regulations/permit-center/>

### 4.1. Design Professionals

The following is a summary of the requirements for design professionals:

- A. Engineering:
  - 1. State law requires that certain work, including engineering and land surveying, be performed by or under the direction of a professional licensed to practice in Washington State.
- B. Right-of-Way:
  - 1. Nearly all right-of-way design, except simple activities, such as installation of a driveway apron, require design by a Washington State licensed civil engineer.
- C. Stormwater:
  - 1. Design of treatment facilities, flow control facilities (detention ponds or infiltration basins), structural source control Best Management Practices (BMPs), or drainage conveyance systems shall be prepared by or under the direction of a licensed civil engineer. Construction Stormwater Pollution Prevention Plans (SWPPPs) that involve engineering calculations must also be prepared by or under the direction of a licensed civil engineer.
- D. Surveying:
  - 1. Activities requiring a licensed surveyor pursuant to RCW 18.43 include:
    - i. Determining and establishing legal boundary lines and survey reference points.

- ii. Construction of treatment or flow control facilities (detention ponds or infiltration basins), structural source control BMPs, or drainage conveyance systems to set locations and elevations.
- iii. Cuts on slopes steeper than 15 percent require a professional surveyor to set the slope stakes to confirm top and toe of cuts.
- iv. Setting of survey marks such as property corners, right-of-way lines, subgrade elevations, and slope stakes.
- v. Placement, protection, and replacement of survey monuments. When no profile has been established for the streets abutting and leading to a development site, the City may require a survey of the street area by a licensed surveyor for the purpose of establishing the proposed centerline profile and the transition between the right-of-way and on-site.
- vi. Flood Zone Elevation Certificates require surveyed finished floor elevations to confirm that structures meet the elevations set by the City.
- vii. Information must be provided for private infrastructure that connects to the City's infrastructure, public facilities, and right-of-way work, that verifies that all improvements lie within the right-of-way and public easements.

E. Landscaping:

- 1. For site landscaping and environmental critical area design, a licensed landscape architect is required. Refer to SMC Title 21A for additional requirements.

## **4.2. Plans and Specifications**

The plans must clearly indicate the location, nature, and extent of the proposed work and must provide sufficient detail to show that all provisions of the standards and codes are met. Specifications must accompany the plans whenever the plans and general notes do not adequately describe the proposed work and materials.

### 4.3. Survey

#### A. Survey Reference.

1. Horizontal Datum: All survey work, including but not limited to mapping, platting, planning, design, right-of-way surveys, and construction surveys, shall be in the Washington State Plane Coordinate System, North Zone, using NAD 83(1991) datum.
2. The plans shall show the horizontal control used to establish ties to the datum, with type, size and location, date visited, and the State Plane coordinates for each monument used. The project shall reference at least two King County survey horizontal control monuments. The basis of bearing shall be shown.
3. Vertical Datum: All survey work, including but not limited to mapping, platting, planning, design, right-of-way surveys, and construction surveys, shall be in the North America Vertical Datum of <sup>1988</sup>1998 (NAVD 1988). Vertical datum shall also include the reference/ conversion to NGVD 29.
4. The plans shall show the benchmarks used to establish ties to the datum, with reference number, description, location and elevation of each benchmark used, and any project site benchmarks. The project shall be tied to at least two King County survey control benchmarks.
5. Flood Elevation certificates shall provide a conversion from 1988 NAVD to 1929 NAVD.

B. All real properties, including parcels, rights-of-way, and easements must be located and staked on the ground, starting from a monument.

C. Legal descriptions of the horizontal and vertical locations require the location of a monument as their beginning point of reference.

D. Refer to Appendix B – Survey Criteria.

### 4.4. Surface Water Report

The City of Sammamish has adopted the King County Surface Water Design Manual (KCSWDM) in order to comply with its NPDES II Municipal Stormwater Permit. The current version will be as

adopted by Ordinance. In addition, the City has developed an addendum to this manual, "City of Sammamish Addendum to the Surface Water Design Manual Which is found at this website.

<http://www.sammamish.us/government/departments/public-works/stormwater-management-program/>

The City encourages the use of emerging technologies. Examples of emerging technologies include media filters, catch basin inserts, engineered erosion control products, and low impact development techniques. Proposed emerging technologies must be listed on either the Washington State Department of Ecology's Technology Assessment Protocol (TAPE) or Chemical Technology Assessment Protocol (CTAPE). The Public Works Director must approve the emerging technology for use.

#### **4.5. Geotechnical Report**

- A. A geotechnical report helps determine if the proposal for a site is appropriate. In addition to geotechnical reports required to support building designs, a geotechnical report is required for: 1) work on sites containing or adjacent to slopes that are 15 percent or steeper and 2) for some storm drainage design. Refer to SMC Chapter 21A.50 and 21A.15 for critical area information.
- B. Refer to Appendix D – Geotechnical Report Guidelines of the PWS for the approved report format.
- C. For site development on a site with no steep slopes, erosion hazards, or critical areas, a report previously prepared for that site may be accepted if:
  - 1. The report is less than five years old and no significant changes have occurred.
  - 2. The geotechnical engineer/engineering geologist who signed the report provides a letter stating the report is still applicable to the site and to the currently proposed project.

#### 4.6. Traffic Impact Analysis (TIA)

Refer to Chapter 8, Traffic Impact Analysis, and Appendix E, Traffic Impact Analysis Report Guidelines, of the PWS for guidance in preparing a required TIA.

#### 4.7. Traffic Control Plan

Prior to beginning any activity which might affect City right-of-way, the Applicant shall provide the City, for review and approval as part of any permit, a traffic control plan that meets ~~either~~ <sup>the</sup> Manual of Uniform Traffic Control Devices (MUTCD) standards ~~or WSDOT Standard Plans.~~ <sup>and the Washington State modifications to the MUTCD.</sup>

The traffic control plan must accurately reflect existing right-of-way conditions including accesses, channelization, sidewalks, bike/pedestrian paths, bus stops, hydrants, trees, poles, pavement edge, etc. The traffic control plan must allow for continued emergency services access through the work zone. The plan shall contain adequate connections and clear signage for pedestrian and business disruption within and through the work zone.

#### 4.8. Declaration of Covenant

The City requires a Declaration of Covenant for all permanent surface water BMPs on all projects, both private and public. The City will supply the Covenant paperwork for completion with the exception of any exhibits, which shall be prepared by the Applicant and approved by the City. The Applicant will do final signature and recording with the King County Recorder's Office. After recording, the Applicant shall return a copy to the City.

#### 4.9. Easements

Easements must be provided when facilities on private property will be used by more than one lot or will benefit the public.

- A. **Utilities.** Each utility (water, sewer, power, drainage, etc.) determines the minimum width for an easement. See Chapter 18, Surface Water Standards, of the PWS for more information on drainage easements.

- B. **Non-motorized.** Non-motorized easements facilitate public trail circulation between neighborhoods, schools, shopping centers, and other activity centers. A non-motorized easement shall be wide enough to include the trail plus at least two feet on each side.
- C. **Temporary Construction Access.** Access easements are required when more than one lot shares a portion of land to provide access when construction activities cross onto neighboring properties or parcels, a temporary construction easement is needed. A temporary construction easement shall be wide enough to include all areas of construction activities.

#### **4.10. Tracts**

Tracts shall be used for facilities that serve a broader group of individuals, have some degree of access by the public, and typically require regular maintenance activities. Examples of facilities that may be located in tracts include private streets or drainage facilities serving more than one lot, recreational facilities, open spaces, etc. Tracts are not subject to minimum lot size standards for the zone, although they must be large enough to accommodate the facilities and activities located within them, including any setbacks. For additional information on types of tracts that may be created through the land division process, refer to SMC Title 19A.

A publicly maintained stormwater facility shall be located in the roadway right-of-way or in a tract dedicated to the City. At a minimum, the tract shall include the entire facility, site access area, and at least 10 feet of landscaping around the visible portion of the stormwater facility.

#### **4.11. Dedication**

- A. Dedication shall occur at the time of recording for subdivision, or prior to permit issuance for construction projects.
- B. The City may require right-of-way dedication to incorporate necessary transportation improvements. Refer to SMC Chapter 19A.08.100 for more information.
- C. The Public Works Director may grant a deviation from the minimum right-of-way requirement where it is demonstrated that all conditions of the deviation process are met. Refer to Chapter 6, Section 6.2, Deviation from Engineering Standards, of the PWS.

D. Dedications may be required in the following situations:

1. Accommodation of motorized and non-motorized transportation, landscaping, utility, street lighting, traffic control devices, and buffer requirements;
2. The development project abuts an existing substandard public street and the additional right-of-way is necessary to incorporate future frontage improvements for public safety;
3. Right-of-way is needed for the extension of existing public street improvements necessary for public safety.
4. Right-of-way is needed in order to incorporate improvements that are reasonably necessary to mitigate the direct impacts of a development.

#### **4.12. Dewatering Plan**

Dewatering is defined as the removal and appropriate discharge and release of surface water and subsurface water. Temporary dewatering that occurs during construction must have a Temporary Dewatering Plan reviewed and approved by the City before dewatering begins.

#### **4.13. Maintenance Plan**

Improvements on private property, such as access, utilities, or surface water improvements, require the Permittee to prepare and submit an Operations and Maintenance Plan for City review before recording the plan with the King County Recorder's Office. The maintenance plan must spell out agreements regarding maintenance responsibility and costs.

#### **4.14. Financial Guarantee**

The City determines the performance, restoration, and maintenance financial guarantee amounts. The performance guarantee must be submitted before permit issuance. The maintenance guarantee must be provided before final approval. Refer to SMC Title 27A for more information. The maintenance/ defect period begins with the acceptance of the installation of the required improvements and approval of the as-built <sup>drawings</sup>. Please contact the project manager or Department of Community Development (DCD) for more information.

#### **4.15. Insurance**

As a condition of the City permitting work within the public right-of-way, it is required that a certificate of liability insurance is provided indicating that the Permittee and/or contractor are covered by a Commercial General Liability insurance policy.

Additionally, when the City determines that the nature of any work on public or private property is such that it may create a hazard to human life, endanger adjoining property, street, street improvement or any other public property; the City may require the Permittee to provide a Certificate of Liability Insurance. In this case, the City shall determine the amount of insurance based on the nature of the risks involved.

The required liability insurance must be maintained for the duration of construction activities.

The City must be named as an additional insured under the Commercial General Liability insurance policy using ISO Additional Insured-State or Political Subdivisions-Permits CG 20 12 or a substitute that provides an equivalent endorsement.

Insurance requirements for work in the right of way are listed in SMC 14.30 Right of Way Use Permits.

## **Chapter 5. Permit Fees**

The Department of Community Development (DCD) establishes and collects fees as set forth in the fee schedule adopted by the City Council.

Plan review and submittal fees are collected when the application is submitted. Additional fees, due and payable when the permit is issued, include but are not limited to independent review costs, additional inspection or review time, and transportation impact fees.

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## **DIVISION 2 – RIGHT-OF-WAY**

Division 2 – Right-of-Way sets forth minimum engineering design criteria to support public safety and welfare within the right-of-way. Every effort has been made to ensure that these standards are in line with AASHTO, FHWA, ITE, and WSDOT standards.

The Public Works Director shall have the authority to administer the provisions of these technical standards, to determine applicability, to interpret unclear provisions, to determine the level of detail and methodologies for required analysis, and to promulgate procedures and rules for unique circumstances not anticipated within the standards and procedures contained within these Public Works Standards (PWS).

These standards do not substitute for engineering design, nor are these standards intended to limit innovative design where equal performance in value, safety, and maintenance can be demonstrated. More stringent design standards or specifications may be required where special conditions warrant.

All facilities in the right-of-way, unless specifically excluded, shall be designed by or under the direct supervision of a professional engineer licensed in Washington State. All right-of-way drawings, designs, sections, details, standard plans, and supporting data submitted to the City of Sammamish for approval, unless specifically excluded, must be stamped, signed, and dated by the engineer of record.

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## Chapter 6. Standards

Design detail, construction workmanship, and materials shall be in accordance with these technical standards and the latest edition of the companion documents listed herein. Design and construction shall meet the applicable standards and codes, and the recommendations in specific reports, such as the geotechnical report, the traffic impact analysis, and the surface water report.

The following publications provide the basis for design and construction requirements for public and private development within the City:

- A. City of Sammamish Comprehensive Plan
- B. City of Sammamish Storm and Surface Water Management Comprehensive Plan

C. City of Sammamish Municipal Code (SMC)

D. ~~City of Sammamish Non-Motorized Plan~~ Parks Plan

E. City of Sammamish Transportation Master Plan

### 6.1. Companion Documents

When standards or other design criteria are not specifically addressed in the Public Works Standards (PWS), then the latest editions of the following shall govern the design.

#### A. Transportation Design Standards:

1. A Policy on Geometric Design of Highways and Streets, AASHTO
2. Guidelines for Geometric Design of Very Low-Volume Local Roads, AASHTO
3. Guidelines for Urban Arterial Program, WSDOT
4. *Urban Street Geometric Design Handbook*, Institute of Transportation Engineers (ITE)
5. Guide for Development of Bicycle Facilities, AASHTO
6. ~~ADA Standards for Accessible Design~~

7. Design Manual, WSDOT

8. Public Right-of-Way Accessibility Guidelines (PROWAG), U.S. Access Board

**B. ~~Public Right-of-Way Accessibility Guidelines (PROWAG), U.S. Access Board~~ Surface Water Design Standards:**

1. *The City of Sammamish has adopted the King County Surface Water Design Manual (KCSWDM) in order to comply with its NPDES II Municipal Stormwater Permit. The version will be as adopted by Ordinance. In addition, the City has developed an addendum to this manual, "City of Sammamish Surface Water Design Manual Addendum Attachment "B". Which is found at this website:*

~~<http://www.sammamish.us/government/departments/public-works/stormwater-management-program/>~~

<https://www.sammamish.us/government/departments/public-works/storm-and-surface-water-management-program/>

**C. Traffic Control Design Standards: *Manual on Uniform Traffic Control Devices*, Federal Highway Administration; available online at: <http://mutcd.fhwa.dot.gov/>**

**D. State Highway Guidelines: *Local Agency Guidelines*, WSDOT**

**E. Construction Specifications: *Standard Specifications for Road, Bridge, and Municipal Construction M 41-10*, WSDOT; WSDOT Manuals are available online at: <http://www.wsdot.wa.gov/Publications/Manuals/>**

**F. The following shall be applicable when pertinent, when specifically cited in these standards or when required by state or federal funding authority:**

1. *Highway Capacity Manual*, Transportation Research Board
2. Standard Rock Wall Construction Guidelines, Associated Rockery Contractors
3. National Electrical Installation Standards (NEIS)
4. American Society for Testing and Materials (ASTM)
5. Design criteria of federal agencies including the Federal Housing Administration, Department of Housing and Urban Development, and the Federal Highway Administration, Department of Transportation.

## **6.2. Deviation from Engineering Standards**

Deviation from the engineering standards contained in the PWS is a mechanism to allow the City to grant an adjustment in the application of the standards where there are unique circumstances relating to the proposal.

Deviations are submitted through a permit application and reviewed to determine that all requirements are met. All deviations must be approved by the Public Works Director in writing prior to the start of construction.

- A. Requirements: The Director of Public Works shall grant a deviation from the Public Works Standards only if the applicant demonstrates all of the following;
1. The granting of such deviation will not be materially detrimental to the public welfare or injurious or create adverse impacts to the property or other property(s) and improvements in the vicinity in which the subject property is located.
  2. The authorization of such deviation will not adversely affect the implementation of the Comprehensive Plan adopted in accordance with State Law.
  3. The deviation shall not conflict with the standards of the critical areas regulations SMC 21A.50.
  4. The deviation from the Public Works Standards shall only be granted if the proposal meets the following:
    - i. Conform to the intent and purpose of the Sammamish Municipal Code;
    - ii. Produce a compensating or comparable result which is in the public interest;
    - iii. Meets the objectives of safety, function and maintainability based upon sound engineering judgement.
  5. A deviation from roadway design standards must meet the objectives for fire protection. Any deviation that does not meet the International Fire Code shall also require approval by the Fire Marshall.

**The procedure for deviations from the Engineering Standards is included in Appendix H**

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## **Chapter 7. General Requirements**

This chapter provides general requirements related to transportation improvements.

### **7.1. Americans with Disabilities Act**

All designs shall meet the current Americans with Disabilities Act (ADA) requirements and standards. In the event field conditions prohibit meeting ADA requirements, the design engineer must submit documentation that the design meets ADA to the maximum extent feasible.

### **7.2. Low Impact Development**

The 2013 National Pollutant Discharge Elimination Phase II Permit applies to onsite improvements as well as improvements in the right-of-way. Stormwater requirements shall meet the Surface Water Design Manual for work constructed in the right-of-way; see Chapter 18 Surface Water Standards.

### **7.3. Maintenance**

The City of Sammamish maintains and repairs all streets and sidewalks within the public right-of-way except for instances where maintenance is a condition of the Plat. The City is responsible for vegetation removal in the right-of-way during emergencies, in order to remove hazards and protect public safety.

In areas where the City is responsible for maintenance of landscaping, the City will utilize low maintenance vegetation and practices. It shall be the responsibility of the abutting landowners or HOAs to maintain decorative landscaping

### **7.4. Tree Removal/Pruning**

Tree removal and pruning in the right-of-way is regulated by SMC 21A.37, Development Standards – Trees.

- A. All tree removals and/or pruning within the right –of-way require a right-of-way permit.

## 7.5. Connectivity

In order to provide connectivity, street layouts shall continue streets, street layouts and pedestrian connections to existing adjoining development(s) or their anticipated locations where adjoining property is not yet developed.

- A. Where existing adjoining properties have planned road and trail systems, connections shall be required.
- B. Connection to existing roadway ends by new development shall be required when alignment between the roadways exist.
  - 1. Aesthetic and environmental character between existing and new development shall be maintained.
  - 2. Pedestrian facilities shall connect or have an approved transition where there is none in the existing development.
  - 3. Traffic mitigation shall be reviewed as part of the traffic study for the new development when connecting to an existing adjacent neighborhood. Vehicle and pedestrian safety shall be included in the review.
- C. When a connecting road serves 100 residential units or more, a secondary access point shall be required.

## 7.6. Connectivity to Substandard Roadways

The following applies when a proposed improved roadway designed to current standards connects to an existing roadway that does not meet the current standard.

- A. Transition lengths for connections to roadways shall be determined by the multiplication of the posted speed limit times the required change of width through the taper, ( $\text{Length} = W \times S$ ), or continuation of the required width to the nearest intersection, whichever is shorter. In the event the nearest intersection is with a higher volume roadway, such as an arterial, the transition shall extend to the intersection. (See Figure 7.1.)
- B. When the connection is to an unimproved right-of-way consisting of a gravel or dirt surface, the new development shall construct a minimum of a half-street improvement within the

nonstandard section to the nearest intersection or where a transition to an existing asphalt or concrete road surface shall be achieved. A minimum of a 20' width of roadway asphalt or concrete road surface shall be required.

- C. If there is a gap of pedestrian facilities beyond a roadway transition to the nearest intersection or existing pedestrian facilities within a 1 block limit, the developer shall be required to install an approved pedestrian facility (i.e. sidewalk, pathway, or paved shoulder) to eliminate this gap. These locations must be shown on an adopted sidewalk and pathway plan, or along a roadway classification of neighborhood collector in conjunction with safe routes to school.

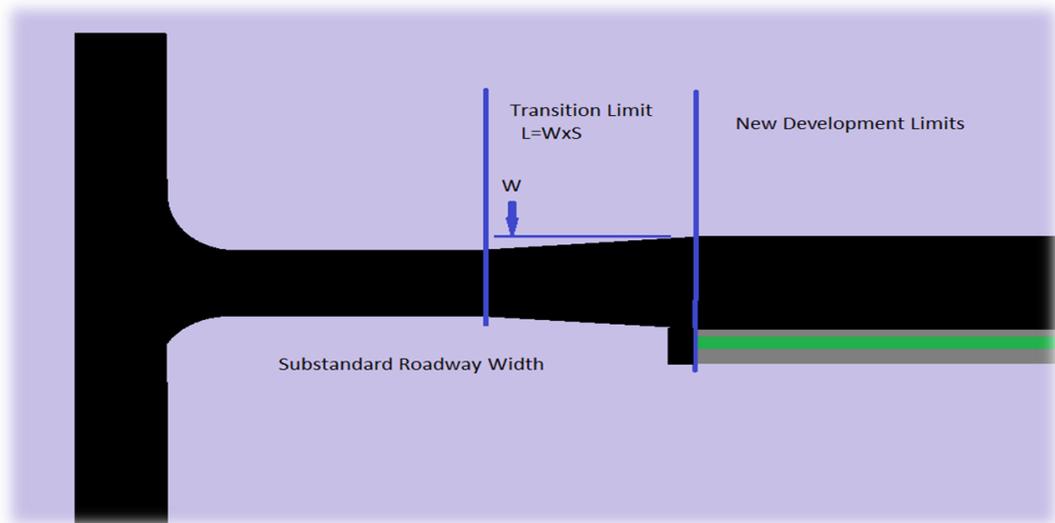


Figure 7.1 Transition Length to Substandard Roadway

## 7.7. Underground Utilities

- A. The following applies to the connection from the distribution lines in the right-of-way to the property it serves (service connection):

1. B. If the existing service connection(s) in an area is/are underground, new service connections must be underground.

- ~~B. C.~~ Existing overhead facilities, including utility poles will be allowed to remain above ground until one of the following events:
1. The City Council designates for undergrounding a capital improvement or public works project;
  2. An entity instigates a joint trenching project that could reasonably serve to replace existing overhead facilities;
  3. All services within the Town Center shall be placed underground.

### **7.8. Frontage Improvements**

All new developments which obtain access from substandard public or private streets shall be required to construct all necessary street improvements to bring the portion of the roadway frontage to current City standards prior to approval. Such improvements shall run along the full frontage of the roadway the development is proposing access.

- A. Standard frontage improvements consist of right-of-way dedication, curb, gutter, sidewalk, amenity zone and landscaping, drainage improvements, and pavement overlay up to one-half of each right-of-way abutting a property.
- B. Additional offsite improvements beyond the development subject property shall be required, if determined through traffic mitigation outlined in an approved traffic study, or other standards such as safe routes to school. Improvements shall ensure safe movement of traffic, pedestrians, bicycles, transit, and non-motorized vehicles. The improvements can include widening, transit bus shelters, bus pullouts, utility undergrounding, street lighting, signage, and channelization.
- C. When a development proposal triggers frontage improvements, existing frontage improvements shall be upgraded to current standards.
- D. Design and installation of new or replaced frontage improvements may be adjusted during design or installation, with approval from the Public Works Director, to meet the existing conditions. Requests shall require a formal deviation.

- E. The frontage improvements shall run the full length of the property line/right-of-way line.  
 Transitions to existing conditions ~~will occur outside~~ the development frontage.  
 shall occur beyond
- F. An amenity zone is required, except where an alternate street design deviation has been approved.
- G. Required frontage improvements must be installed, inspected and approved by the City prior to final approval of the related building/site development permits and before a Certificate of Occupancy is issued or a permit receives final approval.
- H. Exceptions
1. When the Director of Public Works deems that the above such improvements cannot be accomplished at the time of building construction, a recorded agreement on forms provided by the City shall be completed which provide for these improvements to be installed at a later date by the applicant or by the applicants signing of a waiver of protest to a local improvement district (LID) in favor of, and on a form acceptable to the City. Provided further that no street frontage improvements shall be required in conjunction with the building or remodeling of a single family home on single residential lot unless the lot is part of a subdivision of land which required street frontage improvements as a condition of final plat approval.
  2. Requirements of this section shall not apply to the construction, remodeling or enlargement of any Group R, Division 3 (single family or duplex) or Group U occupancy ~~as defined in the International Building Code, IBC,~~ to the construction of any accessory residential structure, to any sign, or to the structural addition, alteration or repair to any existing structure within any twelve month period which exceeds fifty percent of the value of the existing structure or increased the total floor space of the structure by more than ten percent.  
 (IBC)

**7.9. Dedication of Right-of-Way**

- ~~A.~~ Dedication shall occur at the time of recording ~~for subdivisions, or prior to permit issuance for construction projects.~~ . See section 4.11 for requirements.
- ~~B.~~ The City may require right-of-way dedication to incorporate necessary transportation and frontage improvements if they are part of a current Capital Improvement project, and/or part of an overall master transportation plan.

**7.10. Illumination**

- A. Puget Sound Energy (PSE) designs, installs, and maintains street lighting within the City of Sammamish right-of-way. The City owns and maintains street lighting on arterial streets. When new street lighting is required, the Developer works with the Public Works Department and PSE regarding design and installation. The Developer pays the costs associated with the design and installation of the lighting system. These costs may include new electrical service or a new pole. on non-arterial streets
- B. **General Location:** Luminaires shall be located near intersections, at street ends, at non-motorized crossings, and mid-block of streets over 300 feet in length. Luminaire locations shall be coordinated with the landscaping plans.
- C. **Lighting Fees** – All costs associated with design and installation are the responsibility of the Developer. Maintenance fees are described in the Table 7.1 below.

Table 7.1 Lighting Costs

STREET CLASSIFICATION	OWNERSHIP	DESIGN FEES	MAINTENANCE FEES
Principal, Minor, or Collector Arterial Streets	City	Developer	City
Neighborhood Collector Street	PSE	Developer	<del>HOA</del> HOA or property owners
Local Street	PSE	Developer	<del>HOA</del> HOA or property owners

D. Street lighting system design requirements are as follows

1. City-owned arterial systems shall be based on WSDOT/APWA Standard Plans and Specifications.
2. All lighting shall conform to NEIS standards and be based on the latest IES Roadway Lighting Guidelines.
3. Street lighting system designs shall be stamped by a licensed engineer experienced with lighting design and shall include the following: luminaire spacing, illumination level, uniformity ratio, line losses, power source, the electrical and physical layout, installation details, plans, and specifications. All designs must be approved by the Public Works Director.
4. When lighting is installed as part of a Half Street improvement, these requirements for illumination levels and uniformity ratios only apply to the associated improvement.
5. Luminaires shall be LED with full-cut off lenses. Luminaires mounted on poles with powder coat finish shall match the color of the poles.

6. Poles to be owned and maintained by the City shall be per the WSDOT standard plans for davit arm and pole and shall have a <sup>flat</sup> black powder coat finish. Street lights shall be 35 feet high.

7. As-built street lighting plans for City-owned systems shall be provided to the City on ~~CD-ROM in CAD and Portable Document Format (PDF) and on 22-inch by 34-inch mylar~~ prior to final occupancy or final plat approval.

in CAD and on 22-inch by 34-inch Portable Document Format (PDF)

8. Street lighting systems shall be designed to be accessible by a wheeled vehicle.
9. Luminaires in residential areas shall be located near intersections, at street ends, at non-motorized crossings, and midblock of streets over 300 feet in length. Maximum spacing of luminaires in residential areas shall be 150 feet.
10. Controller cabinets equipped with electrical meters, time clocks, circuit breakers, and other required components are required on arterial installations of five or more streetlights or as required by the ~~Public Works Director~~ City Engineer.
11. The exact location of the power source shall be indicated on the design plans together with the remaining capacity of that circuit. System continuity and extension shall be provided.

- E. Street lighting is encouraged but not required along private streets. Street lighting systems for private streets shall be designed and constructed on a separate power source from the public street lighting system. The property owner, homeowner, or homeowners' association shall pay all street light maintenance, installation, and power costs for private street light systems. A maintenance agreement is required.

### **7.11. Curbing**

- A. Vertical curb and gutter shall be installed on all street classifications.
- B. Rolled curb is not allowed for new construction. It may be used in limited areas to replace or match existing curbing, and in all cases must be approved by the ~~Public Works Director.~~   
 City Engineer.
- C. Extruded curb is not allowed in public right-of-way, unless it is temporary and it is approved by the Public Works Director.
- D. All curb removal shall be to the nearest joint. No saw cutting between joints is allowed.

### **7.12. Traffic Calming Devices**

In locations where vehicle and pedestrian traffic is significantly increased within the non-arterial roadways, traffic calming techniques shall be assessed with all new developments. All new developments are to include analysis of impacts to adjacent neighborhoods when a connection is proposed. All proposed designs shall be reviewed and approved by the City Engineer.

- A. Approved Traffic Control Devices that are currently allowed in the City include;
  1. Traffic Circles;
  2. Chicanes;
  3. Choker Islands and Curb Extensions;
  4. Raised Tables for Crosswalks
    - i. Only allowed in school zones and on non-arterial roadways.
  5. Roadway Narrowing;
  6. Raised Intersections;

7. Medians.

- B. For all existing developments that are not directly impacted by a new development application, traffic calming shall be evaluated as part of the City of Sammamish Neighborhood Traffic Management Program. (Ord. ~~2000-64~~)

2010-282

### **7.13. Pavement Cut Moratorium**

The following applies to a utility doing work (such as system repair or expansion) within the right-of-way.

- A. Any street that has been constructed, reconstructed, resurfaced, overlaid or paved within the past five years cannot be cut for five years, unless the Director determines that:
1. Denying the permit would cause an undue hardship on the person applying for the permit; and
  2. The need for the excavation could not have been reasonably anticipated before expiration of the moratorium.
  3. Pavement shall be restored to the minimum requirements described in the standard details, the trench restoration map, and specific site requirements determined by the City Engineer.
- B. Emergencies are exempt from the five-year moratorium. A right-of-way permit shall be applied for within one working day following the emergency.

C. ----- *information will be coming.*

#### 7.14 Paving Restrictions Shall conform with WSDOT Standards

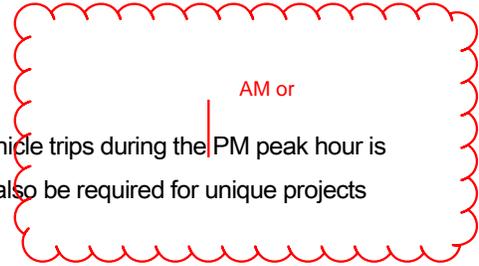
- A. Final lift shall not occur between October 1st and March 31st unless approved by the City Engineer.
1. The minimum surface temperature must be 45 degrees and rising.
  2. Daily low temperature must remain above 40 degrees for three consecutive days after pavement has been placed.
  3. No final lift paving will occur between November 1st and February 28th.

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## Chapter 8. Traffic Impact Analysis

Any development proposal that generates 10 or more new vehicle trips during the PM peak hour is required to submit a Traffic Impact Analysis (TIA). A TIA may also be required for unique projects that may not generate 10 AM and/or PM peak hour trips.

The amount of detail to be included in the TIA depends on the complexity of the proposed project. The scope of the TIA must be confirmed with the City Traffic Engineer prior to submittal. Refer to Appendix E for TIA guidelines.



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## Chapter 9. Street Classification

Federal and State guidelines require that streets be classified based on function. The City divides streets into three categories; they are arterial, non-arterial, and private streets.

### 9.1. Arterial Streets

Arterial streets provide a high degree of vehicular mobility through effective street design and by limiting property access to the right-of-way. Most vehicle trips on arterials are through-traffic.

Arterials are divided into three classifications: Principal, Minor, and Collector Arterials. Minimum criteria for Arterial Streets are included in Table 9.1.

- A. Principal Arterials:** Principal arterials provide service for major traffic movement within the City. They are designed to be primary accesses through the City and carry large portions of daily traffic over extended distances in minimal time. Principal arterials connect freeways, highways and minor arterials. They have minimal driveway connections and local street connections.

(Examples: 228<sup>th</sup> Ave NE/SE, Sahalee Way and Issaquah Pine Lake Road, Issaquah Fall City Road)

- B. Minor Arterials:** Minor Arterials carry high volumes of traffic, but are typically designed with less regional mobility throughout the city than principal arterials. Their purpose is to connect primary arterials and various activity centers within the City, such as high schools and parks, with other principal arterials and collector arterials. Typically, they distribute to smaller geographical areas compared to principal arterials.

(Examples: E Lake Sammamish Pkwy, Inglewood Hill Road, 244<sup>th</sup> Ave SE-NE, NE 8<sup>th</sup> St., SE 8<sup>th</sup> St.)

- C. Collector Arterials:** Collector arterials are designed to connect multiple neighborhoods with non-arterial streets to the closest principal and minor arterial roadways. Collector arterials differ from minor arterial roadways because they may run adjacent to or extend into residential neighborhoods.

(Examples: 205<sup>th</sup> PINE, 248<sup>th</sup> Ave SE, and SE 24<sup>th</sup> St., Trossachs Blvd SE, 212<sup>th</sup> Ave SE)

Table 9.1 Street Classification Characteristics

	ARTERIAL STREETS		
	Principal	Minor	Collector
Function	-Connect cities and urban centers with minimum delay -Channel traffic to Interstate system -Accommodate long and through trips	-Connect activity centers within the City -Connect traffic to Principal Arterials and Interstate -Accommodate some long trips	-Access to community services and businesses -Connect non-arterial to Minor and Principal Arterial -Accommodate medium-length trips
Minimum Right of Way (1)(2)	94 feet	70 feet	70 feet
Travel Lane Width	11 feet	11 feet	11 feet
Auxiliary Lane Width	12 feet	12 feet	12 feet
Parking Lane/Width	None	Requires <del>Public Works Director</del> <b>City Engineer</b> Approval/8 Feet	Requires <del>Public Works Director</del> <b>City Engineer</b> Approval/8 Feet
Curb to Curb Width(3)	44 feet (3 Lane) 66 feet (5 Lane)	44 feet (3 lane)	44 feet (3 lane)
Sidewalk Width	Both Sides: 6 feet' wide (commercial areas may require up to 10 feet widths at discretion of the <del>Public Works Director</del> <b>City Engineer</b> )	Both Sides: 6 feet' wide (commercial areas may require up to 10 feet widths at discretion of the <del>Public Works Director</del> <b>City Engineer</b> )	Both Sides: 6 feet wide
Planter Strip Width(4)	Both sides 6 feet wide	Both sides 5 feet wide	Both sides 5 feet wide
Half Street Width(5)	28 feet <b>min</b>	28 feet <b>min</b>	28 feet <b>min</b>
Design Speed (mph)	35-45	30-35	25-35
Daily Volumes (ADT)	>15,000	7,000-20,000	1,500- 10,000

	ARTERIAL STREETS		
	Principal	Minor	Collector
Lane	Two or more	Two or more	Two or more
Striping	Travel lanes delineated	Travel lanes delineated	Travel lanes shall be delineated
Buses/Transit Stops	Allowed	Allowed	Allowed
Bicycle Facilities	Lanes, shared lanes, or signage	Lanes, shared lanes, or signage	Lanes, shared lanes, or signage
Pedestrian Facilities	- Sidewalks both sides - Amenity strips	- Sidewalks both sides - Amenity strips	- Sidewalks both sides - Amenity strips

<sup>(1)</sup> Does not include easements for public and private utilities.

<sup>(2)</sup> ROW may be increased to accommodate Auxiliary Lanes, Parking, or Rain Gardens

<sup>(3)</sup> Minimum Width - Land use Density or Offsite Parking Provisions may require more for-street Parking

<sup>(4)</sup> Does not include curb

<sup>(5)</sup> Minimum width includes Eleven-foot lanes and Four-foot shoulders.

## 9.2. Non-Arterial Streets

Streets that are not designated as arterials, are non-arterial streets. Sammamish divides non-arterial streets into Neighborhood Collector Streets and Local Streets. Criteria for non-arterial streets are included in Table 9.2 below.

### A. Neighborhood Collectors:

Neighborhood Collectors. Neighborhood collector streets are designed to connect local streets to arterials. Typically, neighborhood collector streets have limited driveway accesses and are built to accommodate localized populations in neighborhoods that are connected with the street.

### B. Local Streets:

Local Streets. Local streets are the most common roadways and make up neighborhood roadways. Local streets typically contain a majority of driveway access points within an urban location and see minimal traffic from residents outside of the area.

Table 9.2 Non-Arterial Streets

	NON-ARTERIAL STREETS	
	Neighborhood Collector	Local
Function	- Connect Local to Arterials - Provide local access - Accommodate short trips to neighborhood destinations - Limited Driveway Access.	- Provide local access
Minimum Right of Way Width <sup>(1)(2)</sup>	60 feet	60 feet
Lane Width	10 feet (min)	10 feet (min)
Parking Lane Width	8 feet	8 feet
Curb to Curb Width <sup>(3)</sup>	28 feet in R-1 through R-4 Zoning 36 Feet in zones greater than R-4	28 feet in R-1 through R-4 Zoning 36 feet in zones greater than R-4
Parking	One Side in R-1 though R-4 Zoning <del>Two Sides in zones greater than R-4</del>	One Side in R-1 though R-4 Zoning <del>Two Sides in zones greater than R-4</del>
Sidewalk Width	5 feet   6 feet when adjacent to curb	5 feet   6 feet when adjacent to curb
Planter Strip Width <sup>(4)</sup>	<del>5 feet (greater than R-4)</del> 5 feet min <del>8 feet (R-1 through R-4)</del>	<del>5 feet (greater than R-4)</del> 5 feet min <del>8 feet (R-1 through R-4)</del>
Half Street Width <sup>(5)</sup>	20 feet	20 feet
Design Speed (mph)	25	25
Daily Volumes (ADT)	< 1,500-5,000	< 1500
Striping	No centerline striping	No centerline striping
Buses/Transit Stops	Allowed for short segments (School Only)	Allowed for short segments (School Only)
Bicycle Facilities	Shared lanes/signs	No specific bicycle facilities; may have signed route
Pedestrian Facilities	- Pedestrian access through use of sidewalks, trails, or other	- Pedestrian access through use of sidewalks, trails, or other

<sup>(1)</sup> Does not include easements for public and private utilities.

<sup>(2)</sup> ROW may be increased to accommodate additional Parking or Low Impact Storm Drainage facilities.

<sup>(3)</sup> Minimum Width - Land Use Density or Offsite Parking Provisions may require more on-street Parking.

<sup>(4)</sup>Does not include curb.

<sup>(5)</sup>Minimum width includes Ten-foot lanes and One-foot shoulders.

### 9.3. Alley

Alleys are considered private roads and are governed by the following criteria.

- A. Allowed for primary access only when lots served have full frontage on a public street.
- B. Serves a maximum of 30 lots, with a maximum length of 400 feet, no cul-de-sacs, and no dead ends if serving more than four lots.
- C. When an alley is to be provided with utilities, the alley shall be located within a utility easement.
- D. Minimum alley tract (easement if circumstances require) width of 20 feet with a pavement surface of 16 feet (including thickened edge), ~~based on a ten-foot structure setback from property line or edge of tract (easement).~~ For differing structure setback requirements, alley configuration shall be designated to provide for safe turning access to properties.
- E. Alleyways shall be provided with a paved surface, a thickened edge on one side and cross slope in one direction.
- F. Alleys will be allowed only when lots have frontage on a public street.
- G. Alley entry shall be provided by a driveway cut.
- H. Construction and inspection standards for public roads shall also apply to alleys unless otherwise noted within these standards.
- I. Alleys shall contain no intersections or any 90-degree bends. Any alignment other than straight shall be approved by the ~~Public Works Director.~~  
City Engineer.

## 9.4. Woonerf

Woonerfs are considered private and are governed by the following criteria.

- A. Pedestrian friendly design.
- B. Clear distinct entrance.
- C. Required on-street parking. Parking can be parallel or perpendicular and grouped together. Parking is located off the access width of the Woonerf.
- D. Traffic calming measures are required.
- E. Must incorporate outdoor furnishings such as benches and landscaping.
- F. Serves a maximum of 30 lots, with a maximum length of 400 feet, no cul-de-sacs, and no dead ends if serving more than four lots.
- G. When a woonerf is to be provided with utilities, the ~~alley~~ shall be located within a utility easement.
- H. Minimum tract ~~(easement if circumstances require)~~ width of 20 feet with a pavement surface of 16 feet (including thickened edge), based on a ten-foot structure setback from property line or edge of tract (easement). For differing structure setback requirements, woonerf configuration shall be designated to provide for safe turning access to properties.
- I. Woonerf entry shall be provided by a driveway cut.
- J. Woonerfs shall contain no intersections ~~or any 90 degree bends~~. Any alignment other than straight shall be approved by the ~~Public Works Director~~ City Engineer.
- K. Construction and inspection standards for public roads shall also apply to woonerfs unless otherwise noted within these standards.

## 9.5. Private Street

L. The vehicle driving path of the woonerf shall follow a meandering alignment. The pathway shall be determined by the use of design additions that include, but not limited to, plants, furniture, etc.

M. The pavement material shall be different than what was used in the public right-of-way.

N. Woonerfs shall not dead end. They must contain an entrance and exit onto the public right of way.

A private street is a privately owned and maintained street providing vehicular access within a property or properties. Refer to Chapter 12.8 Private Streets and Alleys for more information.

- A. Private Streets shall serve a maximum of 9 dwelling units.
- B. Private Streets shall be located within a private access tract.
- C. Where a private street connects to another public or private roadway, this shall be considered as an intersection and shall meet all requirements stated in these standards.
- D. Construction and inspection standards for public roads shall also apply to private streets unless otherwise noted within these standards.
- E. Private Streets shall not result in land locking of present or future parcels, conflict with any transportation or street improvement plan, nor obstruct public street circulation.

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## Chapter 10. Access Management

Access management is a means to protect the safety, operations, and functional purpose of the street system while considering access needs. Access management aims to provide access to land development while simultaneously preserving traffic flow. Appropriate access management strikes a balance between the operation and function of a street with the demand for access to right-of-way. Safety, speed, and capacity are the main reasons to institute access management. Access management recognizes the interests of both landowners and roadway users in providing a transportation system that better meets the needs of all interests.

The City's street system provides mobility to the traveling public and direct access to properties. At times, these two purposes can conflict. For example, multiple accesses on a road segment may compromise safety, speed, and capacity.

The existing and future function of each street is critical in determining the number, location, and design of access points for access control. Access management extends beyond simply specifying the number and separation of driveways and access points. Access management includes roadway design elements, such as auxiliary lanes, medians, stopping sight distances, channelization, and land development issues such as sign standards, internal site layout, driveway/parking lot layout, and alternative travel modes.

### 10.1. General

A. **Authority.** The ~~Public Works Director~~ <sup>City Engineer</sup> approves the design, number, and location of access points to City Right-of-Way. When changes in land use result in changes to the type and operation of access, the access location and design will be reviewed with the development plans and shall be constructed or modified to meet current standards.

B. **Shared Access.** Pedestrians and bicyclists are especially vulnerable to turning vehicles at right-of-way accesses. The consolidation of access points benefits pedestrians and bicyclists by reducing the number of conflict points along the right-of-way. Access design for pedestrian and bicycle facilities shall conform to Chapter 11, Access Design, and the City's Standard Plans.

- C. **Backing into the Right-of-Way.** Driveways, parking, or loading areas that require backing maneuvers in a public street shall not be approved except for single-family or duplex residential uses on non-arterial streets.
- D. **Maintenance.** Maintenance of driveway approaches and driveway culverts shall be the responsibility of the owner whose property they serve.
- E. **Restriction of Turning Movements.** Turning movements may be limited where necessary for the safe and efficient movement of traffic, both on-site and off-site. Traffic control devices controlling traffic from private property shall be installed and maintained by the property owner at no cost to the City.
- F. **Abandoned Access.** All abandoned driveway approaches on the same frontage shall be removed; and the curbing and sidewalk, or shoulder, and ditch section shall be restored to meet current standards.
- G. **Temporary Access.** The City may grant temporary access to accommodate phased development of a site. Temporary access shall be removed, relocated, redesigned, or reconstructed after permanent approved access is constructed.
- H. **New Development.** All new development shall be served by adequate vehicular access as follows;
  - 1. The circulation system of development shall intersect with existing and anticipated streets abutting the site at safe and convenient locations;
  - 2. The circulation system of development shall provide direct connections to adjacent developments (inter-parcel) where appropriate; and
  - 3. Every lot upon which one or more building(s) is proposed to be erected, or a traffic generating use is proposed, shall establish direct access from the street right-of-way. Direct access is needed to provide public services such as fire protection, emergency medical service, mail delivery or trash collection.

## 10.2. Access Requirements

A. If a property has more than one frontage, for example a corner lot, the access shall be located on the street with lower functional classification.

B. Properties deemed to be within a transition area shall follow the more stringent requirements unless otherwise approved by the ~~Public Works Director~~ <sup>City Engineer</sup>. All vehicular access to proposed development in commercial zones shall be from arterial classified streets, unless determined by the Public Works Director to be technically not feasible or in conflict with state law addressing access to state highways. All developments in commercial zones shall conduct a Traffic Impact Analysis per the PWS. Developments that create additional traffic that is projected to use local streets may be required to install appropriate traffic-calming measures. These additional measures will be identified and approved by the City's Traffic Engineer.

C. Direct access, including single-family, onto an arterial is allowed only when alternative access is not available, or when specifically allowed in the SMC.

D. One access point per property ownership/tax parcel is allowed. The Public Works Director may approve more than one access for new access when approved through a deviation and;

1. The project is for one single-family residence or one duplex;
2. The second access will serve a second, separate dwelling unit, and site conditions prevent a shared access.

E. If the project is for one single-family residence or one duplex, the Public Works Director may approve through deviation a circular driveway (two access and one-way ingress/egress) from one property/tax parcel under the following conditions:

1. The accesses are onto a local access street;
2. Each access width shall be 10 to 12 feet wide;
3. Each access is offset from property lines by at least five feet; and
4. The accesses have adequate sight distance.

- F. If the project is for other than one single-family residence or a duplex and:
1. A Traffic Impact Analysis shows that the additional access point(s) is/are required to adequately handle driveway volumes, and that the additional access point(s) will not be detrimental to safety, capacity, and traffic flow on adjacent streets, or
  2. The accesses have adequate sight distance.

## Chapter 11. Access Design

All accesses shall be located, designed, and constructed to minimize traffic congestion and maximize public safety on the street system. This chapter provides location and design criteria for access at the right-of-way line, access approach in the right-of-way, and driveways internal to a property.

### 11.1. General

- A. **Access.** Access to the right of way shall be designed as an access approach.
- B. **Design.** The designers of proposed developments must consider the access and driveway profile to ensure that required grade transitions can be achieved while considering building setback, terrain, and grades.
- C. **Emergency Vehicles.** All accesses shall be located and designed to readily accommodate emergency vehicles that would ordinarily respond at the particular establishment. For driveways designated as fire lanes and/or fire apparatus access roads, the design standards delineated in the International Fire Code and by the Fire Marshal shall also apply.
- D. **Traffic Control Devices.** All on-site traffic control devices, including signs and pavement markings, shall meet the Manual on Uniform Traffic Control Devices (MUTCD) standards.

### 11.2. Access Width

The access width is measured at the right-of-way/property line. Table 11.1 provides maximum/minimum access widths. The ~~Public Works Director~~ <sup>City Engineer</sup> may approve a wider access when warranted by a traffic study or the turning radius of the appropriate design vehicle.

~~Minimum tract/easement widths shall be maintained onto the property a minimum of 20 feet from the right of way line or to the nearest property line of the most distant lot sharing the access.~~

Table 11.1 Access Widths

Access Types	NON-ARTERIAL STREETS		ARTERIAL STREETS	
	Width (FT)		Width (FT)	
	Min.	Max.	Min.	Max.
Residential	10	24	20	24
Commercial	15	26	20	36
Industrial	22	NA	25	35

### 11.3. Access Clearance

- A. The minimum distance for a residential driveway shall be 35 feet or the posted speed limit as measured in feet (i.e. 40 mph is 40 feet), whichever is greater, from a side street, intersection or adjacent driveway. The distance shall be measured from the road right-of-way line to the nearest edge of the driveway.
- B. Minimum driveway spacing along an arterial roadway shall be 75 feet. Accesses along an arterial shall be aligned across the street from other access.
- C. Whenever a potential access exists to any property from both a public road and a private easement, the City may refuse access to the public road.
- D. Accesses in non-arterial roadways shall be aligned across the street from each other where possible.
- E. Unless otherwise noted, all measurements shall be from center of driveway to center of driveway.

### 11.4. Access Approach

- A. A paved access approach shall be provided between the property line and the edge of pavement in the right-of-way.
- B. The maximum change in access approach profile grade, within the right-of-way, shall be six percent within any 10 feet of distance on a crest vertical curve and 12 percent within any 10 feet of distance in a sag vertical curve, per Standard Plan 2-01 Intersection Landing.

- C. No portion of an access approach shall be allowed within five feet of a side property line in residential areas, or within nine feet in commercial areas, measured perpendicular to the side property line that is projected into the right-of-way, except:
1. On a cul-de-sac bulb as necessary for proposed residential access;
  2. For a shared driveway.

D. An access approach, that crosses an open ditch section, will require installation of a culvert with a 12-inch minimum diameter and shall be adequately sized to carry anticipated stormwater flows.

E. No driveway shall be directly across the roadway from areas reserved for parking locations.

## **11.5. Driveway**

### **A. General**

1. All driveway areas that are proposed to be abandoned or not used on the same frontage shall be removed and the curbing and sidewalk or shoulder and ditch section shall be properly restored in compliance with these PWS.
2. All driveway aprons shall be constructed of Portland cement concrete (PCC) or asphalt and shall be subject to the same testing and inspection requirements as curb, gutter, and sidewalk construction.
3. Joint use driveways serving two adjacent parcels are permitted upon formal written agreement by both property owners and approval of the Public Works Director. The agreement shall be a recorded easement for both parcels of land specifying joint usage. Joint use driveways shall be a minimum of 15 feet wide and paved along that portion which serves both parcels.
4. Grade breaks, including the tie to the roadway, shall be constructed as smooth vertical curves. The maximum change in driveway grade shall be eight percent within any 10 feet of distance on a crest and 12 percent within any 10 feet of distance in a sag vertical curve.
5. No commercial driveway shall be approved where backing onto the sidewalk or street will occur.
6. All driveway locations must be shown on the site development plans.

7. New driveway locations created by the development of property shall be combined whenever possible to create the fewest number of accesses onto a City street.
8. Combined driveways for adjoining properties are encouraged. In conjunction with the approval of a development, the City may require the applicant to provide an access and circulation easement to an abutting property, where joint access is reasonable, to serve future development
9. The maximum grade of a driveway within the right-of-way shall be 15%.
10. No driveway shall be located within the limits of an intersection, including 3-way intersections.

#### **B. Arterial Streets.**

1. No driveway may access an arterial within 75 feet (measured along the arterial) of an intersection of another.
2. No driveway access shall be allowed to an arterial street within 150 feet of the nearest right-of-way line of an intersecting street.
3. Within the limitations set forth above, access to arterial streets within the City shall be limited to one driveway for each tract of separately owned property. Properties contiguous to each other and owned by the same person are considered to be one tract.
4. Driveways giving direct access to arterials may be denied if alternate access is available.
5. Wherever a potential access exists to any property from both a public road and a private road or easement, the City may refuse access to the public road.
6. The Public Works Director and Metro Transit will determine the minimum separation that will be allowed between an existing bus stop and a proposed driveway.

#### **C. Residential Driveways.**

1. Residential driveways shall be constructed the maximum practical distance, but in no event less than 35 feet or the posted speed limit in feet, whichever is greater, from a side street or intersection. The distance is measured from the road right-of-way line to the nearest edge of the driveway.

Wherever a potential access exists to any property from both a public road and a private road or easement, the City may refuse access to the public road.

**D. Width.**

1. Maximum driveway width is shown in Table 11.1 of this chapter.
2. Road approaches and/or ingress and egress tapers may be required in industrial and commercially zoned areas as directed by the Public Works Director. Tapers shall be designed per the Institute of Transportation Engineers publication "Transportation and Land Development" by V.G. Stover and F. Koepke.

### **11.6. Parking Lot Throat Lengths**

- A. Traffic signage in a parking lot must meet the MUTCD.
- B. The required throat length at a parking lot access to public right-of-way is determined during the permit review process and is usually based on the Traffic Impact Analysis.
- C. The throat length vehicle storage in parking lots is based on a typical vehicle spacing of 20 feet, but may be increased where larger vehicles can be expected.
- D. The City may adjust the on-site throat lengths for accesses with two approach lanes, subject to the transportation analysis findings, roadway geometry, traffic volumes, and site layout.
- E. On-site storage is measured from the right-of-way line to the first parking stall or drive aisle in a parking lot.
- F. **Outbound:** The throat shall be of sufficient length to provide adequate storage of outbound vehicles without interference with on-site circulation. Outbound vehicle storage areas shall be provided to eliminate backup and delay of vehicles within the development.
- G. **Inbound.** The throat shall be of sufficient length to prevent vehicles from spilling onto the street system, and from obstructing the adjacent street, sidewalk, or circulation within the facility.

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## Chapter 12. Street Design

This chapter sets the minimum standards for the geometric street section.

### 12.1. Reconstruction

- A. Reconstructed roadways shall be brought up to current standards to the maximum extent feasible. Any deviation must be approved per Appendix H, Engineering Deviation Criteria.
- B. Transitions or tapers necessary to connect with existing roadway of a different width shall meet AASHTO and MUTCD standards. The minimum taper rate shall be the shift width (feet) multiplied by the posted speed (mph). See Figure 7.1.

### 12.2. Widths

- A. Lane widths vary in range from 10 to 12 feet and are typically determined based on location, roadway type and desired characteristics. Lane widths for the City Streets by classification are listed in Chapter 9 Street Classification.

### 12.3. Vertical Alignment

- A. The minimum vertical profile is one half (0.5) percent. Maximum profile grades vary by road classification and are listed in Table 12.1.   
desgin for concrete and one (1.0) percent for HMA

Table 12.1 Maximum Profile Grade

MAXIMUM PROFILE GRADE				
Local	Neighborhood Collector	Arterial – Collector	Arterial – Minor	Arterial – Principal
15%	10%	10%	10%	9%

(1) Maximum profile grades may be exceeded for 300 feet or less, upon approval of a deviation by the Public Works Director. Exceptions exceeding 15 percent will require approval by the Fire Department and the Public Works Director. Any road at 15% or greater shall be Portland Cement Concrete construction.

(2) Maximum profile grade applies to either the road centerline or the edge of pavement line, whichever is steeper.



## 12.4. Vertical Curve Criteria

- A. Vertical curves shall be designed to meet the latest AASHTO guidelines for the appropriate design speed.
- B. The maximum rate of vertical curvature (K) may not exceed 167 feet per percent change in grade on streets with curb and gutter. The minimum curve length shall not be less than 50 feet.
- C. Stopping Sight Distance (SSD): SSD applies as shown in Table 12.2 Vertical Curve – Minimum Stopping Sight Distance.
1. SSD is based on an eye height of three and one half feet and the height of an object at two feet.
  2. On downgrades exceeding three percent, the SSD shall be increased <sup>to</sup> by the values shown in Table 12.2.
  3. The Public Works Director may approve sag vertical curves on local access streets with stopping sight distance less than that in Table 12.2, through deviation.

Table 12.2 Vertical Curve – Minimum Stopping Sight Distance (in feet)

DESIGN SPEED	FLAT	<del>DOWNGRADE</del>	<del>DOWNGRADE</del>	
	0%	3%	6%	9%
25	<del>165</del> 150	165	175	185
30	200	210	220	230
35	250	265	280	305
40	325	345	365	400
45	400	425	455	505

## 12.5. Horizontal Curve Criteria

- A. Super elevation is not required in the design of horizontal curves on local streets, but may be needed to meet terrain and right-of-way conditions.
- B. Calculate super elevation according to AASHTO “Low Speed Urban Streets” design methodology.

C. See Table 12.3. Horizontal Curve Design.

**Table 12.3 Horizontal Curve Design (in feet)**

Design Speed (mph)	20 <sup>1</sup> Grades >10%	25 <sup>1</sup>	30 <sup>1</sup>	35	40
Center line Radius <sup>2</sup> Minimum (ft.)	100	150	300	470	See note <sup>3</sup>
Horizontal Sight Distance Minimum (ft.)	150	200	200	250	325
Min. Reverse Curve Tangent – Minimum (ft.)	0	0	0	200	200
Approach Tangent at Intersections <sup>3, 4</sup> Minimum (ft.)	50	75	100	200	300
Tangent between Curves Minimum (ft.)		50	50		
Minimum Run-Off Length (ft.)		80	90	100	115
Super elevation		Not Required AASHTO	Not Required AASHTO	8% Maximum Calculate run-off lengths: <u>AASHTO Geometric Design</u>	
6% Super elevation Horizontal Curvature Radius (ft.)		185	275	380	510
8% Super elevation, Horizontal Curvature for Radius (ft.)		170	250	350	465

Source: "Low Speed Urban Streets", AASHTO

- 1 Use these criteria without super elevation
- 2 Radii based on crown section with 2% slope on each side of crown
- 3 Where super elevation is used, calculate runoff lengths according the WSDOT Design Manual.
- 4 Where a curved road approaches an intersection, these tangent sections must be provided on the approach to the intersection to provide for adequate sight distance for traffic control devices at the intersection. The distance shall be measured from the flow line of the through street. Where super elevation is used, calculate runoff lengths according the WSDOT Design Manual intersection. The

*distance shall be measured from the flow line of the through street. Where super elevation is used, calculate runoff lengths according the WSDOT Design Manual.*

## 12.6. Street End

Streets end in a cul-de-sac, an eyebrow, or a hammerhead.

- A. Turnaround facilities shall be provided at street ends where the street length from the nearest intersection is more than 150 feet measured from the centerline of intersecting street to end of dead-end street pavement.
- B. Cul-de-sac street ends shall be constructed as follows:
1. Minimum right-of-way diameter across bulb section: 114 feet in a permanent cul-de-sac, ~~84 feet~~ <sup>90 feet</sup> in a temporary cul-de-sac, with bulb area lying outside straight-street right-of-way provided as temporary easement pending forward extension of the street.
    - I. Right-of-way may be reduced, through deviation, provided that utilities and necessary drainage are accommodated on permanent easements within the development.
  2. Minimum diameter of surfacing across bulb: 90 feet of paving in curb type road without parking. The diameter shall be increased a minimum of ~~8'~~ <sup>16'</sup> for on street parking within the cul-de-sac.
  3. Cul-de-sac Island: Required feature for any cul-de-sac. The island shall have full-depth vertical curb. Minimum diameter shall be 20 feet and there shall be at least 30 feet of paved traveled way in a curb type section around the circumference. Island shall be landscaped. The HOA or the adjacent property owners shall maintain the island.
  4. Sidewalks <sup>and amenity strip</sup> shall be constructed on both sides of the stem and on the bulb.
- C. A dead-end local street shall not be longer than 600 feet, measured from centerline of intersecting street to center of cul-de-sac. The maximum length may be extended to 1,000 feet if 50 or fewer potential lots are to be served and there is provision for emergency vehicle turnaround near mid-length.
- D. The Public Works Director may require an off-street walk or an emergency vehicle access to connect a cul-de-sac at its terminus with other streets, parks, schools, bus stops, or other

pedestrian traffic generators, if the need exists. Off-street sidewalks shall be contained in the right-of-way or a sidewalk easement.

- E. If a street is to be temporarily terminated at a property boundary during development and it serves more than three lots or is longer than 150 feet, a temporary bulb shall be constructed near the plat boundary. The paved bulb shall be 90 feet in diameter with sidewalks terminated at the point where the bulb radius begins. Removal of the temporary cul-de-sac, restoration, and extension of the sidewalk shall be the responsibility of the developer who extends the road.
- F. The maximum cross slope of a street at the street end shall be 8 percent.
- G. Partial bulbs or eyebrows shall have a minimum paved radius and an island configuration. Island shall be offset two feet from edge of traveled way.
- H. A hammerhead per Standard Plan <sup>2-21</sup>~~2-32~~ Dead End Hammerhead, may be used to fulfill the requirement to provide a turnaround facility where the street serves (or will serve) four or fewer single-family residential units

## 12.7. Utility Locations

- A. Utility structures shall be located in the amenity zone or at the back of sidewalk without encroaching onto private property, in the gutter line, or within the roadway as specified below.
- B. New utility structures are not allowed in sidewalks, driveways, driveway approaches, or any portion of a curb ramp or landing.
- C. Underground systems shall be located at least five feet away from road centerline and where they will not otherwise disturb existing survey monuments.

Table 12.4 Underground Utility Locations

UTILITY	LOCATION FROM CENTERLINE	COVER	NOTES
Water Main <sup>1</sup>	Five to ten feet north and east	Minimum 24-inch cover from finished grade.	
Water Service	N/A	Minimum 24-inch cover from finished grade.	For any one connection, not extend more than 60 feet along or through the right-of-way, or the minimum width of the existing right-of-way. Stub out perpendicular to water main preferred
Water Meter Box	In the right-of-way, at right-of-way line/property line in the one-foot setback between the back of sidewalk and right-of-way line. Not to be located within a driveway.		
Sanitary Main <sup>1,2</sup>	Five feet south and west	Minimum 36-inch cover from finished grade.	Stub out perpendicular to <del>water</del> main preferred sewer/sanitary
Force Main Side Sewer	Within 10 degrees of perpendicular-to-road centerline, and extend to right-of-way line.	Minimum 36-inch cover from finished grade, ditch bottom or natural ground,	If nonmetallic, install wire or other acceptable proximity detection features; or place in a cast iron or other acceptable metal casing.
Gas Main	Five to ten feet south and west	Minimum 24-inch cover	
Power, telephone, fiber-optic cable, cable TV	Either side	Minimum 36-inch cover	

- 1 *Sanitary sewer and water lines shall be separated by a minimum of 10 feet in accordance with good engineering practice such as the Criteria for Sewage Work Design, Washington Department of Ecology, latest edition.*
- 2 *Gravity systems, whether sanitary or storm drainage, shall have precedence over other systems in planning and installation except where a non-gravity system has already been installed under previous approved permit and subject to applicable provisions of such permits or franchises.*

D. Electric utilities, power, telephone, fiber-optic cable, cable TV:

1. Utility poles or other appurtenances shall be located as far from the traveled way or auxiliary lane as conditions allow. No pole or appurtenance shall be located so that it poses a hazard to the general public. Utilities shall place and replace poles with primary consideration given to public safety.
2. Locations of poles shall be compatible with driveways, intersections, and other road features. A pole shall not interfere with sight distances, road signing, traffic signals, culverts, trees, etc.
3. Utility poles or other appurtenances shall be located at the back of ditches, unless an alternate location is approved.
4. Utility poles shall not be placed in sidewalks, curb ramps or landing areas unless approved by the city. Utility poles shall not impede ADA access in any way.
5. On principal and minor arterials, poles and obstructions shall be placed at least eight and one-half feet from face of curb.
6. On non-arterial streets (neighborhood collectors, local access), poles and obstructions shall be placed at least five and one-half feet from curb face.
7. Deviations from the pole and obstacle clearance criteria may be requested by utilities when there are no other viable alternatives. Deviation requests must identify adequate protection for motorized and non-motorized users. Deviations requests must comply with the deviations criteria contained herein.

## 12.8. Private Streets and Alleys

- A. Private street and alley design and installation must meet ADA requirements.
- B. An access approach shall connect the private street to the public right-of-way and is to be considered as an intersection. Alley entry shall be provided by a driveway concrete apron. Alleys will only be allowed when lots have frontage on a public street. See Chapter 9.3, Alley, for additional criteria associated with alleys.
- C. Private streets or alleys must be paved with either concrete or asphalt. If parking on the private street is requested, an additional eight feet of pavement and tract width shall be provided on each side of the street where parking is to be allowed.
- D. Pedestrian access at least five feet in width shall be provided on at least one side of the private street, except for projects with four dwelling units or less. The pedestrian access shall be separated by a curb or other acceptable delineation. Parking is not permitted in the pedestrian access areas. Street lighting systems for private streets shall be designed and constructed on a separate power source from the public street system lighting and shall be the responsibility of the property owner, homeowner, or homeowner's association for operation, ownership, maintenance and repair.

E. Private streets cannot have an inverted crown.

F. See Table 12.5. Private Street Dimensions.

**Table 12.5 Private Street Dimensions**

NUMBER OF SINGLE-FAMILY LOTS	TRACT OR EASEMENT WIDTH (FT)	PAVEMENT/TRAVELED WAY WIDTH (FT)	MAXIMUM LENGTH (FT)
	<i>Min</i>	<i>Min</i>	
<i>Private Street (3 or 4 dwelling units)</i>	26 (with an additional 6 feet utility easement outside tract)	20	150*
<i>Private Street (5 to 9 dwelling units)</i>	30	24	150*
<i>Alley (Residential only, no more than 30 dwelling units)**</i>	20	<del>20</del> 16	400 max.
	<i>Woonerf</i> 20	16	400 max.

\* The dimensions may be adjusted by the Fire Department without a deviation.

*\*\* Secondary Property Access Only*

## **12.9. Dead End Street**

- A. Dead end streets shall be permitted only where there is no feasible connection to an adjacent street or if topographic or existing forested areas prevent such connections. Half streets, which do not provide for future full right-of-way width, shall not be allowed.
- B. A dead end local street shall not be longer than 600 feet, measured from the centerline of the intersecting street to the center of cul-de-sac. The maximum length may be extended to 1,000 feet if 50 or fewer potential lots are to be served and there is a provision for emergency vehicle turnaround near mid-length.
- C. Where possible, a pedestrian access shall be required to connect a cul-de-sac to adjacent streets, parks, schools, or other pedestrian facilities. The pedestrian access shall be in right-of-way or if approved, placed in a sidewalk easement. A turnaround facility shall be provided for a public or private dead end street where the street length is more than 150 feet, measured from the centerline of the intersecting street to the end of the dead-end street pavement.
- D. A dead end street requires a hammerhead (allowed with approval from Fire Marshall for four lots or less) or cul-de-sac as a turnaround. Cul-de-sacs shall meet the following requirements:

1. The minimum right-of-way diameter across bulb section is 114 feet for a permanent cul-de-sac or <sup>90</sup>84 feet for a temporary cul-de-sac.
2. The minimum diameter of surfacing across the bulb is 90 feet of paving without parking. The diameter shall be increase a minimum of <sup>16</sup>8' for on street parking within the cul-de-sac.
3. A 5' amenity strip is required around the diameter of the cul-de-sac.
4. A Cul-de-sac Island: Required feature for any permanent cul-de-sac. The island shall have full-depth vertical curb. Minimum diameter shall be 20 feet and there shall be at least 30 feet of paved traveled way in a curb type section around the circumference. Island shall be landscaped. The HOA or the adjacent property owners shall maintain the island.

5. At least for public streets, a landscaped median is required in the center of a cul-de-sac. The median will be maintained by the HOA or adjacent homeowners.

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## Chapter 13. Intersection Design

The design criteria in this chapter apply to street intersections. Intersections include driveway access as well as an approach to a street.

### 13.1. General

Intersection design shall conform to the guidelines set forth in AASHTO A Policy on Geometric Design of Highways and Streets, the ITE Urban Street Geometric Design Handbook, and the Manual on Uniform Traffic Control Devices (MUTCD). Refer to the WSDOT Design Manual for state highways. All intersection designs shall meet the requirements for entering sight distance and stopping sight distances as stated in the above reference standards. Deviations from these standards may be requested through the deviation process contained herein.

### 13.2. Alignment

- A. The angle of an intersection of two streets or alleys shall be 85° to 95°.
- B. The extension of the centerline of each leg of an intersection shall not be offset by more than two feet into the oncoming lane.

### 13.3. Spacing

- A. The minimum distance between adjacent intersecting streets (both public and private) shall be measured from centerline to centerline. Minimum intersection spacing along a specific street classification shall be:
  - 1. Principal Arterial: 350 feet.
  - 2. Minor Arterial: 300 feet.
  - 3. Collector Arterial: 200 feet.
  - 4. Residential Collector: 150 feet
  - 5. Local Street: 150 feet
  - 6. Alley and Woornerf: No intersection allowed.

### **13.4. Design Vehicles**

- A. Intersections shall be designed to accommodate the design vehicle appropriate for the highest classified street forming the intersection.
- B. The intersection design shall accommodate the use of the roadway as a designated truck route, bus route, or school bus route.
- C. The minimum design vehicle for a local roadway is the SU-30, although use of larger design vehicles may be required depending on roadway classification, transit routes, truck routes, adjacent land use, etc.
- D. All elements of the intersection shall be designed so the design vehicle will not encroach onto curbs, sidewalks, traffic control devices, medians, or the travel lanes of opposing traffic flow.

### **13.5. Curb Radii**

- A. Curb radii design must balance vehicle-turning movements with pedestrian safety. Typically, it is appropriate to use the smallest turn radii possible that still accommodates the design vehicle.
- B. For design, curb radii shall be rounded up to the nearest five-foot increment.
- C. Curb radii based on street classification are shown in Table 13.1, Typical Curb Radii Design Values. However, these values may be impacted by site conditions, including width of receiving lanes, on-street parking, and angle of intersecting roadways. Final required curb radii will be determined by the City.

**Table 13.1 Curb Radii Design Values**

<b>STREET CLASSIFICATION</b> (for highest street classification at intersection)	<b>RADIUS</b>
Arterial to Arterial	25 feet
Arterial to Local Street	20 feet
Non-Arterial to Non-Arterial Street	20 feet
Non-Arterial to Private Street	10 feet
Non-Arterial to Alley	10 feet
Transit/Truck Route	30 feet
Where vehicular turn is prohibited	10 feet
Radii for curb setbacks and bulb-outs	15 feet

### **13.6. Drainage**

- A. An intersection shall be laid out and graded so that surface water drains away from the intersection to the curb, and the intersection is safe and accessible for vehicles, pedestrians and bicyclists.
- B. Drainage structures shall not be placed in an ADA ramp or landing area.
- C. Drainage structures shall be located outside the corner radii.
- D. Drainage structures shall be placed at the upstream side of crosswalks and ADA ramp areas to reduce runoff or ponds in these locations.

### **13.7. Intersection Grades**

- A. Intersections shall be on grades as flat as practical.
- B. At an unsignalized intersection, the maximum allowable grade in the intersection is four percent (4%) extending a minimum of 50 feet in each direction, measured from the outside edge of the traveled way of the intersecting street. Grades above two percent may be allowed only in areas with steep topography or other unusual circumstances that prevent a flatter grade and only with an approved deviation request.

- C. At signalized intersections, the maximum grade is two percent (2%) within the intersection, extending extends 200 feet in each direction. Grades above two percent may be allowed only in areas with steep topography or other unusual circumstances that prevent a flatter grade and only with an approved deviation request.
- D. On sloping approaches at an intersection, landings shall be provided with grade not to exceed a one-foot difference in elevation for a distance of 30 feet approaching an arterial or 20 feet approaching a collector or local street, measured from future right-of-way line (extended) of intersecting street. See Standard Plan 2-03 Intersection Landing.
- E. The point of vertical curvature shall not encroach into a cross street any farther than the center of pavement of the cross street.

### **13.8. Pedestrian Treatments**

- A. In order to provide pedestrian safety, accommodations for pedestrians shall be designed into all intersections. Pedestrian accommodations include sidewalks, crosswalks, trails, pedestrian refuge islands, ADA elements for disabled persons, etc.
- B. Vaults, covers, castings, drainage grates shall not be placed within the crosswalk, or within crosswalk curb ramps or landing areas.
- C. When allowed by an approved deviation to be placed in the pedestrian areas, catch basin, junction box solid covers etc. shall have non-slip covers. The non-slip surface shall be a non-grit, metallic alloy surface with a hardness of up to 62 on the Rockwell "C" scale, SlipNOT or equal. Diamond or checker plate surfaces are not considered equal. Manhole covers shall have non-slip low profile waffle tread when approved by deviation to be placed in sidewalks, pathways, crosswalks, or other pedestrian use areas. All covers within a sidewalk shall meet current ADA and PROWAG requirements.
- D. Crosswalks, as defined by RCW 46.04.160, at intersections are delineated by one or more of the following:
  1. Projecting the curb and back of sidewalk lines across the street;
  2. A line 10 feet behind the face of the curb or roadway pavement, when there is no sidewalk; or

3. Crosswalk markings.

E. Curb Ramps

1. Consistent with the American with Disabilities Act (ADA), all projects, including alteration and new construction, shall meet ADA requirements and standards.
2. Curb ramps shall be fully within the crosswalk and shall align with the adjacent crosswalk. No utility boxes, utility box lids, drainage inlets, signs, and other fixed objects shall be located within the ramp.
3. The landing at the top of the ramp shall be four feet by five feet at a minimum, and shall be clear of all vertical obstructions.

4. Utility box lids shall not be located in the landing area. In situations where there are no other options, with an approved deviation, a junction box can be allowed if it is made skid resistant per WSDOT specifications.

5. Curb ramp widths shall match the width of the adjacent sidewalk.

- F. Compliant curb ramps with tactile warning strips shall be installed at each corner of an intersection where possible and corresponding companion ramps (ramps directly across the street of a new ramp) shall be retrofitted or constructed per RCW 35.68.075.

- G. When street paving impacts an intersection or a modification to a curb ramp occurs, the curb ramps must be retrofitted to meet the current curb ramp standard. For the purposes of this specific item, impact to an intersection is defined as:

1. Nine square feet or more of disturbance to the sidewalk within the area bounded by the curb, the right-of-way or property lines, and the extension of said curb, right-of-way or property lines across the sidewalk; or
2. Three lineal feet of disturbance to the curb; or
3. Development projects requiring installation of frontage improvements; or
4. Roadway resurfacing defined as an alteration by the 2013 "Department of Justice/ Department of Transportation Joint Technical Assistance on Title II of the Americans with Disabilities Act requirements to provide curb ramps when streets, roads, or highways are altered through resurfacing". This includes asphalt overlays or addition of new asphalt/concrete roadway surface.

5. See Chapter 9, Street Classification, for required sidewalk widths.

### 13.9. Clear Sight Triangle

The following applies to:

- The intersection of two public streets;
- The intersection of a commercial driveway with a public street;
- The intersection of a residential driveway with a public street; and
- The intersection of a private street or alley with a public street.

A. **Obstructions:** Sight obstruction is defined as parked vehicle, signage, fencing, landscaping, or other obstruction installed, set out, or maintained, which obstructs the view of motor vehicle operators at an intersection within a clear sight triangle area and between the height limits

1. Intersection Other Than Single-Family Residential. Sight obstruction shall not be allowed between a height of ~~three feet~~ <sup>three feet</sup> and ~~ten feet~~ <sup>ten feet</sup> above the street surface within the sight triangle established by this section. ~~Sight obstructions above seven and one-half feet above the street surface are allowed.~~
2. Intersection with a Residential Driveway. Sight obstruction is not allowed between three and seven feet above the street surface.
3. Landscaping, street furniture, marquees, awnings, <sup>fencing,</sup> or other such obstructions must not obscure sight lines to traffic control devices, such as signs or signals.
4. For intersections not clearly included in the above types and for which view problems may exist, the Public Works Director will establish setback lines as required.
5. Where unusual conditions preclude the application of this subchapter in a reasonable manner, the Public Works Director may establish minimum sight distances. These minimum sight distances may be more restrictive than provided herein.

**Residential Driveway:** The intersection of a residential driveway with a public street shall be considered as a stop controlled intersection.

- or Yield Controlled
- B. **Uncontrolled Crossing Intersection**. The setback lines are measured along the centerlines of each approaching roadway. Setback measurements are based on approaching street speed limit. See ~~standard details.~~ <sup>Standard Detail Fig 02-19B.</sup>
- C. **Stop-Controlled Intersection**: - The setback lines are measured along the centerlines of each approaching roadway. Setback measurements are based on approaching street speed limit. <sup>Standard Detail Fig 02-19A.</sup> See ~~standard details.~~

### 13.10. Pedestrian Sight Distance

- A. The minimum sight distance for pedestrian safety shall be determined as follows: the driver of an existing vehicle shall be able to view a one-foot-high object 15 feet from either edge of the exit lane at the driveway throat when the driver's eye is 14 feet behind the back of the pedestrian walkway.
- B. The minimum sight distance shall be maintained at all driveways, buildings, garage entrances, etc. where structures, wing walls, etc., are located adjacent to or in close proximity to a pedestrian walkway.

### 13.11. Roundabout Intersection

Roundabout intersections shall be designed in accordance with the specifications as set forth in the WSDOT Design Manual, <sup>MUTCD,</sup> and WSDOT/APWA Standard Specifications unless otherwise authorized by the City.

### 13.12. Signalized Intersections

Signals systems shall be designed in accordance with the specifications as set forth in the WSDOT Design Manual, <sup>MUTCD,</sup> WSDOT/APWA Standard Specifications and King County Standards unless otherwise authorized by the City.

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## Chapter 14. Non-Motorized Facilities

### 14.1. General

- A. Non-motorized facilities and associated amenities shall be provided when required by state or federal regulations, the municipal code and/or public works standards, when planned in an adopted City plan, or when needed to ensure safe walking/biking conditions as mitigation through a traffic impact analysis.
- B. All facilities shall meet Americans with Disabilities (ADA) requirements and/or Forest Service Trail Accessibility Guidelines (FSTAG), as applicable.
- C. All facilities located outside the Right-of-Way shall meet the approved city trail standards unless an alternative standard is required or approved by the Parks and Recreation Director.

### 14.2. Sidewalks

Sidewalks are required on all streets, except alleys. Sidewalk shall be required on private street and street endings, See Chapter 12 Street Design.

- A. All designs shall meet the current Americans with Disabilities Act (ADA) and Public Right of Way Accessibility Guidelines (PROWAG) requirements and standards. Refer to Chapter 13 Intersection Design for curb ramp requirements.
- B. Sidewalks shall be located between the property/right-of-way line and the amenity zone unless otherwise approved by the Public Works Director.
- C. Sidewalk widths shall follow the minimum requirements as stated in Chapter 9, Street Classifications, based on the classification of the roadway.
- D. The required width of a sidewalk may be greater than required by those stated in Chapter 9 when in accordance with the adopted Town Center Plan/Infrastructure Plan, or other adopted City plan or regulation, or, as part of a mitigation requirement through review that determines that greater widths are warranted due to expected pedestrian traffic volume.

- E. Sidewalks shall be separated from the roadway with an amenity strip.
- F. Sidewalks shall maintain their full width around obstructions that cannot be relocated.
- G. When a sidewalk must transition to the existing frontage that does not have a sidewalk, the transition shall meet ADA requirements. Generally, an asphalt transition is acceptable. Refer to Standard Plan 3-11 Temporary Asphalt Transition Ramp to Shoulder.
- H. Parking stalls shall be designed and constructed so that no part of any parked vehicle obstructs the Pedestrian Access Route as defined by ADA and sidewalk. For example, vehicle overhangs of a Pedestrian Access Route would require that the minimum required sidewalk width be widened by 3-feet to maintain the minimum five-foot clear width.

I. When a sidewalk is adjacent to a curb, the width shall be increased to a minimum of 6'.

### **14.3. Bicycle Facilities**

- A. Bicycle facilities shall meet the standards of the AASHTO Guide for Development of New Bicycle Facilities, MUTCD – Manual for Unified Traffic Control Devices, and WSDOT – Washington State Department of Transportation.
- B. Facilities shall be designed for uniformity in design, signage and pavement marking for bicyclist and motorist safety.
- C. Direction of travel for on-street bicycle facilities shall be in the same direction as the motor vehicle traffic, unless in facilities such as a cycle tract that are designed to protect bicycle travel.
- D. Vaned grates or solid lids shall be used on catch basins within bicycle facilities.

### **14.4. Regional Trails**

Regional Trails are multi-use trails that provide recreation and transportation connections through the City to neighboring communities and other trail systems. Regional trails can be either paved or soft surface.

Regional Nature Trails are trails that provide recreation for pedestrians and/or equestrians and are soft surface trails (e.g. Emerald Necklace Trail).

A. Widths:

1. Regional Trails shall be at least ten feet in width, and twelve feet is preferred. Regional Nature Trails shall be a minimum of 10 feet wide unless topography or other limitations are present.
2. A minimum two-foot graded shoulder is required on either side of a Regional Trail. A wider graded shoulder may be required when heavy pedestrian use is anticipated, or in accordance with an adopted City regulation or plan. A minimum one-foot wide shoulder is required on either side of a Regional Nature Trail.
3. A five-foot horizontal clear zone shall be maintained on either side of the trail.
4. Maintain a minimum of a 10-foot vertical clear zone.

#### **14.5. Connector Trail**

Connector Trails are important linkages between key areas within the City such as the Town Center. These multi-use trails can be paved or soft surface, and shall be located within a public easement or public right-of-way.

A. Widths:

1. Connector Trails shall be a minimum six feet wide.
2. A minimum two-foot graded shoulder is required on either side of the trail. A wider graded shoulder may be required when heavy pedestrian use is anticipated, or in accordance with an adopted City regulation or plan.
3. A five-foot horizontal clear zone shall be maintained on either side of the trail.
4. Connector Trails shall have a minimum of a 10-foot vertical clear zone.

## **14.6. Local Trail**

Local trails are used as neighborhood link trails or internal park trails. These multi-use trails can be paved or soft surface, and shall be located within a public easement or public right-of-way.

### **A. Width:**

1. Local Trails shall be a minimum four feet wide.
2. A minimum two-foot graded shoulder is required on either side of the trail.
3. A five-foot horizontal clear zone shall be maintained on either side of the trail.
4. Local Trails shall have a minimum of a 10-foot vertical clear zone.

## **14.7. Nature Trail**

Nature Trails are soft surface trails used by pedestrians and often built within natural environments that are constrained with steep terrain and/or critical areas.

### **A. Width:**

1. Nature Trails shall be a minimum two feet wide, and may be required to be between two and six feet in width.
2. A minimum one-foot graded shoulder is required on either side of the trail.
3. Nature Trails shall have a minimum of an 8-foot vertical clear zone.

## **14.8. Waterway Trail**

Waterway trails provide access to waterbodies within the City such as Beaver Lake, Pine Lake and Lake Sammamish. These trails are used by pedestrians for transporting non-motorized personal water craft from parking areas to designated water access points and should be accessible. Trails along waterbodies that access adjacent land areas shall follow local trail standards.

A. Waterway Trail Width:

1. Shall be a minimum three feet wide, and may be required to be between three and six feet in width.
2. A minimum of two-foot graded shoulder on each side is required.
3. A five-foot horizontal clear zone shall be maintained on either side of the trail.
4. Waterway Trails shall have a minimum of an 8-foot vertical clear zone.

## 14.9. Amenities

Amenities provide non-motorized users conveniences and include such items as benches, garbage receptacles, bicycle racks, and pet stations. The following is a list of some of the standard City of Sammamish amenities. Those not listed must be approved by the Parks and Recreation Director.

A. Benches:

1. Fair Weather, Plaza Series, Model PL-1.3, powder coated black semi-gloss finish. Manufacturer: Fair Weather Site Furnishings ([www.fairweathersf.com](http://www.fairweathersf.com)), or equivalent.

B. Fair Weather, Plaza Series, Model PL-3, powder coated black semi-gloss finish.

Manufacturer: Fair Weather Site Furnishings ([www.fairweathersf.com](http://www.fairweathersf.com)), or equivalent.

C. Trash Receptacles

1. Fair Weather, Model TR-12, 35-gallon liner, spun dome top, powder coated black semi-gloss finish. Manufacturer: Fair Weather Site Furnishings ([www.fairweathersf.com](http://www.fairweathersf.com)), or equivalent.

D. Bike Rack

1. Fair Weather, Model BR-1.5, powder coated black semi-gloss finish. Manufacturer: Fair Weather Site Furnishings ([www.fairweathersf.com](http://www.fairweathersf.com)) or Huntco BR-5, powder coated black semi-gloss finish. Huntco Supply ([www.huntco.com](http://www.huntco.com)), or equivalent.

E. Pet Stations

1. DOGVALET, Model 1005-2, Poly, Forest Green. Manufacture: DOGIPOT (<http://www.dogipot.com/>), or equivalent.

## Chapter 15. Roadside Features

### 15.1. Fixed Objects

- A. Locate fixed objects so that vehicle and pedestrian sight distance meets the standards in Chapter 13 Intersection Design of this document.
- B. Standard clearances shall be met in accordance with Table 15.1 Standard Horizontal Clearances and Table 15.2 Standard Vertical Clearances.

**Table 15.1 Standard Horizontal Clearances**

FROM	TO	STANDARD CLEARANCE
Curb Face	Closest part of any fixed object (excluding traffic control signs and signals and parking meter posts)	2 feet
Textured Surface of Wheel Chair Ramp	Closest part of any fixed object	1 foot
Edge of Sidewalk	Stair riser	2 feet
Utility or Light Pole Face, Fire Hydrant	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	5 feet

**Table 15.2 Standard Vertical Clearances**

FROM	TO	STANDARD CLEARANCE
Roadway Surfaces	Any horizontal projection over surface: measured from the crown of the street to the lowest portion of the structure.	16 feet
Sidewalk Surfaces	Any horizontal projection over the surface	8 feet
Roadway Surfaces	Tree limbs	14 feet
Alley Surfaces	Any horizontal projection over paved surface	14 feet
Bicycle Path Surfaces	Any horizontal projection over surface	10 feet

- C. **Electrical Facilities.** For projects that trigger installation of or adjustments to Puget Sound Energy (PSE) facilities, the applicant shall coordinate with PSE. Please visit the PSE website or PSE engineering for the most recent information on clearance requirements.

PSE and City staff will work closely with applicants to accomplish appropriate clearances required for design, during construction, and at final build-out. Communication and resolution of required clearances are critical to final design and construction approval of the proposal. Contact Puget Sound Energy for more information regarding service requirements.

## 15.2. Landscaping

The following criteria apply to landscaping improvements in the right-of-way. The landscaping design criteria in this section are based on transportation safety requirements and on minimum requirements for plants to achieve mature growth.

Please contact the City's Department of Community Development (DCD) for landscaping requirements on private property. This chapter applies to trees only where noted in the public right-of-way.

### A. General

1. Any right-of-way landscaping disturbed by construction activity shall be replaced or restored to as existed or better condition.
2. All landscaping shall meet the sight distance and sight triangle requirements in Chapter 13, Intersection Design, of these standards.

### B. Plan Design Requirements

1. The right-of-way landscaping plan, shall be drawn to an engineering scale, and shall show property lines, plant and tree locations, right-of-way infrastructure, driveways, and intersections, as well as all specifications needed to install and inspect the installation.
2. Coordinate landscaping with transportation and utility plans. Adjust locations of trees to accommodate utilities, pedestrians, and sight distance.

3. Trees shall have maximum spacing of 35 feet on center starting 15 feet from the side property line (may be adjusted as approved by the City to allow a 10-foot clear zone on either side of a driveway)
4. Preserve existing trees and landscaping where possible.

If existing locations conflict with the required improvements, a approved standard deviation shall be required when the intent is to preserve the existing trees.

#### C. Plant Selection

1. All plants shall conform to American Association of Nurserymen (AAN) grades and standards as published in the “American Standard for Nursery Stock” manual, provided that existing healthy vegetation used to augment new plantings shall not be required to meet these standards.
2. Plant selection shall consider adaptability to climatic, geology, and topographic conditions of the site.
3. New trees must be at least two-inch caliper measured six inches above the base and must be selected from the City-approved street tree list in Appendix F included herein. Ground cover plants must be at least four-inch pot, spaced 18 to 20 inches on center or one-gallon pot spaced at 20 inches on center. Low growth shrubs must be one-gallon pots spaced at three feet on center. Shrubs must be 18 to 24 inches in height (or three-gallon pot) spaced at five feet on center.
4. Location of trees shall be based on the plant’s mature canopy and root mat width. For planting purposes, root mat width is assumed to be the same width as the canopy.
5. When right-of-way width allows, additional clearance distance must be provided from utilities.
  - i. When right-of-way width is limited and the five-foot clearance cannot be met, the City will evaluate site conditions and may permit one or both of the following.
  - ii. Tree installation less than five feet clearance from ductile iron or PVC pipe.
  - iii. Tree installation less than five feet from concrete pipe that has rubber gaskets.
6. Adjust placement to avoid conflict with driveways, utilities, and other functional needs. Trees shall be placed:

- i. 35 feet on center starting 15 feet from the side property line (must not obscure stop signs and street signs).  
In the center of the amenity strip.
  - ii. ~~Three and one half feet back from the face of the curb.~~
  - iii. Eight feet from underground utility lines (three feet with root barriers).
  - iv. 15 feet from power poles.
  - v. 10 feet from driveway edges.
  - vi. 20 feet from streetlights or existing trees.
  - vii. 30 feet from curb or edge of travel lane (where no curb exists) at street intersections.
  - viii. 10 feet from roadway edge where no curb is present.
  - ix. Mature tree and shrub root mats may overlap utility trenches as long as approximately 80 percent of the root mat area is unaffected.
  - x. Trees must be staked using five-foot tall staking, and root barriers between the tree and the sidewalk and curb.
  - xi. Mature tree and shrub canopies may not reach an above ground utility such as streetlights and power lines.
7. Tree selection within the right-of-way shall promote diversity of species. Improvements that require more than two (2) new trees shall provide alternating patterns of more than once species of tree.

#### D. Soil

- 1. The landscaping plan shall provide soil specifications, including soil depths.
- 2. Improvements that include low impact development drainage facilities require specific specifications for the soils. Refer to current City of Sammamish Surface Water Design requirements general soil specifications.

### 15.3. Mailboxes

- A. United States Postal Service (USPS) must approve all mailbox locations, including temporary relocations.

- B. The approach to mailboxes must be clear of obstruction.
- C. Refer to Standard Plans for mailbox placement.
- D. During construction, existing mailboxes shall be accessible for delivery of mail.

#### **15.4. Steps, Stairways**

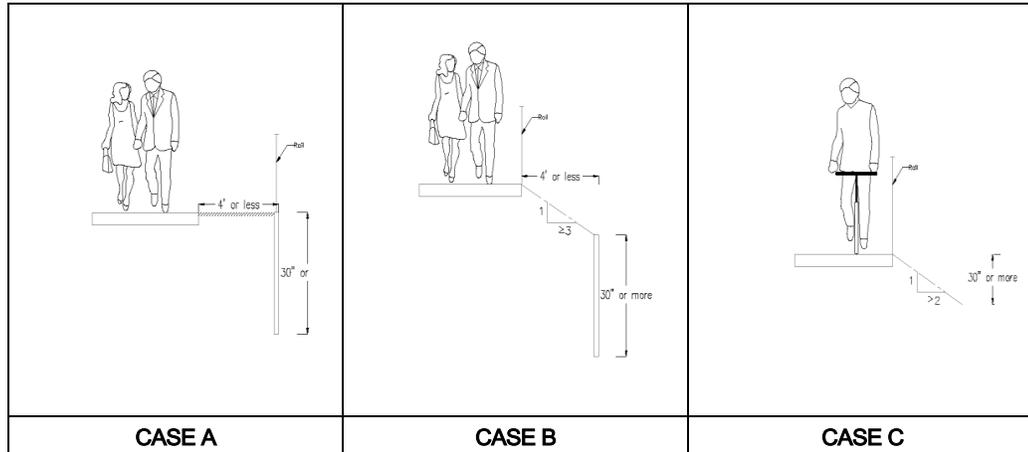
- A. Steps and stairways, and associated landings from private property shall not extend into the right-of-way.

#### **15.5. Pedestrian Railing**

- A. Railings in the right-of-way shall be consistent with Standard Plans ~~3-24~~ Pedestrian Railing, and shall be made of anodized aluminum, galvanized steel, or wrought iron.
- B. Railing in the right-of-way shall be installed along a non-motorized transportation facility when there is a drop from the facility of 30 inches or more and:
  1. The vertical wall face is less than four feet in horizontal distance from the near side face of the facility. See Figure 15.3, Case A.
  2. The vertical wall face is greater than four feet horizontally to the near side face of the facility and the slope to the wall top is steeper than 1V:3H. See Figure 15.3, Case B.
  3. The slopes adjacent to the facility average greater than 1V:2H. See Figure 15.3, Case C.
- C. Railings in the right-of-way shall be installed along a non-motorized transportation facility when there is a vertical drop from the facility of 18 inches or more.
- D. Pedestrian railings shall be designed in accordance with Standard Plans, and the WSDOT Standard Specifications.

3-15

Figure 15.3 Railing Scenarios



**15.6. Cut-and-Fill Slopes**

- A. Side slopes shall be 2H:1V or flatter on both fill slopes and cut slopes.
- B. Side slopes shall be stabilized by grass sod or seed, or by other approved plant or surface materials.

**15.7. Guardrail**

Guardrail shall be provided and installed by the applicant as directed by the ~~Public Works Director~~ **City Engineer**. For purposes of warrants, design, and location, all guardrails along public and private roadways shall conform to the criteria of the WSDOT Standard Plans and Specifications.

**15.8. Bus Stops**

In locations throughout the City, the transit provider recommends bus stop locations. The City shall work with the service provider to provide all final stop locations.

- A. Locations of bus stops shall be designed with safety as a paramount concern. Major arterials with high traffic counts shall be avoided where possible and only allowed with approved bus pull-outs providing pedestrian safety.

- B. All permanent bus stop locations shall be identified. This shall include pavement marking and approved signage.
- C. Pedestrian shelters are required at all bus pull-outs, transfer centers, and bus stops as part of frontage improvements for developments. Shelters are to be maintained by the service provider, home owner's association, or apartment owner, whichever is appropriate.
- D. Bus shelter design shall be approved by the ~~Public Works Director~~ .
- E. Advertising is not permitted on bus shelters or benches when placed within the public right-of-way.

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## 2. Poor Subgrade

- i. The minimum material thicknesses indicated herein are not acceptable if there is any evidence of instability in the subgrade. This includes free water, swamp conditions, fine-grained or organic soil, slides, or differential settlement. If there are any of these characteristics, the soil shall be sampled and tested sufficiently to establish a pavement design that will support the proposed construction. Any deficiencies, including an R-value of less than 55 or a CBR of less than 20, shall be fully considered and compensated for in the design.

### **16.3. Pavement Widening**

- A. Any widening of an existing roadway, either to add traveled way or paved shoulder, shall have the same surfacing material as the existing roadway. Or meet the minimum thickness standard in section 16.2.
- B. When an existing shoulder is to become part of a proposed traveled way, a pavement evaluation shall be performed. The shoulder area shall match the existing roadway section or pavement design is required to determine if the shoulder is acceptable or if any improvements are necessary. Designs based on these evaluations are subject to review and approval by the ~~Public Works Director~~ <sup>City Engineer</sup>. The responsibility for any shoulder material thickness improvement shall be considered part of the requirement for roadway widening.

## Chapter 17. Traffic Control Devices

- A. All traffic control devices shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) and City of Sammamish standards.
- B. All signs, such as street name, parking, stop, dead end, speed limit, and non-motorized indicators shall be approved as part of the project plan. <sup>All plans showing channelization and signage</sup> ~~The channelization plan showing pavement markings, permanent signing, and crosswalk locations~~ shall be prepared by a licensed engineer.
- C. Temporary traffic control to ensure traffic safety during construction activities shall be provided by the applicant and installed per MUTCD standards <sup>and Washington State modifications to the MUTCD.</sup>

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## **DIVISION 3 – SURFACE WATER**

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## Chapter 18. Surface Water Standards

The following Surface Water Standards apply to all public and private development within the City.

The City of Sammamish has adopted the King County Surface Water Design Manual (KCSWDM) in order to comply with its NPDES II Municipal Stormwater Permit. The version will be as adopted by Ordinance. In addition, the City has adopted an addendum to this manual titled “City of Sammamish Surface Water Design Manual Addendum. This addendum is found at the following website:

<http://www.sammamish.us/government/departments/public-works/stormwater-management-program/>

The City encourages the use of emerging storm water treatment technologies. Examples of emerging technologies include media filters, catch basin inserts, engineered erosion control products, and low impact development techniques. Proposed emerging technologies must be listed on either the Washington State Department of Ecology’s Technology Assessment Protocol (TAPE) or Chemical Technology Assessment Protocol (CTAPE). The Public Works Director must approve the emerging technology for use.

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# **DIVISION 4 – CONSTRUCTION AND INSPECTION**

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## Chapter 19. Construction

### 19.1. Standards

Construction, workmanship, and materials shall be in accordance with the approved plans, permit conditions, and the standards referenced in this manual.

- A. City of Sammamish Public Works Standard Details
- B. Latest edition of Standard Specifications for Road, Bridge, and Municipal Construction M 41-10, WSDOT.
- C. Latest version of the adopted Surface Water Design Manual, together with "City of Sammamish Surface Water Design Manual Addendum.
- D. Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration:  
<http://mutcd.fhwa.dot.gov/>

### 19.2. General

- A. Work Hour Restrictions
  - 1. Construction activities and noise shall meet the requirements of SMC 16.05.030.
  - 2. Major roadways have been imposed with additional restrictions, contact the City Engineer for the current information.
- B. Survey Monuments
  - 1. Anyone performing construction, maintenance, or other work in Sammamish must protect all survey monuments within the area of work.
  - 2. The applicant is responsible for all contractors working for him/her. If it is necessary to disturb a survey monument, the City Project Inspector must be notified and a permit from the Department of Natural Resources must be obtained before the disturbance occurs.
  - 3. Failure to comply with Washington State requirements (RCW 58.04.015) regarding monument removal or destruction is a gross misdemeanor and is punishable by a fine and/or imprisonment, and liability for the cost of reestablishment.
  - 4. Monuments shall be placed at the following locations:

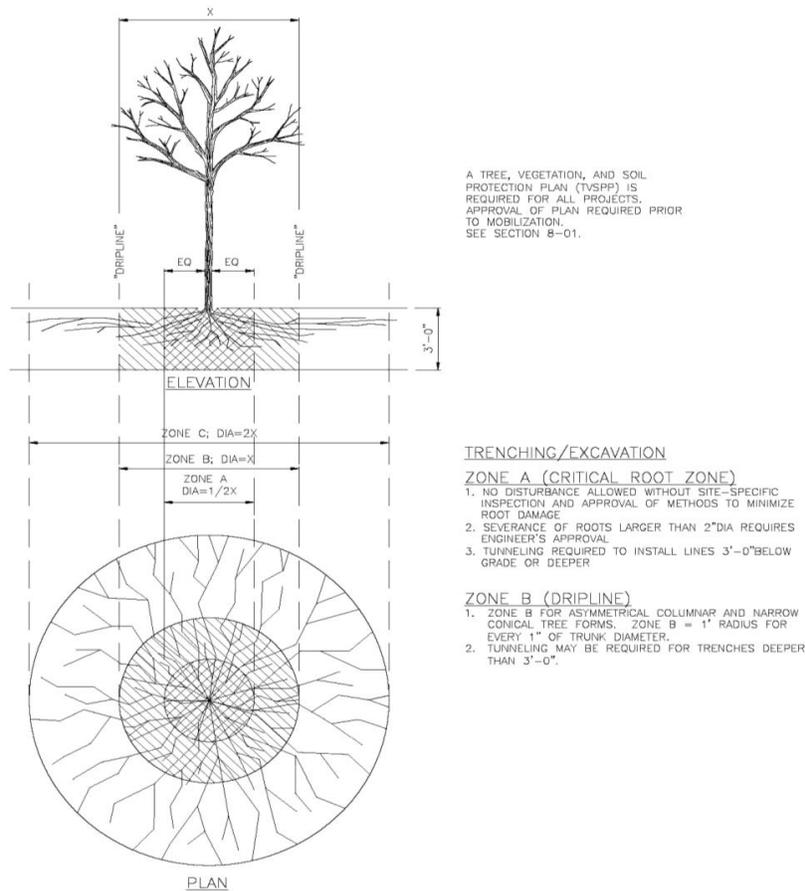
- i. All street intersections.
- ii. At the points of curvature (PC) and points of tangency (PT) of all horizontal curves and at the point of intersection (PI) if it lies in the travelled roadway.
- iii. At all DLC corners, section corners, quarter corners, and sixteenth corners that fall within the subdivision. Where these points fall outside of the pavement or sidewalks, a poured-in-place monument per City of Sammamish standards shall be set so that the top of the monument is one foot below the surface of the ground.

#### C. Vegetation

1. Drainage areas must be protected during construction. If an area has any type of channel/drainage swale that provides a hydrologic connection to a sensitive area(s) or wetland, the channel must also be protected throughout the construction phase by fencing and use of erosion control measures to prevent untreated construction site runoff from flowing into the channel.
2. Trees and tree root systems must be protected utilizing the following methods:
  - i. Reducing soil compaction during the construction phase by protecting critical tree root zones;
  - ii. Prohibiting the stockpiling or disposal of excavated or construction materials in the vegetation retention areas to prevent contaminants from damaging vegetation and soils;
  - iii. Avoiding excavation or changing the grade near trees that have been designated for protection. If the grade level around a tree is to be raised, a dry rock wall or rock well shall be constructed around the tree. The diameter of this wall or well shall be at least equal to the diameter of the tree canopy plus five feet; and/or
  - iv. Restricting trenching and excavation in critical tree root zone areas; (See Figure 19.1 Tree Protection Right of Way); and/or

- v. Preventing wounds to tree trunks and limbs during the construction phase. In the event that a tree is damaged during construction, a licensed arborist shall inspect and determine if replacement is needed.

Figure 19.1 Tree Protection – Right-of-way



D. Permanent Traffic Control

1. All channelization and pavement markings, such as raised pavement markers, paint, thermoplastics, etc., shall be pre-marked by a City-approved striping contractor, and the layout approved by the ~~City Inspector~~ **City Engineer**, prior to permanent installation by the contractor. Approval shall require a three working day advance notice.

2. The Applicant shall maintain traffic control devices in a condition acceptable to the City until the permit is final. The Applicant must maintain signs in good condition until the development and right-of-way are accepted by the City. Any damaged signs will be replaced by the applicant at her/his expense.

**E. Cleanup, Incidental and Collateral Damage**

1. The street right-of-way, material storage sites, construction staging areas, and all other areas affected by the work shall be left neat and presentable, and shall be fully restored to pre-existing or better condition.
2. Costs associated with site cleanup and restorations are integral to the project. If the City incurs additional cleanup costs, these costs shall be billed to the Applicant or contractor. Moreover, except as provided in RCW 19.122.030, any damage or destruction to existing public or private facilities done during the course of work shall be restored at the Applicant's or contractor's expense. This includes restoration of all traffic devices and pavement markings. The Public Works Director shall determine the extent of damage and order the scope and type of restoration.

**19.3. Temporary Traffic Control**

- A. A traffic control plan shall be prepared for any activities within the right-of-way that disrupt traffic patterns for long periods.
- B. A temporary traffic control (work zone) plan must be submitted and approved before beginning any work requiring traffic control for intermittent periods.
- C. The Inspector shall approve field adjustments to traffic control to meet actual conditions.
- D. The traffic control plan shall be consistent with the standards defined in the MUTCD. All of the following basic principles and standards must be observed by all those who perform work within a street right-of-way.
  1. Work areas are safe and congestion is minimized; and
  2. Motorized and non-motorized traffic is warned, controlled, and protected; and
  3. Emergency access is maintained; and

4. All traffic is expedited through the work zone in a safe and timely manner.
- E. The traffic control plan must allow for continued emergency services access to and through the work site. The plan shall contain adequate connections and clear signage for pedestrian and business disruption.

F. 1. The traffic control plan shall show existing right-of-way conditions, such as accesses, channelization, lane widths, all traffic control devices, bicycle/pedestrian paths, bus stops, and pavement edge.

G. 2. If steel plates are approved for use, the plates shall be non-skid, shimmed and pinned and cold mix asphalt ramps shall be added to provide suitable transition from the roadway to the top of the steel plates.

H. 3. If the contractor work includes grooved pavement, abrupt lane edges, steel plates, or loose gravel, the roadway must be posted with signs stating the condition, as required by current law in RCW 47.36.200.

I. "Arterials shall have variable message boards in place at least one week in advance of public to any lane or roadway closures."

#### 19.4. Staking

J. "Uniformed Police Officers are required when working within signalized intersections provide police officers for traffic control. Off duty officers for traffic control are scheduled County Police Officers Guild. For more information go to [www.kcpog.com](http://www.kcpog.com)"

- A. At a minimum, items that require staking include property corners, subgrade elevations, slope (grade) stakes, right-of-way location, drainage structures (with cut/fill to grate or lid) and other permanent structures including signal and light pole bases, junction boxes, utility vaults, controllers, etc.
- B. In the right-of-way, all surveying and staking must be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work will be licensed by the State of Washington.
- C. A pre-construction meeting must be held with the City prior to commencing staking. The minimum staking of streets will be as follows:
1. Stake centerline alignment every 25 feet (50 feet in tangent sections), points of vertical curvature (PVCs), points of vertical tangency (PVTs), high points and low points with cuts and/or fills to subgrade; and
  2. Stake top of ballast and top of crushed surfacing at centerline and edge of pavement at the above described intervals; and

3. Stake top back of curb at a consistent offset for vertical and horizontal alignment at the above described intervals with cuts and/or fills to subgrade; and
4. Staking will be maintained by the applicant throughout construction period.

## **19.5. Trenches**

### **A. General**

1. The Public Works Director shall require trenchless methods such as boring or jacking when;
  - i. It is demonstrated that trenching methods are not possible due to surface and subsurface conflicts or soil conditions, or
  - ii. when the utility is installed after reconstruction or overlay of the road.
2. Open trench sides shall be kept as nearly vertical as possible and follow WISHA safety requirements.
3. When ground water is anticipated or encountered during trenching, a dewatering plan must be provided for approval.

### **B. Backfill**

1. All subgrade will be compacted to 95 percent maximum density as described in Section 2-03 of the latest version of the WSDOT Standard Specifications;
2. Crushed surfacing materials used for backfill will conform to Section 4-04 of the latest version of the WSDOT Standard Specifications;
3. Granular material will conform to Section 9-03.19 of the latest version of WSDOT Standard Specifications;
4. Native material may only be used if deemed acceptable by the City. Soils test are required to determine if the material is acceptable and to test for adequate compaction;
5. Controlled Density Fill (CDF) shall meet the requirements of 2-09.3 of the WSDOT Standard Specifications. CDF shall not be used within 10 feet of a steam line.

### C. Temporary Trench Closure

1. Trenches that will receive traffic or that will be left open overnight before final restoration shall be covered by a temporary patch or by installation of steel plates. The temporary patch material can be hot mix, cold mix, or asphalt-treated base (ATB) dumped directly into the trench, bladed out, and compacted. The trench must be filled flush to the surrounding surfaces to provide a smooth riding surface.
2. Use of steel plates requires approval from the Inspector. If approved, follow section ~~28.4~~<sup>19.3</sup> of this chapter.
3. Steel plate(s) shall cover CDF for at least 48 hours prior to pavement placement.
4. Prior to predicted or possible snow events, the Inspector must be notified of all steel plate locations.

### 19.6. Traffic Signal Loops

- A. Coordination of disruptions to signal loops during construction will occur at the project pre-construction meeting.
- B. No splicing of traffic signal loops shall be permitted within the roadway.

All splicing of traffic signal loops should be inspected and approved by City signal technician.

### 19.7. Sidewalks

- A. Where approved, temporary sidewalks shall be at least five feet wide, except temporary sidewalks installed during construction in accordance with Chapter 7.5, Frontage Improvements.
- B. Permanent Sidewalks
  1. During removal, panels shall be removed to the nearest complete and competent panel.
  2. Installation.
    - i. See Standard Plan ~~3-09~~<sup>3-06</sup> Sidewalk,
    - ii. Install an 18-inch root barrier placed between trees and sidewalks/curbs/driveways;

- iii. Use Class 4000 PCC four-inches thick with a non-slip broom finish, except driveway approaches, where the concrete shall be six-inches thick;
- iv. The concrete shall be placed and finished per WSDOT Standard Specifications 8-14.3(3);
- v. All concrete shall be free of postmarks, graffiti, footprints, and tire marks prior to acceptance;
- vi. Concrete sidewalks shall be cured for at least 72 hours before it can be used. During curing time, sidewalk must be protected from pedestrian and vehicle traffic;
- vii. An expansion joint consisting of 3/8-inch or 1/4-inch x 2-inch, full depth of pre-molded joint material shall be placed around fire hydrants, poles, posts, utility castings, and along walls or structures in paved areas;
- viii. An expansion joint consisting of 3/8-inch or 1/4-inch x 2-inch of pre-molded full depth joint material shall be placed in curbs and sidewalks at 10-foot intervals and at sides of drainage inlets. When curbs and/or sidewalks are placed by slip-forming, a pre-molded strip up to 1/2-inch thick and up to full depth shall be used;
- ix. Expansion joints in sidewalks shall match the joints in the curb whether the sidewalk is adjacent to the curb or separated by an amenity zone;
- x. Tool joints consisting of 1/4-inch V-grooves shall be made in the sidewalk at intervals equal to the width of the sidewalk;
- xi. Interface between curb and adjacent sidewalks on integral pour construction shall be formed with 1/4-inch radius edging tool. On separate pour construction an expansion joint consisting of 3/8-inch or 1/4-inch x 2-inch full depth premolded joint material shall be placed between the curb (or thickened asphalt edge) and the adjacent sidewalk.

## 19.8. Landscaping

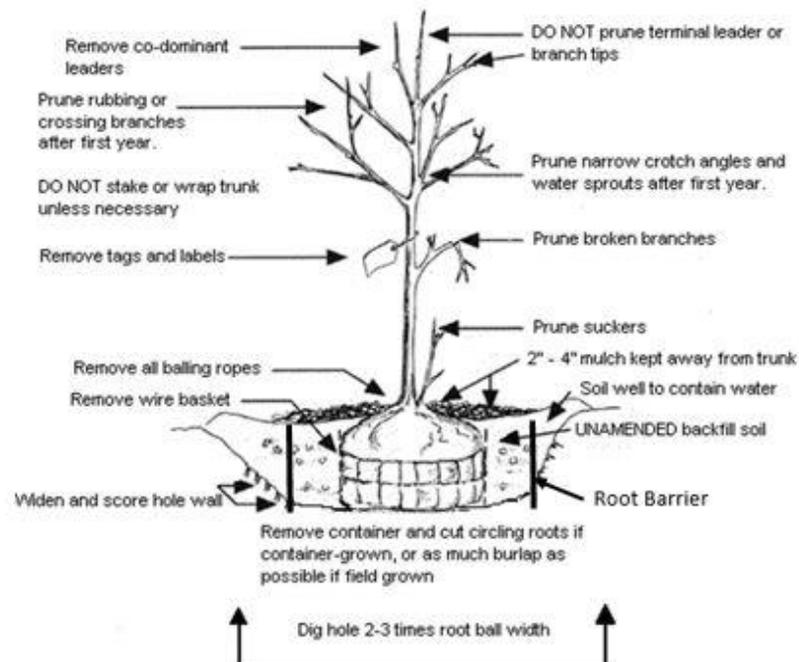
### A. Soil

1. All disturbed soils that do not have structures on them shall be remediated according to BMP T5.13 Post Construction Soil Quality and Depth (Stormwater Manual); except
2. Soils for improvements, such as bio filtration and raingardens, shall meet specified material and installation requirements.

### B. Trees

1. Installation of trees shall follow all notes shown in Figure 19.2 – Tree Installation – Right-of-Way.
2. Root barrier shall be required for all landscaping within amenity strips (aka landscape strips) within or adjacent to public roadway or drainage facilities.

Figure 19.2 Tree Installation – Right-of-way



## 19.9. Grading

- A. Amenity zone: The final grade of soil surfaces in planting strips must accommodate runoff from sidewalk surfaces cross-sloped to drain toward the street.

Wells

**B. Tree pits and location**

1. Tree wells shall be graded to provide a soil surface two inches below the adjacent sidewalk and curb elevation, and shall then be top-dressed with bark or wood chips to surrounding grade.

## 19.10. Curb, Gutter, Access Approach

- A. Type A vertical curb and gutter shall be used on all street classifications. Refer to Standard Plan 03-12 Curbs.

3-08a

- B. All curb and gutter shall be constructed with Class 4000 PCC furnished and placed in accordance with WSDOT Standard Specifications, Sections 6-02, 8-04, and 8-14. Cold weather precautions as set forth in WSDOT Standard Specifications Sections 5-05.3(14) and 6-02.3(6) shall apply.
- C. All curb removals shall be to the nearest joint.
- D. Subgrade compaction for curbs, gutters, and sidewalks shall meet a minimum 95 percent of maximum density ASTM D1557.
- E. Extruded curb is not allowed in the public right-of-way, unless it is temporary and approved by the City Engineer or the Public Works Director.
1. When temporarily allowed, extruded cement concrete curb shall be anchored to existing pavement by either steel tie bars or adhesive in conformance with WSDOT Standard Specification Section 8-04.
  2. When temporarily allowed, extruded asphalt curb shall be anchored by means of a tack coat of asphalt in accordance with WSDOT Standard Specification Section 8-04.
  3. A concrete access approach must have a construction joint at the right-of-way line.

## 19.11. Pavement Restoration

- A. General: Anyone cutting into and removing an area of the roadway surface in the right-of-way is responsible for permanent pavement restoration.
1. Temporary cold mix patches must be installed within 3 days.
  2. Final pavement restoration must be completed within 30 days of trench closure.
  3. Concrete Pavement
    - i. Concrete roadways shall be restored to the nearest full panel.
    - ii. Concrete shall be replaced or patched with concrete per Section 5-05 and Section 6-02.3(2) B.
    - iii. Any concrete pavement traffic lane affected by the trenching shall have all affected panels replaced.
    - iv. Concrete pavement shall be connected to existing concrete pavement with dowels and epoxy and restored with a WSDOT approved mix.
    - v. Concrete pavement shall be restored consistent with WSDOT Standard Plan A-60.10-02.
- B. Asphalt Pavement
1. Refer to Standard Plan for Trench-Pavement Restoration.
  2. Asphalt pavement removal shall be by full depth saw cut or drum grinder.
  3. Asphalt pavement cut widths, based on the final trench width, however, the Inspector shall extend cut limits to competent roadway pavement.
  4. The Inspector shall approve the restoration limits before restoration begins.

**Table 19.1 Pavement Cut Dimensions**

TRENCH DEPTH (FT)	MINIMUM CUT BEYOND TRENCH (FT) ALL FOUR SIDES
Up to 4	1.0
More than 4 up to 6	1.5
More than 6 up to 8	2.0
10	2.5
12	3.0
14	3.5
16	4.0
18	4.5
20	5.0

*Resource: Utility Cuts in Paved Roads, FHWA-SA-97-049*

5. Cuts in asphalt must be wide enough to accommodate compaction equipment.
6. Cuts shall be expanded to include joints, panel edges, existing patches, or cracks within four feet of the opening.
7. Cuts shall be expanded to ensure that new longitudinal joints are not located in a wheel path.
8. The cut face shall be neat, straight, and vertical. The corners shall be square.
9. When an existing asphalt paved street is to be widened, the edge of pavement shall be saw-cut to provide a clean, vertical edge for joining to the new asphalt at the time of the placement of the new asphalt. After placement of the new asphalt section, the joint shall be sealed.
10. When a pavement cut extends beyond half the travel lane's width, the pavement repair shall be extended to include the full width of the travel lane.

#### C. Overlay

1. A public street shall be overlaid as indicated when any of the following conditions exist:

- i. Utility installation parallel to the pavement centerline requires half-street overlay from the centerline to the curb line for the entire length of the utility extension. If the utility trenching encroaches on both sides of the centerline, a full width street overlay will be required;
- ii. Utility installation consisting of three or more perpendicular (transverse) trenches within 150 feet, measured along the pavement centerline, requires overlay from the curb line to the centerline for the full length plus 5 feet on each end. If a trench extends beyond the centerline, a full width street overlay will be required;
- iii. Utility installation at an angle to the pavement centerline: requires an overlay from the centerline to the curb line for the entire length plus 5 feet on each end of the utility installation. If the utility trenching encroaches on both sides of the centerline, a full width street overlay will be required;
- iv. Road cuts are made in a moratorium overlay street that has been resurfaced or constructed within the last 5-years
- v. Plane existing road at ends of the overlay perpendicular to the roadway for at least 40 feet for arterials and 15 feet for non-arterial roadways to provide a flush transition. For half-street or full-street overlays, planing (grinding) of the entire paving area is required (centerline to gutter or gutter to gutter). All asphalt joints and tapered transitions shall be sealed with AR4000 or equivalent.

#### D. Testing

1. Prior to placing any asphalt surface materials on the roadway, the Inspector shall review and approve density test reports, certified by a professional engineer, for the crushed surfacing base course and the crushed surfacing top course.
2. Testing shall be performed by a certified independent testing laboratory. The cost of testing is the responsibility of the franchise utility or contractor. The testing and approval by the Inspector does relieve the contractor from any liability for the trench restoration.

3. Material testing shall be required for trench backfill (native or imported), asphalt, and concrete.
4. All densities shall be determined by testing specified in WSDOT Standard Specifications.
5. Compaction of all lifts of asphalt shall be 91 percent of maximum density as determined by WSDOT Standard Specifications.
6. Testing of CDF shall be in accordance with WSDOT Standard Specifications.
7. The compaction tests in back filled trenches shall be performed in maximum increments of two feet. The number of tests required shall be determined per square feet of compaction area as follows:
  - i. One test for less than 50 square feet;
  - ii. Two tests for 50 to 100 square feet;
  - iii. Three tests for 100-plus to 300 square feet;
  - iv. One test for every 200 square feet over 300 square feet or every 100 lineal feet of crushed rock.
  - v. Proof rolling shall be required by the inspector prior to asphalt installation.

## Chapter 20. Inspection

The City's inspectors inspect work performed under an approved permit. Public Works right-of-way inspectors provide inspection services for permitted right-of-way development, site development and franchise permits in the right-of-way.

- A. Inspections for the City's capital improvement projects (CIP) are governed by the CIP contract and ~~are not addressed in this manual.~~  
may include duties not addressed in this manual.
- B. The following pertains to inspections by Public Works ROW Inspectors.

### 20.1. Authority and Duties of Inspectors

- A. The Inspector functions as a resource for Permittees and contractors. At a minimum the Inspector:
  1. Conducts field investigations;
  2. Interprets and applies standards;
  3. Troubleshoots and assists with field changes;
  4. Monitors compliance with permit conditions;
  5. Monitors utilities protection;
  6. Monitors traffic control and pedestrian access;
  7. Monitors excavation, shoring, backfill and restoration, and public safety;
  8. Reviews the Stormwater Pollution Prevention Plan during construction;
  9. Reviews as-constructed drawings (record drawings).
- B. The Inspector has the authority to reject defective material and suspend work that is being done improperly. The Inspector may advise the Applicant or contractor of any faulty work or materials; however, failure of the Inspector to advise the Applicant or contractor does not constitute acceptance or approval. The Inspector has the authority to require revisions to approved engineering plans when necessary due to conflicting field conditions.

- C. The Inspector is not authorized to revise, alter, or relax the provisions of these standards. Such changes must be approved by the Public Works Director through the deviation process outlined in Appendix H of these standards.

## **20.2. Requirements**

- A. At all times during construction, the Applicant/contractor must have the issued permits and approved plans and specifications on the job site.
- B. All construction or work for which a permit is required shall be subject to inspection by the City. The City may inspect any project at any stage of the work to determine that adequate control is being exercised.
- C. Approval as a result of an inspection shall not be construed to be an approval of a violation of approved standards or City ordinances.
- D. It shall be the duty of the Applicant to cause the work to remain accessible and exposed for inspection purposes. Failure to notify the City of readiness for inspection in a timely manner will result in the requirement to remove and/or replace buried or hidden elements. The City shall not be liable for the expense entailed in the removal or replacement of any material required to allow an inspection to occur.
- E. Site and right-of-way inspections may include the items listed below. Specific inspections are determined at the pre-construction meeting:
  - 1. Survey monuments;
  - 2. Survey stakes;
  - 3. Construction staking prior to construction, including contour lines of boundaries and depth of all existing floodplains, wetlands, channels, swales, streams, storm drainage systems, roads (low spots), bogs, depressions, springs, seeps, swales, ditches, pipes, groundwater, and seasonal standing water; property corners, subgrade elevations, slope (grade) stakes, right-of-way location; field verification of existing and proposed grading contours; work limits and clearing limits; and foundation form elevations (before concrete is poured);
  - 4. Stormwater Pollution Prevention Plan installation and maintenance;

- i. Including prompt street sweeping and prevention of tracked dirt on adjacent streets;
- ii. Native vegetation protection and critical area buffers;
- iii. Locations of proposed infiltration facility areas to be protected;
- iv. Staging and stockpile areas;
- v. Construction traffic routing, traffic control, signage and channelization;
- vi. Surface water facilities – materials and installation;
- vii. Retaining walls;
- viii. Utility installation depth and location;
- ix. Pavement cuts;
- x. Trench backfill/compaction;
- xi. Roadway centerline elevations;
- xii. Elevations at curb radii, PVC's, PVI's, and PVT's;
- xiii. Right-of-way pavement restoration;
- xiv. Landscaping installation and restoration plants, root barriers, and irrigation;
- xv. Clean-up;
- xvi. Record drawing with as-constructed information;
- xvii. Punch list.

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## **APPENDIX A - ACRONYMS AND DEFINITIONS**

These acronyms and definitions are for use with this Engineering Development Manual. Unless specifically defined below, words or phrases used in this manual shall be interpreted to give them the meaning they have in common usage and to give this manual its most reasonable application.

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## Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
APWA	American Public Works Association
ASTM	American Standards for Testing Materials
ATB	Asphalt treated base
BMP	Best Management Practices
C	Long Chord Length (straight line between PC and PT) – horizontal curve
CDF	Controlled Density Fill
CFR	Code of Federal Regulations
CSTC	Crushed Surfacing Top Course
CWA	Clean Water Act
DCD	City of Sammamish Department of Community Development
DNR	Department of Natural Resources
<i>e</i>	Rate of Super elevation – horizontal curve
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Association
HMA	Hot Mix Asphalt
HPA	Hydraulic Project Approval

ITE	Institute of Transportation Engineers
JARPA	Joint Aquatic Resource Permit Application
KCSWDM	King County Surface Water Design Manual
L	Curve Length – horizontal curve
MUTCD	Manual on Uniform Traffic Control Devices, current edition
NAD	North American Datum, horizontal, of 1983/1991
NAVD	North American Vertical Datum
NGVD	National Geodetic Vertical Datum of 1929
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
PC	Point of Curvature (point at which the curve begins) – horizontal curve
PCC	Portland Cement Concrete
PI	Point of Intersection (point at which the two tangents intersect) – horizontal curve
PIT	Pilot Infiltration Test
PROWAG	Public Right of Way Accessibility Guidelines
PSE	Puget Sound Energy
PT	Point of Tangent (point at which the curve ends) – horizontal curve
PVI	Point of vertical interception (intersection of initial and final grades) – vertical curve
PW	Public Works
PWS	Public Works Standards

R	Radius – horizontal curve
SMC	City of Sammamish Municipal Code
SWPE	Solid Wall Polyethylene
SWPPP	Stormwater Pollution Prevention Plan
T	Tangent Length – horizontal curve
TESC	Temporary erosion and sediment control
TIR	Technical Information Report
TIP	Transportation Improvement Plan
TSS	Total Suspended Solids
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Administration
WSDOT	Washington State Department of Transportation

## Definitions

**Access.** The safe, adequate, and usable ingress/egress (entrance/exit) between private property and the public street system. Usually defined at the right-of-way/property line.

**Adverse Effect or.** Effect that is a direct or indirect result of a proposed action, or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. In the event that the overall effect of the proposed action is beneficial, but is also likely to cause some adverse effects, then the proposed action is considered to result in an adverse effect.

**Alley.** A service roadway, not designed for general travel, providing a means of automobile, service vehicle, or emergency vehicle access to abutting property and not intended for primary traffic or pedestrian circulation.

**Alignment.** The route of the road or other facility, defined as a series of horizontal tangents and curves.

**Amenity Zone.** That area, adjacent to the curb or paved roadway and within the right-of-way, which is commonly landscaped, but may include other features for the City's benefit such as utilities, traffic signs, mailboxes, rain gardens, etc.

**Annual Average Daily Traffic.** Daily traffic that is averaged over one calendar year.

**Average Daily Traffic (ADT).** The average number of vehicles passing a specified point during a 24-hour period.

**Average Weekly Traffic (AWT).** The average number of vehicles passing a specified point turn a 7-day period.

**Applicant.** Any person, governmental agency, or other entity that executes the necessary forms to procure official approval of a project or a permit to carry out construction of a project within the City ROW. This could be the property owner, contractor, developer or permittee.

**As-Constructed.** Actual surveyed locations of constructed elements. As-constructed (or as-built) information is included on Record Drawings.

**Auxiliary Lane.** The portion of the roadway adjoining the traveled way for parking, turning, or other purposes supplementary to through-traffic movement.

**Best Management Practices.** When used with reference to stormwater it is defined as: Schedules of activities, restrictions, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to Waters of the State.

**Bicycle Facilities.** A general term denoting improvements and provisions to accommodate or encourage bicycling, including parking and storage facilities, and shared roadways specifically designated for bicycle use. AASHTO

**Bicycle Lane or Bike Lane.** A portion of a roadway which has been designated by pavement markings and, if used, signs, for the preferential or exclusive use of bicyclists. AASHTO

**Bicycle Path or Bike Path.** A pathway that is exclusively used by bicyclists, where a separate, parallel path is provided for pedestrians and other wheeled users. Most pathways are shared between bicyclists and other users: see Shared Use Path. AASHTO

**Bikeway.** A generic term for any road, street, path or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes. AASHTO

**Building.** Any structure used or intended for supporting or sheltering any use or occupancy.

**Bulb.** Area for vehicle turnaround typically located at the end of a cul-de-sac street.

**City.** The City of Sammamish.

**City Engineer.** The City of Sammamish City Engineer or designee.

**Clear sight triangle.** An area of unobstructed vision at street intersections or street and driveway intersections defined by lines of sight between points at a given distance from the intersection of street and/or driveway lines.

**Clearance.** The minimum distance between elements in, under and above the street right-of-way.

**Clearing.** The cutting, moving or removal of vegetation from a site by physical, mechanical, chemical, or other means which exposes the earth's surface or any actions which disturb the existing ground surface. This does not mean landscape maintenance or pruning consistent with accepted horticultural practices. Clearing is an activity, which does not require reforestation per an approved Forest Practices Application/Notification issued under the Forest Practices Act.

**Commercial Driveway.** A driveway which is used to provide access to business and non-single family residential enterprises, including but not limited to sales, service, industry, churches or other quasi-public buildings

**Comprehensive Plan.** The latest edition of the plan and amendments as described in SMC Chapter 24.

**Conveyance System.** Natural and man-made drainage features that collect, contain, and convey surface water. Natural drainage features include swales, streams, rivers, lakes, and wetlands. Man-made features include swales, gutters, ditches, pipes, and detention/retention facilities.

**Critical Areas.** Critical areas as defined in SMC Chapter 21A.

**Cross Section.** Vertical section of a roadway showing the position and number of vehicle and bicycle lanes and sidewalks, along with their cross slope or banking. Cross sections also show drainage features, utilities, pavement structure, and other items outside the category of geometric design.

**Cul-de-Sac.** The circular turnaround at the terminus of a street end.

**Crosswalk.** The portion of the roadway between the intersection area and a prolongation or connection of the farthest sidewalk line or in the event there are no sidewalks then between the intersection area and a line 10 feet there from, except as modified by a marked crosswalk. See RCW 46.04.160

**Dead End.** Street End. A road or street without an exit.

**Declaration of Covenant.** A legal document between the City and persons holding title to the property requiring the titleholder to perform required maintenance and repairs on drainage facilities necessary to meet the City's specified standards within a reasonable time limit.

**Design Speed.** A selected speed used to determine the various geometric features of the roadway.

**Developer.** The person or entity that owns or holds purchase options or other development control over property for which development activity is proposed.

**Development (Land Use).** The division of a parcel of land into two or more parcels; the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure; any mining, dredging, drilling, paving, clearing, or grading; changes to surface or ground waters; or any use, change of use, or extension of the use of land. See SMC Chapter 19.

**Development (Flood).** Any man-made change to improved or unimproved real estate in the Regulatory Floodplain, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, storage of equipment or materials, subdivision of land, removal of more than five percent of the native vegetation on the property, or alteration of natural site characteristics. For definition related to surface water, refer to the Stormwater Manual.

**Development Project.** Any project submitted to the City for permitting and construction within the City of Sammamish City limits.

**Development Review Engineer.** Public Works Department Engineer that is responsible for the review of a development.

**Deviation.** Written permission from the City to depart from the requirements of the Public Works Standards.

**Director.** The Public Works Director or designee, except that when referring to enforcement of permitting and review processes defined in SMC Chapter 21A Director shall mean the Director of Community Development or designee.

**Discharge.** To throw, drain, release, dump, spill, empty, emit, or pour forth any matter or to cause or allow matter to flow, run or seep from land or be thrown, drained, released, dumped, spilled, emptied, emitted or poured into water.

**Drainage.** Collection, conveyance, containment, and/or discharge of surface water and stormwater runoff.

**Driveway.** The direct access between a property and public right-of-way or access tract.. Driveway is privately owned and maintained.

**Driveway Approach.** That area of an access to a property lying between the pavement edge of the intersecting street and the right-of-way/property line.

**Driveway Apron.** See Driveway Approach.

**Easement.** A grant by a property owner of an interest and/or the use of a strip of land by the public, an entity, or person for specific purposes.

**Emergency Vehicle Access.** An all-weather drivable surface that is constructed and maintained for emergency vehicle access.

**Emerging Technologies.** Stormwater Treatment technologies that have not been evaluated with Department of Ecology approved protocols, but for which preliminary data indicate they may provide a necessary function(s) in a stormwater treatment system

**Engineer Geotechnical.** A practicing, professional civil engineer licensed by the State of Washington, who has at least four years of professional employment as a geotechnical engineer.

**Engineer – Professional.** An engineer, licensed to practice in the State of Washington as a Professional Engineer.

**Engineer – Soils.** See Engineer – Geotechnical.

**Engineering – Geotechnical.** The application of soil mechanics in the investigation, evaluation, and design of civil works involving the use of earth materials and the inspection or testing of the construction thereof.

**Engineering – Geologist.** A geologist certified by the State as experienced and knowledgeable in engineering geology.

**Engineering – Geology.** The application of geologic knowledge in the investigation and evaluation of naturally occurring rock and soil for use in the design of civil works.

**Eyebrow.** A partial bulb located adjacent to the serving road that provides access to lots and serves as a vehicle turnaround.

**Financial Guarantee.** A surety, bond, cash deposit, escrow account, assignment of funds, irrevocable letter of credit, or other means acceptable to the City to guarantee acceptable performance, execution, completion of the work and maintenance, in accordance with the project's approved plans and in accordance with all applicable governmental requirements.

**Fire Apparatus Access Road.** As defined in the International Fire Code.

**Fire Lane.** As defined in the International Fire Code.

**Fixed Object.** An object having properties greater than a four-inch by four-inch wooden post.

**Frontage.** Any lot line abutting street right-of-way.

**Frontage Improvements.** Motorized and non-motorized facilities, transit facilities, utilities, landscaping, and other such features located within the public right-of-way.

**Grading.** See Land Disturbing Activity.

**Ground Disturbance.** See Land Disturbing Activity.

**Grubbing.** The removal and disposing of all unwanted vegetative matter from underground, such as sod, stumps, roots, buried logs and other debris.

**Half-Street.** A street constructed utilizing at least half the regular width of the right-of-way and permitted as an interim facility pending construction of the other half.

**Hard Surface.** An impervious surface, a permeable pavement, or a vegetated roof.

**Impervious Surface.** A hard surface area, which either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A non-vegetated area, which causes water to run off the surface in greater quantities or at an increased rate of flow from that present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for the purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling.

**Improvements.** Any improvement to public, real, or personal property, including but not limited to, installation of streets, roads, pedestrian/bike facilities, streetlights, landscape features, sewer and waterlines, bridge structures, storm drainage facilities, and traffic control devices.

**Infiltration.** The downward movement of water from the surface to the subsoil.

**Inspector.** Designee of the Public Works Director or City Engineer.

**Internal Street.** A road that is contained within the development.

**Intersection.** The area from the intersection of a roadway to the radius tangent point or stop bar on each approach, whichever is greater.

**Land Disturbing Activity.** Any activity that results in movement of earth, or a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, grubbing, filling, and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Vegetation maintenance is not considered land disturbing activity. Stormwater facility maintenance is not considered a land-disturbing activity if conducted according to established standards and procedures.

**Land Surveying.** Establishment of corners, lines, boundaries, and monuments, the laying out and subdivision of land, the defining and locating of corners, lines, boundaries and monuments

of land after they have been established, the survey of land areas for the purpose of determining the topography thereof, the making of topographical delineations and the preparing of maps and accurate records thereof, when the proper performance of such services requires technical knowledge and skill.

**Landing.** A road or driveway approach area to any public or private road or intersection.

**Loop.** Road of limited length forming a loop, having no other intersecting road, and functioning mainly as direct access to abutting properties. A loop may be designated for one-way or two-way traffic.

**LID Best Management Practices.** Distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration. LID BMPs include, but are not limited to, bio retention/rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, minimal excavation foundations, vegetated roofs, and water re-use.

**Low Impact Development (LID).** A stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

**Low Impact Development (LID) Principles.** Land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff.

**Maintenance.** Repair and maintenance includes activities conducted on currently serviceable structures, facilities, and equipment that involves no expansion or use beyond that previously existing and results in no significant adverse hydrologic impact. It includes those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems. Those usual activities may include replacement of dysfunctional facilities, including cases where environmental permits require replacing an existing structure with a different type structure, as long as the functioning characteristics of the original structure are not changed. One example is the replacement of a collapsed, fish blocking, round culvert with a new box culvert under the same span, or width, of roadway. Concerning stormwater facilities, maintenance includes

assessment to ensure ongoing proper operation, removal of built up pollutants (i.e. sediments), replacement of failed or failing treatment media, and other actions taken to correct defects as identified in the maintenance standards of the latest version of the City of Sammamish Stormwater Drainage Manual.

**Municipal Separate Stormwater System (MS4).** A conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains), owned or operated by the state, City, county, or special purpose district having jurisdiction over disposal of wastes, stormwater, or other wastes, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; designed or used for collecting or conveying stormwater; which is not a combined sewer; and which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES).** The national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

**Native Vegetation.** Vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple, and vine maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

**Nephelometric Turbidity Units (NTU).** These units are a quantitative measure of water clarity based on the scattering of a standard beam of light directed into a standard sample of the water when the scattering is measured at right angle to the beam. A higher reading means the sample is cloudier. See also the definition for “turbidity” included below.

**Off-Street Parking Space.** An area accessible to vehicles, exclusive of right-of-way, that is improved, maintained, and used for the purpose of parking a motor vehicle.

**Operation and Maintenance Plan.** A set of instructions and schedules to keep drainage facilities working to meet the design performance criteria.

**Pavement Width.** Paved area on shoulder-type roads or paved surface between curb, thickened edge, or gutter flow line on all other roads.

**Peak Hour of Generator.** A development that generated additional traffic on the roadways as determined through a Traffic Analysis and standards adopted by ITE.

**Performance Guarantee.** See Financial Guarantee.

**Permeable Pavement.** Pervious concrete, porous asphalt, permeable pavers, or other forms of pervious or porous paving material intended to allow passage of water through the pavement section. It often includes an aggregate base that provides structural support and acts as a stormwater reservoir.

**Pervious Surface.** Any surface material that allows stormwater to infiltrate into the ground. Examples include lawn, landscape, pasture, native vegetation areas, and permeable pavements.

**Pipe Stem.** A strip of land having a width narrower than that of the lot or parcel to be served and is designed for providing access to that lot or parcel.

**Plans.** The plans, profiles, cross sections, elevations, details, and supplementary specifications showing the location, character, dimensions, and details of the work to be performed.

**Pollution.** Contamination or other alteration of the physical, chemical, or biological properties of waters of the state that will or is likely to create a nuisance or render waters harmful, detrimental, or injurious 1) to public health, safety, or welfare, or 2) to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or 3) to livestock, wild animals, birds, fish, or other aquatic life. Contamination includes discharge of any liquid, gas, or solid, radioactive, or other substance. Alteration includes temperature, taste, color, turbidity, or odor.

**Project Manager.** City of Sammamish DCD staff member responsible for review of a development project.

**Project.** Activity encompassing all phases of the work to be performed and is synonymous with the term “improvement”, “work”, “development” or “redevelopment.” A project may entail work on one or more parcels of land.

**Project Site.** That portion of a property, properties, or right-of-ways subject to land disturbing activities, new hard surfaces, or replaced hard surfaces. See Hard Surface above.

**Profile.** When referring to roadway design: Vertical aspect of the road, including crest and sag curves, and the straight grades connecting them.

**Public Works Director.** The City of Sammamish Public Works Director or designee.

**Rainy Season.** The period starting on October 1 of each year and ending April 30 of the following year. These dates may be adjusted by the Public Works Director based on climatic conditions for a particular year.

**Record Drawings.** Drawings that document as-constructed (or as-built) conditions of a permitted development or redevelopment project. See As-Constructed definition above.

**Redevelopment.** For surface water purposes: on a site that is already substantially developed (i.e., has 35 percent or more of existing impervious surface coverage), the creation or addition of impervious surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities.

**Replaced hard surface.** For structures, the removal, and replacement of hard surfaces down to the foundation. For other hard surfaces, the removal down to bare soil or base course and replacement.

**Replaced Impervious Surface.** For structures, the removal, and replacement of impervious surfaces down to the foundation. For other impervious surfaces, the removal down to bare soil or base course and replacement.

**Right-of-Way.** Property granted or reserved for, or dedicated to, public use for street purposes and utilities, together with property granted or reserved for, or dedicated to, public use for walkways, sidewalks, bikeways, horse trails, and parking whether improved or unimproved, including the air rights, sub-surface rights and easements thereto.

**Road.** Interchangeable with “Street,” “Roadway,” or “Street Way.”

**Runoff.** Water that travels across the land surface and discharges to water bodies either directly or through a collection and conveyance system. See also “Stormwater.”

**Sediment/Erosion-Sensitive Feature.** An area subject to significant degradation due to the effect of construction runoff, or areas requiring special protection to prevent erosion. See the latest edition of the City of Sammamish Stormwater Manual.

**Shoulder.** The paved or unpaved portion of the roadway outside the traveled way.

**Sidewalk.** All hard-surface walkways within public rights-of-way or a public easement in the area between the street margin and the roadway.

**Sight Distance.** The distance along a roadway throughout which an object of specified height is continually visible. This distance depends on the height of the driver’s eye above the road surface, the height of the specified object above the road surface, and the height and lateral positions of obstructions within the driver’s line of sight. See AASHTO: A Policy on Geometric Design

**Sight Distance – Stopping.** The distance needed a driver to perceive and react to a discernible hazard and then brake to a stop before reaching the hazard. (Urban Street Geometric Design Handbook, ITE)

**Sight Distance – Intersection.** The distance needed to safely make a right turn or a left turn from an access or to a cross street, or for a driver to safely make a left turn from a street to an access. (Urban Street Geometric Design Handbook, ITE)

**Sight Distance – Decision.** The distance needed for a driver to ascertain and safely respond to an unexpected difficult or unfamiliar situation. Regarding access location, sight distance should

give familiar and unfamiliar drivers enough distance to safely turn into the desired access.  
(Transportation Research Board, 2003. Urban Street Geometric Design Handbook, ITE)

**Site.** Any tract, lot, or parcel of land, or combination of tracts, lots, or parcels of land which are in one ownership, or are contiguous and in diverse ownership, where development is to be performed as a part of a unit, subdivision, or project.

**Site Plan.** The development plan for one or more lots on which is shown the existing and proposed conditions of the lot, topography, vegetation, drainage, flood plains, walkways; means of ingress and egress; circulation; utility services; structures and buildings; signs and lighting; berms, buffers, and screening devices; surrounding development; or any other information that reasonably may be required in order that an informed decision can be made by the reviewing authority.

**Special Drainage Areas.** An area which has been formally determined by the City to require more restrictive regulation than City-wide standards afford in order to mitigate severe flooding, drainage, erosion or sedimentation problems which result from the cumulative impacts of development.

**Stabilization.** The prevention of soil movement by any various vegetative and/or structural means.

**Storm Drainage Plan.** A set of drawings and documents submitted as a prerequisite to obtaining a development permit. The plan contains all of the information and specifications pertaining to surface water management both on-site and offsite.

**Stormwater.** Water runoff during and following precipitation and snowmelt events, including surface runoff, drainage, or interflow.

**Stormwater Manual.** The most recent version of the City of Sammamish Stormwater Design Manual.

**Street.** A public or recorded private thoroughfare providing pedestrian and/vehicular access through neighborhoods and communities and to abutting property.

**Surface Water.** Water originating from rainfall and other precipitation that is found on ground surfaces and in drainage facilities, creeks, rivers, streams, springs, seeps, ponds, lakes, wetlands, as well as shallow ground water.

**Surveyor.** A person licensed by the State of Washington to engage in the practice of land surveying, as defined by RCW 18.43.020.

**Traveled Way.** The part of the road made for vehicle travel excluding shoulders and auxiliary lanes.

**Turbidity.** The visual cloudiness of runoff especially as caused by suspended solids and settleable solids that are being carried by the runoff.

**Utility.** Private or municipal corporations owning or operating, or proposing to own or operate facilities that comprise a system or systems for public service. Private utilities include gas, oil, electric, telecommunications, cable, storm drainage, sewer, or water companies that are subject to the jurisdiction of the State Utilities and Transportation Commission and that have not been classified as competitive by the commission.

**Waters of the State.** Those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the state" as defined in chapter 90.48 RCW which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington.

**Woonerf:** A private roadway that gives equal priority to all modes of transportation such as pedestrians, bicycles, and vehicles. The roadway includes design for shared spaces, traffic calming, and low speeds.

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## **APPENDIX B - SURVEY CRITERIA**

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### Survey Format and Content

The following applies to surveys submitted to Public Works for development under review and use for city projects. Contact Community Development for survey requirements for land use as stated in the SMC. A survey acceptable to the City Public Works Department must contain the elements listed below. Review of the survey will be done as part of the plan review process.

1. The surveyor's stamp, signature, contact information and the date signed (see Note 1).
2. North arrow, graphic scale, legend, and vicinity map
3. Legal Description, if needed (see Note 2)
4. Both NAVD 88 and NAD83/91 are required (see Note 3)
5. Monuments within the project area (see Note 4)
6. Site benchmarks (see Note 5)
7. Rights-of-way with dimensions, source references, and methods used to determine (see Note 6)
8. Easements with type, dimensions, and source references (see Note 7)
9. Property lines with bearings and distances (see Note 8)
10. Buildings (see Note 9)
11. Streets and street improvements (see Note 11)
12. Utilities (see Note 11)
13. Contours (see Note 12)
14. Steep slopes (See Note 13)
15. Topography (see Note 14)
16. Significant Trees (see Note 15)

17. Water features (see Note 16)
18. Protected areas, including wetland boundaries (see Note 17)
19. Setbacks (see Note 18)
20. Underground hazards (see Note 19)
21. Any monuments in the project area that may be disturbed, destroyed, or removed shall be noted on the plans as requiring replacement. An application for a permit to remove or destroy a survey monument must be filed with the Washington State Department of Natural Resources, pursuant to RCW 58.24.040(8). Under such conditions, add Note 21 to General Notes on plan (see Note 20).

### Survey Requirements Notes

**Note 1. Land Surveyor's Stamp** – Work consisting of the Practice of Land Surveying shall be done by or under the direction of a Surveyor licensed to practice in the State of Washington (RCW 18.43.010), and shall conform to all RCWs and WACs pertaining to surveying and engineering. Plans, specifications, plats, and reports prepared by the Surveyor shall be signed, dated, and stamped with the Surveyors' seal. (RCW 18.43.070) Washington State law defines the "practice of land surveying" as "assuming responsible charge of the surveying of land for the establishment of corners, lines, boundaries, and monuments, the laying out and subdivision of land, the defining and locating of corners, lines, boundaries and monuments of land after they have been established, the survey of land areas for the purpose of determining the topography thereof, the making of topographical delineations and the preparing of maps and accurate records thereof, when the proper performance of such services requires technical knowledge and skill." (RCW 18.43.020(9))

**Note 2. Legal Description** – Legal Descriptions are needed for plats, short plats, easements containing City utilities, pathways, walkways, sidewalks etc. Include the plat name or short plat number, block number if any, and lot number or parcel letter, or the metes and bounds description of the parcel.

**Note 3. Datum** – The Washington State Lambert Grid Coordinate System North Zone, using the NAD83 (1991) datum as established in accordance with Chapter 58.20 Revised

Code of Washington. The unit of measurement shall be the U.S. Survey Foot. The plans shall show the horizontal control used to establish ties to the datum, with type, size, and location, date visited, and the State Plane coordinates for each monument used. Show at least two monuments on each street in the project.

Project control may be shown on the design drawings, or on its own sheet. The Vertical datum for all survey work (including but not limited to mapping, platting, planning design, right-of-way surveys, and construction surveys) shall be the North American Vertical Datum of 1988 (NAVD 1988). The plans shall show the benchmarks used to establish ties to the datum, with reference number, description, location, and elevation of each benchmark used, and any project site benchmarks. Information on horizontal and vertical control monuments can be found in the Washington Council of County Surveyors Data Warehouse at <http://plso.wadnr.gov/surveycontrol/data.htm>.

Other acceptable sources for benchmarks are WSDOT, King County, and NOAA. When another benchmark is used, establish one benchmark for each datum and show on the plans. Include a local conversion factor between the two data. The benchmark used to establish the conversion factor must be the benchmark nearest to the project site.

**Note 4. Monuments** – The plans shall show all monuments, geometry, and references used to establish the right-of-way, lines referencing the right-of-way, property lines, easements, and any rights in real property shown. The plans shall show bearing and distance on monument lines, or radius, delta angle, and curve length on curving monument lines, and the station at each monument. If construction baselines other than the monument line are used, show the relation of each baseline to the monument line. Survey control and boundary information shall be shown on the design drawings, the vicinity map, or on its own sheet. The survey shall tie into a minimum of two (2) monuments with the state plane coordinate system.

**Note 5. Benchmarks** – Show site benchmarks. Project site benchmarks shall be established by measurement from two local benchmarks, meeting Third Order procedural requirements as specified in the Geospatial Positioning Accuracy Standards by the Federal Geographic Data Committee. Site benchmarks shall be set in a location that will not be disturbed by the proposed construction.

**Note 6. Rights-of-way** – Show the width on each side of the monument line, and the references used. If the right-of-way is of variable width, show the width at each end of the block.

**Note 7. Easements** – Show easements, Native Growth Retention Areas, and critical area buffers within the project area, with type, dimensions, and source reference.

**Note 8. Property Lines** – Show bearings and distances for straight property lines, and radius, delta angle, and arc length for curves.

**Note 9. Buildings** – Show the location of all existing buildings, including projections, roof overhangs, and covered breezeways. Show the perpendicular distance to the property and right-of-way lines when significant to development. Show footprints of recently demolished buildings.

**Note 10. Streets** – Show the right-of way lines, monument lines, concrete surfaces, asphalt surfaces, gravel surfaces, and channelization, centerlines, pavement edges, pavement widths, shoulders, ditch lines, curbs, sidewalks, and access locations.

Show the curbs, curb cuts, wheelchair ramps, gutter and flow lines, sidewalks, landscape areas, pedestrian and bike paths.

**Note 11. Utilities** – Field locate and show all visible utilities, structure and appurtenances. Show buried utilities and the source of the information used. Show the location, size, and description of all utilities including water, power, gas, sewer, and storm drainage systems, and appurtenances. Show elevations at rim and inverts of manholes, catch basins, and inlets. Locate and dimension all fire hydrants, vaults, utility poles, wells, etc.

**Note 12. Contours** – Show existing and proposed contours at two-foot intervals for portions of the site that will be graded and areas with slopes less than 40 percent. Show 5-foot intervals for portions of the site with slopes that exceed 40 percent but will not be disturbed.

**Note 13. Steep Slopes** – Identify the top and toe slopes 15 percent and steeper. Show the top and toe of slopes 40 percent or steeper.

**Note 14. Topography** – Show rockeries, retaining walls, fences, bridges, swales, culverts, etc. Show the location, length, and height above finished grade of all fences, rockeries, and retaining walls. Note heights at end and mid points.

**Note 15. Significant Trees** – Show evergreen trees that are eight inches or more in diameter and deciduous trees that are twelve inches or more in diameter. Diameter is measured four feet above existing grade. Label each tree with common name and diameter. Show drip lines.

**Note 16. Water Features** – Show lakes, rivers, streams, ditches, ponds, and other surface water features. Show the line of ordinary high water and the top of any well-defined banks. Show the 100-year floodplain, and show wetland boundaries. Show protected areas: top of bank of Type 1, 2, and 3 streams, and the centerline of Type 4 streams.

**Note 17. Environmentally Sensitive Areas** – Show areas defined in Sammamish's Critical Areas Ordinance (SMC Chapter 21A.50) and in the Surface Water Design Manual. If the survey shows protected areas on or adjacent to the site, contact the Department of Community Development for boundary verification prior to designing the project.

**Note 18. Setbacks** – Show the required primary setbacks from the protected areas.

**Note 19. Underground Hazards** – Show areaways, tunnels, mines and other underground hazards.

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# **APPENDIX C - SURFACE WATER REPORT GUIDELINES**

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### **Surface Water Report Guidelines**

The Surface Water Report or Technical Information Report (TIR) is a comprehensive supplemental report containing all technical information and analyses related to storm drainage/surface water design for a project. A full TIR or abbreviated version is required for a project according to the thresholds identified in the Surface Water Design Manual. The content will also depend on the complexity of the project and site conditions.

The TIR must be prepared, stamped, and dated by a licensed Civil Engineer in Washington State.

The report submitted to the City must address each requirement and element in the Surface Water Design Manual. If a section does not apply, the engineer may simply mark "N/A" with a brief explanation. This standardized format allows a quicker, more efficient review of information required to supplement the site improvement plan.

When the report requires revisions, the revisions must be submitted in a complete revised report.

Submit two copies of the bound or stapled, 8.5" x 11" report and one PDF electronic version on a compact disk. Figures and drawings may be on larger paper. Include 11" x 17" copy of all drainage plans as an appendix of the report. Figures and drawings larger than 11" x 17" shall be provided separately from the bound document. Please number each page, including figures, and include a Table of Contents.

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# **APPENDIX D - GEOTECHNICAL REPORT GUIDELINES**

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### **Geotechnical Report Guidelines**

The City may require a geotechnical investigation and report based on the nature of the proposal. Site development for one single-family residence on a site with no steep slopes, erosion hazards, or critical areas, may submit a report previously prepared for that site if:

1. The report is less than five years old and no significant changes have occurred.
2. The geotechnical engineer/engineering geologist who signed the report provides a letter stating the report is still applicable to the site and currently proposed project.

The report must be stamped, signed, and dated by a licensed professional civil engineer in Washington State, who meets the City's criteria for geotechnical engineer. The attached report outline describes the contents for the elements in a geotechnical report; the report submitted to the City must address each element in the outline.

The content under each element will depend on the complexity of the project and site conditions. For example, a single-family residence on a glacial till site without groundwater issues warrants a short, simple report. A high-rise structure with a deep excavation on an alluvial site warrants a longer, more detailed report. The report shall state "Not applicable" for each outline element that does not apply.

The Geotechnical Engineer determines the actual scope of investigation, analysis, and reporting necessary to meet the Standard of Practice with respect to the project and its geotechnical requirements.

**Please use double-sided printing for the report.**

**Number each page.**

### **Cover Sheet**

- A. The cover sheet has the:
1. Project name and address;
  2. Applicant's name, address, and telephone number;
  3. Engineering firm's name, address, and contact information;
  4. Engineer's name and license number;
  5. Report date and revision dates.

### **Summary**

The report summary presents the major conclusions of the geotechnical investigation and their bases. This section shall be included in all lengthy or complex reports.

### **Introduction**

The introduction sets the stage for the entire report and contains the following sections:

#### **Overview**

Introduce the formal project name, address, and parcel numbers.

Describe slope classification(s) according to SMC 21A.

Describe briefly the current or previous work used to form the basis for the conclusions and recommendations contained in the report.

#### **Background**

Describe the project's history when relevant to the reason for the investigation.

List other geotechnical reports completed for the site or adjacent sites and note whether any environmental site assessments or other environmental work has been completed.

Describe the scope of work, including grading, retaining walls, structures, construction materials, and utilities. Include dimensions, quantities, proposed finish floor elevations, maximum depth of cut or fill, foundation and floor loads, etc.

Describe all assumptions that were relied upon to develop the conclusions and recommendations contained in the report.

### **Purpose and Scope of Services**

State succinctly the primary purpose for the geotechnical engineering services.

Summarize the scope of geotechnical engineering services that form the basis for the conclusions and recommendations contained in the report.

Indicate any limitations to the scope of geotechnical engineering services provided, particularly if the scope represents a departure from services typically provided on similar projects.

### **Investigations Summary**

Provide the dates, general nature, and extent of the geotechnical investigation. This section should include data research, borings, test pits, geophysics, physical laboratory testing, chemical testing, field instrumentation or testing, etc.

If the investigation was complex, present a complete and detailed explanation and results in the form of an appendix.

### **Report Overview**

Introduce and describe other sections of the report, directing the reader to critical sections, if appropriate.

Identify and describe all attachments and appendices.

### **SITE CONDITIONS**

Describe all site features relevant to the study and the geotechnical engineering conclusions and recommendations. Terminology shall be clear and consistent through the entire report.

### **Location and Surface Conditions**

Provide the cross streets, addresses, and parcel numbers in order to locate the site.

Describe the site and adjoining properties, including surface elevation, topography, and drainage.

Provide current uses of the site and adjacent properties.

Identify all current structures, subsurface utilities, wells, manmade fills and other surface features.

Describe vegetation, topsoil, paving, and other surface coverings.

Describe any indications of historic geological processes or hazards on or near the site (e.g., slope instability, landslides, liquefaction, flooding, etc.)

Describe any indications of surface releases or other contamination or potential contamination sources.

Describe any planned changes to the surface conditions described above which will take place after the investigation.

### **Geological Setting**

Provide an overview of regional geology, local stratigraphy, groundwater occurrence, etc.

### **Subsurface Soil Conditions**

Describe each soil or geologic unit encountered by their classifications and group units with respect to the properties that are most relevant to the conclusions and recommendations. Give each group unit a unique, clear, common title and consistently refer to this unit by its given title throughout the report.

Provide important results of the laboratory physical property testing and its indications of soil behavior.

Provide design infiltration rate per the current Sammamish SWDM.

Avoid detailed descriptions of the sequence of units found in individual borings; rather, focus on variations in the units across the site, if appropriate. Refer the reader to the exploration logs for details.

Describe any expected changes in subsurface conditions that may occur with time after the investigation.

### **Groundwater Conditions**

Describe the nature and occurrence of groundwater.

Provide an opinion on likely seasonal variations in groundwater levels or flows, and the possibility for changes from those encountered at the time of exploration.

Show groundwater levels on soil logs.

### **Subsurface Contamination**

Describe the nature and extent of soil and/or groundwater contamination as revealed by the explorations. Reference any applicable Environmental Assessments if performed.

Provide important results of the analytical laboratory testing and indications about contamination distribution and concentration.

Indicate limitations of knowledge on the nature and extent of contamination.

Discuss possible changes that may occur in these conditions over time.

## **DISCUSSION AND CONCLUSIONS**

The Discussion and Conclusions shall set out major geotechnical issues and alternatives for the project, along with the Geotechnical Engineer's conclusions, in a succinct and clear manner. This section shall clearly describe the logic and reasoning supporting the recommended approach, or alternative approaches. Specific recommendations shall be presented in the Recommendations section.

Discussions and Conclusions should:

1. Build on information described in the previous sections;
2. Describe project features, soils and construction materials using consistent terminology;
3. Explain any apparent inconsistencies in the data or investigations;
4. Describe clearly any limitations or restrictions to the conclusions and recommendations.

### **Slope Stability**

1. Summarize data and analysis used to evaluate slope stability.
2. Provide an opinion regarding the risk of instability on the site or adjacent properties currently, during construction, and after the project is completed.
3. Describe how design and construction recommendations will reduce or eliminate the risk of stability.
4. Discuss any construction or post-construction measures necessary to verify slope stability.

### **Seismic Considerations**

1. Provide an opinion on the expected level of ground motion during a major earthquake.
2. Describe any seismic risks associated with an earthquake such as liquefaction, lateral spreading, landslides, or flooding.

3. Describe how design and construction recommendations will reduce or eliminate the impact of seismic risks.

### **Site Work**

1. Describe proposed site grading and earthwork and provide an opinion on the proper sequence and approach to accomplish the site work.
2. Describe key issues, which will impact earthwork, including short-term slope stability, on-site and import fill materials, groundwater and drainage, rainfall and moisture sensitive soils, and erosion.
3. Describe how these key issues will be addressed during construction, including dewatering, temporary retaining structures, and erosion control.
4. Include specific recommendations for on-site erosion control based on soil erodibility and the presence of groundwater, surface water, and slopes.
5. Include statements regarding the importance of construction monitoring by a geotechnical engineering firm.
6. Describe suitability of the possible use of native soils for structural backfill.

### **Retaining Structures**

1. Recommend appropriate temporary retaining systems.
2. Recommend the most appropriate permanent retaining system or systems and describe their expected performance with respect to stability and deflection.
3. Summarize the data and analysis used to evaluate permanent retaining systems.
4. Clearly define all limitations on backfill materials, reinforcement, and drainage for reinforced soil slopes and reinforced soil backfill.
5. Describe the limitations on such systems.
6. Emphasize any aspects of site work, particularly with respect to the native soil materials, backfill and drainage, which could impact performance of the retaining structures.
7. Include statements regarding the importance of construction monitoring by a geotechnical engineering firm.

**Rockerries**

1. Emphasize that rockeries usually protect a slope face from erosion. Indicate which rockeries will protect the slope face by preventing soil erosion and sloughing.
2. Include the design criteria for rockeries that serve as retaining structures. Indicate which rockeries will function as retaining structures.
3. Recommend locations for rockeries such that a contractor can reach them for maintenance and repair.
4. Discuss what type of inspection and testing may be required during rock wall construction.

**Foundation Support**

1. Summarize the data and analysis used to evaluate foundation systems.
2. Provide an opinion on the most appropriate foundation system and possible alternatives, along with the expected level of performance with respect to load capacity and settlement.
3. Emphasize any aspects of site work that could impact the performance of foundations.
4. Include statements regarding the importance of construction monitoring by a geotechnical engineering firm.

**RECOMMENDATIONS**

The Recommendations shall present all detailed geotechnical engineering recommendations for design and construction in a clear and logical sequence.

- A. For each item covered in the recommendations sections, present the following:
1. Specific design recommendations along with their limitations;
  2. Factors of safety;
  3. Minimum dimensions;
  4. Effect of expected variations in actual conditions.

B. Specific construction recommendations including

1. Definitions;
2. Materials;
3. Execution;
4. Monitoring testing, or other quality control measures and;
5. Any other construction requirements to support the design recommendations.

Recommendation for the ownership of responsibility for seeing that each recommendation is met, such as owner, geotechnical engineer or other design consultant or contractor.

**Site Grading and Earthwork**

A. Provide specific design recommendations for:

- 1) Depth of stripping
- 2) Soil excavation limits and slopes
- 3) Depth and lateral limits of over-excavation to remove unsuitable materials
- 4) Preload fills
- 5) Location and thickness of particular fill material or compaction requirements
- 6) Maximum temporary and permanent slopes
- 7) Permanent surface and subsurface drainage systems
- 8) Permanent erosion controls.

B. Provide specific construction recommendations for:

- 1) Clearing
- 2) Use of on-site and/or import fill materials
- 3) Excavation and compaction equipment

- 4) Fill material moisture conditioning, placement, and compaction
- 5) Proof-rolling, in-place density testing and other quality control measures
- 6) Temporary seepage and drainage control measures
- 7) Permanent surface of subsurface drainage system installation (as appropriate)
- 8) Temporary slope protection and erosion control measures.

All design and construction methodologies shall be specific and identifiable; generalized or vague statements are NOT acceptable.

### **Temporary Shoring and Retaining Walls**

Provide specific design recommendations for:

1. Active and passive earth pressures
2. Surcharge pressures
3. Bearing capacity
4. Minimum or maximum dimensions and depth of penetration
5. Lateral support
6. Wall or backfill drainage systems
7. Any other appropriate structured details

If appropriate, provide specific design recommendations for tie-back anchors including:

1. Anchor inclination
2. No load zones
3. Minimum anchor length
4. Anchor bond zone
5. Anchor adhesions
6. Corrosion protection

Provide specific construction recommendations for:

1. Installation
2. On-site and/or import backfill materials
3. Backfill material moisture conditioning, placement, and compaction
4. In-place density testing or other control measures
5. Seepage and drainage control

If appropriate, provide construction recommendations for tie-back anchors including:

1. Anchor installation methods
2. Anchor testing
3. Monitoring

### **Rockerries**

Provide recommendations as outlined in the Associated Rockery Contractors (ARC) Standard Rock Wall Construction Guidelines (December 1992).

The geotechnical engineer shall provide direct input to the design of the rockeries and provide construction monitoring and testing as appropriate. Specific design parameters may include rock quality, density, and frequency of testing, slopes, keyways, surcharges, drainage, rock sizes, face inclination, and surface drainage.

### **Reinforced Soil Structures**

Geogrid or geotextile fabric may be used to reinforce a fill. If reinforced slopes are used, the geotechnical engineer shall specify, at a minimum, the fill soil materials, vertical spacing of the reinforcement, the specific type of reinforcement and the distance to which it must extend into the fill, the amount of overlap at the reinforcement joints, and the construction sequence. Additional design parameters will be required for each specific site.

### Structure and Foundations

Provide seismic design recommendations for

1. Building Code soil type and site coefficients
2. Any specific recommendations to reduce the risk of damage due to earthquakes.

Spread footing foundations – provide design recommendations for:

1. Bearing soils
2. Bearing capacity
3. Minimum footing depths and widths for both interior and exterior footings
4. Lateral load resistance
5. Foundation drainage systems
6. Frost protection

Mat foundations – provide design recommendations for:

1. Bearing soils
2. Bearing capacity
3. Modulus of subgrade reaction
4. Minimum dimensions
5. lateral load resistance

Pile foundations – provide design recommendations for:

1. Type of pile
2. Means of support (end of friction)
3. Minimum dimensions and depths
4. Allowable vertical and uplift capacity
5. Allowable lateral loads and deflections
6. Group effects and minimum spacing

Spread footing or mat foundations – provide construction recommendations for:

1. Foundation subgrade preparation and protection
2. Verification of bearing capacity
3. Installation of foundation drainage system

Pile foundations – provide construction recommendations for:

1. Pile driving equipment
2. Pile installation
3. Pile load tests or verification piles
4. Monitoring and testing during pile installation

## Floors

Slab-On-Grade Floors – provide design recommendations for

1. Slab base rock thickness
2. Capillary break
3. Vapor barrier
4. Floor system drainage

Supported Wood Floors – provide design recommendations for

1. Vapor barrier
2. Crawl space drainage.

Slab-On-Grade Floors – provide construction recommendations for:

1. Subgrade preparation
2. Slab base rock placement and compaction
3. Capillary break and vapor barrier installation
4. Floor drainage system installation (when appropriate)

**Pavements**

Provide design recommendations for pavement design section and pavement drainage.

Provide construction recommendations for pavement subgrade preparation and verification, and pavement base and subbase materials, placement and compaction.

**Utilities**

Provide construction recommendations for

1. Utility excavation
2. Bedding material placement
3. Backfill material (native and/or imported), placement and compaction

**Drainage**

Recommend provisions for subsurface drainage at walls, floors, and footings.

Evaluate permanent and temporary surface and subsurface drainage for both walls and floors if applicable. Provide approximate flow rates in gallons per minute and pipe sizes if required by design.

Provide design and recommendation for infiltration facilities, including setbacks from steep slopes per the adopted Stormwater Design Manual.

**Hazards**

Present additional information if natural or man-made hazards exist on the property. The City's Critical Areas maps identify hazards such as wetlands, streams and flood hazards, erosion, and steep slopes. Recommendations shall be general, and further studies may be required.

## **FIGURES AND ILLUSTRATIONS**

### **Vicinity Map**

Include a Vicinity or Location Map that presents adequate street and/or other physical references to allow clear identification of the project location. This map may be an individual figure or may be included on the Site Plan.

### **Site Plan**

Show the project boundaries, property lines, existing features and the proposed development and structures. A north arrow and scale shall be included along with all subsurface exploration locations. The accuracy of exploration locations shall be indicated on the Site Plan or in the report.

### **Exploration Logs**

Include logs of all explorations describing soil units encountered, soil classification, density or stiffness, moisture conditions, groundwater levels, stratigraphic sequence, common geologic unit name, and other descriptive information.

### **Laboratory Test Data**

Include figures or tables of laboratory test results if presentation of all the data, in the text, would require more than a simple paragraph to supplement the data provided in the exploration logs.

### **Cross Sections**

Include cross sections to visually present all but the simplest subsurface conditions.

### **Standard Plans**

Include figures, graphs and other visual aids to clearly present detailed recommendations. Provide design details (stamped by a licensed professional civil engineer in Washington State) on drawings such as: rockeries, reinforced earth, interceptor trenches, wall and footing drains, utility backfill and other details used for a particular design.

**PROJECT ENGINEER'S CERTIFICATION**

The report shall contain a page with the professional engineer's seal, signature, and date signed, with the following statement:

"I hereby state that this geotechnical report for \_\_\_\_\_  
(name of project) has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers. I understand that the City of Sammamish does not and will not assume liability for the sufficiency, suitability, or performance of facilities prepared based on this report."

# **APPENDIX E - TRAFFIC IMPACT ANALYSIS REPORT GUIDELINES**

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## Traffic Impact Analysis Guidelines

### A. Introduction

A traffic impact analysis (TIA) is a specialized study of the impacts a certain type and size of development will have on the surrounding transportation system. The traffic impact analysis is an integral part of the development impact review process. It is specifically concerned with the generation, distribution, and assignment of traffic to and from the development.

The purpose of a TIA is to determine what impact development traffic will have on the existing and proposed street network and what impact the existing and projected traffic on the street system will have on the project.

These guidelines have been prepared to establish the requirements for a TIA. The public works department will be responsible under SEPA as well as City ordinances for determining the need for a TIA.

### B. When Required

To adequately assess a development's traffic impact on the transportation system and its level of service (LOS), the public works department may require a traffic impact analysis (TIA). The requirement for a TIA will be based on the size of the development proposed, existing street and intersection conditions, traffic volumes, accident history, community concerns, and other pertinent factors relating to traffic impacts attributable to the development.

If a site action requires that an environmental checklist be prepared, a TIA may be required if any of the following conditions are met:

1. The development generates 10 or more trips in the peak hour(s) at any given intersection. This would include site-generated traffic for all turning movements for the peak hour(s) at all affected intersections. The public works department may require analysis of either or both the a.m. and/or p.m. peak hour, and/or peak hour of generator; or
2. The development proposes a use of the subject property, which will increase the amount of site-generated traffic; or

3. The original TIA is more than two years old.
4. Where the increase in traffic volume as measured by ADT, peak hour, or peak hour of the critical movement is more than 10 percent. If the department of public works has made the determination to require a TIA, the TIA shall follow the format outlined in subsection (D).

#### **C. Qualifications for Preparing TIA Documents**

The TIA shall be conducted under the direction of a responsible individual or firm. The TIA shall be prepared by an engineer licensed to practice in the state of Washington with special training and experience in traffic engineering and who is a member of the Institute of Transportation Engineers (ITE).

#### **D. Scope of Work**

The level of detail and scope of work of a TIA will vary with the size, complexity, and location of the development. A TIA shall be a thorough review of the immediate and long-range effects of the development on the transportation system.

1. Development Prospectus
  - i. Provide a reduced copy of the site plan showing the type of development, street system, rights-of-way limits, access points, and other features of significance in the development. The site plan shall also include pertinent off-site information such as locations of adjacent intersections and driveways, land use descriptions, street right-of-way limits for the existing roadways and other features of significance.
  - ii. Provide a vicinity map of the project area showing the transportation system to be impacted by the development
  - iii. Discuss specific development characteristics such as type of development proposed (single-family, multifamily, retail, industrial, etc.), internal street network, proposed access locations, parking requirements, zoning, and other pertinent factors attributable to the development.

- iv. Discuss project completion and the occupancy schedule for the development. Identify horizon years for traffic analysis purposes.

## 2. Existing Conditions

- i. Discuss street characteristics including functional classification, number of traveled lanes, lane width, shoulder treatment, bicycle path corridors, and traffic control at study intersections. A figure shall be used to illustrate existing transportation facilities.
- ii. Identify safety and access problems including discussions on accident history, sight distance restrictions, traffic control, and pedestrian conflicts.
- iii. Obtain all available traffic data from the City of Sammamish and surrounding jurisdictions if applicable. If data is unavailable, the individual or firm preparing the TIA shall collect the necessary data to supplement the discussions and analysis in the TIA.
- iv. Conduct peak hour turning movement counts at study intersections if traffic volume data is more than two years old, unless otherwise required by the public works department. A copy of the reduced data shall be attached to the TIA when submitted to the City for review.
- v. A figure shall be prepared showing existing average daily traffic (ADT) and peak(s) hour traffic volumes on the adjacent streets and intersections in the study area. Complete turning movement volumes shall be illustrated. This figure shall represent the base-line traffic volumes for analysis purposes.

## 3. Development Traffic

This element of the TIA shall be conducted initially to identify the limits of the study area. The study area shall include all pertinent intersections and streets impacted by development traffic.

The threshold requirement of development traffic exceeding 10 vehicles in the peak hour(s) on the adjacent streets and intersections shall apply. The individual or firm preparing the TIA shall submit to the public works department a figure

illustrating the proposed trip distribution for the development. The trip generation shall be included in a table format on the figure with the peak hour traffic volumes assigned to the study area in accordance with the trip distribution.

Once approved by the public works department, a formal “scoping” with the public works department of the development proposal shall be conducted to clearly identify the study area and contents expected in the TIA. The methodology and procedures used in preparing the trip generation and trip distribution elements of the TIA are as follows:

- i. *Trip Generation.* Site-generated traffic of developments shall be estimated using the latest edition of the ITE Trip Generation Manual. Variations of trip rates will require the approval of public works. Average trip rates shall be used for all land use categories where applicable and/or required by public works. Site traffic shall be generated for p.m. and/or a.m. peak hour periods as required by public works. Adjustments made for passer-by and mixed-use traffic volumes shall follow the methodology outlined in the latest edition of the ITE Trip Generation Manual. A passer-by traffic volume discount for commercial centers shall not exceed 25 percent. For multi-use and/or phased projects, a trip generation table shall be prepared showing proposed land use, trip rates, and vehicle trips for daily and peak hour periods and appropriate traffic volume discounts if applicable.
- ii. *Trip Distribution.* The trip distribution for a development shall be approved by public works prior to the formal scoping of the TIA. The methodology shall be clearly defined and discussed in detail in the TIA. A regional trip distribution map will be required for large-scale development projects. The TIA shall identify other transportation modes that may be applicable, such as transit use, bicycle, and pedestrian facilities. Developments are encouraged to implement transportation demand management practices such as flextime for employees and ridesharing programs including carpools, vanpools, shuttle buses, etc.

#### 4. Future Traffic

- i. *Future Traffic Conditions Not Including Site Traffic.* Future traffic volumes shall be estimated using information from transportation models for applying an annual growth rate to baseline traffic volumes. The future traffic volumes shall be representative of the horizon year for project development. Public Works shall determine an appropriate growth rate, if that option is utilized. In addition, proposed on-line development projects shall be taken into consideration when forecasting future traffic volumes.
- ii. *Future Traffic Conditions Including Site Traffic.* The site-generated traffic shall be assigned to the street network in the study area based on the approved trip distribution model. The site traffic shall be combined with the forecasted traffic volume to show the total traffic conditions estimated at development completion. A figure will be required showing daily and peak period turning movement volumes for each traffic study intersection. In addition, a figure shall be prepared showing the base-line volumes with site-generated traffic added to the street network. This figure will represent site-specific traffic impacts to existing conditions.

#### 5. Traffic Operations

- i. The level of service (LOS) and capacity analysis shall be conducted for each pertinent intersection in the study area as determined by the TIA scoping process. The methodology and procedures for conducting the capacity analysis shall follow the guidelines specified in the latest Highway Capacity Manual. The individual or firm preparing the TIA shall calculate the intersection LOS for each of the following conditions:
  - 1) Existing peak hour traffic volumes (figure required).
  - 2) Future traffic volumes not including site traffic but including pipeline projects (figure required).
  - 3) Future traffic volumes including site traffic (figure required).
  - 4) LOS results for each traffic volume scenario (table required).

- ii. The LOS table shall include LOS results for a.m. peak, p.m. peak, and peak hour of generator if applicable. The table shall show LOS conditions with corresponding vehicle delays for signalized intersections and LOS conditions for the critical movements at unsignalized intersections. For signalized intersections, the LOS conditions and average vehicle delay shall be provided for each approach and the intersection as a whole. The capacity analyses for existing signalized intersections shall include existing phasing, timing, splits and cycle lengths in the analysis as observed and measured during the peak hour traffic periods. All traffic signal system operational data will be made available by the City of Sammamish.
- iii. If the “new development” is scheduled to be completed in phases, the TIA shall conduct a LOS analysis for each separate development phase. The incremental increases in site traffic from each phase shall be included in the LOS analysis for each proceeding year of development completion. A figure will be required for each horizon year of phased development.
- iv. If the development impacts a traffic signal coordination system currently in operation, the TIA will include an operational analysis of the system. Timing plans and proposed modifications to the coordination system will be analyzed. The capacity analysis shall be conducted using a City approved software package. The computer worksheets of each capacity analysis shall be submitted concurrently with the TIA document. For unsignalized intersections, the methodology from the latest edition of the Highway Capacity Manual shall be used. For roundabout intersections, the capacity analysis shall be conducted using City approved roundabout analysis software. A copy of the capacity analyses worksheets shall be submitted concurrently with the TIA document.

## 6. Mitigation

The TIA shall include a proposed mitigation plan. The mitigation may be either the construction of necessary transportation improvements or contributions to the City

for the developments of a fair share of the costs for identified future transportation improvements. Level of service of “E” and “F” shall be used as the threshold for determining appropriate mitigating measures on roadways and intersections in the study area. Mitigating measures shall be required to the extent that the transportation facilities operate at a level of service “D” condition or better upon completion of the development. The following guidelines shall be used to determine appropriate mitigating measures of traffic impacts generated by new developments.

- i. On transportation facilities where the need is to construct improvements by the horizon year of the development, the cost for the mitigation will be entirely borne by the development. However, in the event public works identifies more than one development under simultaneous review, cumulative impacts, and distribution of mitigation costs will be considered. A latecomer’s agreement could be formulated by the applicant for reimbursement of mitigation costs.
- ii. On transportation facilities programmed for improvements as part of a City project, the adverse traffic impacts of the development will be considered mitigated by the applicant providing a proportionate share contribution of the costs for the proposed improvements. The proportionate share of costs for the improvements shall be based on the percentage of highest peak hour development traffic generated through the intersection. The percentage shall be based on the total projected peak hour traffic volumes for the horizon year of the transportation facility.
- iii. If the transportation facility currently operates at less than level of service “D”, the development may be required to make interim facility improvements to improve the level of service to LOS “D” or better. The cost of the interim improvements will be deducted from the development’s proportionate share of costs for the programmed facility improvements only if the cost of the interim improvements is less than the ultimate proportionate share. If the interim improvements cannot be incorporated into the ultimate improvements programmed for the

transportation facility, there will be no reimbursement for interim costs incurred.

- iv. On transportation facilities where the existing level of service condition is less than LOS “D” and where no improvements are programmed to improve capacity and traffic operations, the “new development” shall mitigate the intersection to an acceptable level of service “D” condition or wait until the improvements are implemented by the City or other developments.
- v. Unsignalized intersections that currently operate less than a level of service “D” condition shall be analyzed for traffic signal and intersection improvements. If traffic signal warrant is satisfied, signal, or roundabout, or intersection improvements will be required as a mitigating measure for the development. If it is determined by the Public Works Department that traffic signal warrants are close to being satisfied by the development’s horizon year, the TIA shall determine if traffic signal warrants and intersection improvements would be needed within a five-year period after the development’s horizon year. The development would be required to provide a proportionate share of the cost as a traffic mitigation fee towards future traffic signal and intersection improvements if warranted within the five-year period.

However, if traffic signal warrants were not satisfied after a five-year period from the development’s horizon year, mitigation fees would not be required from the development for traffic signal improvements.

- vi. Signalized intersections where the projected level of service condition is at “D”, but where one or more of the level of service conditions on the approaches falls below level of service “D”, mitigating measures may be required to improve the capacity and traffic operations at the intersection. The City reserves the right to review all adverse traffic impacts at these intersections and to determine appropriate mitigating measures.
- vii. Where there are no bicycle lanes on abutting streets, which have been identified in the City’s capital improvement plan or bike, trails, bikeways,

pathways plan as streets to have bicycle lanes, the applicant shall provide sufficient right-of-way to allow the construction of the planned bicycle lane.

- viii. To mitigate pedestrian impacts, a concrete gutter/curb/sidewalk section shall be constructed along abutting streets. For formal plats, to provide for the safety of schoolchildren walking to the bus, concrete curbs, gutters, and sidewalks shall be provided along each side of all interior plat roads. To mitigate pedestrian impacts, a bus stop shelter on a concrete pad shall be constructed where Metro Transit and/or the school district has identified a need for a bus stop to serve the development and the citizens of Sammamish. Metro Transit and/or the school district shall provide design standards for the bus shelter.

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# **APPENDIX F - RIGHT-OF-WAY STREET TREE LIST**

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**Right of Way Street Tree List**

The following list is a guide for general use within the public Rights of Way (ROW) in the City of Sammamish. Any changes or additions requested shall be required to be approved by the Public Works and Parks & Recreation Directors on a case by case basis. For consideration of conifers within the ROW at a minimum there must be:

1. Ample area for root growth whereas roots will not impact finish surfaces (asphalt, concrete, etc.)
2. No impact to pedestrian and vehicular sight distances
3. The recommendation shall be made by a licensed arborist and include all details necessary pertaining to the tree species proposed.
4. Vertical clearances shall be maintained in a manner appropriate for the application.

## LARGE COLUMNAR TREES

Scientific & Common Name	Mature Height (ft.)	Spread (ft.)	Under Wires/View Covenants	Min Strip Width (ft.)	Flower Color	Fall Color	Comments
<i>Acer nigrum</i> 'Green Column' Green Column Black Sugar Maple	50	10	No	6	N/A		Good close to buildings
<i>Nyssa sylvatica</i> Tupelo	50	25	No	6	N/A		Handsome chunky bark – <a href="#">Great Plant Pick</a>
<i>Quercus</i> 'Crimschmidt' Crimson Spire Oak	45	15	No	6	N/A		Hard to find in the nursery trade
<i>Quercus frainetto</i> Italian Oak	50	30	No	6	N/A		Drought resistant – beautiful green, glossy leaves in summer. <a href="#">Great Plant Pick</a>
<i>Quercus robur</i> 'fastigiata' Skyrocket Oak	40	15	No	6	N/A		Columnar variety of oak

## LARGE TREES

Scientific & Common Name	Mature Height (ft.)	Spread (ft.)	Under Wires/View Covenants	Min Strip Width (ft.)	Flower Color	Fall Color	Comments
<i>Acer saccharum</i> 'Bonfire' Bonfire Sugar Maple	50	40	No	8	N/A		Fastest growing sugar maple
<i>Acer saccharum</i> 'Commemoration' Commemoration Sugar Maple	50	35	No	8	N/A		Resistant to leaf tatter. <a href="#">Great Plant Pick</a>
<i>Acer saccharum</i> 'Green Mountain' Green Mountain Sugar Maple	45	35	No	8	N/A		Reliable fall color. <a href="#">Great Plant Pick</a>

Scientific & Common Name	Mature Height (ft.)	Spread (ft.)	Under Wires/View Covenants	Min Strip Width (ft.)	Flower Color	Fall Color	Comments
<i>Acer saccharum</i> 'Legacy' Legacy Sugar Maple	50	35	No	6	N/A		Limited use - where sugar maple is desired in limited planting strip area. <a href="#">Great Plant Pick</a>
<i>Aesculus flava</i> Yellow Buckeye	60	40	No	8			Least susceptible to leaf blotch – large fruit – fall color is varied, but quite beautiful
<i>Cercidiphyllum japonicum</i> Katsura Tree	40	40	No	6	N/A		Needs lots of water when young – can produce large surface roots. <a href="#">Great Plant Pick</a>
<i>Fagus sylvatica</i> Green Beech	90	40	No	8	N/A		Silvery-grey bark
<i>Fagus sylvatica</i> 'Asplenifolia' Fernleaf Beech	70	40	No	8	N/A		Beautiful cut leaf. <a href="#">Great Plant Pick</a>
<i>Gymnocladus dioica</i> 'Espresso' Espresso Kentucky Coffee	50	35	No	8	N/A		Very coarse branches - extremely large bi-pinnately compound leaves
<i>Liriodendron tulipifera</i> Tulip Tree	60	30	No	8	N/A		Fast-growing tree – can get very large in open conditions
<i>Quercus bicolor</i> Swamp White Oak	50	45	No	8	N/A		Interesting shaggy peeling bark
<i>Quercus coccinea</i> Scarlet Oak	50	40	No	8	N/A		Best oak for fall color
<i>Quercus imbricaria</i> Shingle Oak	60	50	No	8	N/A		Nice summer foliage - leaves can persist throughout the winter
<i>Quercus muhlenbergii</i> Chestnut Oak	60	50	No	8	N/A		coarsely toothed leaf

Scientific & Common Name	Mature Height (ft.)	Spread (ft.)	Under Wires/View Covenants	Min Strip Width (ft.)	Flower Color	Fall Color	Comments
<i>Quercus robur</i> English Oak	50	40	No	8	N/A		Large, sturdy tree. Acorns do not need dormant cold period to germinate, so can be invasive.
<i>Quercus rubra</i> Red Oak	60	45	No	8	N/A		Fast growing oak – large tree that needs space
<i>Quercus velutina</i> Black Oak	70	50	No	8	N/A		More drought tolerant than red oak
<i>Taxodium distichum</i> Bald Cypress	65	35	No	8	N/A		A deciduous conifer, broadly spreading when mature – columnar when young. <a href="#">Great Plant Pick</a>
<i>Ulmus</i> 'Homestead' Homestead Elm	60	35	No	6	N/A		Complex hybrid - close in form to American elm - Resistant to Dutch elm disease
<i>Ulmus</i> 'Frontier' Frontier Elm	50	35	No	6	N/A		Resistant to Dutch elm disease
<i>Zelkova serrata</i> 'Greenvase' Green Vase Zelkova	45	40	No	6	N/A		Attractive exfoliating bark provides Winter appeal. Dark green leaves turn orange-red and purple in Fall. <a href="#">Great Plant Pick</a>
<i>Zelkova serrata</i> 'Village Green' Village Green Zelkova	40	40	No	6	N/A		Green Vase, Mussichino and Halka are improved forms. <a href="#">Great Plant Pick</a>
<i>Fraxinus latifolia</i> 'Oregon Ash' Ash'	50	30	No	6	N/A		Native to PNS, prefers wet areas

## APPENDIX F - RIGHT-OF-WAY STREET TREE LIST

Scientific & Common Name	Mature Height (ft.)	Spread (ft.)	Under Wires/View Covenants	Min Strip Width (ft.)	Flower Color	Fall Color	Comments
<i>Metasequoia glyptostroboides</i> 'Dawn Redwood'	70	25	No	6	N/A		Fast growing deciduous conifer
<i>Pinus nigra</i> 'Austrian Pine'	55	30	No	8	N/A	N/A	Cold hardy, adaptable

### MEDIUM / LARGE TREES

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Acer campestre</i> Hedge Maple	40	30	No	5	N/A		Contrary to its name, this is not a small tree – nice overall shape and structure
<i>Acer campestre</i> 'Evelyn' Queen Elizabeth Hedge Maple	40	30	No	5	N/A		More upright branching than the species.
<i>Acer freemanii</i> 'Autumn Blaze' Autumn Blaze Maple	50	40	No	6	N/A		Cross between red and silver maple – fast growing with good fall color
<i>Acer miyabei</i> 'Morton' State Street Maple	40	30	No	8	N/A		Similar to, but faster growing and larger than Hedge maple
<i>Acer pseudoplatanus</i> 'Atropurpureum' Spaethii Maple	40	30	No	8	N/A		Leaves green on top purple underneath.
<i>Aesculus x carnea</i> 'Briotii' Red Horsechestnut	30	35	No	6			Resists heat and drought better than other horsechestnuts

<i>Nothofagus antarctica</i> Antarctic Beech	50	30	No	6	N/A		Rugged twisted branching and petite foliage – difficult to find in the nursery trade
<i>Tilia americana</i> 'Redmond' Redmond Linden	60	35	No	8	N/A		Pyramidal, needs extra water when young
<i>Tilia cordata</i> 'Greenspire' Greenspire Linden	40	30	No	6	N/A		Symmetrical, pyramidal form – sometimes has structural issues due to tight branch attachments
<i>Ulmus parvifolia</i> 'Emer II' Allee Elm	60	40	No	8	N/A		Exfoliating bark and nice fall color – Resistant to Dutch Elm Disease

### MEDIUM COLUMNAR TREES

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Carpinus betulus</i> 'Fastigiata' Pyramidal European Hornbeam	35	20	No	6	N/A		Broadens when older. <a href="#">Great Plant Pick</a>
<i>Fagus sylvatica</i> 'Dawyck Purple' Dawyck Purple Beech	45	15	No	6	N/A		Purple foliage.
<i>Liriodendron tulipifera</i> 'Fastigiatum' Columnar Tulip Tree	60	20	No	6			Good next to buildings – can have problems with tight branch angles. <a href="#">Great Plant Pick</a>
<i>Malus</i> 'Tschonoskii' Tschonoskii Crabapple	30	15	Yes	4			Sparse green fruit, pyramidal

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Oxydendron arboreum</i> Sourwood	35	15	No	4			Consistent and brilliant fall color. <a href="#">Great Plant Pick</a>
<i>Pyrus calleryana</i> 'Cambridge' Cambridge Pear	40	15	No	4			Narrow tree with better branch angles and form than the species – brittle limbs may be a problem with ice or wet snow. Limit large plantings.

## MEDIUM TREES

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Acer grandidentatum</i> 'Schmidt' Rocky Mt. Glow Maple	25	20	Yes	5	N/A		Intense red fall color - Limited availability in nursery trade
<i>Acer truncatum x A. platanooides</i> 'Keithsform Norwegian Sunset Maple	35	25	No	6	N/A		Reliable fall color - nice reddish orange
<i>Acer truncatum x A. platanooides</i> 'Warrensred' Pacific Sunset Maple	30	25	Yes	6	N/A		Limited use under higher wires
<i>Betula albosinensis var septentrionalis</i> Chinese Red Birch	40	35	No	6	N/A		White and pink peeling bark. <a href="#">Great Plant Pick</a>
<i>Carpinus caroliniana</i> American Hornbeam	25	20	Yes	6	N/A		Outstanding fall color (variable – yellow, orange, red) – nice little tree. <a href="#">Great Plant Pick</a>

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Cladrastis kentukea</i> Yellowwood	40	40	No	6			White flowers in spring, resembling wisteria flower – blooms profusely only every 2 to 4 years – yellow/gold fall color
<i>Cornus controversa</i> 'June Snow' Giant Dogwood	40	30	No	6			Frothy, 6-inch clusters of white flowers in June – <a href="#">Great Plant Pick</a>
<i>Crataegus crus-galli</i> 'Inermis' Thornless Cockspur Hawthorne	25	30	Yes	4			Red persistent fruit
<i>Cornus</i> 'Eddie's White Wonder' Eddie's White Wonder Dogwood	30	20	Yes	4			A hybrid of <i>C. florida</i> and <i>C. nuttallii</i>
<i>Crataegus x lavalii</i> Lavalle Hawthorne	25	20	Yes	4			Thorns on younger trees. <a href="#">Great Plant Pick</a>
<i>Davidia involucrata</i> Dove Tree	40	30	No	6		N/A	Large, unique flowers in May. <a href="#">Great Plant Pick</a>
<i>Eucommia ulmoides</i> Hardy Rubber Tree	50	40	No	8	N/A	N/A	Dark green, very shiny leaves – insignificant fall color
<i>Fagus sylvatica</i> 'Rohanii' Purple Oak Leaf Beech	50	30	No	8	N/A	N/A	Attractive purple leaves with wavy margins. <a href="#">Great Plant Pick</a>
<i>Halesia monticola</i> Mountain Silverbell	45	25	No	4			Attractive small white flower
<i>Halesia tetraptera</i> Carolina Silverbell	35	30	No	4			Attractive bark for seasonal interest

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Koelreuteria paniculata</i> Goldenrain Tree	30	30	Yes	4			Midsummer blooming – slow growing. <a href="#">Great Plant Pick</a>
<i>Magnolia denudata</i> Yulan Magnolia	40	40	No	4		N/A	6" inch fragrant white flowers in spring. <a href="#">Great Plant Pick</a>
<i>Magnolia grandiflora</i> 'Victoria' Victoria Evergreen Magnolia	25	20	Yes	4		N/A	Evergreen magnolia – can be damaged in years with wet, heavy snow. Limit large plantings. Most suitable for protected locations close to buildings. <a href="#">Great Plant Pick</a>
<i>Magnolia kobus</i> 'Wada's Memory' Wada's Memory Magnolia'	30	20	Yes	4			Does not flower well when young. <a href="#">Great Plant Pick</a>
<i>Ostrya virginiana</i> Ironwood	40	25	No	4	N/A		Hop like fruit – slow growing
<i>Phellodendron amurense</i> 'Macho' Macho Cork Tree	40	40	No	6	N/A		This variety is fruitless – fall color can be varied. High drought tolerance
<i>Prunus cerasifera</i> 'Krauter Vesuvius' Vesuvius' Flowering Plum	30	20	Yes	4		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings
<i>Quercus ilex</i> Holly Oak	40	30	No	6	N/A	N/A	Evergreen oak - Underside of leaf is silvery-white. Often has a prominent umbrella form

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Rhamnus purshiana</i> Cascara	30	20	Yes	4	N/A		Native tree – fall color depends on exposure – purplish fruit feeds many native birds
<i>Sorbus x hybridia</i> Oakleaf Royal Mt. Ash	30	20	Yes	4			It has leaves which are similar to English oak, and interesting bark for seasonal features.
<i>Styrax japonica</i> Japanese Snowbell	25	25	Yes	4			Reliable and easy to grow, it has plentiful, green ½” inch seeds. Flowers similar to lily in the valley. <a href="#">Great Plant Pick</a>
<i>Tilia cordata</i> 'De Groot' De Groot Littleleaf Linden	40	20	Yes	5	N/A		One of the smaller stature littleleaf lindens.
<i>Tilia cordata</i> 'Chancole' Chancellor Linden	35	20	No	6	N/A		Pyramidal when young. Fragrant flowers that attract bees.
<i>Ulmus parvifolia</i> 'Emer I' Athena Classic Elm	30	35	No	4	N/A		High resistance to Dutch Elm Disease. Drought resistant. Cinnamon colored exfoliating bark for seasonal interest.
<i>Chamaecyparis nootkatensis</i> 'Pendula' 'Weeping Alaska Cedar'	30	10	No	8	N/A	N/a	Narrow, conical, light green foliage
<i>Pinus strobus</i> 'Fastigiata' 'Fastigiata White Pine'	30	10	No	8	N/A	N/a	Narrow, upright form, blue-green foliage

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Prunus cerasifera</i> 'Cripozam''Crimson Pointe Plum'	25	10	Yes	5			Pink buds open to white flowers that contrast nicely with the emerging purple foliage
<i>Prunus cerasifera</i> 'Thundercloud' 'Thundercloud Plum	30	20	Yes	5		N/A	Can produce significant fruit
<i>Pinus flexilis</i> 'Vanderwolf's Pyramid''Vanderwolf's Pyramid Pine	40	20	No	8	N/A	N/A	Pyramidal shape, blue green foliage
<i>Sorbus x hybridia</i> 'Oak-leaf Mountain Ash	40	30	No	5	N/A		Resistant to dutch elm disease, vase shaped form
<i>Ginkgo biloba</i> 'Princeton Sentry''Princeton Sentry Ginkgo	40	15	No	6	N/A		Narrowly pyramidal form, seedless male clone
<i>Halesia Carolina</i> 'Carolina Silverbell'	40	35	No	5			Bell shaped flowers

## SMALL COLUMNAR TREES

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Maackia amurensis</i> Amur Maackia	30	20	Yes	4		N/A	Interesting exfoliating bark – flowering in June or July - varies in intensity from year to year
<i>Malus</i> 'Adirondack' Adirondack Crabapple	20	10	Yes	4			Very resistant to apple scab – one of the narrowest crabapples –

							persistent reddish ¼" fruit. <a href="#">Great Plant Pick</a>
<i>Malus</i> 'Red Barron' Red Barron Crabapple	20	10	Yes	4			Deep pink blossom and persistent red berries for seasonal interest
<i>Prunus serrulata</i> 'Amanogawa' Amanogawa Flowering Cherry	20	10	Yes	4			Pinkish flower bud, changing to white flower.
<i>Sorbus americana</i> 'Dwarfscrown' Red Cascade Mountain Ash	20	10	Yes	4			Nice winter form - Red berries persistent in clusters

## SMALL TREES

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Acer buegerianum</i> Trident Maple	25	25	Yes	4	N/A		Somewhat shrub-like – must train to a single stem – interesting bark. <a href="#">Great Plant Pick</a>
<i>Acer ginnala</i> 'Flame' Flame Amur Maple	25	20	Yes	4			Clusters of small cream colored flowers in spring – very fragrant. Nice fall color. Informal branch structure.
<i>Acer griseum</i> Paperbark Maple	25	20	Yes	4	N/A		Peeling cinnamon colored bark for seasonal interest. <a href="#">Great Plant Pick</a>
<i>Acer palmatum</i> Japanese Maple	20	25	Yes	4	N/A		Many varieties available – select larger varieties for street planting

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Acer triflorum</i> Three-Flower Maple	25	20	Yes	4	N/A		Multi seasonal interest with tan, exfoliating bark and red, orange/red fall color. <a href="#">Great Plant Pick</a>
<i>Amelanchier grandiflora</i> 'Princess Diana' Princess Diana Serviceberry	20	15	Yes	4			Good for narrower planting strips
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance' Autumn Brilliance Serviceberry	20	15	Yes	4			Good for narrower planting strips – reliable bloom and fall color
<i>Carpinus japonica</i> Japanese Hornbeam	30	25	Yes	6	N/A		Wide spreading, slow growing – fall color is not outstanding. <a href="#">Great Plant Pick</a>
<i>Cercis canadensis</i> Eastern Redbud	25	30	Yes	4			Deep pink flowers on bare twigs in spring
<i>Cercis siliquastrum</i> Judas Tree	25	30	Yes	4			Deep pink flowers on bare twigs in spring – drought resistant
<i>Cornus alternifolia</i> Pagoda Dogwood	25	25	Yes	4			Small white flowers in flat clusters – fall color is varied. <a href="#">Great Plant Pick</a>
<i>Cornus kousa</i> 'Chinensis' Kousa Dogwood	20	20	Yes	4			Does not do well on harsh, dry sites. Limit large plantings. <a href="#">Great Plant Pick</a>
<i>Cotinus obovatus</i> American Smoke Tree	25	25	Yes	4			Showy pinkish panicles of flowers in the spring – reddish purple leaves on some varieties. <a href="#">Great Plant Pick</a>

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Lagerstroemia</i> 'tuscarora' Tuscarora Hybrid Crape Myrtle	20	20	Yes	4			Light cinnamon brown bark lends year round interest – drought resistant – likes a warm site
<i>Magnolia</i> 'Elizabeth' Elizabeth Magnolia	30	20	Yes	4		N/A	Yellowish to cream colored flower in spring. <a href="#">Great Plant Pick</a>
<i>Magnolia</i> 'Galaxy' Galaxy Magnolia	25	25	Yes	4			Showy pink flowers. <a href="#">Great Plant Pick</a>
<i>Magnolia x loebneri</i> Loebner Magnolia	20	20	Yes	4			Flower is 'star' shaped rather than tulip like – white to pinkish white in March or April. <a href="#">Great Plant Pick</a>
<i>Malus</i> 'Golden Raindrops' Golden Raindrops Crabapple	20	20	Yes	4			Disease resistant – persistent yellow fruit in fall and winter. <a href="#">Great Plant Pick</a>
<i>Malus</i> 'Donald Wyman' Donald Wyman Crabapple	25	25	Yes	4			Large white blossom – nice green foliage in summer
<i>Malus</i> 'Lancelot' ('Lanzam') Lancelot Crabapple	15	15	Yes	4			Red flower buds, blooming white – red persistent fruit
<i>Parrotia persica</i> Persian Parrotia	30	25	Yes	4			Blooms before it leafs out – drought tolerant - Varied fall color - reds, oranges and yellows. <a href="#">Great Plant Pick</a>

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Prunus</i> 'Frankthrees' Mt. St. Helens Plum	20	20	Yes	4		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings
<i>Prunus</i> 'Newport' Newport Plum	20	20	Yes	4		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings
<i>Prunus</i> 'Snowgoose' Snow Goose Cherry	20	20	Yes	4			This selection sports abundant white flowers and healthy green, disease-resistant foliage
<i>Prunus x yedoensis</i> 'Akebono' Akebono Flowering Cherry	25	25	Yes	4			Has masses of large, semi-double, pink flowers – most widely planted cherry in Pacific Northwest
<i>Sorbus alnifolia</i> Korean Mountain Ash	40	25	No	6			Simple leaves and beautiful pink/red fruit. <a href="#">Great Plant Pick</a>
<i>Stewartia monodelpha</i> Orange Bark Stewartia	30	20	Yes	4			Extraordinary cinnamon colored bark – avoid hot, dry sites. <a href="#">Great Plant Pick</a>
<i>Stewartia pseudocamellia</i> Japanese Stewartia	30	20	Yes	6			Patchwork bark, white flower in spring. <a href="#">Great Plant Pick</a>
<i>Styrax obassia</i> Fragrant Styrax	25	20	Yes	4			Smooth gray bark and fragrant white flowers. <a href="#">Great Plant Pick</a>
<i>Acer platanoides</i> 'Globosa' 'Globe Norway Maple'	15	18	Yes	5	N/A		Dense and round crown

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Acer tataricum</i> 'Taterian Maple'	25	20	Yes	5	N/A		Oval to rounded shape, often low branched
<i>Amelanchier laevis</i> 'Snowcloud' 'Snowcloud Serviceberry'	28	20	Yes	4			Edible fruit
<i>Crataegus laevigata</i> 'Crimson Cloud' 'Crimson Cloud Hawthorn'	25	18	Yes	5		N/A	Wavy branches
<i>Fraxinus excelsior</i> 'Aureafolia' 'Golden Desert Ash'	20	18	Yes	5	N/A		Small rounded tree, bright golden stems and twigs
<i>Fraxinus excelsior</i> 'Globosa' 'Globe Ash'	20	20	Yes	5	N/A		Dense and cylindrical crown
<i>Halesia carolina</i> 'Wedding Bell Silverbell'	20	15	Yes	5			White, bell shaped flowers
<i>Malus</i> 'Jarmin' 'Marlee Crabapple'	24	10	Yes	5			Narrow, upright form, good disease resistance
<i>Malus</i> 'Royal raindrops' 'Royal Raindrops Crabapple'	20	15	Yes	4			Disease resistant, good fall colors
<i>Prunus sargentii</i> 'JFS-KW58' 'Pink Flair Cherry'	25	15	Yes	5			Upright narrow case shape
<i>Prunus serrulata</i> 'Royal Burgundy' 'Royal Burgundy Cherry'	20	15	Yes	5			Vase shaped crown
<i>Prunus</i> 'Snow Goose' 'Snow Goose Cherry'	20	20	Yes	5			Disease resistant, strongly upright form
<i>Prunus virginiana</i> 'Canada Red' 'Canada red Chokecherry'	25	20	Yes	5			Foliage turns from green in spring to dark purple as weather warms and a deeper red in autumn
<i>Pyrus calleryana</i> 'Jaczam' 'Jack Pear'	16	10	Yes	5			Tight, upright form

## APPENDIX F - RIGHT-OF-WAY STREET TREE LIST

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Sorbus Americana</i> 'Dwarfcrowm''Red Cascade Mountain Ash	18	8	Yes	5			Small, red berries in clusters

### NATIVE EVERGREEN SPECIES

Use only in large plater strips 10'+, Use only where lower branch growth will not interfere with site distance

Scientific & Common Name	Mature Height (ft)	Spread (ft)	Under Wires/View Covenants	Min Strip Width (ft)	Flower Color	Fall Color	Comments
<i>Abies grandis</i> 'Grand Fir'	100	30	No	10	N/A	N/A	Native evergreen, conical
<i>Pinus ponderosa</i> 'Ponderosa Pine'	80	30	No	15	N/A	N/A	Native evergreen, adaptable to west-side
<i>Thuja plicata</i> 'Western Red Cedar'	100	40	No	15	N/A	N/A	Native evergreen, large maturing species
<i>Tsuga heterophylla</i> 'Western Hemlock'	100	30	No	15	N/A	N/A	Native evergreen, large maturing species

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# **APPENDIX G - RECORD DRAWING CRITERIA**

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### Record Drawing Requirements (As-Builts)

Record drawings for all right-of-way construction projects and for surface water drainage systems that connect to City infrastructure, are required prior to a request for final inspection or issuance of Certificate of Occupancy.

- A. Record drawings shall accurately reflect revisions made to approved plans during construction. The record drawings shall locate all newly installed, existing, and abandoned utilities encountered during construction, but not shown on the approved plans.
- B. Record drawings shall be stamped, signed, and dated by a State of Washington Registered Civil Engineer.
- C. As-constructed survey information provided on a record drawing shall be provided by a licensed land surveyor.
- D. The Applicant shall provide the City inspector preliminary record drawings on paper. Once the City approves the preliminary submittal, the Applicant provides the final record drawings in the following formats. Each plan sheet shall bear the engineer and the surveyor stamps, signature, and date signed:
  - 1. Paper (for review only);
  - 2. Mylar (22 inches by 34 inches) (Upon request after completed review);
  - 3. AutoCAD format; and
  - 4. PDF electronic file
- E. Each sheet of the record drawings shall include the following statement located in the bottom right hand corner of the sheet.

**“These plans are record drawings and the information shown accurately reflects existing field conditions as of this date \_\_\_\_\_.”**

- F. Final corrected drainage Technical Information Report (TIR) shall be submitted in accordance to the requirements of the Surface Water Design Manual.

### **CAD GUIDELINES**

A. Required Electronic Submittals:

1. AutoCAD Civil 3D 2014.
2. Xref file (External reference files) = these are other files that are linked to the main drawing such as other drawings and images. All **Xref** files shall be merged into one drawing file.
3. \*.ctb files = this is the color settings file.
4. PDF file of the complete drawing.

B. Survey Info:

1. Horizontally referenced to WA State Plane Coordinates, North Zone, NAD 83 HARN GCS 4602 in Survey Feet.
2. Vertically referenced to NAVD 1988, feet.
3. Provide eastings and northings for existing and new monuments and benchmarks in the coordinate system referenced, as an embedded or separate table.

C. Drafting Guidelines

1. When record drawings reflect changes in the permitted plans, strike throughs shall be used on design details such as pipe inverts, pipe soffits, pipe slopes, pipe sizes, pipe materials, and grading changes and the recorded information displayed adjacent to the strike out details.
2. Layering Designations in CAD Files shall be separated and delineated for storm facilities (separate layers for pipes, catch basins and other structures), water utilities, sanitary sewer utilities, buildings, pavement edges, sidewalks, curb ramps, water bodies, wetlands, poles, trees, property lines, ROW boundaries, luminaires, signs, pavement markings, traffic signals, barriers, handrails, guard rails, landscape areas and fences.

3. All lines shall be snapped and closed, and attributes shall be defined on Layer 0.
4. Drawings shall be purged of empty, unused, or non-essential drawing data.
5. Drawings shall be in full-scale format (1ft = 1ft).
6. All plan sheets shall be drafted to fit 22x34 inch paper scale.
  - i. Layout Management:
  - ii. All elements shall be created in Model space. (Note: The City's GIS software does not draw features created in Paper space).

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# **APPENDIX H - ENGINEERING DEVIATION CRITERIA**

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### **Deviation from Public Works Standards Guidelines**

Deviations from public works standards is a mechanism to allow the City to grant an adjustment in the application of the public works standards where there are unique circumstances relating to the proposal.

#### **A. Decision Criteria**

The Director of Public Works shall grant a deviation from the Public Works Standards only if the applicant demonstrates all of the following;

1. The granting of such deviation will not be materially detrimental to the public welfare or injurious or create adverse impacts to the property or other property(s) and improvements in the vicinity in which the subject property is located.
2. The authorization of such deviation will not adversely affect the implementation of the Comprehensive Plan adopted in accordance with State Law.
3. The deviation shall not conflict with the standards of the critical areas regulations SMC 21A.50.
4. The deviation from the Public Works Standards shall only be granted if the proposal meets the following:
  - i. Conform to the intent and purpose of the Sammamish Municipal Code;
  - ii. Based upon sound engineering judgement;
  - iii. The requirements for safety, environmental consideration, function, appearance, and maintainability are fully met;
  - iv. The deviation is in the best interest for the public.
5. A deviation from roadway design standards must meet the objectives for fire protection. Any deviation that does not meet the International Fire Code shall also require approval by the Fire Marshall.

**B. Procedure**

1. Applicant shall submit a deviation request in the format of the approved City of Sammamish Deviation Review form. Any supporting figures and plans shall be on a size no larger than 11"x17".
2. The Engineering department shall review the deviation request to ensure that all decision criteria are met. Recommendations shall be submitted to the Public Works Director for approval or denial.
3. The Public Works Director shall approve or deny the deviation request and provide a summary of conclusions to the applicant.



801 228<sup>th</sup> Avenue SE, Sammamish, Washington 98075-9509  
Phone: 425-295-0500 • Fax: 425-295-0600 • www.sammamish.us

## Application for Deviation From Public Works Standards (PWS)

Permit Number: \_\_\_\_\_

Applicant: \_\_\_\_\_

Applicant Address/Phone/Email: \_\_\_\_\_

Applicant Signature: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Associated Applications: \_\_\_\_\_

### **Instructions to Applicant:**

Pursuant to Chapter 6, Section 6.2 of the 2016 Public Works Standards, deviations to the PWS may be authorized only upon submittal and approval of information, plans, and/or design data by the engineer which indicates that the requested deviation is: (1) Conform to the intent and purpose of the Sammamish Municipal Code, (2) based upon sound engineering judgment; (3) that requirements for safety, environmental considerations, function, appearance, and maintainability are fully met; and (4) the deviation is in the best interest of the public.

Please be sure to include all plans, sketches, photos and maps which may assist in complete review and consideration of this deviation request. Failure to provide all pertinent information may result in delayed processing or denial of your request.

**All deviations must be approved by the Public Works Director in writing prior to the start of construction.**

### **General Description of Deviation Request and Applicable PWS Standards:**

**Description of Unique Circumstances Justifying Deviation Request:**

**Proposed Deviation Design and Detailed Description:**

**Decision Section**

Decision:     **APPROVED / DENIED**

The applicant has / has not demonstrated that the proposed variance is in the public interest and that requirements for safety, function, fire protection, appearance, and maintainability based upon sound engineering judgment are fully met.

Summary of Basis for Decision:

**Review and Authorization Signature**

Development Review Engineer: _____ _____	Date: _____
City Engineer: _____ _____	Date: _____
Public Works Director: _____ _____	Date: _____

# **APPENDIX I - RIGHT OF WAY VACATION**

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## Street and Alley Vacation Procedures

A street “vacation” means that the public is letting go of, or “vacating,” the public interest in a public right-of-way. After a street or an alley is vacated, the public no longer has a right to the use of the property for access. The purpose of the appendix section is to establish the procedures, notice requirements and fees for the vacation of streets and within the City. This appendix is intended to implement the authority granted to the City by Chapter 35.79 RCW and RCW 35A.47.020 and to conform to their provisions.

### A. Initiation of Vacation

The owners of an interest in any real property abutting upon any public right-of-way who may desire to vacate the full right-of-way, or any part thereof, may petition the City council. In the alternative, the City council may itself initiate a vacation by resolution. The petition or resolution shall be filed with the City clerk.

### B. Petition for Vacation

The petition shall be in the form prescribed by the Public Works Director. The petition shall also discuss the criteria set forth. The sufficiency of the petition shall be governed by RCW 35A.01.040.

### C. Petition Fees

Every petition for the vacation shall be accompanied by a fee in the amount established by resolution by the City to defray the administrative costs incurred in processing the petition, publishing, posting and mailing notices, plus any consulting costs incurred by the City during the review process.

### D. Survey, Vicinity Map, Plat Map and Legal Description

1. Every petition shall be accompanied by:
  - i. A survey, containing an exact legal description of the portion of the right – of-way to be vacated prepared and sealed by a professional land surveyor, registered in the State of Washington;
  - ii. A vicinity map showing the general area of the proposed vacation;

- iii. A plat map prepared and sealed by a professional land surveyor, registered in the State of Washington, indicating the specific parcels abutting the proposed right of way to be vacated;
  - iv. A name and address of all property owners for the properties which lie within three hundred (300) feet of the right of way to be vacated.
2. Flagging which indicates the boundaries of the right-of-way shall be installed within the survey is conducted.

#### E. Setting of Hearing

Upon receipt of the petition, fee, and all required documents, the City Clerk shall make a determination whether the petition has been signed by the owners of more than two-thirds (2/3) of the property owners abutting the part of the right-of-way to be vacated. The City clerk shall then forward the petition and required documents to the Public Works Director for further review and action. If the petition has been signed by required signatures, the petition shall be forwarded to the City Council. The City council shall, by resolution, fix a time when the petition will be heard and determined by the City council or committees. The hearing shall not be more than 60 days nor less than 20 days after the date of adoption of the resolution. Where the City Council initiates the vacation by resolution, that resolution shall fix a time when the proposed vacation will be heard by the City Council or committee.

#### F. Staff Report

The public works department shall prepare a report concerning the proposed vacation, which shall address the criteria listed in this Appendix. The City Council shall use this report in determining whether to vacate the right-of-way or a portion thereof, and such other information as deemed appropriate by the department. In preparing the report, the department shall solicit comments from the police, fire, other City departments, utilities, and other governmental agencies which may be affected by the right-of-way vacation. The report shall be submitted to the City Council, or Committee members hearing the matter, and to the petitioners, not less than five (5) days before the hearing.

#### G. Notice of Hearing

Upon passage of the resolution fixing the time for the hearing the petition or proposal for vacation, the City Clerk shall give notice to the time, place and purpose of the hearing as set forth in RCW 35.79.020 and by;

1. Publishing written notice once in the City's official newspaper;
2. Posting a placard in a visible place at each end of right-of-way to be vacated. The placard shall be highly visible and at least 11 by 14 inches in size, and shall include a map showing the location of the right-of-way to be vacated;
3. Mailing written notice to all petitioners at the address on the petition and all owners of property abutting the right-of-way to be vacated, as shown on the records of the King County assessor. In addition, notice shall be given to the owners of property which lie within 300 feet beyond the right-of-way to be vacated, measuring in both directions around the subject area. The public works department shall send the same written notice to the petitioners at the address on the petition.

#### H. Protest

If 50 percent or more of the owners of the abutting property file written objections with the City clerk, prior to the time of the hearing, the City shall not proceed with the resolution.

#### I. Compensation for the Vacation

1. Where a vacation has been initiated by petition, the owners of the property abutting the area vacated, shall pay to the City, prior to the effective date of the ordinance vacating the area, a sum equal to one-half of the appraised value of the area, plus the full cost of physical closure and road repairs.
2. Where the vacation was initiated by the City Council or was a requirement by the City as a condition of a permit or approval, the owners of the property abutting the area vacated shall not be required to pay such sum that includes the appraised value of the area and costs associated with the physical closure.

3. Where the vacation was acquired at public expense, the owners of the properties abutting the vacated area shall pay to the City a sum equal to the full appraised value of the area to be vacated.
4. Conveyance of other property acceptable to the City may be made in lieu of the required payment, where required to mitigate adverse impacts of the vacation. When the conveyance is made for street purposes, one-half of the fair market value of the land conveyed shall be credited to the required payment. When the conveyance is made in fee for purposes other than street purposes, the full appraised value of the land conveyed shall be credited to the required payment.
5. When the value of the in-lieu parcel is less than the required payment, the petitioners shall pay the difference to the City. When value of the in-lieu area exceeds the required payment, the City shall pay the difference to the petitioners.

#### J. Appraisals

1. The director of public works shall determine the appraised value of the area vacated based on an appraisal from a state-certified real estate appraiser who has an MAI or SRA designation from the Appraisal Institute. To obtain such appraisal, the director shall present to the representatives of the petitioners a list of three such certified and designated appraisers from which one shall be selected. The petitioner shall pay for the appraisal. If the director is not satisfied with the appraisal, the director may order a second appraisal from a state-certified appraiser. The City shall pay for the second appraisal.
2. The director shall use the appraisal having the highest value for the area to be vacated. The Director of Public Works shall be responsible for obtaining the appraisal for areas to be granted to the City in-lieu of cash payment as stated in this Appendix.

#### K. Payment of Compensation of Conveyance

After determining the appraisal value of the right-of-way to be vacated, the Director of Public Works shall notify the representative of the petitioners of the amount of compensation. The payment shall be delivered to the director, who upon receipt of payment, shall transmit it to the

finance department for deposit in the street fund and shall make a written report of the payment to the City council. If the petitioner has been authorized to deliver an instrument granting or dedicating to the City a parcel or parcels of land in lieu of cash payment, the director, at the petitioner's expense, may obtain either a policy of title insurance insuring title of the property in the City, or a certificate of title as to the title thereof. Upon receipt of such policy or certificate, the director shall transmit it to the City Council.

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# STANDARD DETAILS

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<b>Detail #</b>	<b>Detail Title</b>
1-01	Roadway Section Principal Arterial
1-02	Roadway Section Minor Arterial
1-03	Roadway Section Collector Arterial
1-05a	Roadway Section Non-Arterial Roadway
1-05b	Roadway Section Non-Arterial Roadway
1-06	Pedestrian/Bike Path Connection Between Through Street and Cul-De-Sac
1-07	Non-Arterial Roadway Section Half Street
1-08	Roadway Section Typical Alley
2-01	Intersection Landing
2-02	Traffic Circle
2-03	Shoulder Treatment
2-05	Trench-Pavement Restoration Detail
2-05b	HMA Pavement Overlay for Trench Repair
2-06	Perpendicular Curb Ramp
2-07	Parallel Curb Ramp
2-08	Single Direction Curb Ramp
2-09	Combination Curb Ramp
2-11a	Monument Case and Cover With Riser
2-11b	Monument Case and Cover
2-14	Bus Pullout
2-15	Rock Retaining Wall
2-18	Planter Strip Detail
2-19a	Sight Obstruction
2-19b	Sight Obstruction
2-20	Residential Driveway
2-21	Dead End Hammerhead
2-22	Permanent Cul-De-Sac
2-23	Butt Joint Detail
3-01	Curb and Gutter Section Driveway Approach
3-02	Driveway Approach: Reverse Slope
3-03	Driveway Approach: Reverse Slope without Amenity Zone
3-04	Driveway Approach without Amenity Zone (8' Sidewalk Width)

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 STANDARD DETAILS

9

Detail #	Detail Title
3-05	Amenity Zone
3-06	Sidewalk
3-07	Asphalt Transition Ramp to Shoulder
3-08a	Curbs
3-08b	Extruded Curb Detail
3-09a	Concrete Curb Inlet
3-09b	Concrete Curb Inlet
3-10	Curb Channel and Grate
3-11	Pedestrian Curb
3-12	Intersection Curb Extension
3-13a	Curb Extension Section
3-13b	Curb Extension Section
3-14	Curb Ramp Locations
3-15	Pedestrian Railing
3-16	Stairs
3-17	Cement Concrete Stairway
3-18	Chain Link Fence
3-20	Greenbelt Fence
4-01	Channelization - Left Turn Lanes
4-02	Channelization -Vehicle & Bicycles
4-03a	Pavement Markings
4-03b	Raised Pavement Markers
4-04	Intersection Approach Striping
4-05	Pavement Symbols
4-06	Street Sign Installation
4-07	Curb Extension/Chicane Channelization
5-01	Rock Facing - Fill Section
5-02	Rock Facing Under Sidewalk
5-03	Bollards
5-04	Mailbox Stand Non-Arterial
5-05	Mailbox Stand Without Amenity Zone
5-06	Neighborhood Delivery & Collection Box Unit Installation
7-01	Beveled End Pipe Section
7-02	Trash Rack (Debris Cage) - Pipe End

---

 STANDARD DETAILS

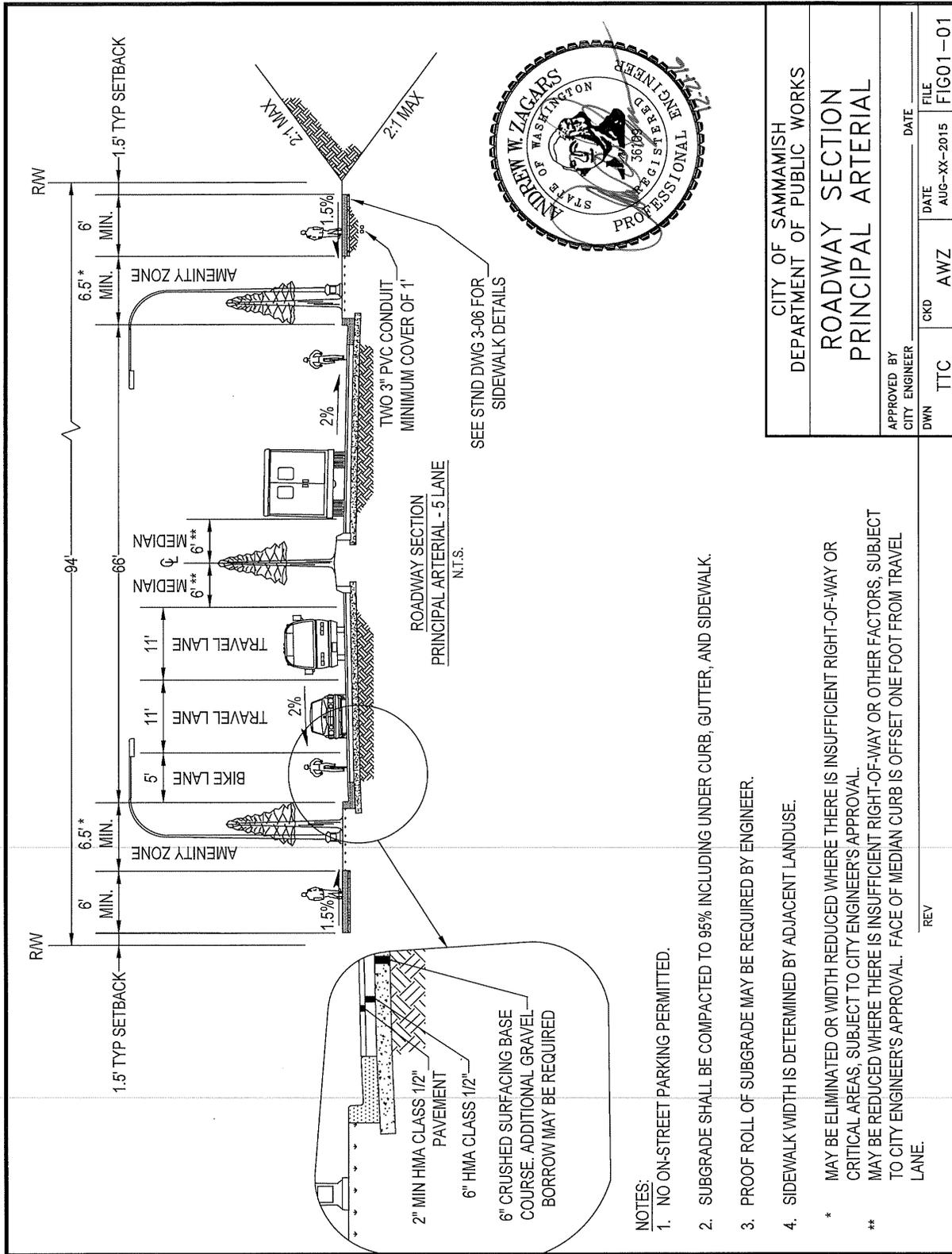
10

<b>Detail #</b>	<b>Detail Title</b>
7-03	Trash Rack (Debris Cage) - Conical
7-04	Catch Basin Type 1
7-05	Catch Basin Type 1-L
7-06	Catch Basin Installation
7-07	Catch Basin Type 2 - 48", 54", 60", 72" & 96"
7-08	Catch Basin - Type 2 Details
7-09	Manhole Type 1 - 48", 54" & 60"
7-10	Manhole Type 2 - 72" & 96"
7-11	Manhole Type 3 - 48", 52", 60", 72" & 96"
7-12	Manhole Details
7-13	Locking Manhole Cover and Installation
7-14	Through-Curb Inlet & Vertical Curb Installation
7-15	Through-Curb Inlet Frame
7-16	Vaned Grate
7-17	Standard Grate
7-18	Standard Frame Installation
7-19	Solid Cover
7-20	Flow Restrictor (Tee)
7-21	FROP-T Shear Gate Detail
7-22	Flow Restrictor (Baffle)
7-23	Floatable Material Separator - 6" or 8" Pipe
7-24	Floatable Material Separator - 12" & Larger
7-25	Control Structure - 54" Diameter
7-26	Control Structure - 72" Diameter or Larger
7-27a	Bioretention Swale
7-27b	Bioretention Swale Section
8-01	Rigid Pavement Restoration Details
8-02	Flexible Pavement Patching
9-01	One-lane, Two-way Traffic Control with Flaggers
9-02	Pilot Car Operation
9-03	Single-Lane Closure for Multi-lane Roadways
9-04	Double-lane Closure for Multi-lane Roadways
9-05	Shoulder Closure - Low Speed (40 mph or less)
9-06	Right Lane Closure with Shift - 5 Lane Roadway

STANDARD DETAILS

11

Detail #	Detail Title
9-07	Left Lane and Center Turn Lane Closure - 5 Lane Roadway
9-08	Lane Shift - Three Lane Roadway
9-09	Short Term Ramp Closures
9-10	Intersection Lane Closure - Three Lane Roadway
9-11	Intersection Lane Closure - Five Lane Roadway
9-12	Intersection Pedestrian Traffic Control
9-13	Temporary Pedestrian Ramp
9-14	Single-lane Closure with Shift
9-15	Typical Roundabout Flagging Operation
9-16	Bike Rack
9-17	Pedestrian Push Button Post
9-18	Sidewalk Ramp Retrofit
9-19	Skid Resistant Lid

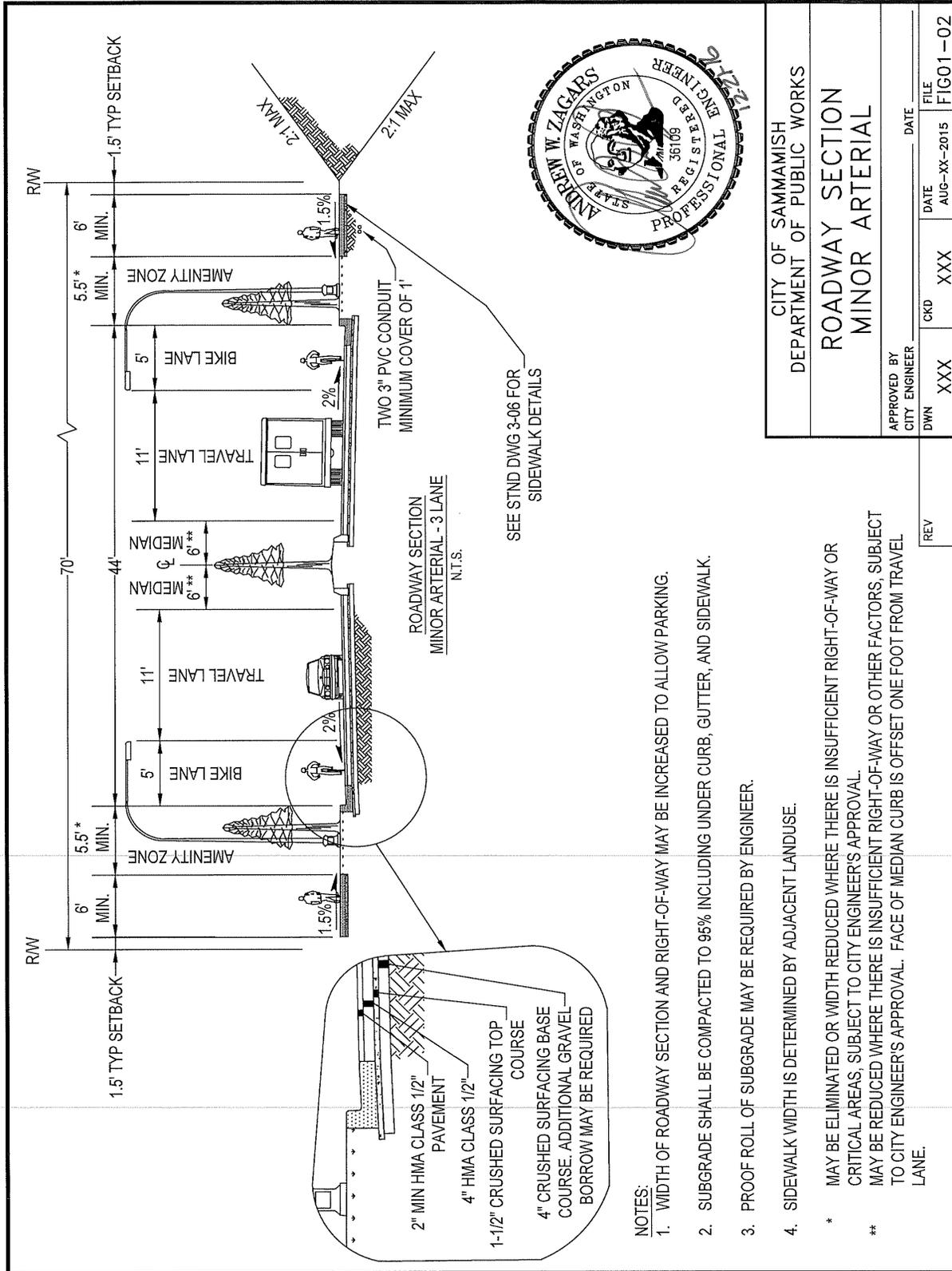


NOTES:

1. NO ON-STREET PARKING PERMITTED.
2. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
4. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.

\* MAY BE ELIMINATED OR WIDTH REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR CRITICAL AREAS, SUBJECT TO CITY ENGINEER'S APPROVAL.  
 \*\* MAY BE REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR OTHER FACTORS, SUBJECT TO CITY ENGINEER'S APPROVAL. FACE OF MEDIAN CURB IS OFFSET ONE FOOT FROM TRAVEL LANE.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>ROADWAY SECTION PRINCIPAL ARTERIAL</b>	
APPROVED BY CITY ENGINEER	DATE
DWN	TTC
CKD	AWZ
FILE	FIG01-01
REV. NO. X	



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
ROADWAY SECTION MINOR ARTERIAL	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE FIG01-02

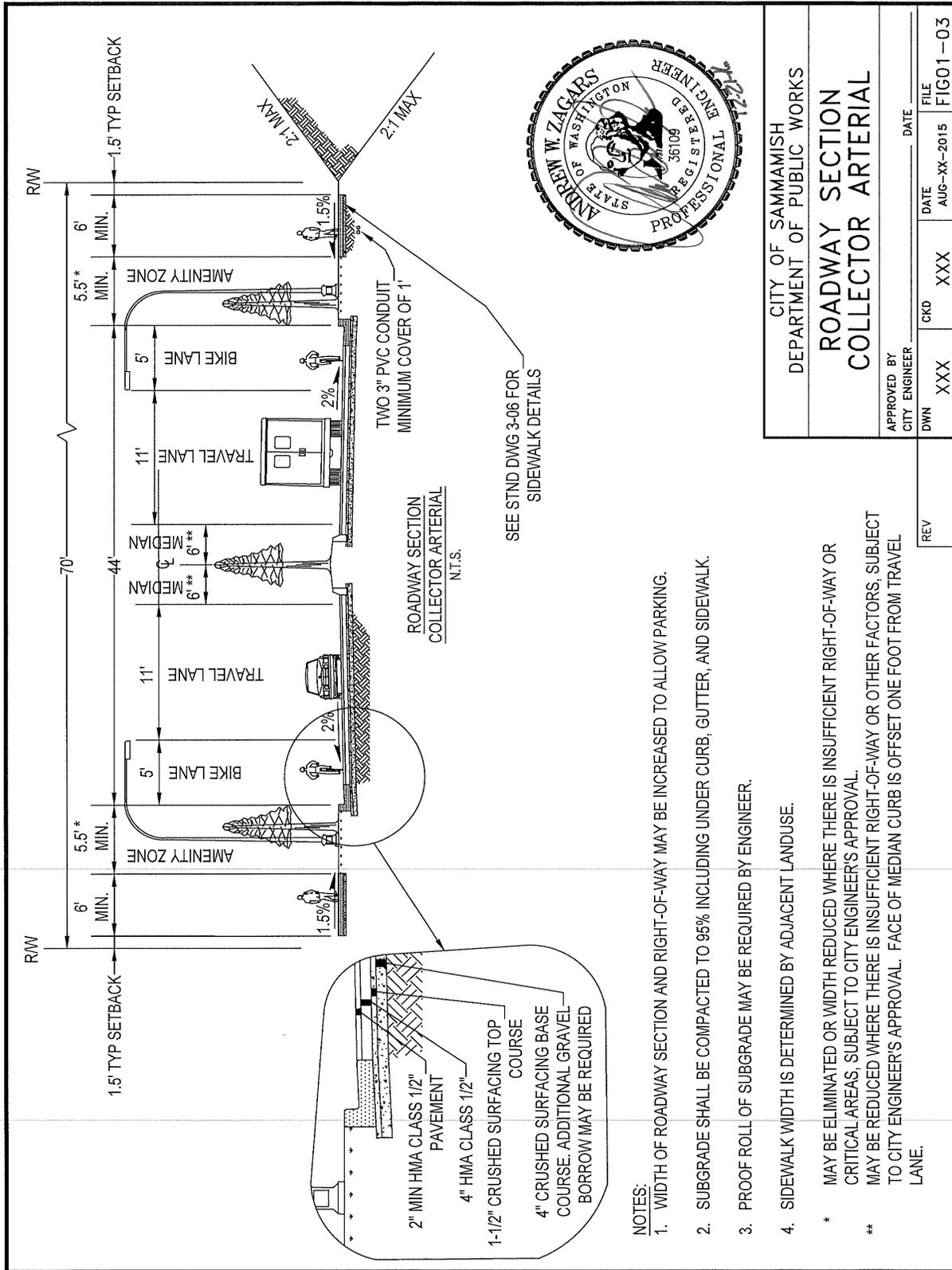
REV. NO. X

**NOTES:**

1. WIDTH OF ROADWAY SECTION AND RIGHT-OF-WAY MAY BE INCREASED TO ALLOW PARKING.
2. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
4. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.

\* MAY BE ELIMINATED OR WIDTH REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR CRITICAL AREAS. SUBJECT TO CITY ENGINEER'S APPROVAL.

\*\* MAY BE REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR OTHER FACTORS, SUBJECT TO CITY ENGINEER'S APPROVAL. FACE OF MEDIAN CURB IS OFFSET ONE FOOT FROM TRAVEL LANE.

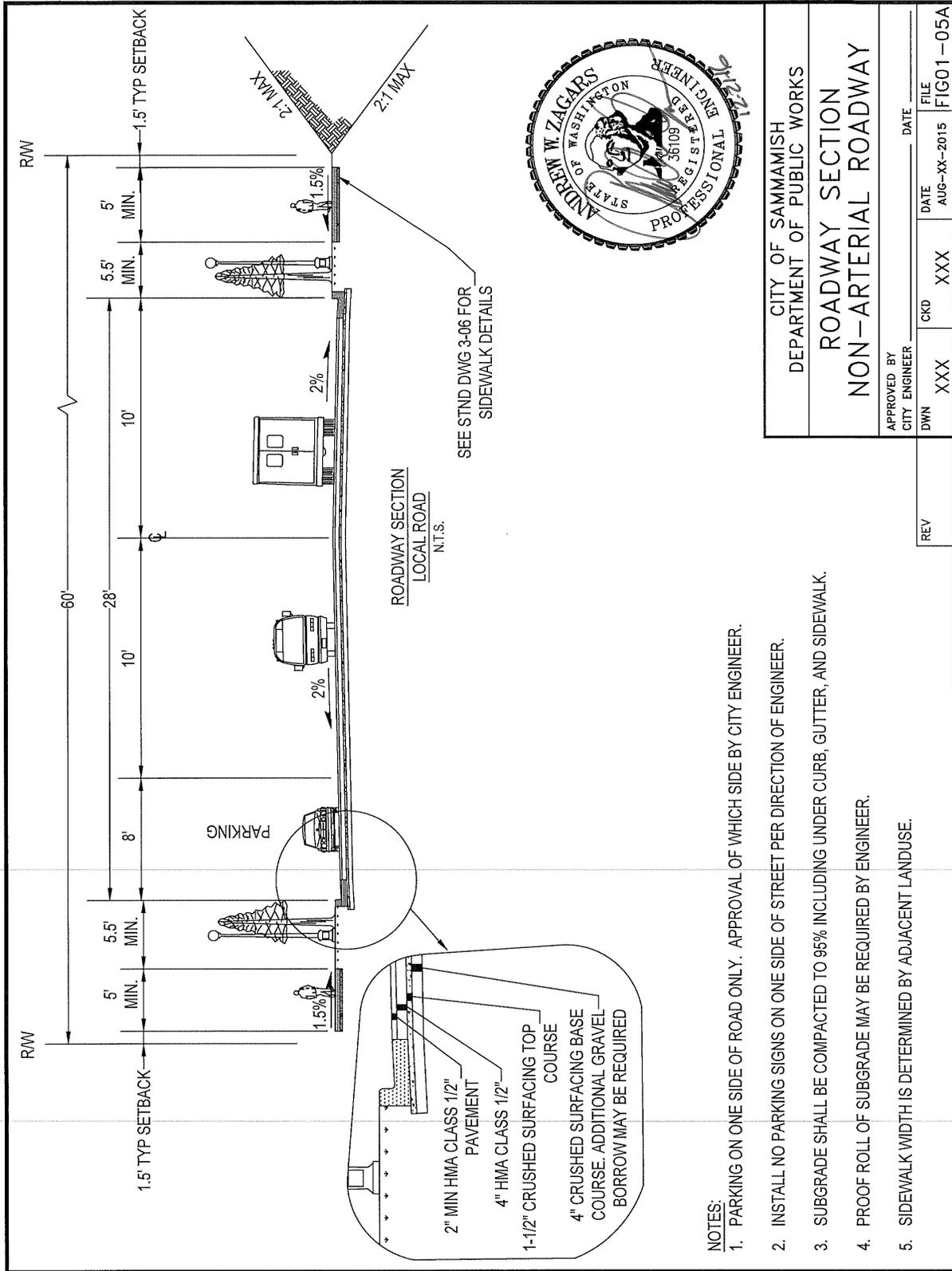


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE AUG-XX-2015	FILE FIG01-03
DWN	XXX	CKD	XXX	REV. NO. X

**ROADWAY SECTION  
COLLECTOR ARTERIAL**

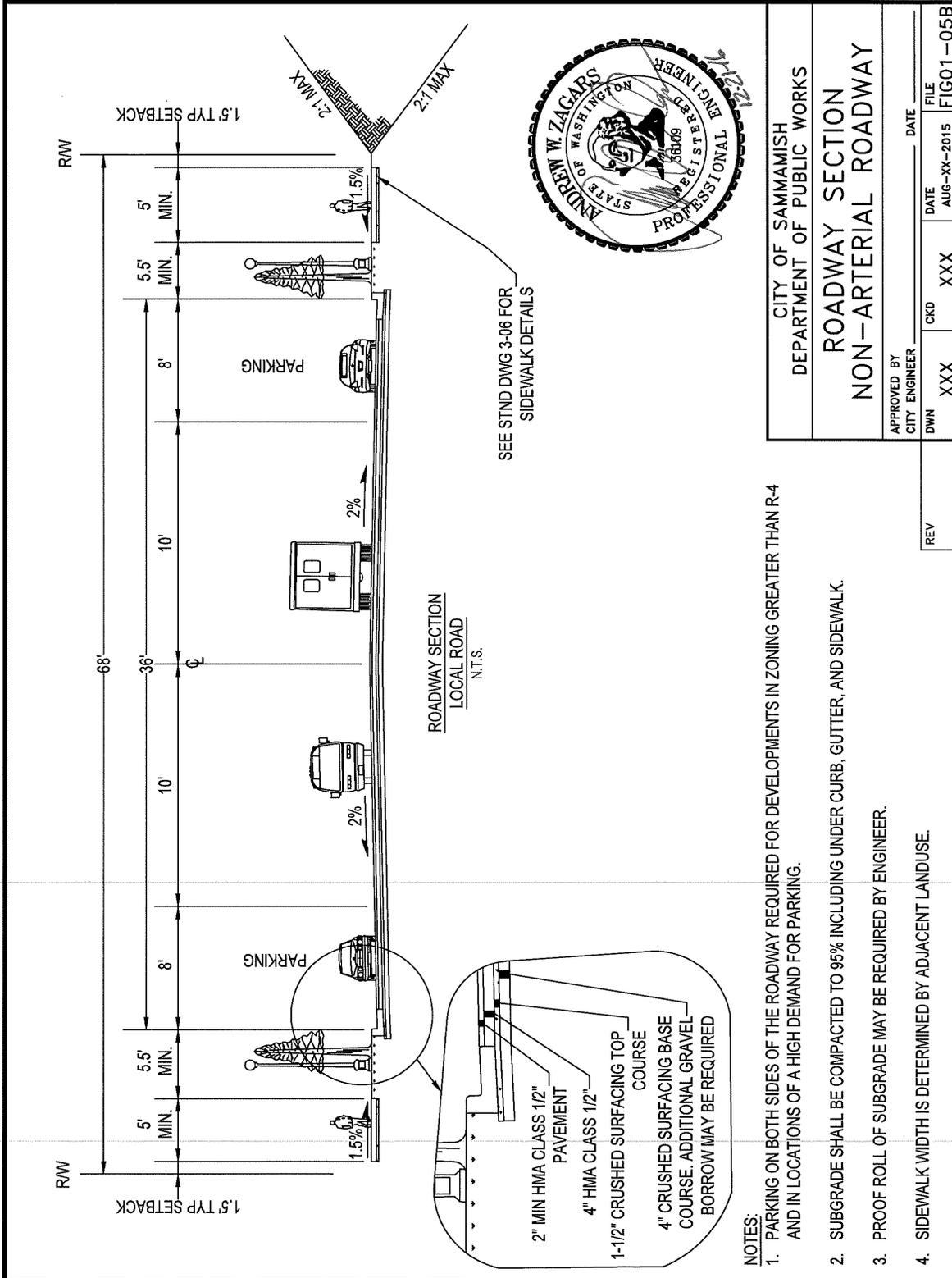
NOTES:

1. WIDTH OF ROADWAY SECTION AND RIGHT-OF-WAY MAY BE INCREASED TO ALLOW PARKING.
  2. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
  3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
  4. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.
- \* MAY BE ELIMINATED OR WIDTH REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR CRITICAL AREAS, SUBJECT TO CITY ENGINEER'S APPROVAL.
- \*\* MAY BE REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR OTHER FACTORS, SUBJECT TO CITY ENGINEER'S APPROVAL. FACE OF MEDIAN CURB IS OFFSET ONE FOOT FROM TRAVEL LANE.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>ROADWAY SECTION NON-ARTERIAL ROADWAY</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE
XXX	FIG01-05A

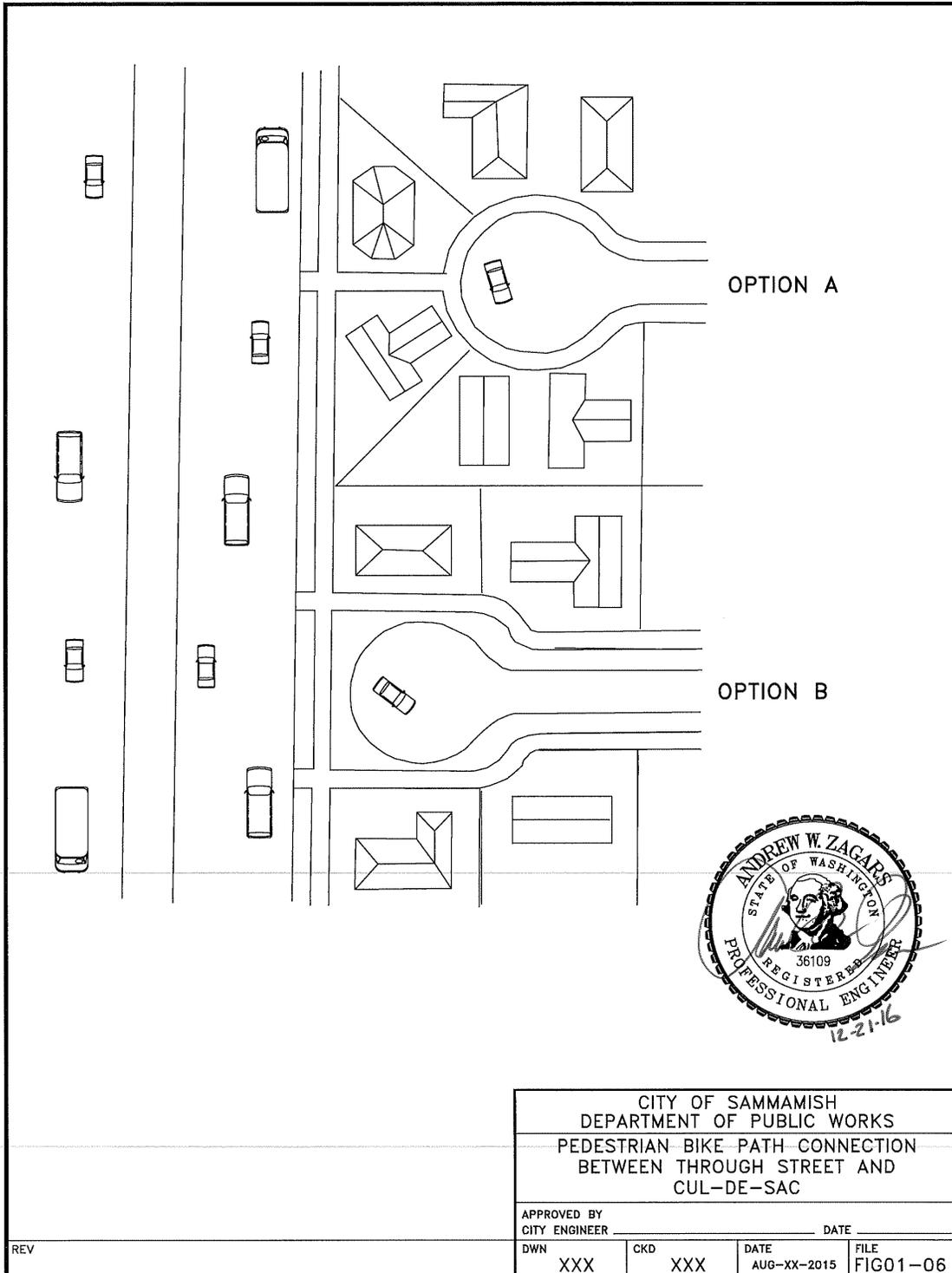
- NOTES:
1. PARKING ON ONE SIDE OF ROAD ONLY. APPROVAL OF WHICH SIDE BY CITY ENGINEER.
  2. INSTALL NO PARKING SIGNS ON ONE SIDE OF STREET PER DIRECTION OF ENGINEER.
  3. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
  4. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
  5. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.

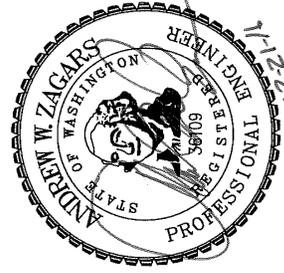
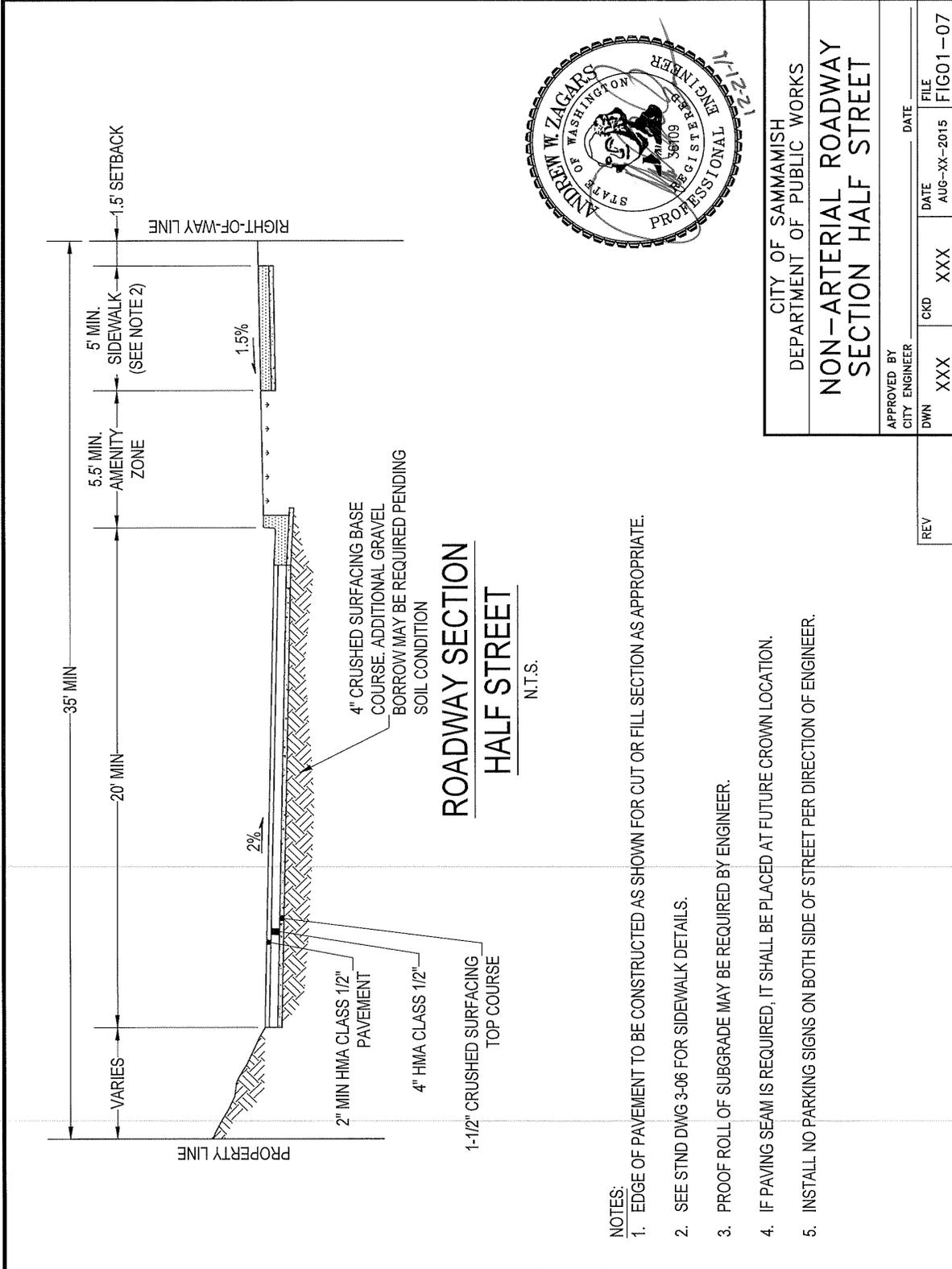


CITY OF SAMMAMISH		DATE	FILE
DEPARTMENT OF PUBLIC WORKS		AUG--XX--2015	FIG101-05B
ROADWAY SECTION		CKD	XXX
NON-ARTERIAL ROADWAY		DWN	XXX
APPROVED BY	CITY ENGINEER	DATE	
REV			

- NOTES:
1. PARKING ON BOTH SIDES OF THE ROADWAY REQUIRED FOR DEVELOPMENTS IN ZONING GREATER THAN R-4 AND IN LOCATIONS OF A HIGH DEMAND FOR PARKING.
  2. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
  3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
  4. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.

REV. NO. X

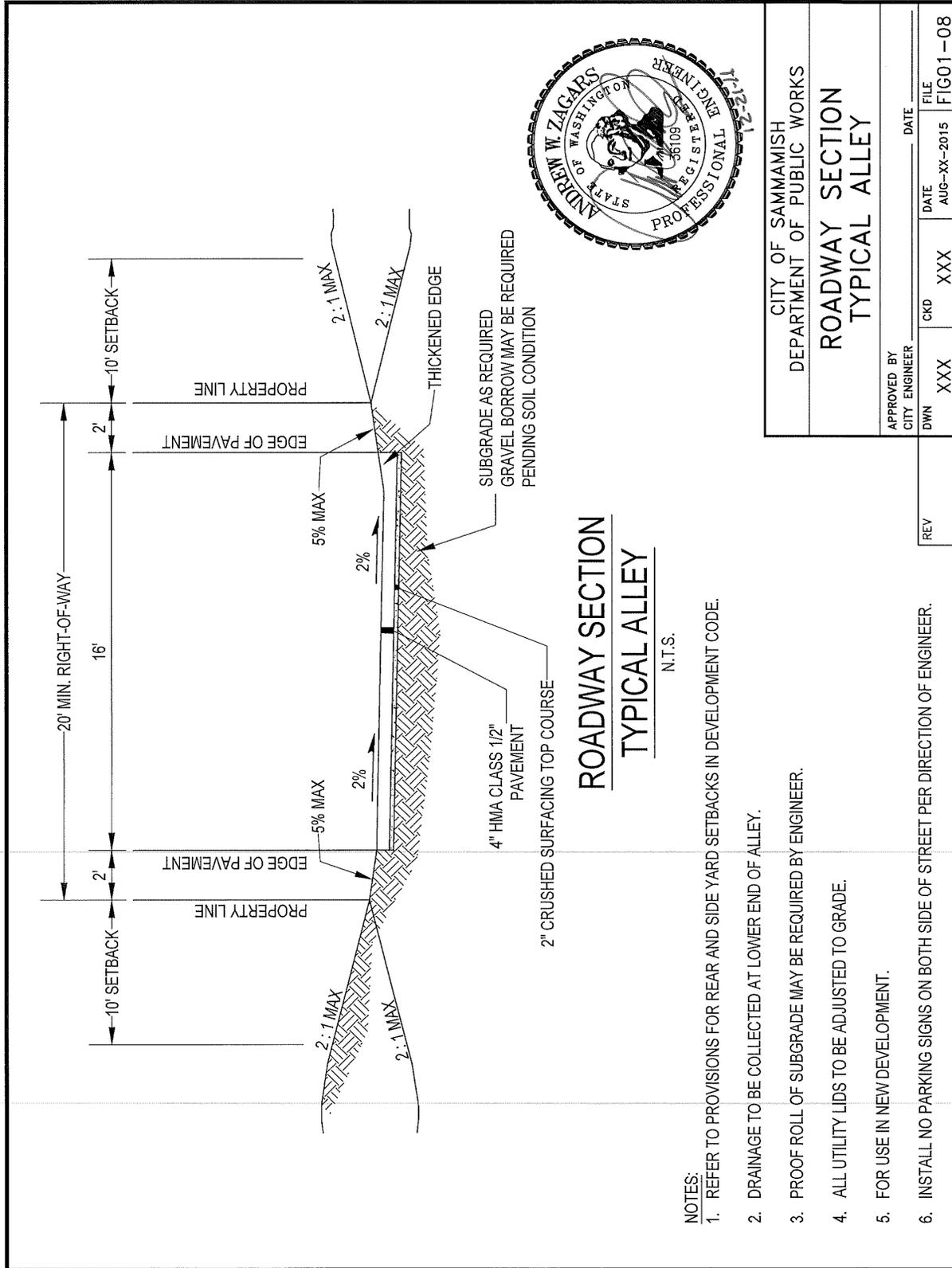




**ROADWAY SECTION  
HALF STREET**  
N.T.S.

- NOTES:**
1. EDGE OF PAVEMENT TO BE CONSTRUCTED AS SHOWN FOR CUT OR FILL SECTION AS APPROPRIATE.
  2. SEE STND DWG 3-06 FOR SIDEWALK DETAILS.
  3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
  4. IF PAVING SEAM IS REQUIRED, IT SHALL BE PLACED AT FUTURE CROWN LOCATION.
  5. INSTALL NO PARKING SIGNS ON BOTH SIDE OF STREET PER DIRECTION OF ENGINEER.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
<b>NON-ARTERIAL ROADWAY SECTION HALF STREET</b>		DWN XXX	AUG-XX-2015	FIG01-07
REV	CKD	XXX	DATE	REV. NO. X



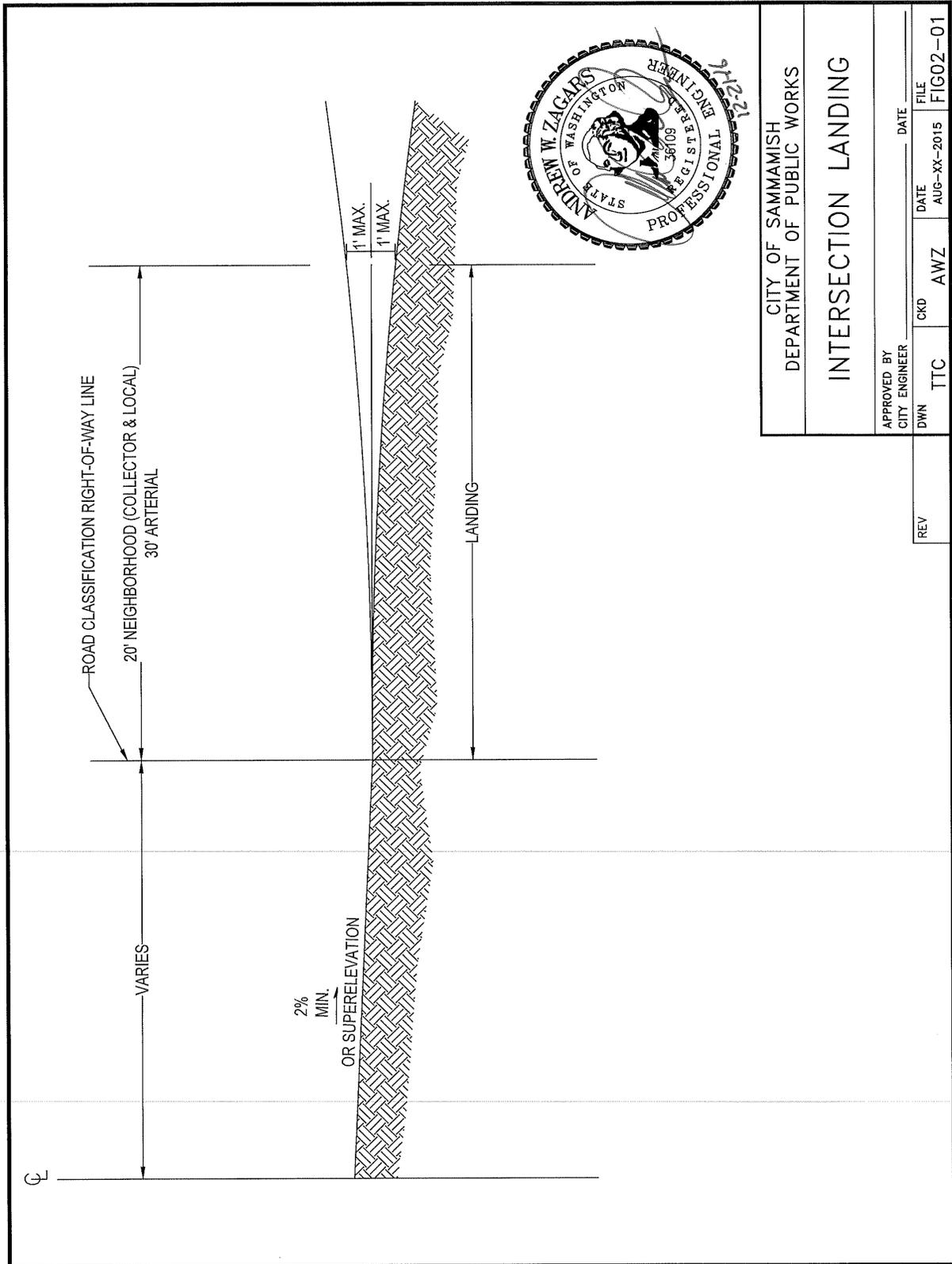
**NOTES:**

1. REFER TO PROVISIONS FOR REAR AND SIDE YARD SETBACKS IN DEVELOPMENT CODE.
2. DRAINAGE TO BE COLLECTED AT LOWER END OF ALLEY.
3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
4. ALL UTILITY LIDS TO BE ADJUSTED TO GRADE.
5. FOR USE IN NEW DEVELOPMENT.
6. INSTALL NO PARKING SIGNS ON BOTH SIDE OF STREET PER DIRECTION OF ENGINEER.

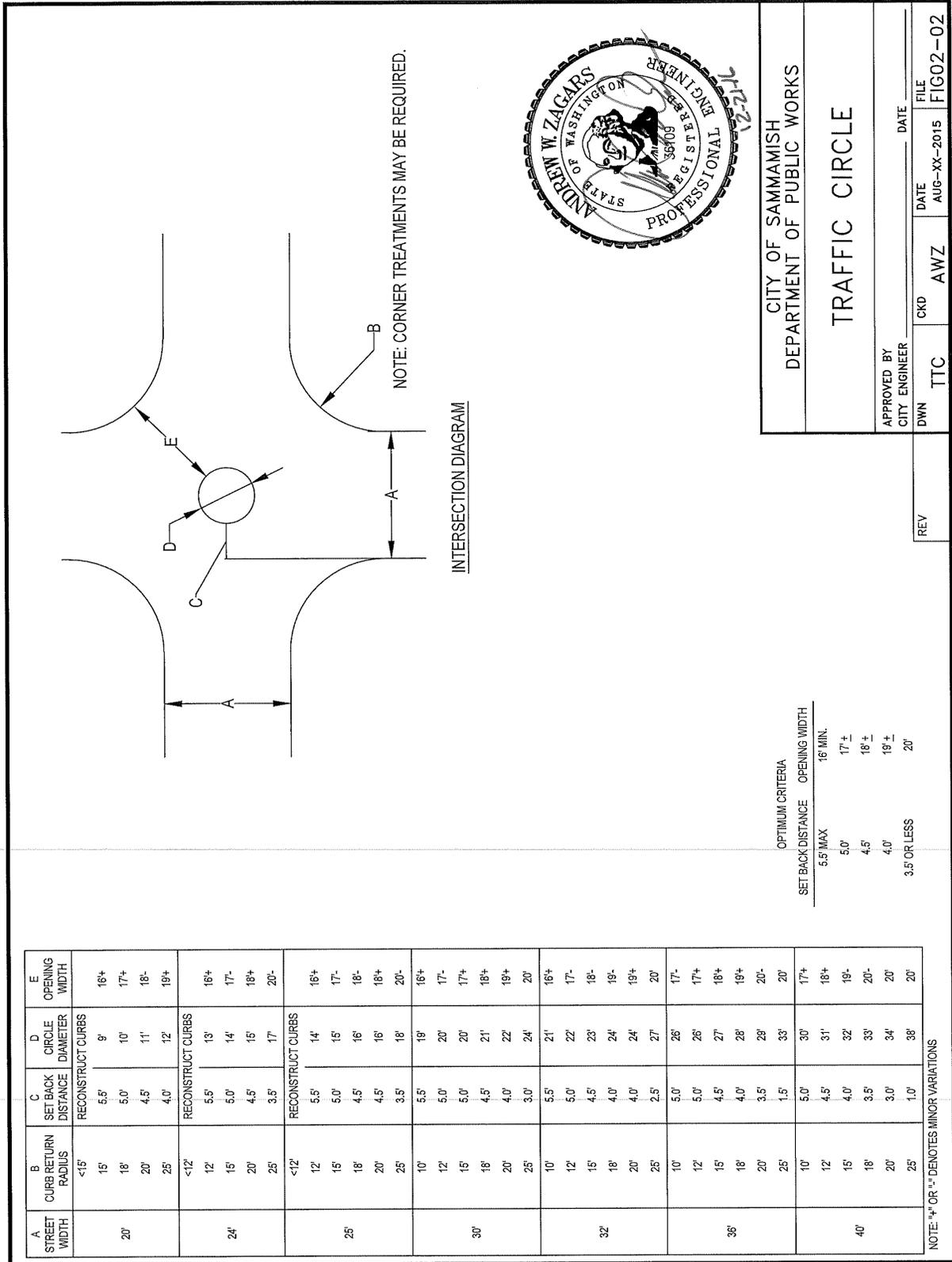


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>ROADWAY SECTION TYPICAL ALLEY</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	XXX
CKD XXX	FILE
AUG--XX--2015	FIG01-08

REV. NO. X



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>INTERSECTION LANDING</b>	
APPROVED BY CITY ENGINEER	DATE
DWN	TTC
CKD	AWZ
FILE	FIG02-01
REV. NO. X	



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>TRAFFIC CIRCLE</b>	
APPROVED BY CITY ENGINEER	DATE
DWN	TTC
CKD	AWZ
REV	FILE
AUG-XX-2015	FIG02-02

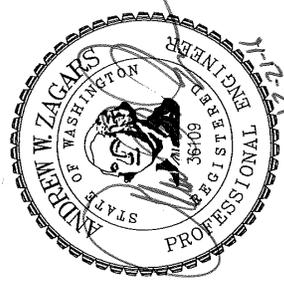
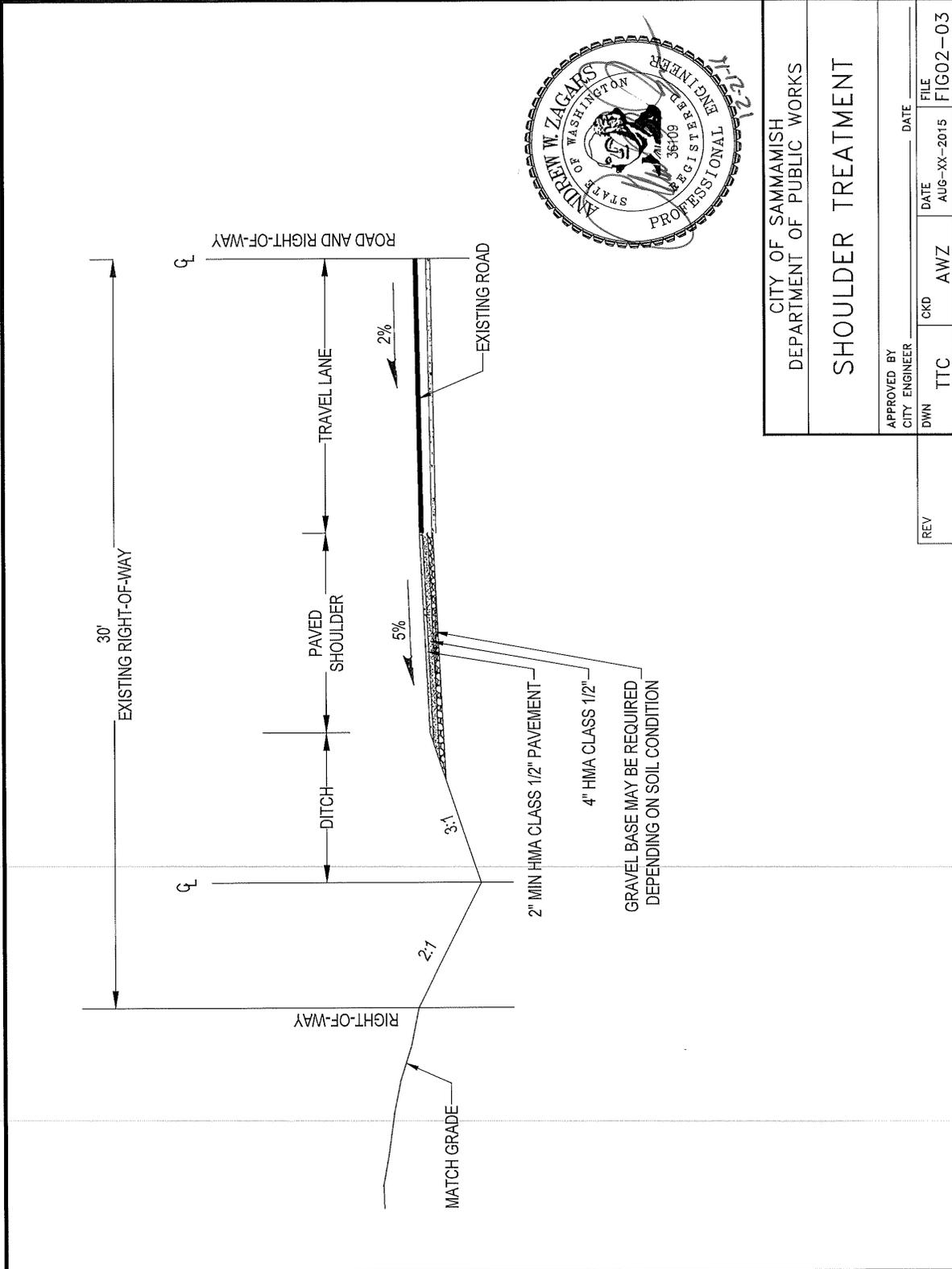
OPTIMUM CRITERIA

SET BACK DISTANCE	OPENING WIDTH
5.5' MAX	16' MIN.
5.0'	17' ±
4.5'	18' ±
4.0'	19' ±
3.5' OR LESS	20'

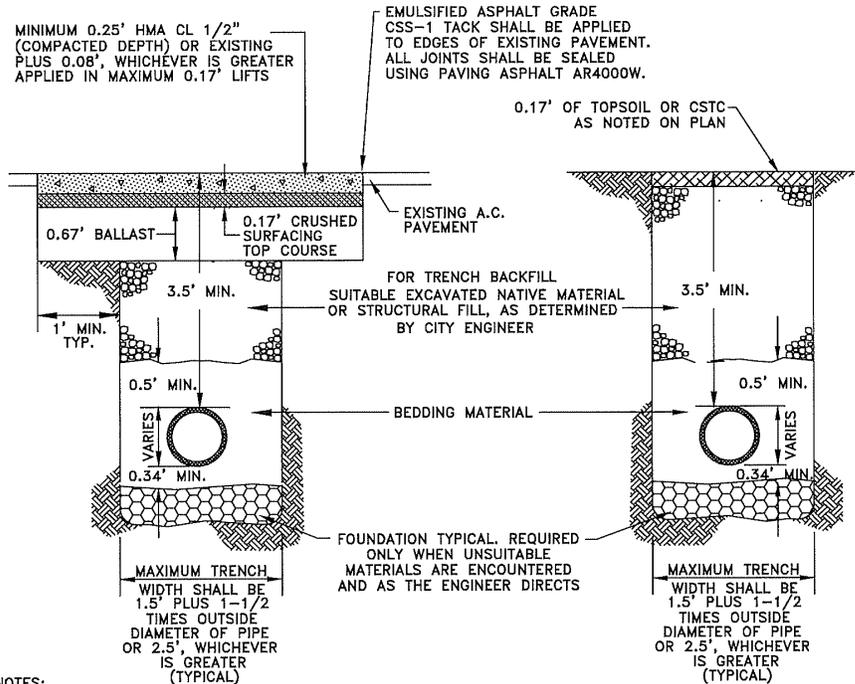
A STREET WIDTH	B CURB RETURN RADIUS	C SET BACK DISTANCE	D CIRCLE DIAMETER	E OPENING WIDTH
20'	<15'	5.5'	9'	16+
	15'	5.0'	10'	17+
	18'	4.5'	11'	18-
	20'	4.0'	12'	19+
24'	<12'	RECONSTRUCT CURBS		16+
	12'	5.5'	13'	17-
	15'	5.0'	14'	18+
	20'	4.5'	15'	20-
25	<12'	RECONSTRUCT CURBS		16+
	12'	5.5'	14'	17-
	15'	5.0'	15'	18-
	20'	4.5'	16'	18+
30'	10'	5.5'	18'	16+
	12'	5.0'	20'	17-
	15'	5.0'	20'	17+
	18'	4.5'	21'	18+
32	20'	4.0'	22'	19+
	20'	4.0'	24'	19+
	25'	3.0'	24'	20'
	25'	5.5'	21'	16+
36'	10'	5.0'	22'	17-
	12'	5.0'	26'	17+
	15'	4.5'	27'	18+
	18'	4.0'	28'	19+
40'	20'	3.5'	29'	20-
	25'	1.5'	33'	20'
	10'	5.0'	30'	17+
	12'	4.5'	31'	18+
40'	15'	4.0'	32'	19-
	18'	3.5'	33'	20-
	20'	3.0'	34'	20'
	25'	1.0'	38'	20'

NOTE: "+" OR "-" DENOTES MINOR VARIATIONS

REV. NO. X



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
SHOULDER TREATMENT	
APPROVED BY CITY ENGINEER	DATE
DWN	AUG--XX--2015
TTC	AWZ
CKD	FILE
	FIG02-03
REV	REV. NO. X



- NOTES:
1. DIMENSIONS SHOWN ARE MINIMUM; GREATER THICKNESS MAY BE REQUIRED BY CITY ENGINEER.
  2. ALL MATERIALS EXCEPT A.C.P. AND BEDDING MATERIAL SHALL BE COMPACTED IN 6-INCH MAXIMUM LIFTS TO 95% DENSITY.
  3. BEDDING SHALL CONFORM TO SECTION 9-03.16 OF STANDARD SPECIFICATIONS.
  4. COMPACTION: BEDDING SHALL BE COMPACTED TO 95% MAX. AS DETERMINED BY ASTM D1557. BACKFILL SHALL BE COMPACTED TO 85% IN UNPAVED AREA, AND 95% IN PAVED OR SHOULDER AREAS AS DETERMINED BY ASTM D1557.
  5. ALL MATERIALS, WORKMANSHIP, AND INSTALLATION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.
  6. KEEP TRENCH BOTTOM COMPACTED WITH UNIFORM GRADE. A BELL JOINT SHALL BE REQUIRED AT EACH JOINT FOR PROPER SUPPORT. NO TEMPORARY SUPPORTS, I.E. BLOCKS, WILL BE ALLOWED TO SUPPORT PIPE. TRENCH BOTTOM SHALL BE TO GRADE PRIOR TO PIPE INSTALLATION.



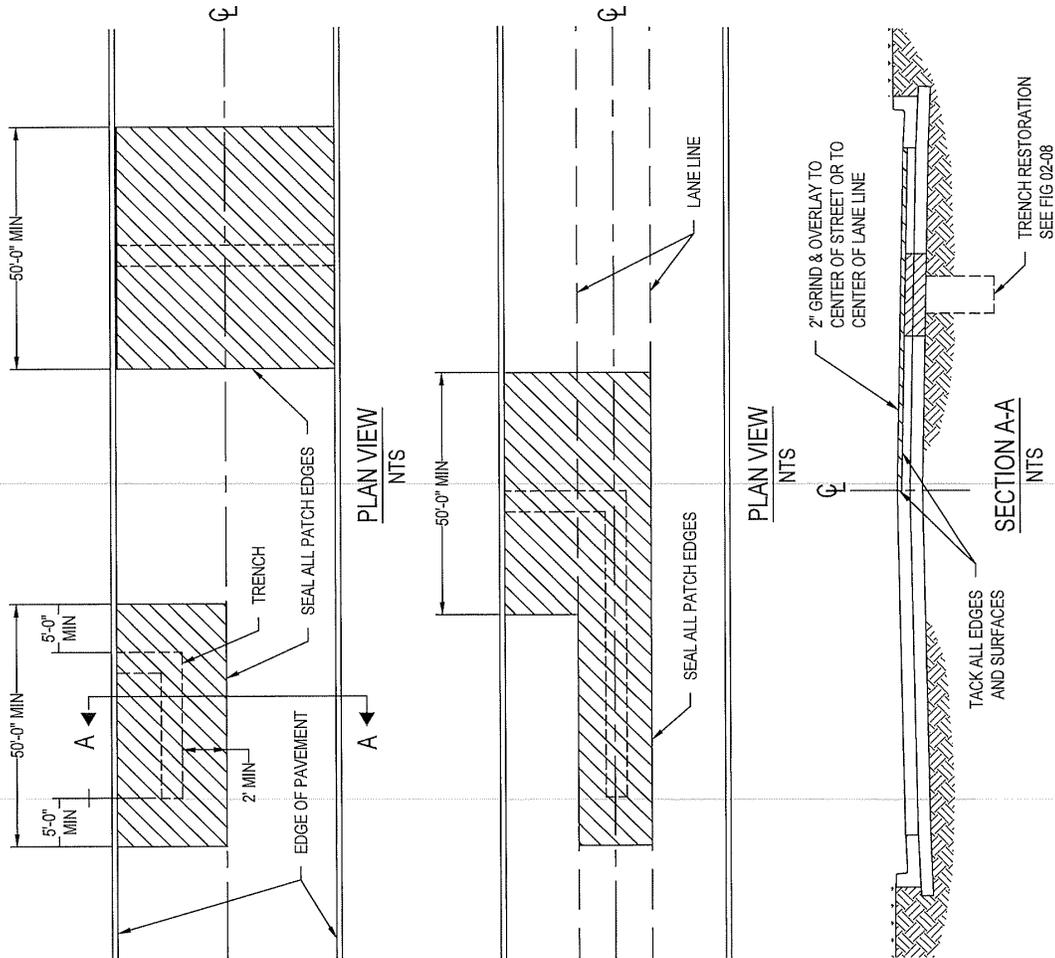
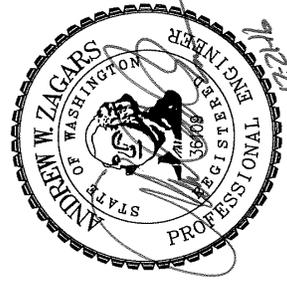
CITY OF SAMMAMISH			
DEPARTMENT OF PUBLIC WORKS			
<b>TRENCH-PAVEMENT RESTORATION DETAIL</b>			
APPROVED BY		DATE	
CITY ENGINEER			
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG02-05a

REV

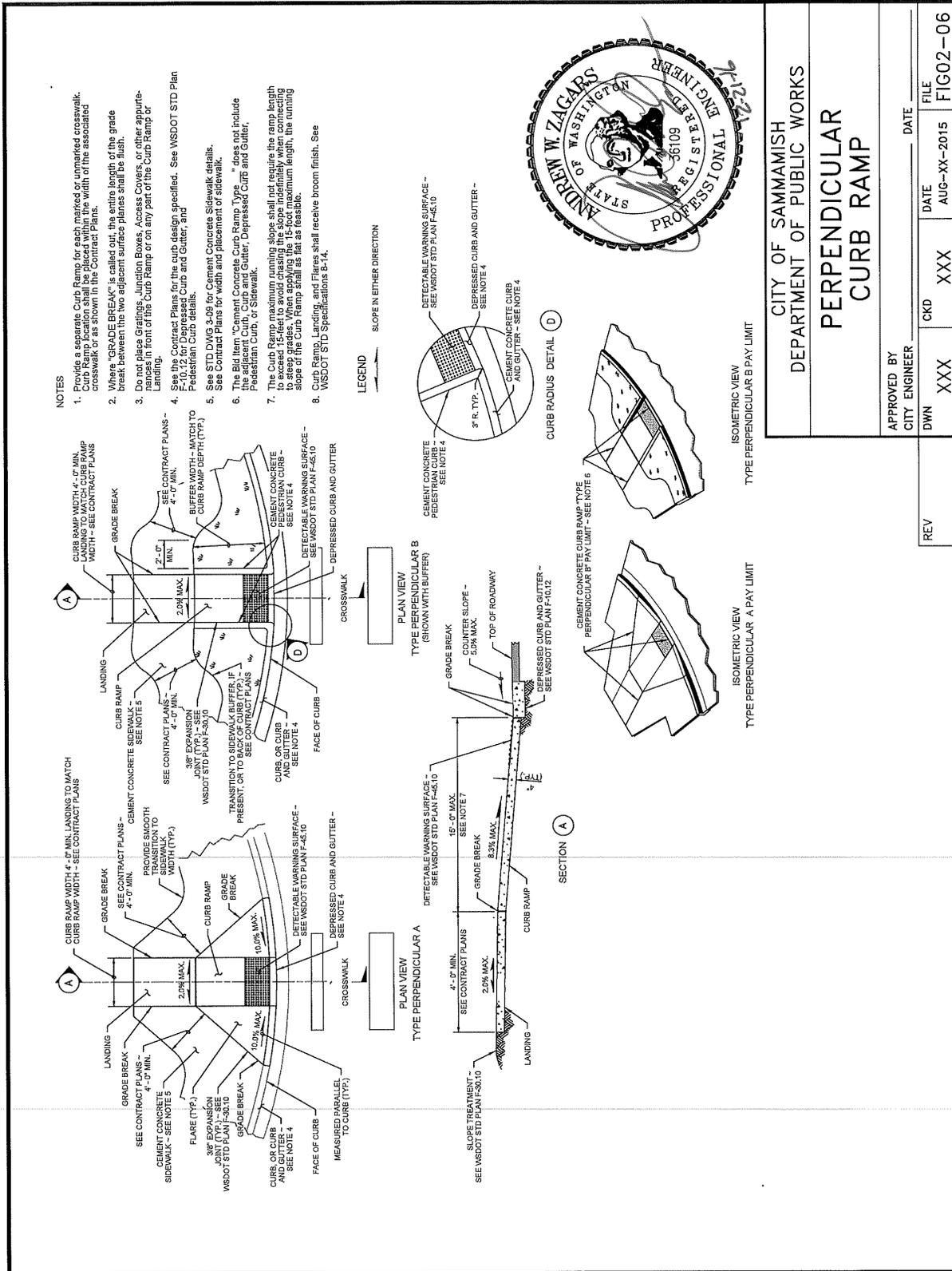
REV. NO. X

**NOTES:**

1. THIS DETAIL APPLIES TO ALL PAVEMENT CUTS.
2. DIMENSIONS SHOWN ARE MINIMUM. LIMITS MAY BE INCREASED TO MATCH NEARBY PAVING LIMITS OR OTHER PATCHES.
3. OVERLAY LIMITS MAY BE REDUCED BY CITY ON PAVEMENT IN FAIR CONDITION OR WORSE. SEE PAVEMENT CONDITION MAP FOR LOCATIONS.
4. REPAIR PAVEMENT PER WSDOT STANDARD SPECIFICATIONS SECTION 5-04.
5. HMA SHALL BE PLACED BY PAVERS MEETING THE REQUIREMENTS OF SECTION 5-04.3(3). ROLLERS SHALL MEET THE REQUIREMENTS OF SECTION 5-04.3(4)
6. LOWER ALL UTILITY CASTING PRIOR TO OVERLAY. ADJUST UTILITY CASTINGS TO FINISH GRADE AND RESTORE CHANNELIZATION AND LOOP DETECTORS.

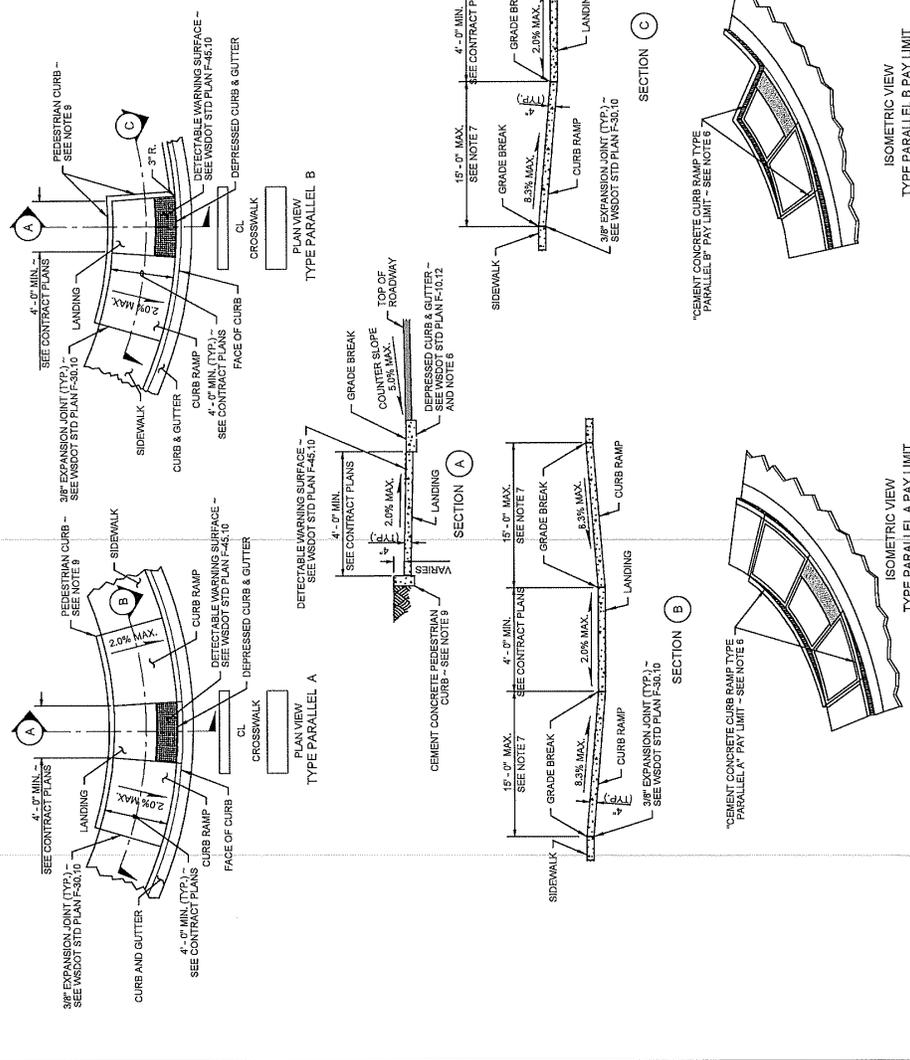


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>HMA PAVEMENT OVERLAY FOR TRENCH REPAIR</b>			
APPROVED BY CITY ENGINEER	DATE	FILE	REV. NO.
DWN JG	AUG-XX-2015	FIG02-05b	X
CKD XXX	DATE	FILE	REV. NO.



CITY OF SAMMAMISH		DATE _____	
DEPARTMENT OF PUBLIC WORKS		FILE FIG02-06	
PERPENDICULAR CURB RAMP		REV. NO. X	
APPROVED BY	CITY ENGINEER	DATE	FILE
DWN	XXX	AUG-XX-2015	FIG02-06
REV	XXX	CKD	XXX

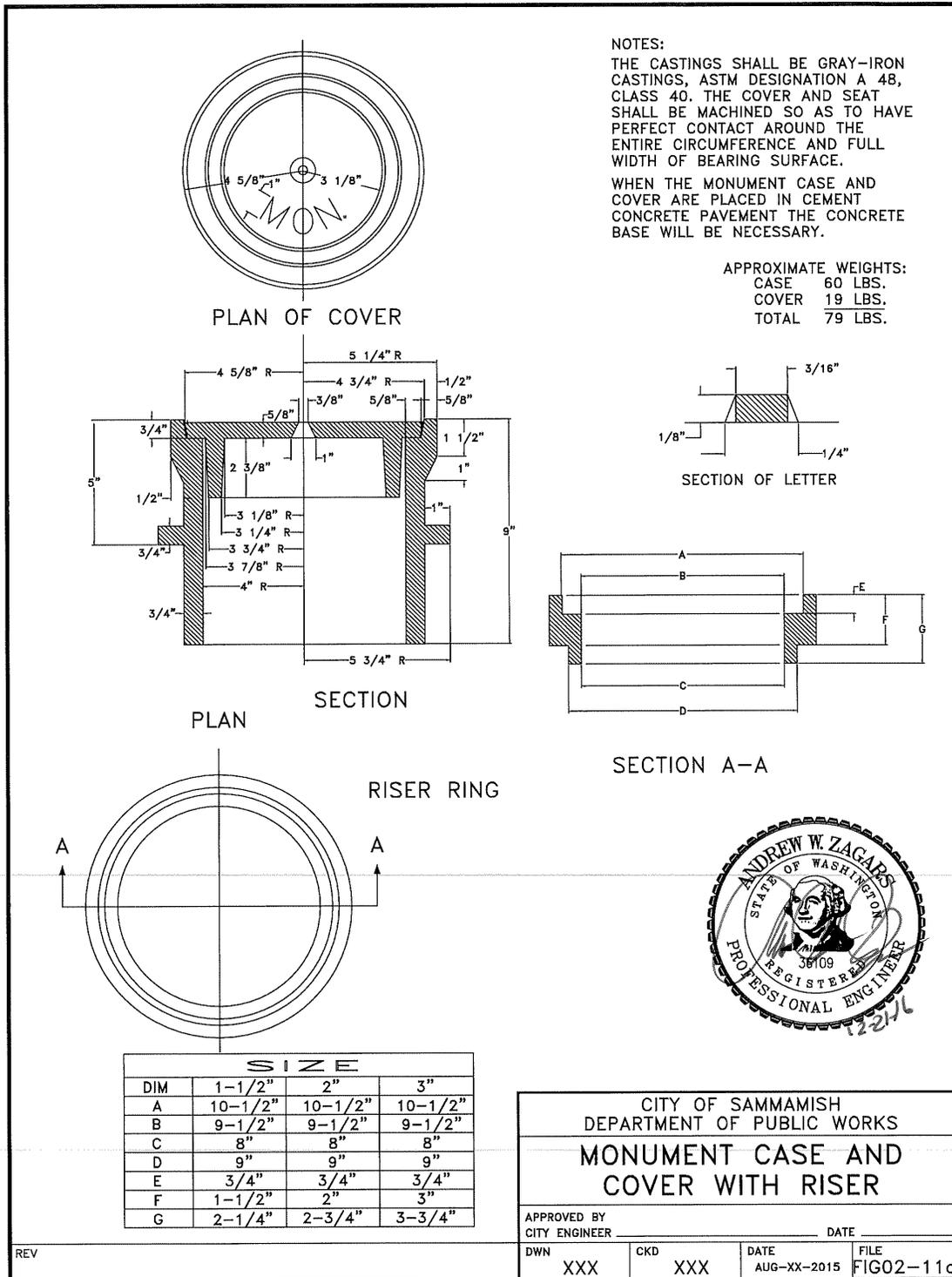
- NOTES**
1. Provide a separate Curb Ramp for each marked or unmarked crosswalk. Curb Ramp shall be 10' wide or the width of the associated crosswalk, or as shown in the Contract Plans.
  2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
  3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances in front of the Curb Ramp or on any part of the Curb Ramp or Landing.
  4. See Contract Plans for the curb design specified. See WSDOT STD Plan F-10.12 for Depressed Curb and Gutter, and Pedestrian Curb details.
  5. See STD DWG S-09 for Cement Concrete Sidewalk Details.
  6. The Bid Item "Cement Concrete Curb Ramp Type \_\_\_" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalk.
  7. The Curb Ramp maximum running slope shall not require the ramp length to be 15'-0" max. When applying the 15'-0" max. length, the running slope of the curb ramp shall be as flat as feasible.
  8. Curb Ramp, Landing, and Flares shall receive broom finish. See WSDOT STD Specifications 64.14.
  9. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will be no material to retain.

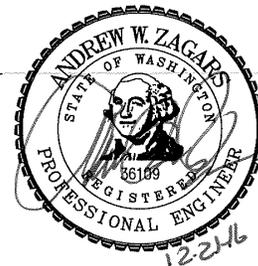
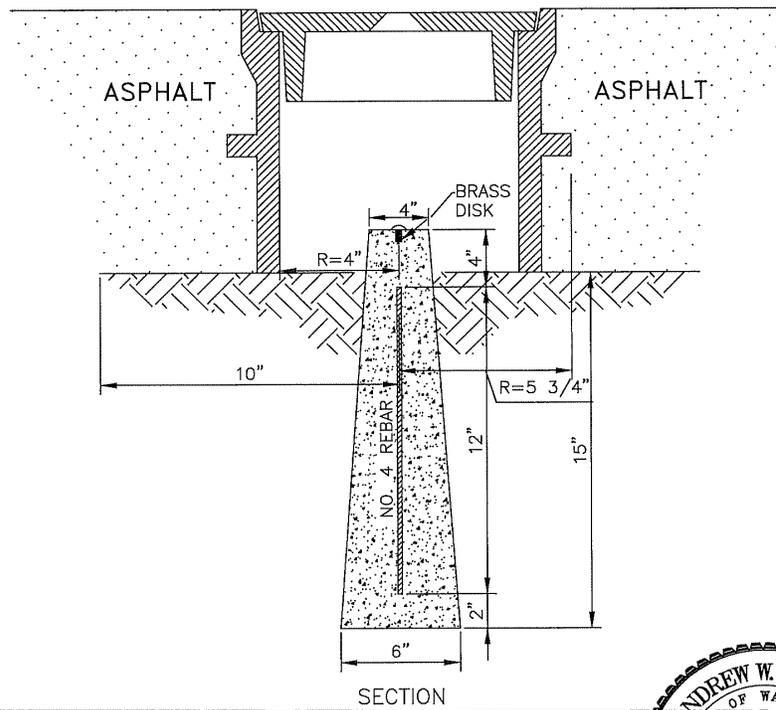


CITY OF SAMMAMISH		DATE _____	
DEPARTMENT OF PUBLIC WORKS		FILE FIG02-07	
PARALLEL CURB RAMP		REV. NO. X	
APPROVED BY	CITY ENGINEER	DATE	FILE
DWN	XXX	AUG-XX-2015	FIG02-07
REV	XXX	CKD	XXX









NOTES

1. ASPHALT SHOULD BE PLACED IN LIFTS NO LARGER THAN 4".
2. MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE CASTING AT 28 DAYS - 3000#.

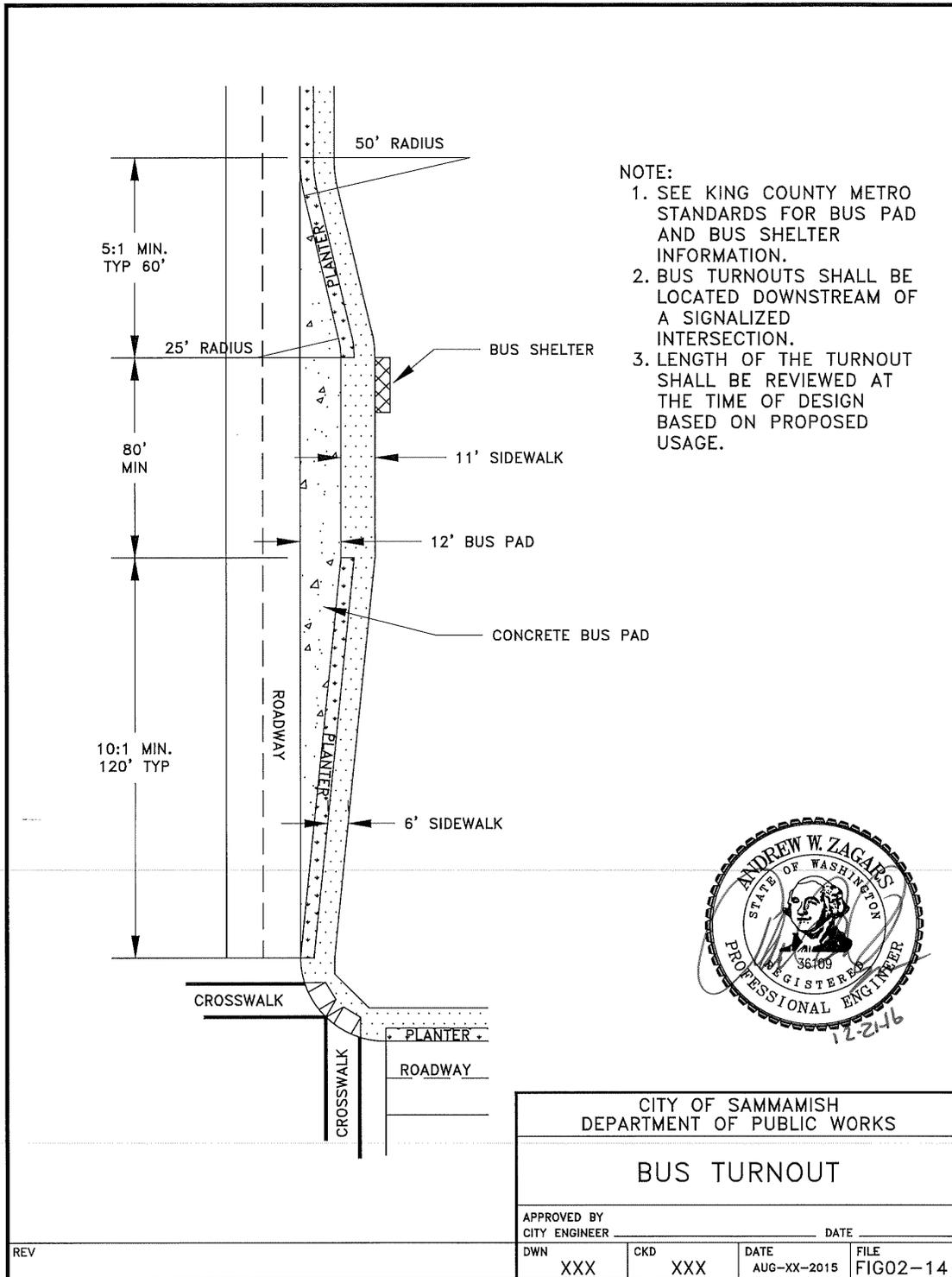
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

MONUMENT CASE  
AND COVER

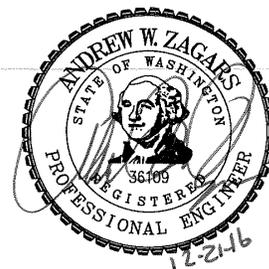
APPROVED BY		DATE	
CITY ENGINEER			
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG02-11b

REV

REV. NO. X



- NOTE:
1. SEE KING COUNTY METRO STANDARDS FOR BUS PAD AND BUS SHELTER INFORMATION.
  2. BUS TURNOUTS SHALL BE LOCATED DOWNSTREAM OF A SIGNALIZED INTERSECTION.
  3. LENGTH OF THE TURNOUT SHALL BE REVIEWED AT THE TIME OF DESIGN BASED ON PROPOSED USAGE.

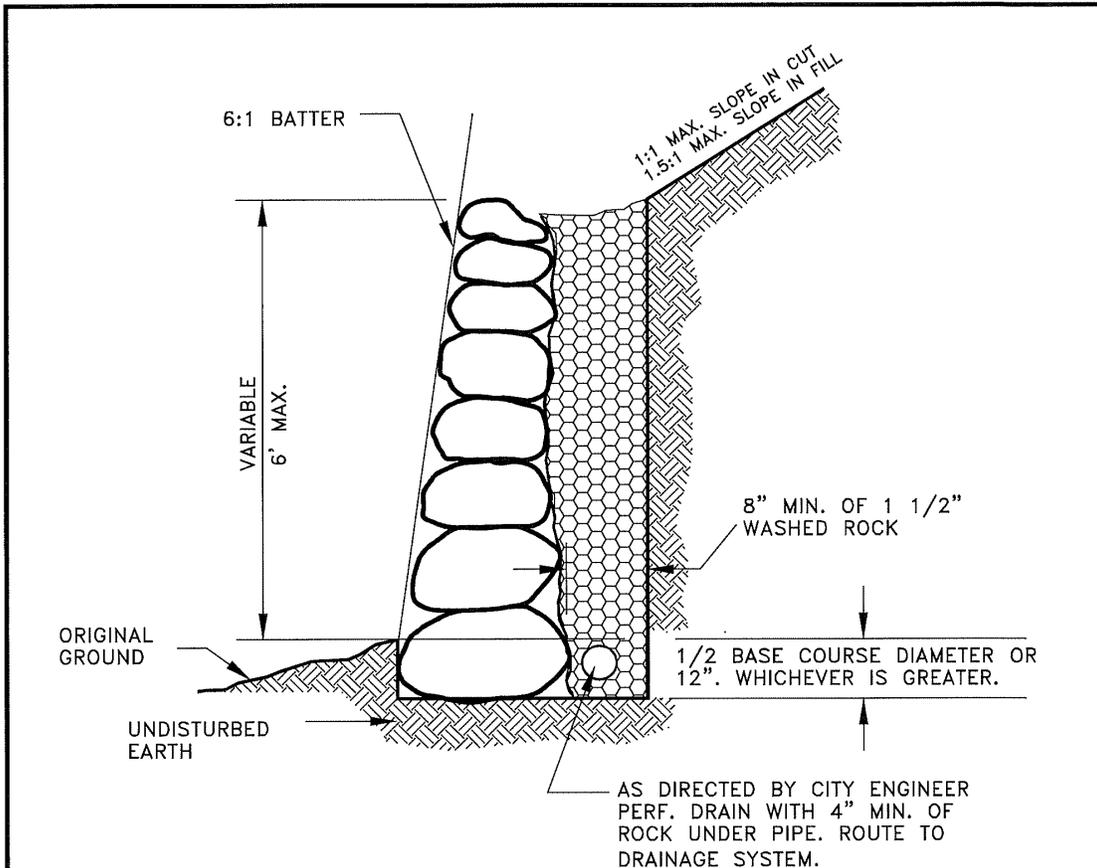


CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

BUS TURNOUT

APPROVED BY		DATE	
CITY ENGINEER			
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG02-14

REV. NO. X



**GENERAL NOTES:**

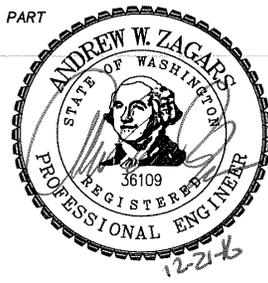
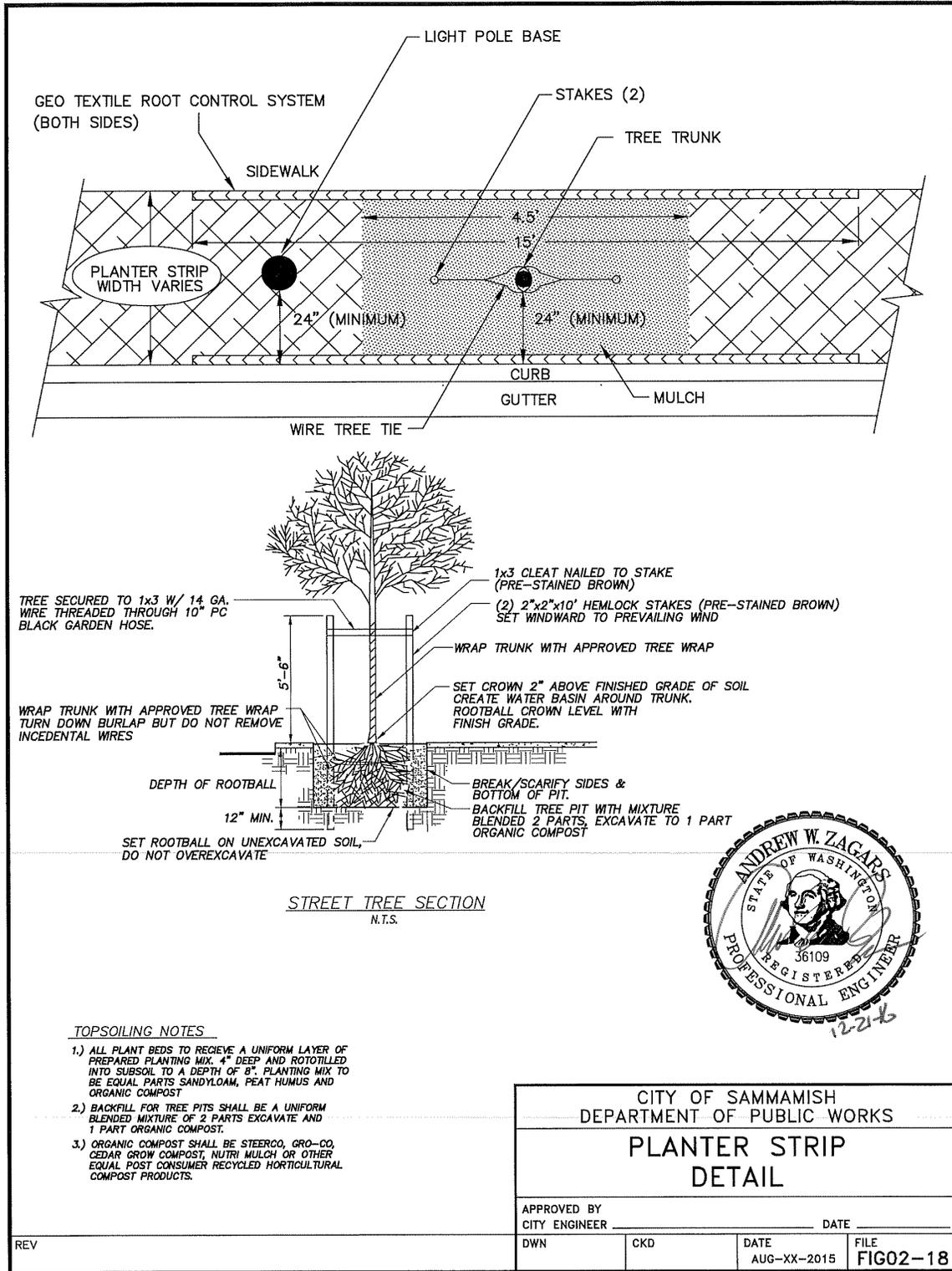
1. Rockeries higher than 5' shall be constructed of rocks of graduated sizes from 5-man to 2-man from bottom to top. Rockeries of 5' or lower shall be constructed of 3-man to 2-man from bottom to top. Rock size categories shall include:
  - Two-man rocks (300 to 600 pounds), 13 inches in least dimension;
  - Three-man rocks (800 to 1200 pounds), 16 inches in least dimension;
  - Four-man rocks (1500 to 2200 pounds), 18 inches in least dimension;
  - Five-man rocks (2400 to 3400 pounds), 24 inches in least dimension.
2. The rockery shall be installed with a smooth face.
3. The long dimension of the rocks shall extend into the earth to provide maximum stability.
4. The rock shall be placed so as to lock into two rocks in the lower tier.
5. Call for inspection prior to base course being placed (for verification of rockery height, foundation material and rock size).
6. Design varying from those indicated shall carry the seal of a civil or geotechnical engineer experienced in soil mechanics.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>ROCK RETAINING WALL</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN XXX	CKD XXX	DATE AUG--XX--2015	FILE FIG02-15

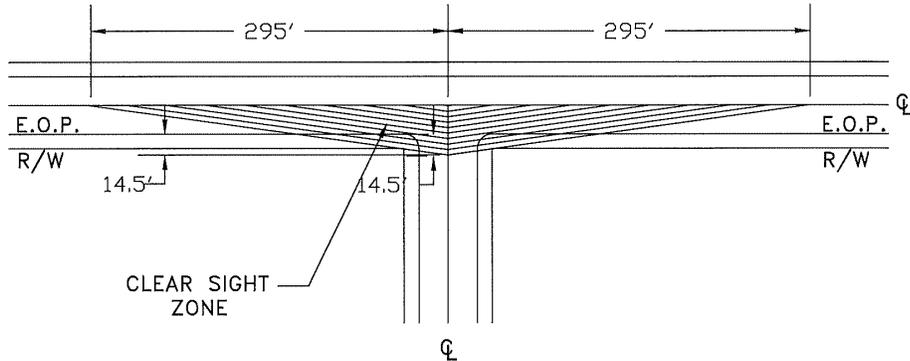
REV

REV. NO. X



## STOP CONTROLLED INTERSECTIONS

EXAMPLE: MAJOR STREET SPEED LIMIT = 20 M.P.H.



SIGHT DISTANCE (FT.)		
	(A.)	(B.)
SPEED LIMIT	ARTERIAL STREET	LOCAL STREET
20 MPH	295	295
25 MPH	355	355
30 MPH	415	415
35 MPH	470	470
40 MPH	530	530
50 MPH	590	590



**GENERAL NOTES:**

1. CRITERIA FOR SIGHT DISTANCES ARE BASED ON THE CURRENT AASHTO STANDARDS.

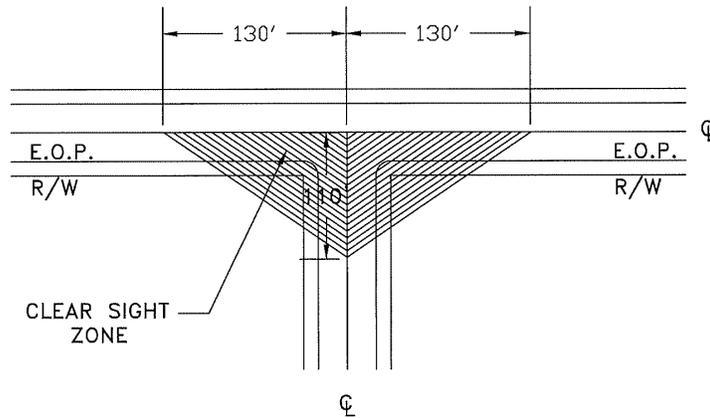
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>SIGHT OBSTRUCTION</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN XXX	CKD XXX	DATE AUG-XX-2015	FILE FIG02-19A

REV

REV. NO. X

## UNCONTROLLED INTERSECTIONS

EXAMPLE: MAJOR STREET SPEED LIMIT = 30 M.P.H.  
 MINOR STREET SPEED LIMIT = 25 M.P.H.



SIGHT DISTANCE (FT.)		
	(A.)	(B.)
SPEED LIMIT	ARTERIAL STREET	LOCAL STREET
20 MPH	90	90
25 MPH	110	110
30 MPH	130	130
35 MPH	155	155
40 MPH	180	180



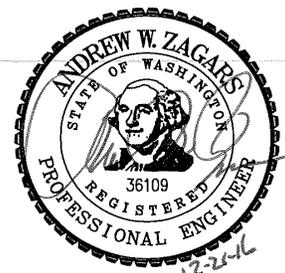
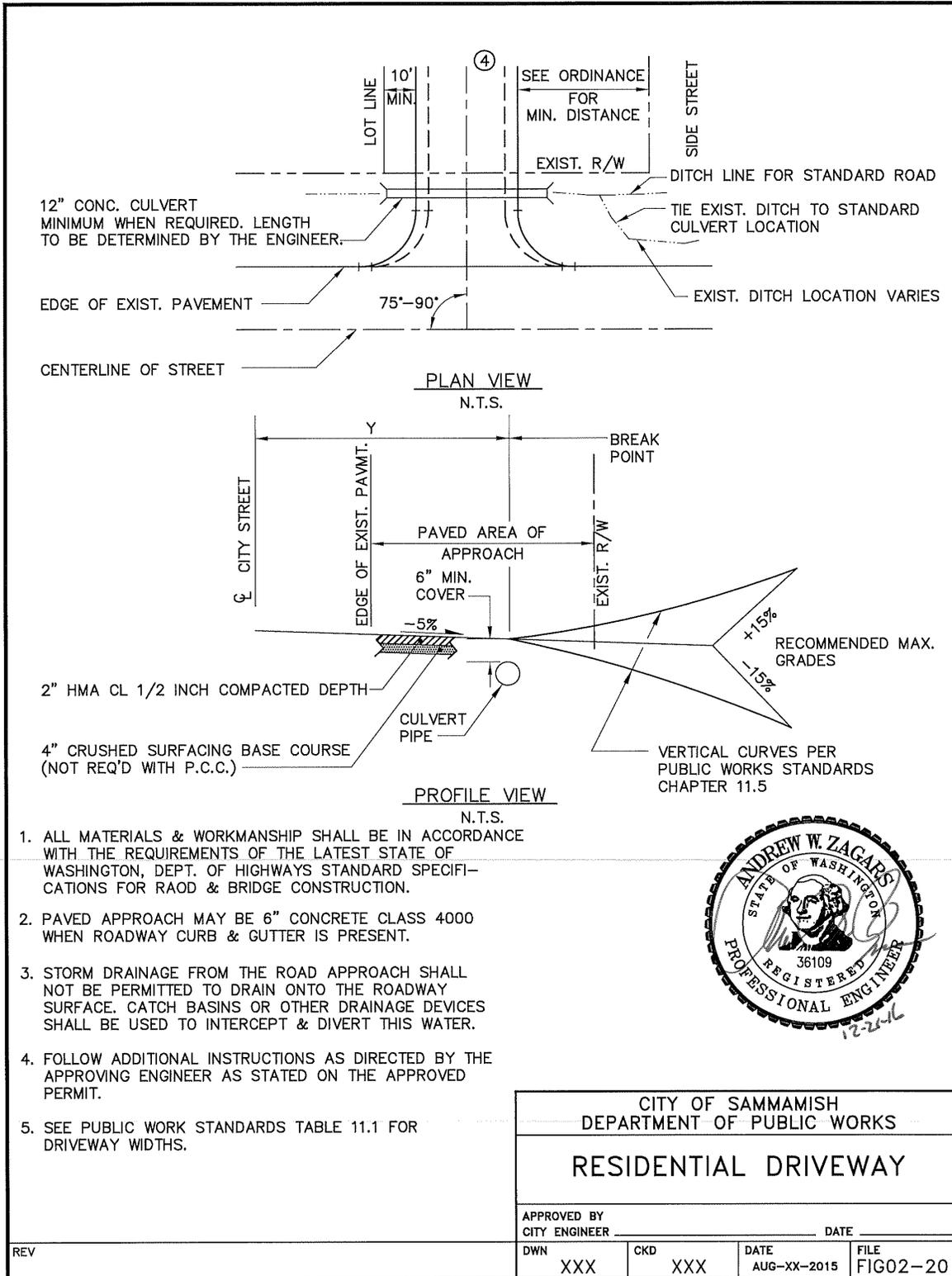
**GENERAL NOTES:**

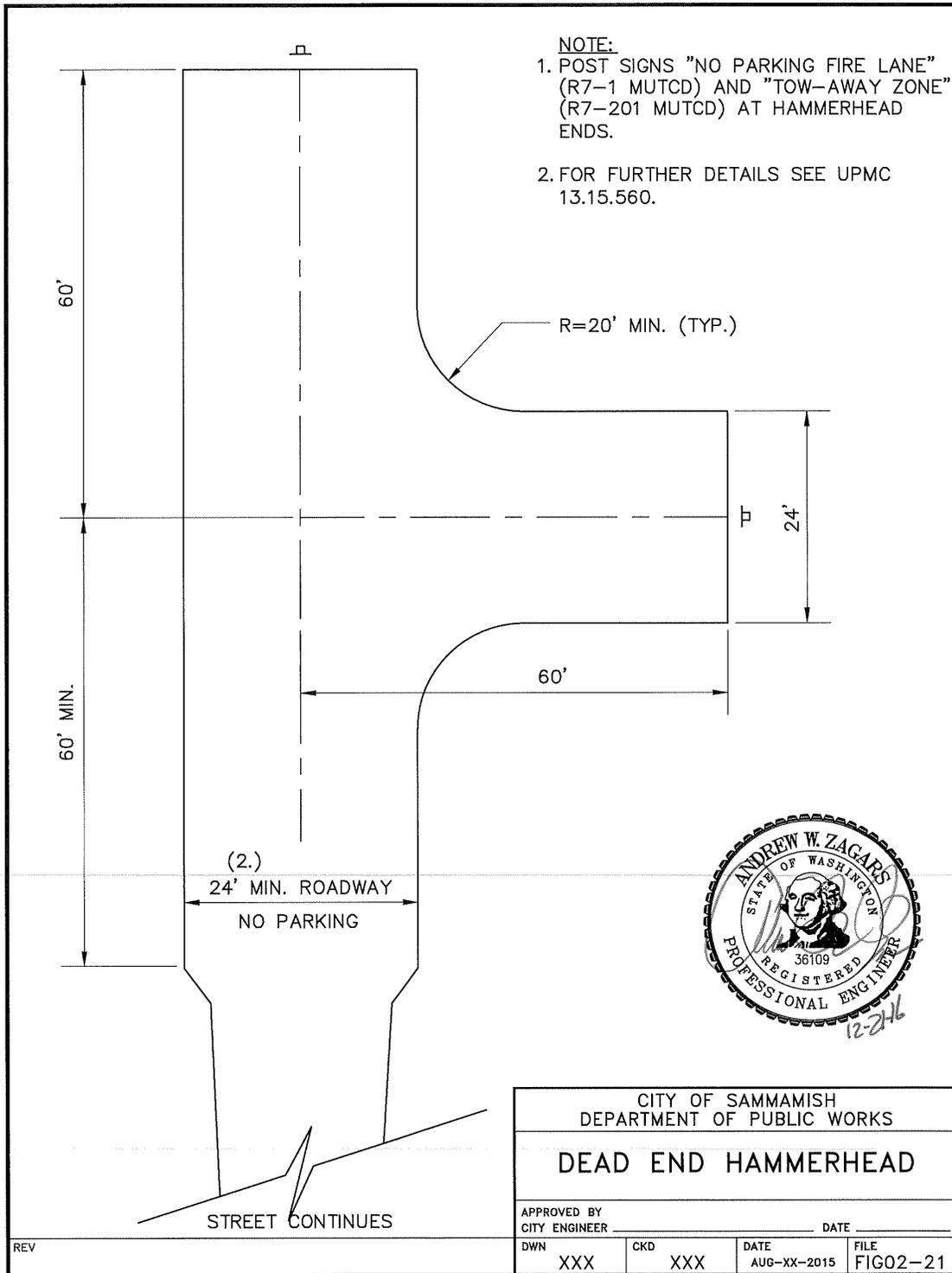
1. CRITERIA FOR SIGHT DISTANCES ARE BASED ON THE CURRENT AASHTO STANDARDS.

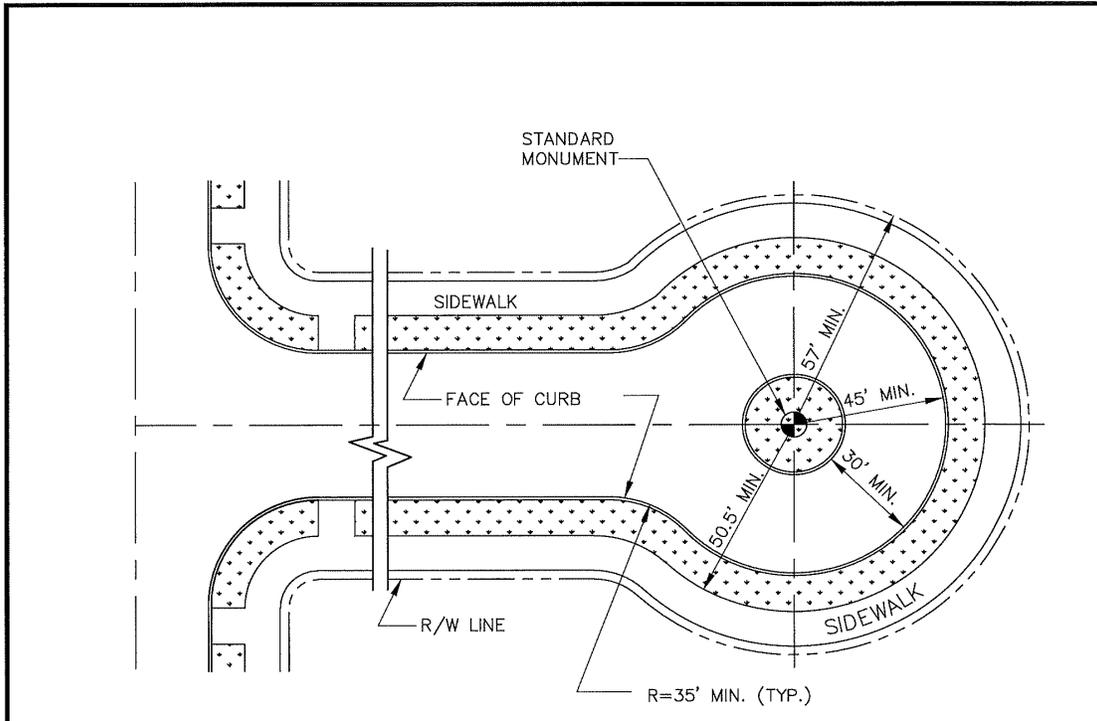
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>SIGHT OBSTRUCTION</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN XXX	CKD XXX	DATE AUG-XX-2015	FILE FIG02-19B

REV

REV. NO. X







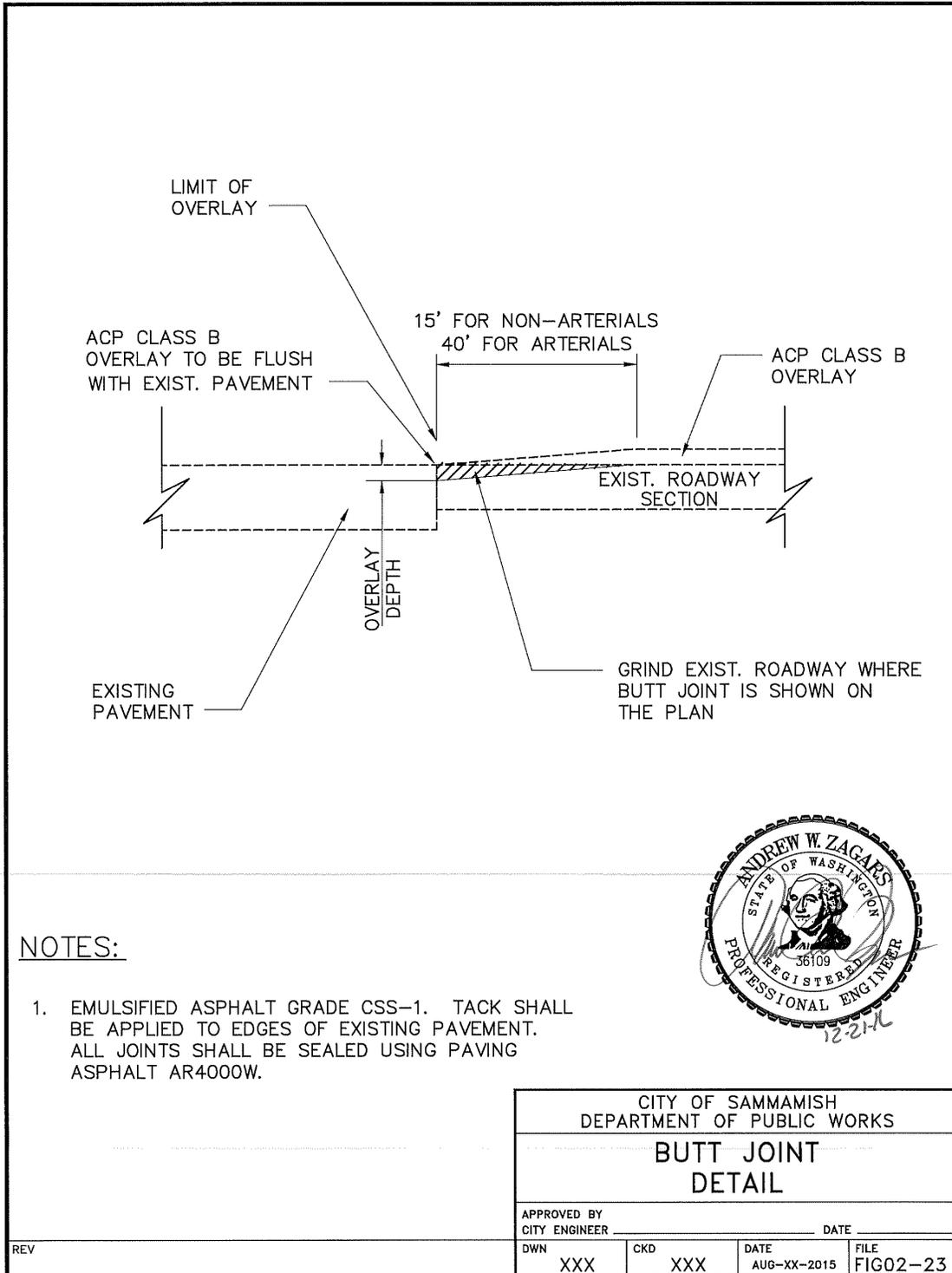
NOTES:  
SEE FIG 3-08a FOR CURBS.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
PERMANENT CUL-DE-SAC			
APPROVED BY CITY ENGINEER		DATE	
DWN XXX	CKD XXX	DATE AUG-XX-2015	FILE FIG02-22

REV

REV. NO. X



NOTES:

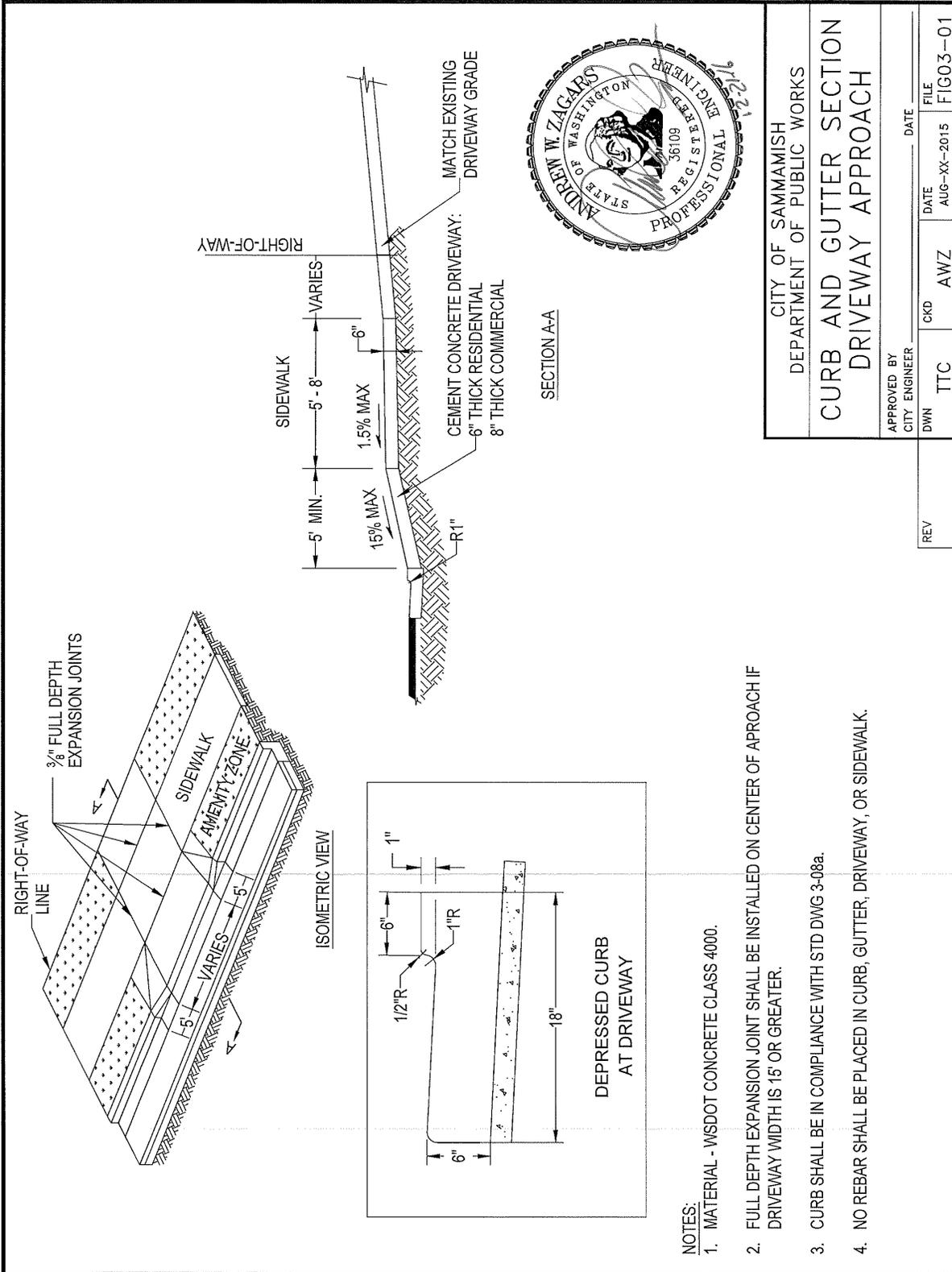
1. EMULSIFIED ASPHALT GRADE CSS-1. TACK SHALL BE APPLIED TO EDGES OF EXISTING PAVEMENT. ALL JOINTS SHALL BE SEALED USING PAVING ASPHALT AR4000W.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>BUTT JOINT DETAIL</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN XXX	CKD XXX	DATE AUG-XX-2015	FILE FIG02-23

REV

REV. NO. X

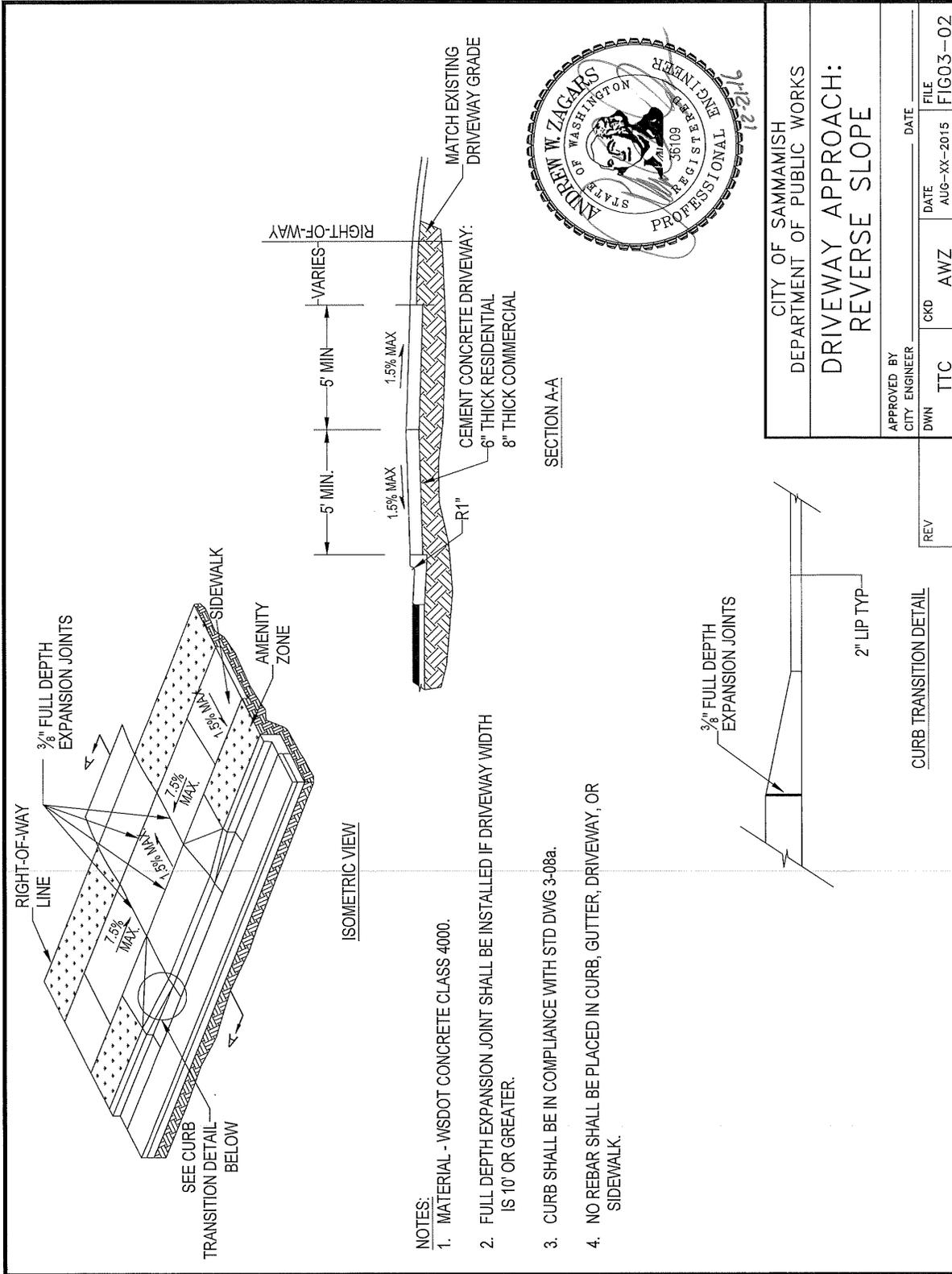


SECTION A-A

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>CURB AND GUTTER SECTION DRIVEWAY APPROACH</b>	
APPROVED BY CITY ENGINEER	DATE
DWN	AUG--XX--2015
CKD	AWZ
TTC	FILE
	FIG03-01

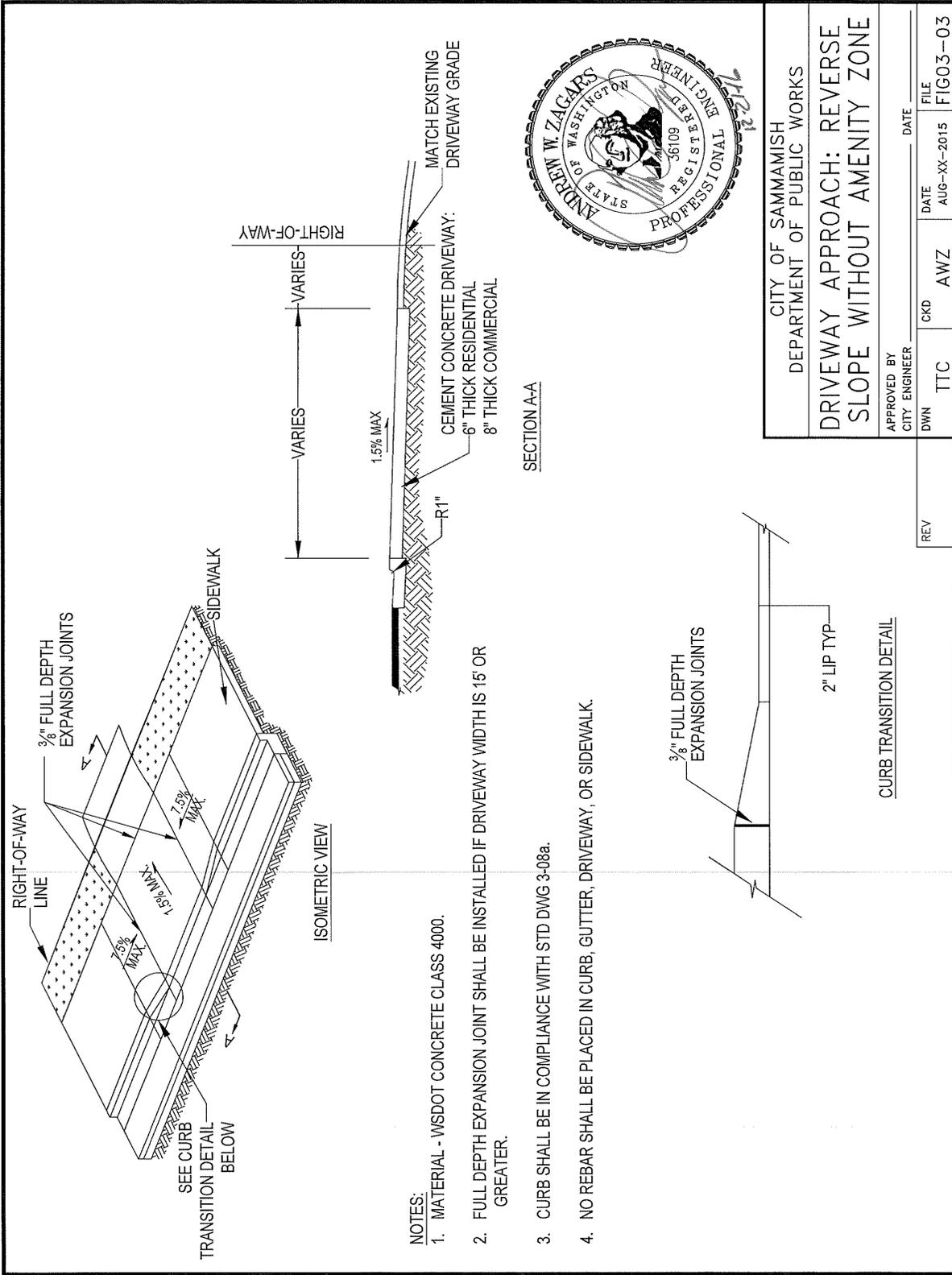
REV. NO. X

- NOTES:
1. MATERIAL - WSDOT CONCRETE CLASS 4000.
  2. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED ON CENTER OF APPROACH IF DRIVEWAY WIDTH IS 15' OR GREATER.
  3. CURB SHALL BE IN COMPLIANCE WITH STD DWG 3-08a.
  4. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.



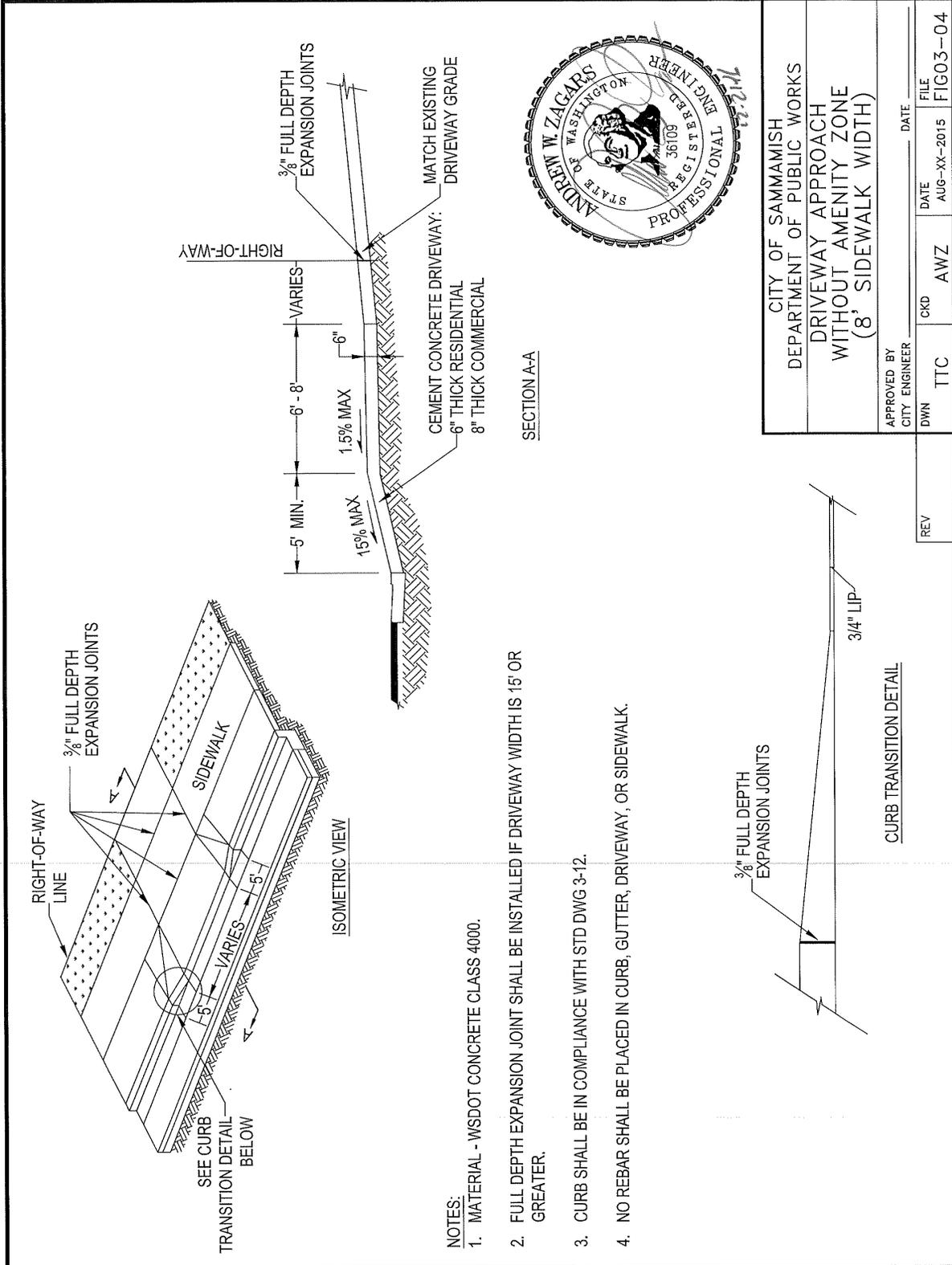
**NOTES:**

1. MATERIAL - WSDOT CONCRETE CLASS 4000.
2. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 10' OR GREATER.
3. CURB SHALL BE IN COMPLIANCE WITH STD DWG 3-08a.
4. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.



NOTES:

1. MATERIAL - WSDOT CONCRETE CLASS 4000.
2. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 15' OR GREATER.
3. CURB SHALL BE IN COMPLIANCE WITH STD DWG 3-08a.
4. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.

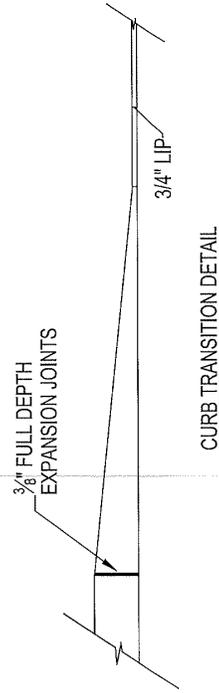


SECTION A-A

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS DRIVEWAY APPROACH WITHOUT AMENITY ZONE (8' SIDEWALK WIDTH)			
APPROVED BY CITY ENGINEER	DATE	FILE	REV. NO. X
DWN	TTC	CKD AWZ	AUG--XX--2015
REV			FIG03-04

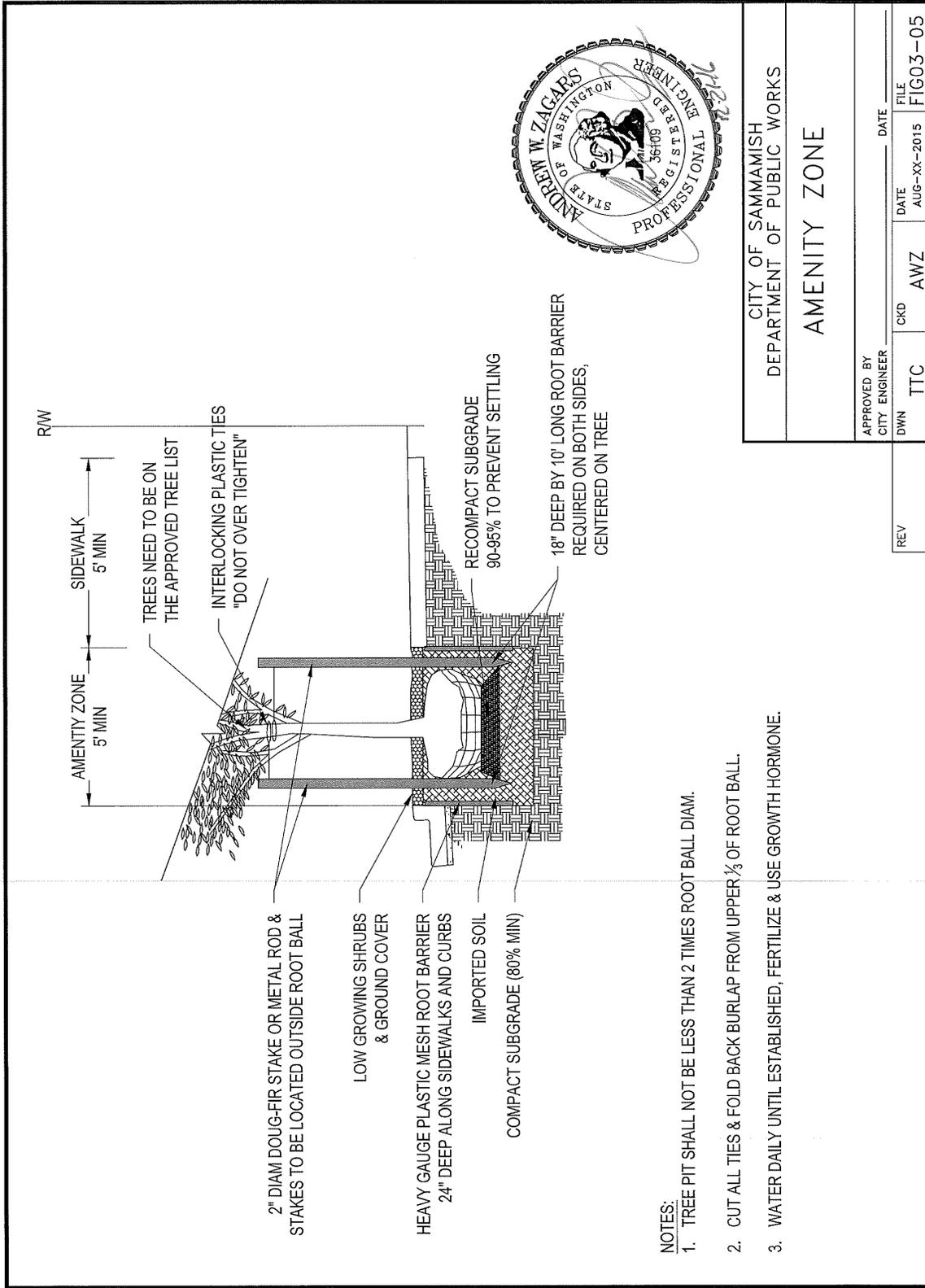
NOTES:

1. MATERIAL - WSDOT CONCRETE CLASS 4000.
2. FULL DEPTH EXPANSION JOINT SHALL BE INSTALLED IF DRIVEWAY WIDTH IS 15' OR GREATER.
3. CURB SHALL BE IN COMPLIANCE WITH STD DWG 3-12.
4. NO REBAR SHALL BE PLACED IN CURB, GUTTER, DRIVEWAY, OR SIDEWALK.



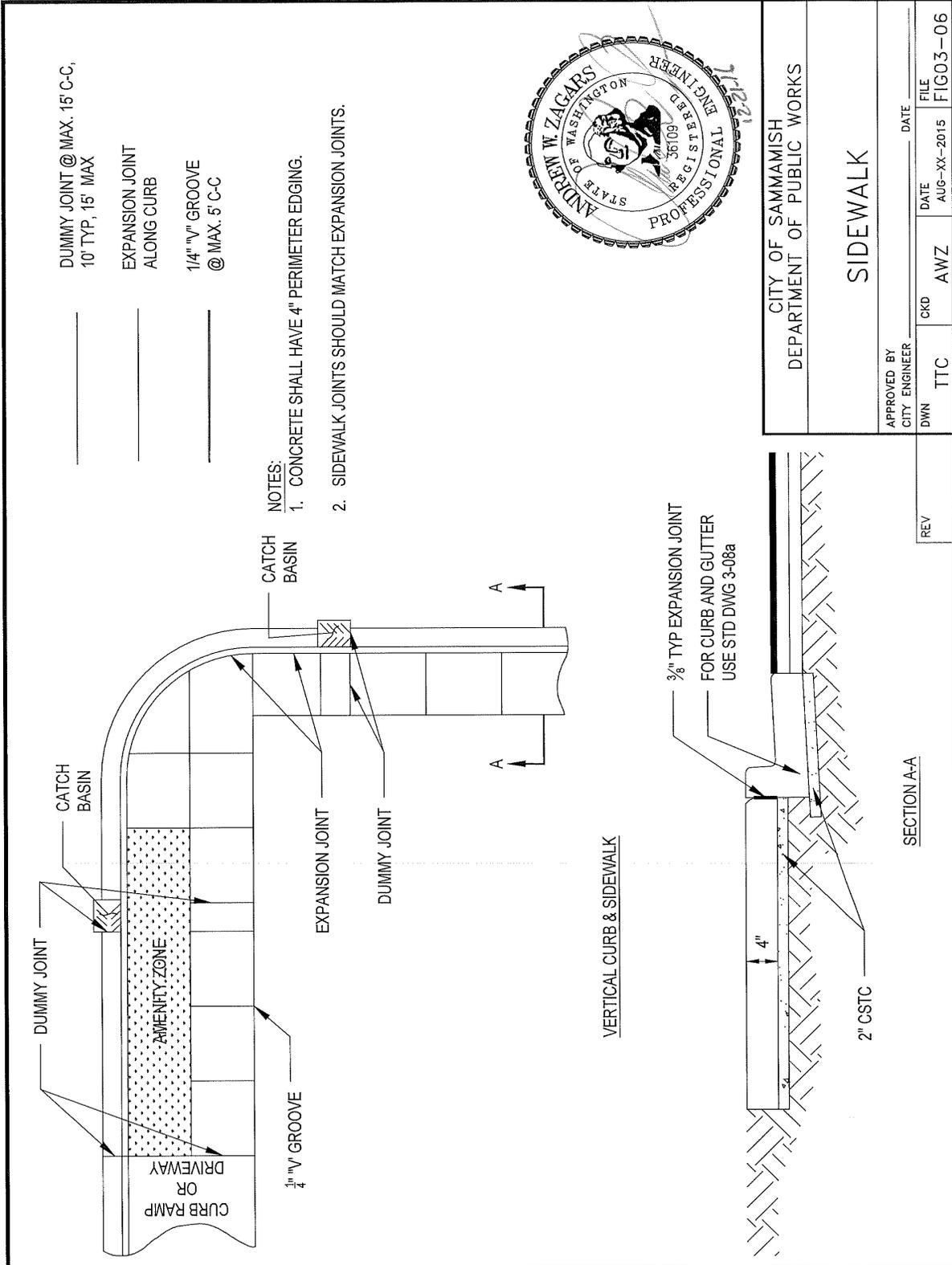
REV	DATE	FILE	REV. NO. X

CURB TRANSITION DETAIL



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
AMENITY ZONE	
APPROVED BY CITY ENGINEER	DATE
DWN	TTC
CKD	AWZ
FILE	FIG03-05
REV. NO. X	

- NOTES:
1. TREE PIT SHALL NOT BE LESS THAN 2 TIMES ROOT BALL DIAM.
  2. CUT ALL TIES & FOLD BACK BURLAP FROM UPPER 1/3 OF ROOT BALL.
  3. WATER DAILY UNTIL ESTABLISHED, FERTILIZE & USE GROWTH HORMONE.



DUMMY JOINT @ MAX. 15' C-C,  
10' TYP, 15' MAX

EXPANSION JOINT  
ALONG CURB

1/4" "V" GROOVE  
@ MAX. 5' C-C

- NOTES:
1. CONCRETE SHALL HAVE 4" PERIMETER EDGING.
  2. SIDEWALK JOINTS SHOULD MATCH EXPANSION JOINTS.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		DATE		FILE
APPROVED BY CITY ENGINEER	CKD	DATE	AWZ	FIG03-06
DWN	TTC	AUG-XX-2015		REV. NO. X

SIDEWALK

VERTICAL CURB & SIDEWALK

3/8" TYP EXPANSION JOINT  
FOR CURB AND GUTTER  
USE STD DWG 3-08a

SECTION A-A

REV

DATE

FILE

FIG03-06

AWZ

TTC

DWN

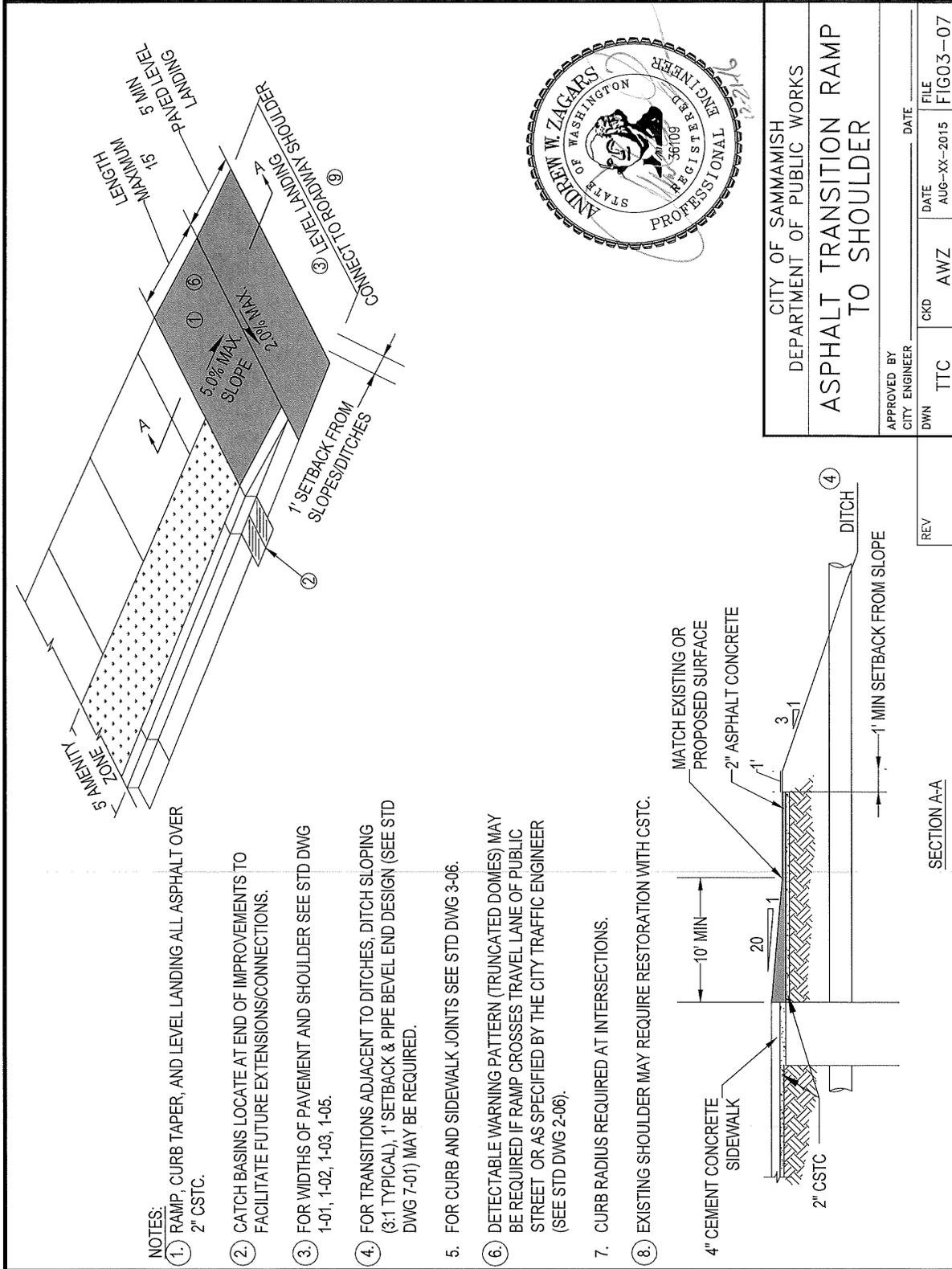
CKD

AUG-XX-2015

REV. NO. X

4"

2" CSTC



NOTES:

- 1. RAMP, CURB TAPER, AND LEVEL LANDING ALL ASPHALT OVER 2" CSTC.
- 2. CATCH BASINS LOCATE AT END OF IMPROVEMENTS TO FACILITATE FUTURE EXTENSIONS/CONNECTIONS.
- 3. FOR WIDTHS OF PAVEMENT AND SHOULDER SEE STD DWG 1-01, 1-02, 1-03, 1-05.
- 4. FOR TRANSITIONS ADJACENT TO DITCHES, DITCH SLOPING (3:1 TYPICAL), 1' SETBACK & PIPE BEVEL END DESIGN (SEE STD DWG 7-01) MAY BE REQUIRED.
- 5. FOR CURB AND SIDEWALK JOINTS SEE STD DWG 3-06.
- 6. DETECTABLE WARNING PATTERN (TRUNCATED DOMES) MAY BE REQUIRED IF RAMP CROSSES TRAVEL LANE OF PUBLIC STREET OR AS SPECIFIED BY THE CITY TRAFFIC ENGINEER (SEE STD DWG 2-06).
- 7. CURB RADIUS REQUIRED AT INTERSECTIONS.
- 8. EXISTING SHOULDER MAY REQUIRE RESTORATION WITH CSTC.

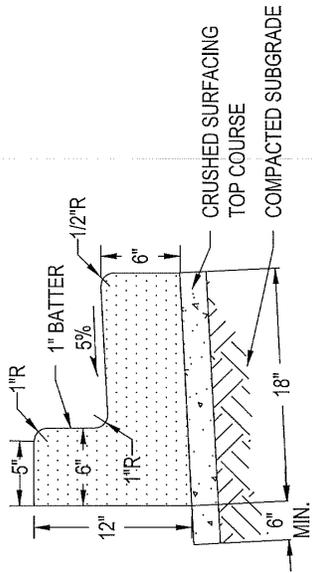


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>ASPHALT TRANSITION RAMP TO SHOULDER</b>	
APPROVED BY CITY ENGINEER	DATE
DWN	AUG-XX-2015
TTC	AWZ
CKD	FILE
AWZ	FIG03-07

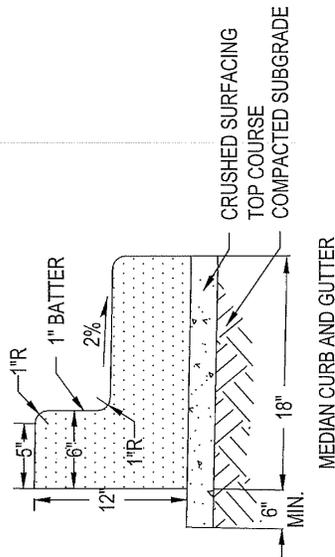
REV	DATE

SECTION A-A

REV. NO. X



TYPE A CURB AND GUTTER

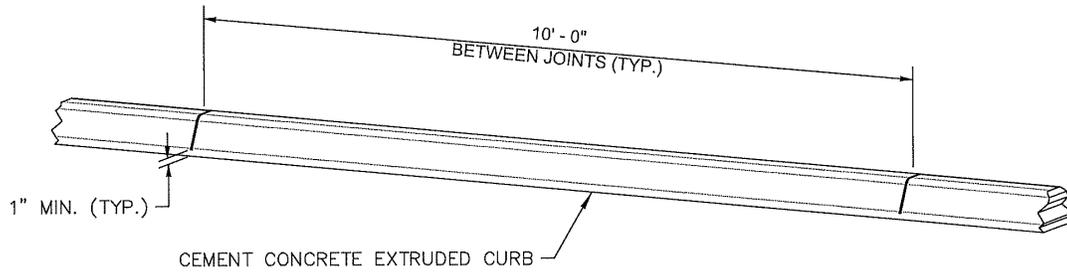


MEDIAN CURB AND GUTTER

- NOTES:  
 1. CONSTRUCT 10 FT LONG CURB TYPE TRANSITION BETWEEN DIFFERENT CURB TYPES.

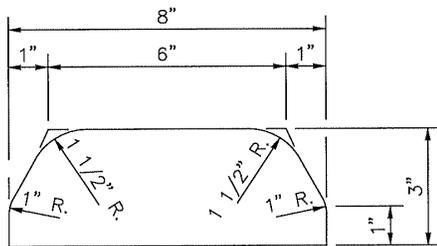


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		CURBS	
APPROVED BY CITY ENGINEER	DATE	FILE	REV. NO. X
DWN	TTC	CKD AWZ	DATE AUG-XX-2015
REV			FIG03-8a

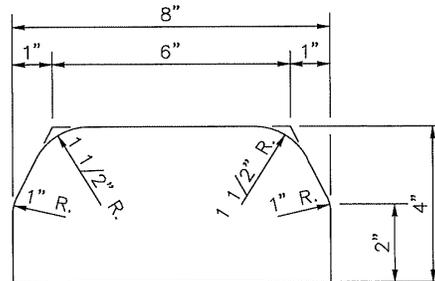


NOTES:

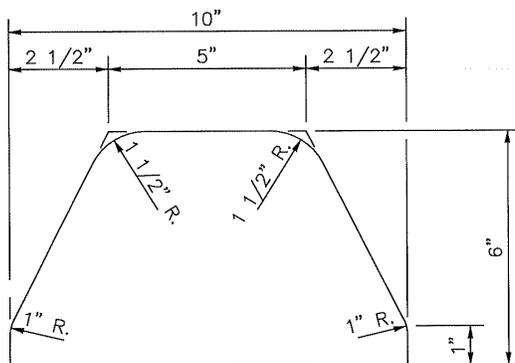
1. INSTALL PAVEMENT 2" BEYOND BACK OF CURB.
2. BOND EXTRUDED CURB TO EXISTING PAVEMENT WITH MORTAR PASTE.
3. JOINTS MAY BE FORMED DURING INSTALLATION USING A RIGID DIVIDER OR SAWCUT AFTER CONCRETE CURES TO MINIMUM STRENGTH.



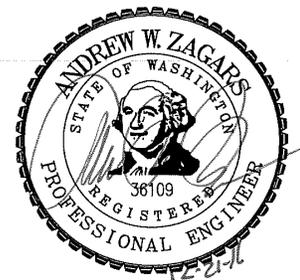
TYPE 4  
(CEMENT CONCRETE)



TYPE 5  
(CEMENT CONCRETE)



TYPE 6  
(CEMENT CONCRETE)



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

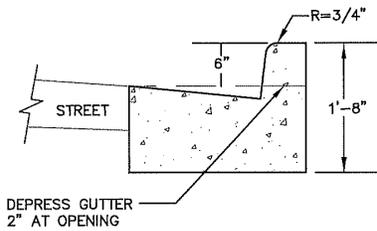
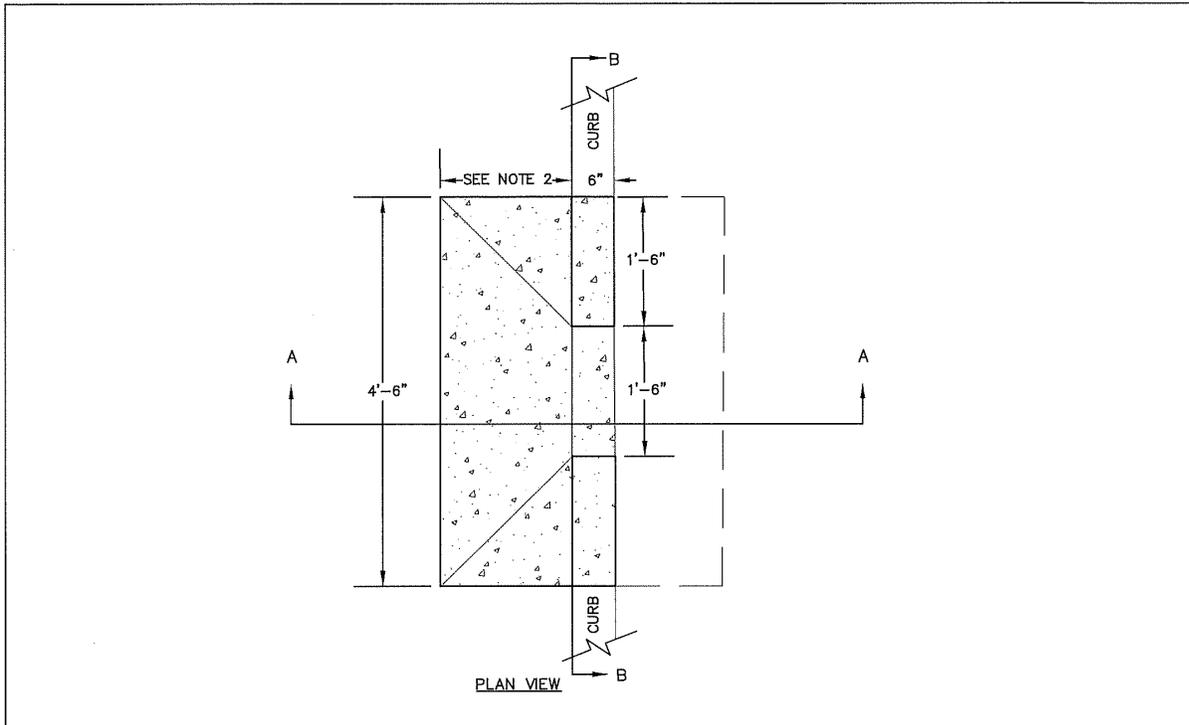
EXTRUDED CURB  
DETAIL

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

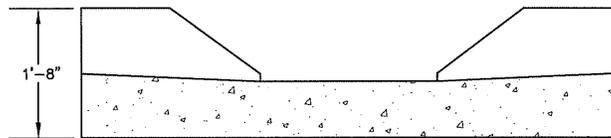
REV

DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG03-08b

REV. NO. X



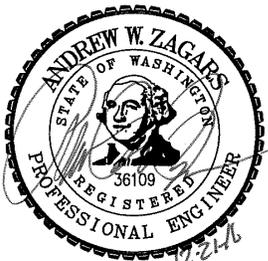
SECTION A-A



SECTION B-B

NOTES:

1. SPLASH PADS ARE REQUIRED AT ALL INLETS.
2. MATCH GUTTER PAN OF ADJACENT CURB AND GUTTER.



- NOT TO SCALE -

CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

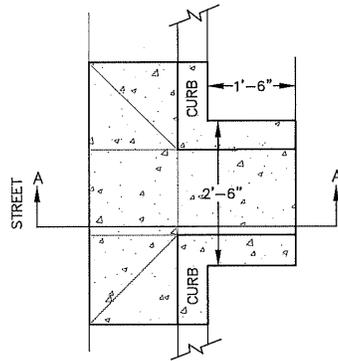
CONCRETE CURB INLET

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

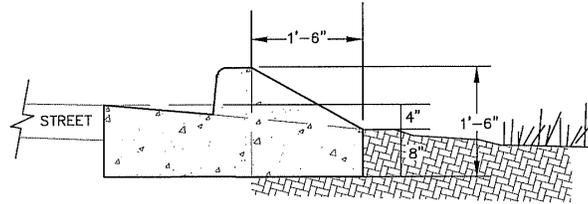
REV

DWN	LG	CKD	DATE SEPT-7-2016	FILE 3-09a
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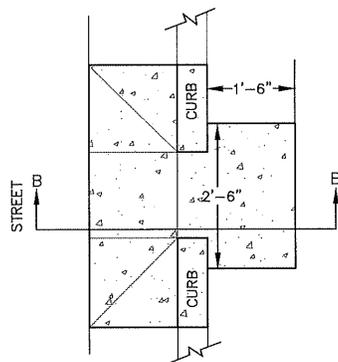
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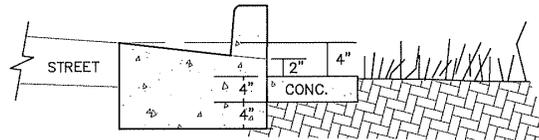
DETAIL A - WITH WINGWALLS AND CONCRETE PAD



SECTION A-A



DETAIL B - WITH CONCRETE PAD ONLY

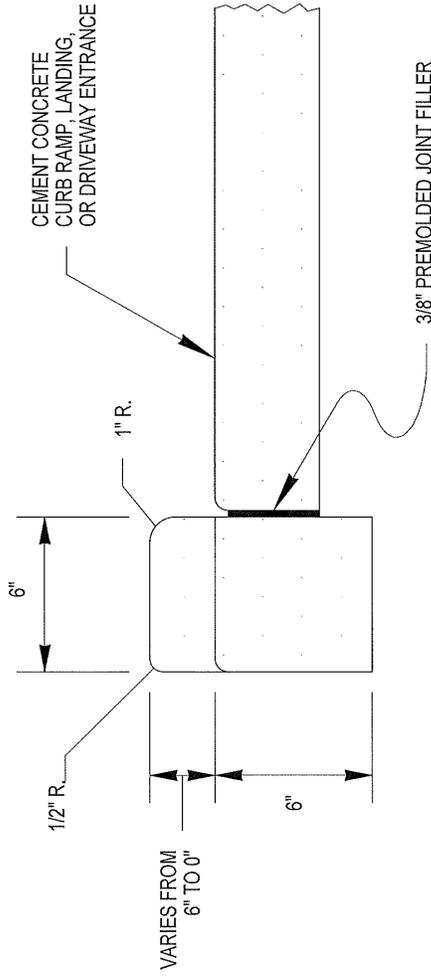


SECTION B-B



- NOT TO SCALE -

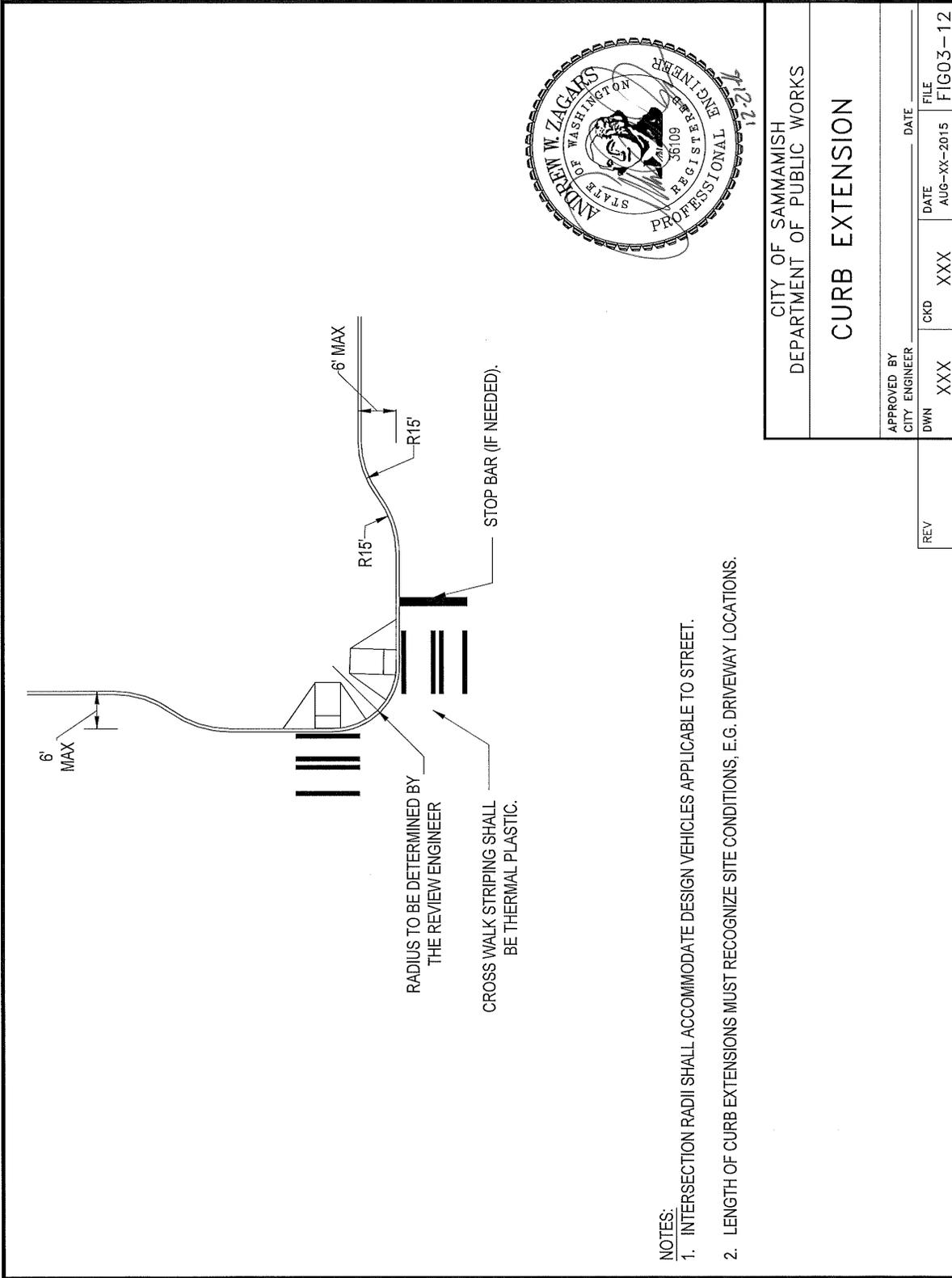
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS				
CONCRETE CURB INLET				
APPROVED BY CITY ENGINEER		DATE		
DWN	LG	CKD	DATE SEPT-7-2016	FILE 3-09b



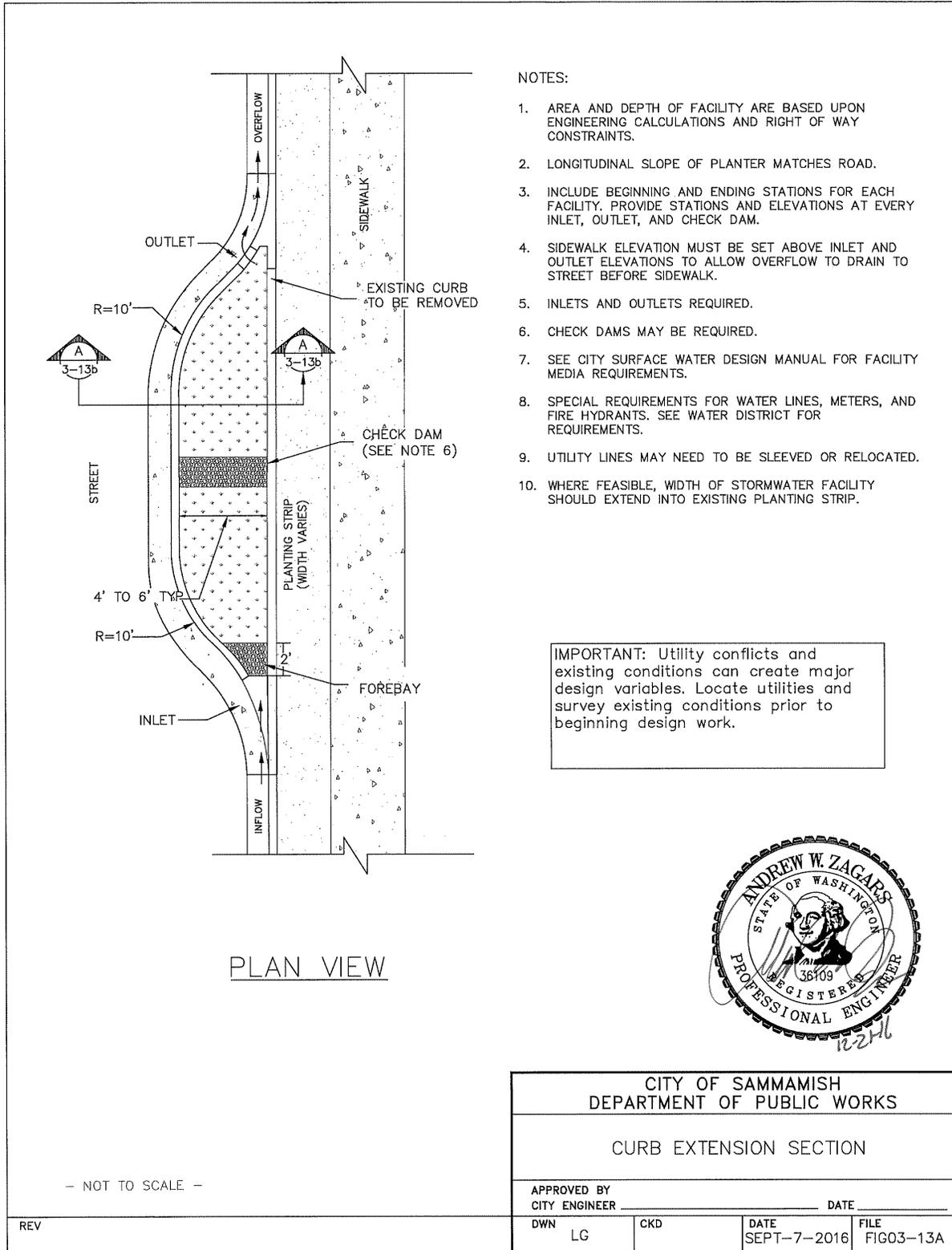
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>PEDESTRIAN CURB</b>			
APPROVED BY CITY ENGINEER	CKD XXX	DATE AUG--XX--2015	FILE FIG03-11
DWN XXX			

REV			
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REV. NO. X

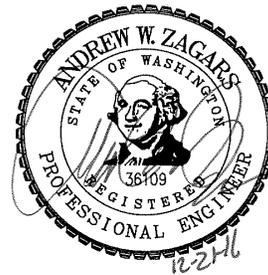


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>CURB EXTENSION</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG--XX--2015
CKD XXX	FILE FIG03-12
REV	REV. NO. X



- NOTES:
1. AREA AND DEPTH OF FACILITY ARE BASED UPON ENGINEERING CALCULATIONS AND RIGHT OF WAY CONSTRAINTS.
  2. LONGITUDINAL SLOPE OF PLANTER MATCHES ROAD.
  3. INCLUDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY. PROVIDE STATIONS AND ELEVATIONS AT EVERY INLET, OUTLET, AND CHECK DAM.
  4. SIDEWALK ELEVATION MUST BE SET ABOVE INLET AND OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
  5. INLETS AND OUTLETS REQUIRED.
  6. CHECK DAMS MAY BE REQUIRED.
  7. SEE CITY SURFACE WATER DESIGN MANUAL FOR FACILITY MEDIA REQUIREMENTS.
  8. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS. SEE WATER DISTRICT FOR REQUIREMENTS.
  9. UTILITY LINES MAY NEED TO BE SLEEVED OR RELOCATED.
  10. WHERE FEASIBLE, WIDTH OF STORMWATER FACILITY SHOULD EXTEND INTO EXISTING PLANTING STRIP.

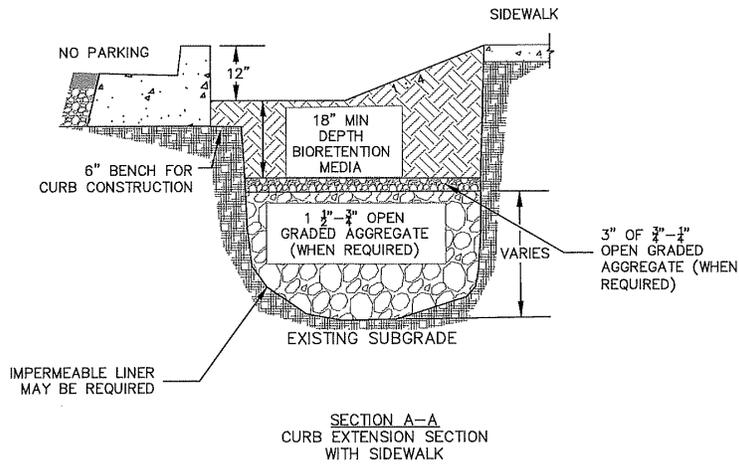
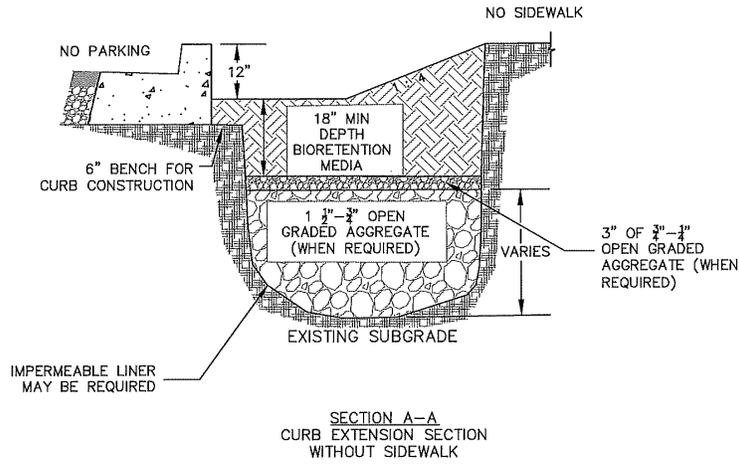
IMPORTANT: Utility conflicts and existing conditions can create major design variables. Locate utilities and survey existing conditions prior to beginning design work.



PLAN VIEW

- NOT TO SCALE -

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
CURB EXTENSION SECTION			
APPROVED BY CITY ENGINEER		DATE	
DWN LG	CKD	DATE SEPT-7-2016	FILE FIG03-13A



- NOT TO SCALE -



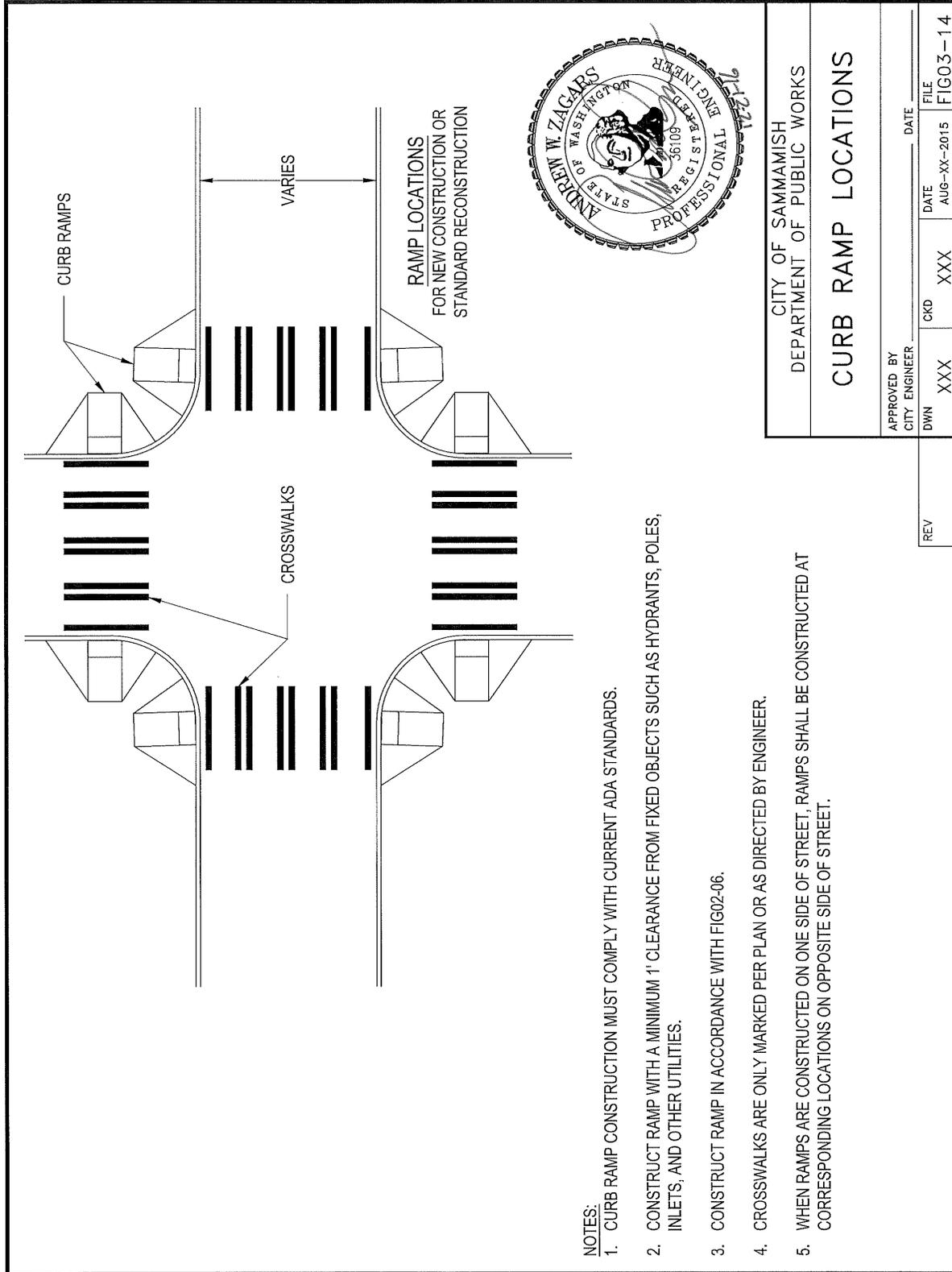
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

CURB EXTENSION SECTION

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

REV

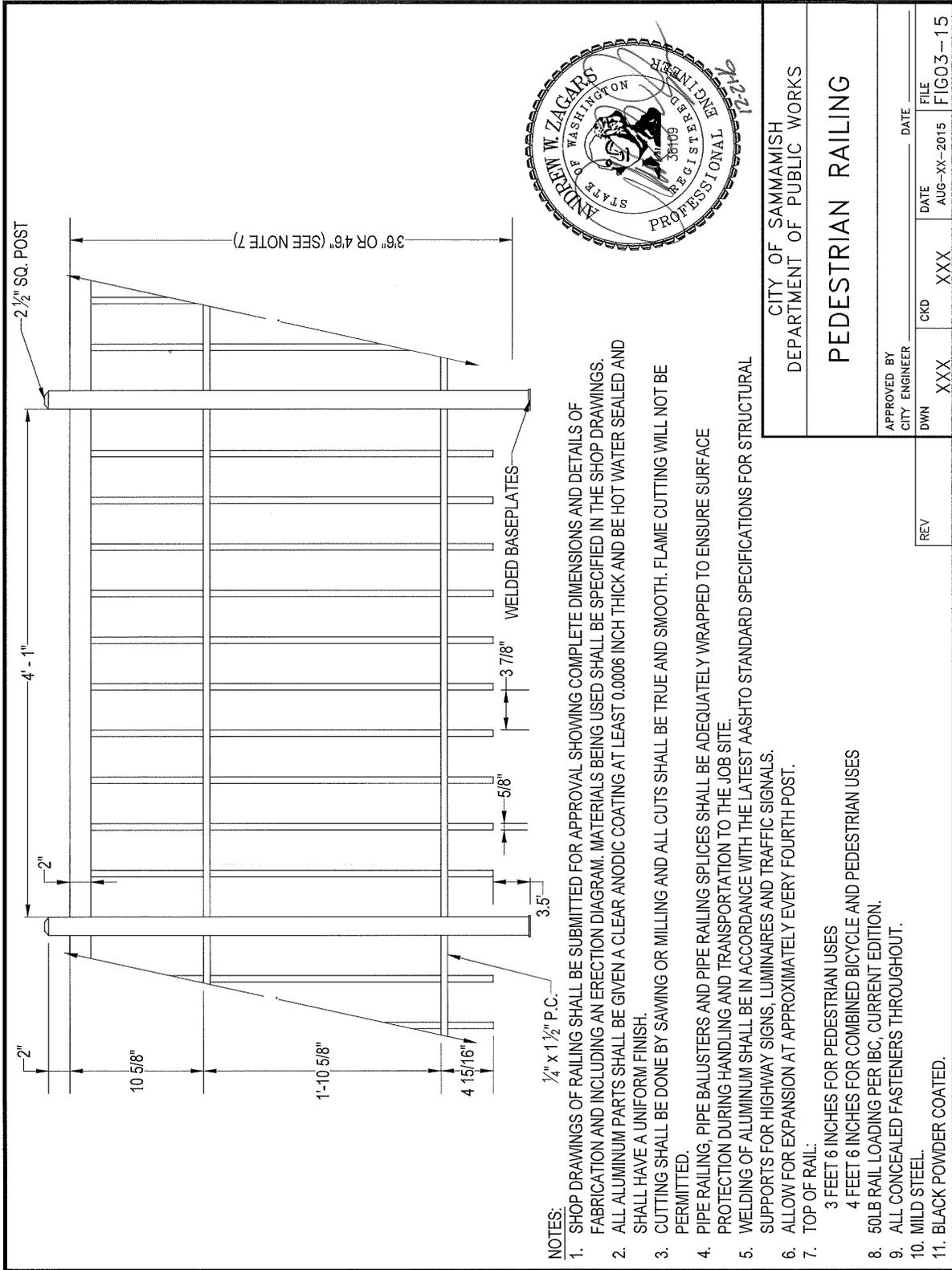
DWN	LG	CKD	DATE SEPT-7-2016	FILE FIG03-13B
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**NOTES:**

1. CURB RAMP CONSTRUCTION MUST COMPLY WITH CURRENT ADA STANDARDS.
2. CONSTRUCT RAMP WITH A MINIMUM 1' CLEARANCE FROM FIXED OBJECTS SUCH AS HYDRANTS, POLES, INLETS, AND OTHER UTILITIES.
3. CONSTRUCT RAMP IN ACCORDANCE WITH FIG02-06.
4. CROSSWALKS ARE ONLY MARKED PER PLAN OR AS DIRECTED BY ENGINEER.
5. WHEN RAMPS ARE CONSTRUCTED ON ONE SIDE OF STREET, RAMPS SHALL BE CONSTRUCTED AT CORRESPONDING LOCATIONS ON OPPOSITE SIDE OF STREET.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>CURB RAMP LOCATIONS</b>			
APPROVED BY CITY ENGINEER	CKD	DATE	FILE
DWN XXX	XXX	AUG--XX--2015	FIG03-14
			REV. NO. X

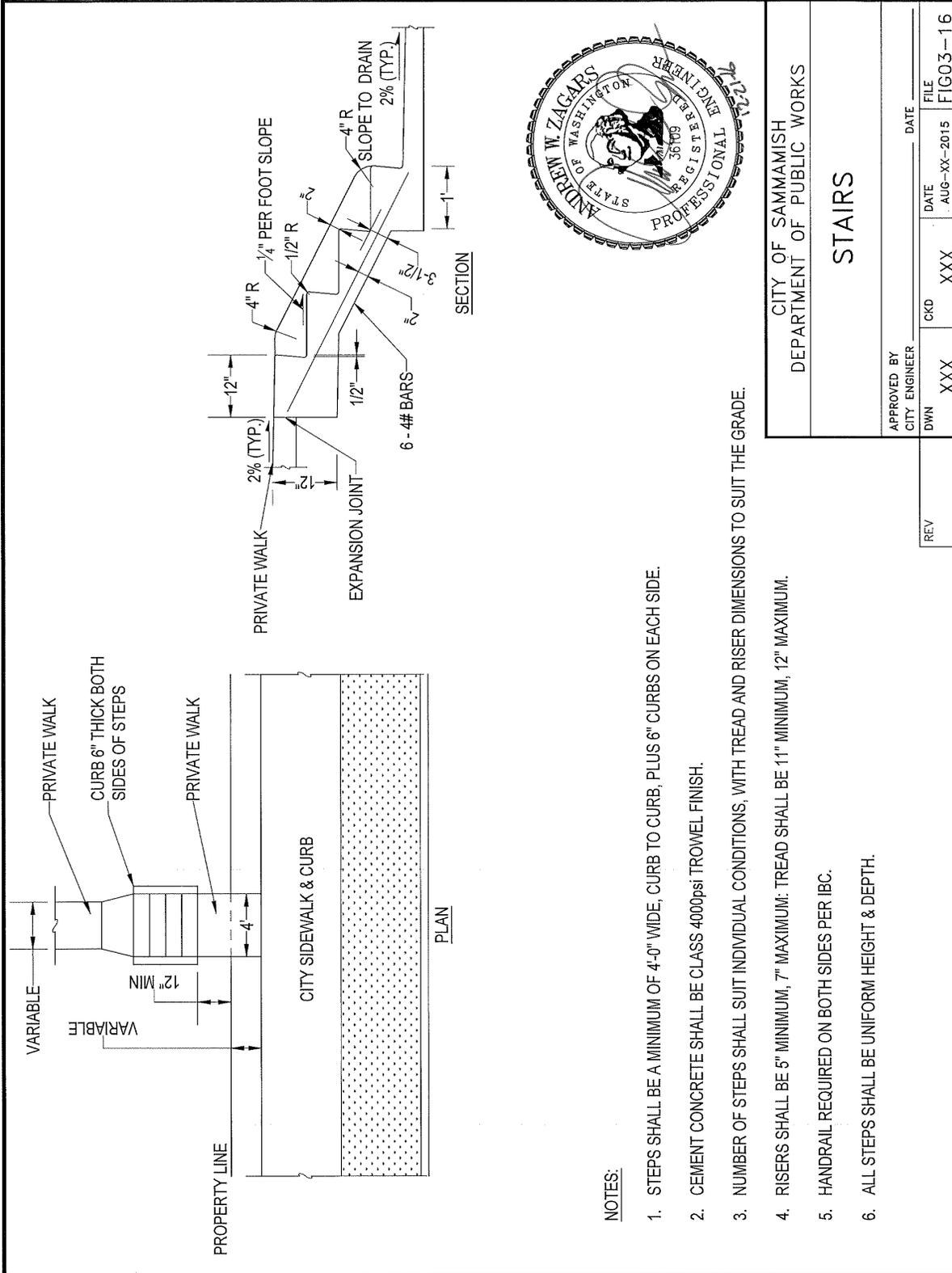


**NOTES:**

1. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED FOR APPROVAL SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE SPECIFIED IN THE SHOP DRAWINGS.
2. ALL ALUMINUM PARTS SHALL BE GIVEN A CLEAR ANODIC COATING AT LEAST 0.0006 INCH THICK AND BE HOT WATER SEALED AND SHALL HAVE A UNIFORM FINISH.
3. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
4. PIPE RAILING, PIPE BALUSTERS AND PIPE RAILING SPLICES SHALL BE ADEQUATELY WRAPPED TO ENSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.
5. WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
6. ALLOW FOR EXPANSION AT APPROXIMATELY EVERY FOURTH POST.
7. TOP OF RAIL:
  - 3 FEET 6 INCHES FOR PEDESTRIAN USES
  - 4 FEET 6 INCHES FOR COMBINED BICYCLE AND PEDESTRIAN USES
8. 50LB RAIL LOADING PER IBC, CURRENT EDITION.
9. ALL CONCEALED FASTENERS THROUGHOUT.
10. MILD STEEL.
11. BLACK POWDER COATED.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>PEDESTRIAN RAILING</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE
	FIG03-15

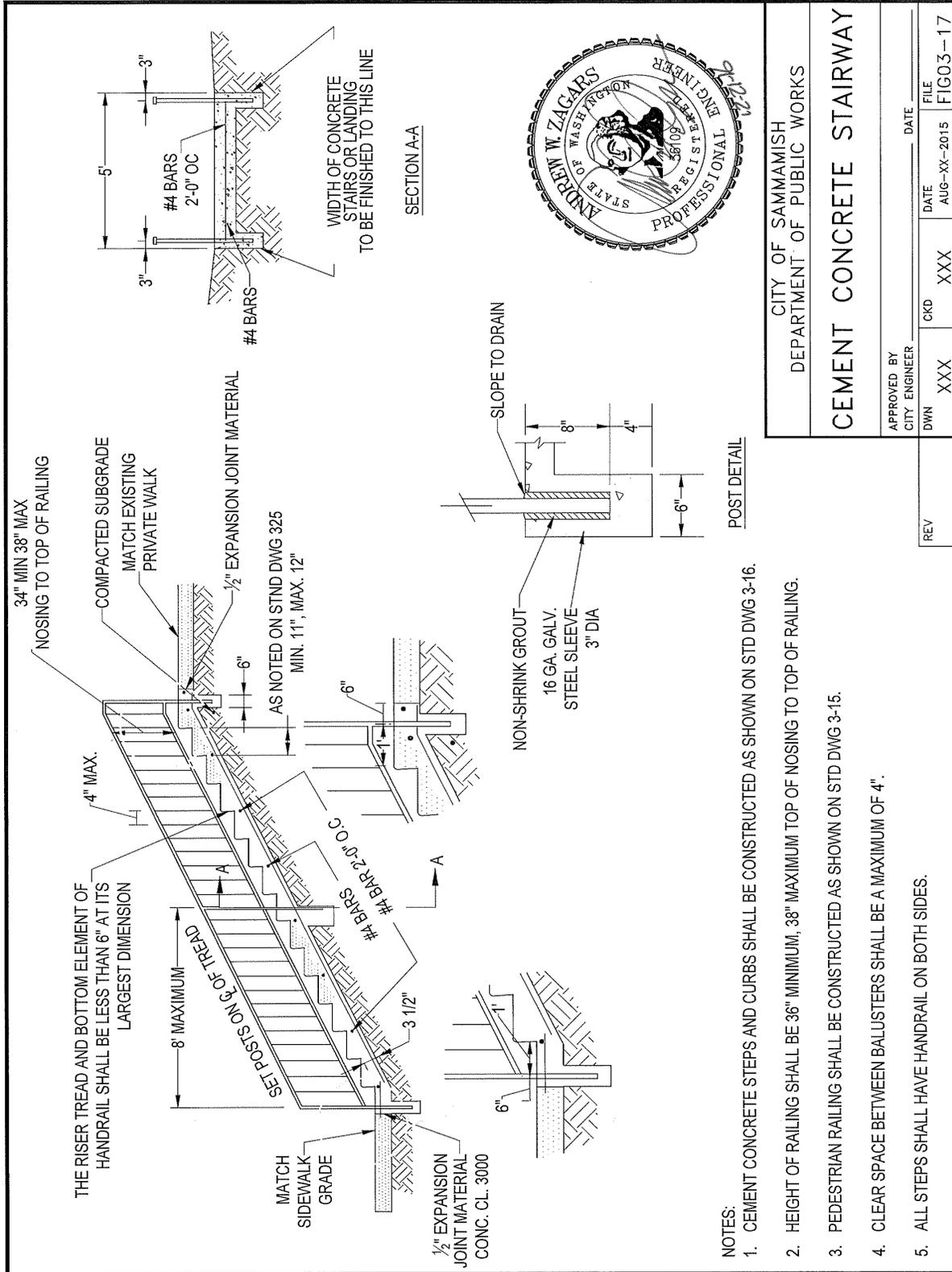
REV. NO. X



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>STAIRS</b>	
APPROVED BY CITY ENGINEER DWN XXX	DATE AUG-XX-2015
CKD XXX	FILE FIG03-16
REV	REV. NO. X

**NOTES:**

1. STEPS SHALL BE A MINIMUM OF 4'-0" WIDE, CURB TO CURB, PLUS 6" CURBS ON EACH SIDE.
2. CEMENT CONCRETE SHALL BE CLASS 4000psi TROWEL FINISH.
3. NUMBER OF STEPS SHALL SUIT INDIVIDUAL CONDITIONS, WITH TREAD AND RISER DIMENSIONS TO SUIT THE GRADE.
4. RISERS SHALL BE 5" MINIMUM, 7" MAXIMUM; TREAD SHALL BE 11" MINIMUM, 12" MAXIMUM.
5. HANDRAIL REQUIRED ON BOTH SIDES PER IBC.
6. ALL STEPS SHALL BE UNIFORM HEIGHT & DEPTH.



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**CEMENT CONCRETE STAIRWAY**

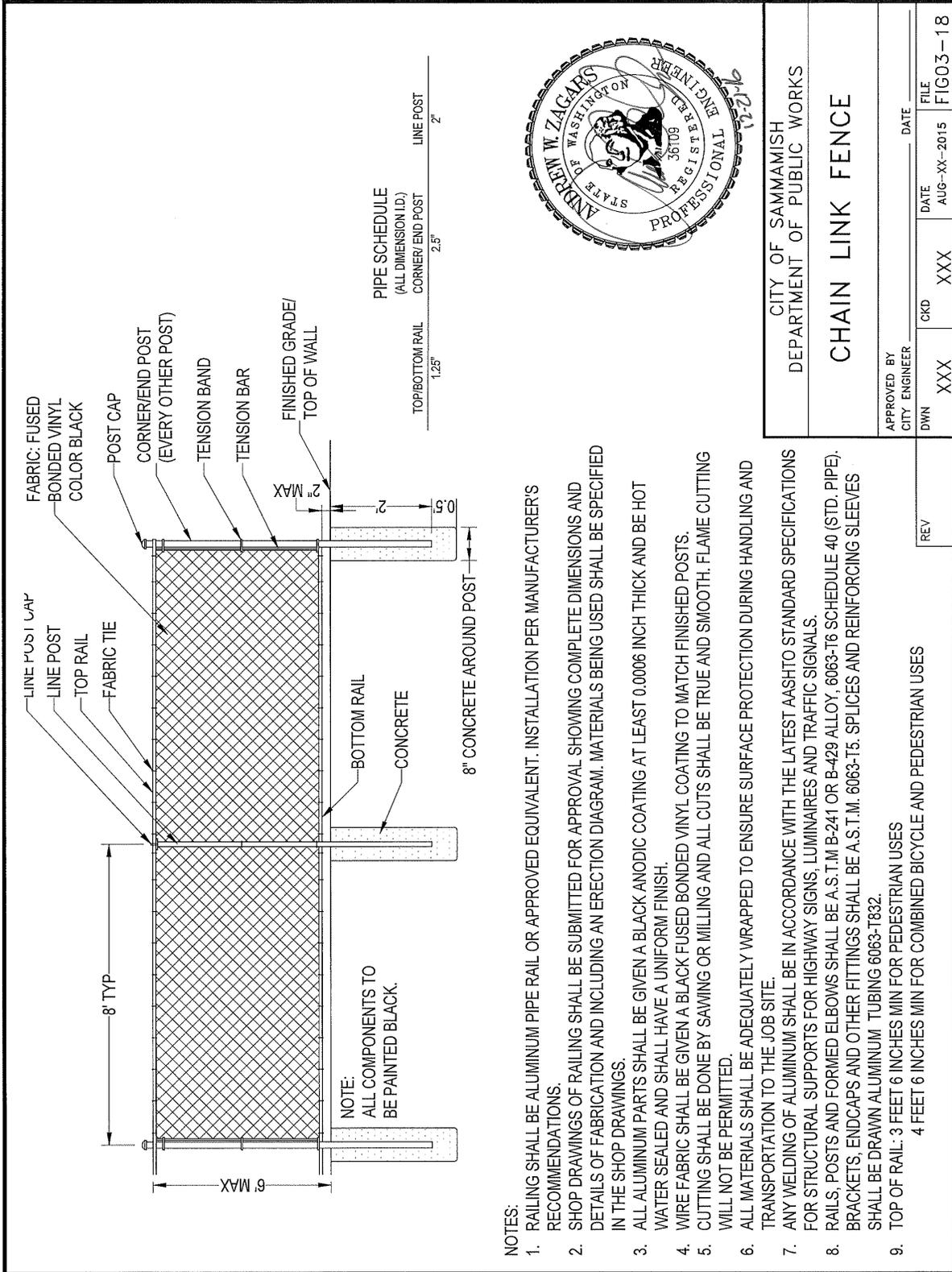
APPROVED BY  
CITY ENGINEER

DWN XXX CKD XXX DATE AUG--XX--2015 FILE FIG03-17

REV. NO. X

NOTES:

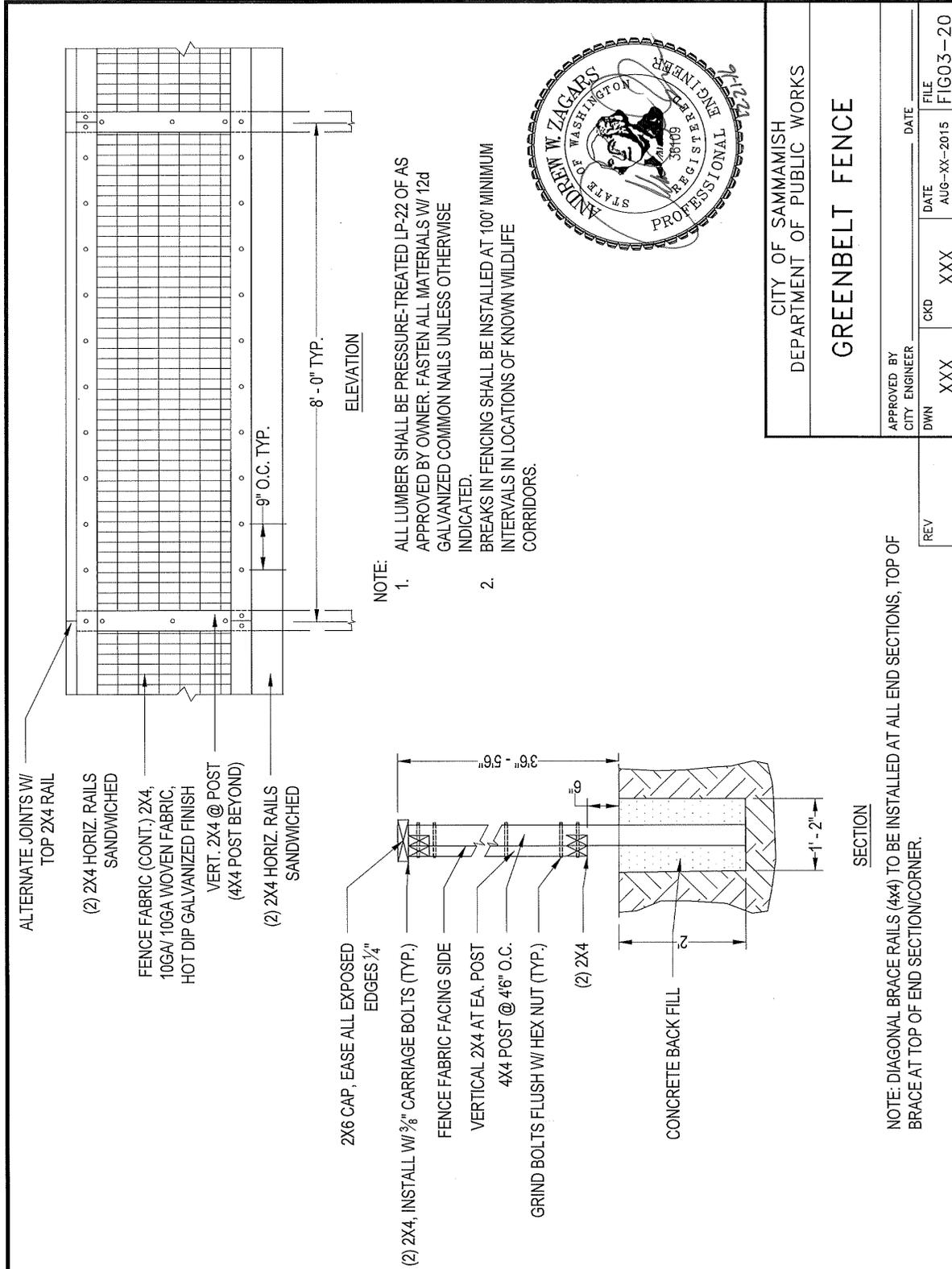
1. CEMENT CONCRETE STEPS AND CURBS SHALL BE CONSTRUCTED AS SHOWN ON STD DWG 3-16.
2. HEIGHT OF RAILING SHALL BE 36" MINIMUM, 38" MAXIMUM TOP OF NOSING TO TOP OF RAILING.
3. PEDESTRIAN RAILING SHALL BE CONSTRUCTED AS SHOWN ON STD DWG 3-15.
4. CLEAR SPACE BETWEEN BALUSTERS SHALL BE A MAXIMUM OF 4".
5. ALL STEPS SHALL HAVE HANDRAIL ON BOTH SIDES.

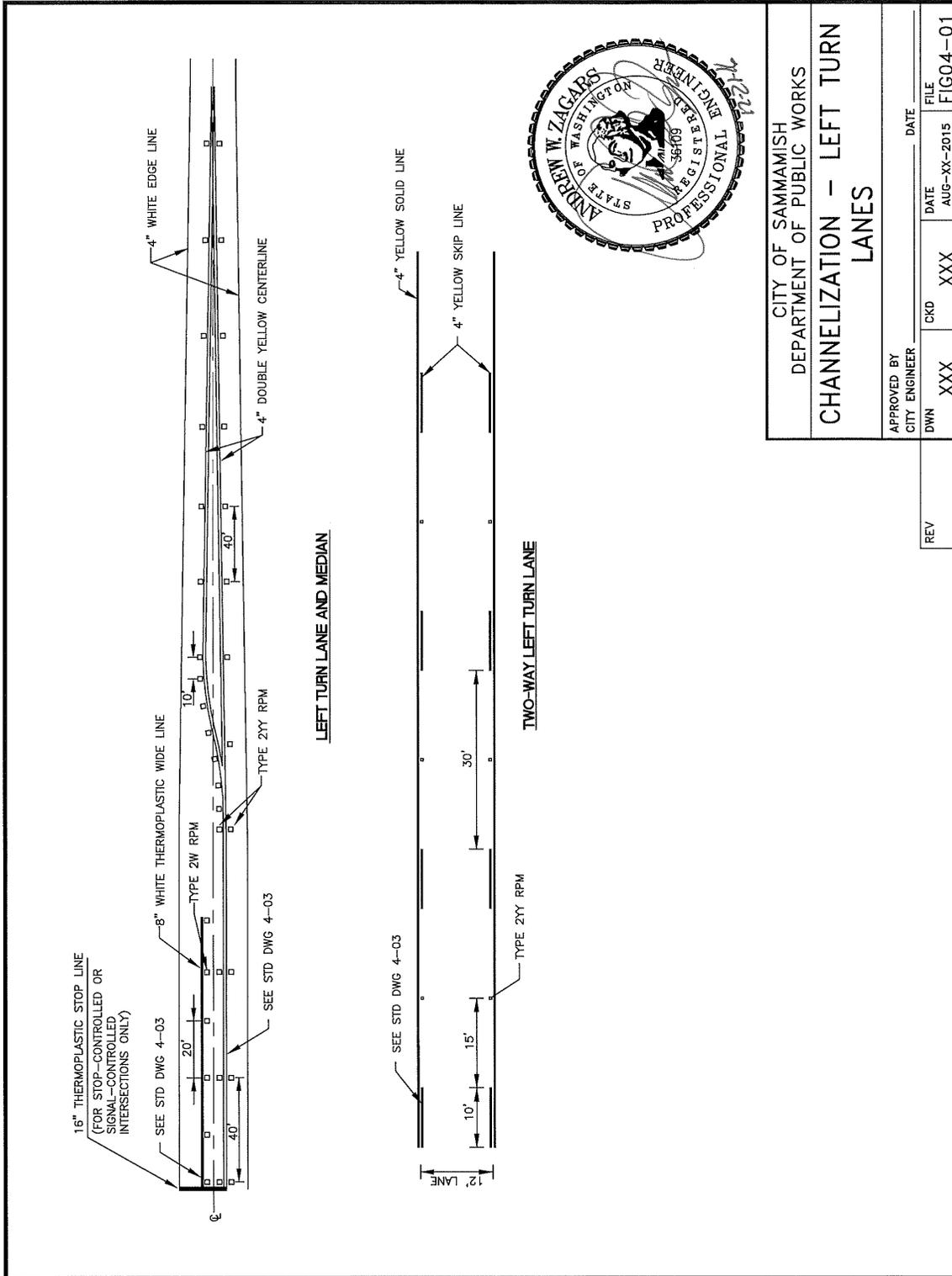


**NOTES:**

1. RAILING SHALL BE ALUMINUM PIPE RAIL OR APPROVED EQUIVALENT. INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
2. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED FOR APPROVAL SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE SPECIFIED IN THE SHOP DRAWINGS.
3. ALL ALUMINUM PARTS SHALL BE GIVEN A BLACK ANODIC COATING AT LEAST 0.0006 INCH THICK AND BE HOT WATER SEALED AND SHALL HAVE A UNIFORM FINISH.
4. WIRE FABRIC SHALL BE GIVEN A BLACK FUSED BONDED VINYL COATING TO MATCH FINISHED POSTS.
5. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
6. ALL MATERIALS SHALL BE ADEQUATELY WRAPPED TO ENSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.
7. ANY WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
8. RAILS, POSTS AND FORMED ELBOWS SHALL BE A.S.T.M B-241 OR B-429 ALLOY, 6063-T6 SCHEDULE 40 (STD. PIPE). BRACKETS, ENDCAPS AND OTHER FITTINGS SHALL BE A.S.T.M. 6063-T5. SPLICES AND REINFORCING SLEEVES SHALL BE DRAWN ALUMINUM TUBING 6063-T832.
9. TOP OF RAIL: 3 FEET 6 INCHES MIN FOR PEDESTRIAN USES  
4 FEET 6 INCHES MIN FOR COMBINED BICYCLE AND PEDESTRIAN USES

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>CHAIN LINK FENCE</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE FIG03-18
REV	REV. NO. X





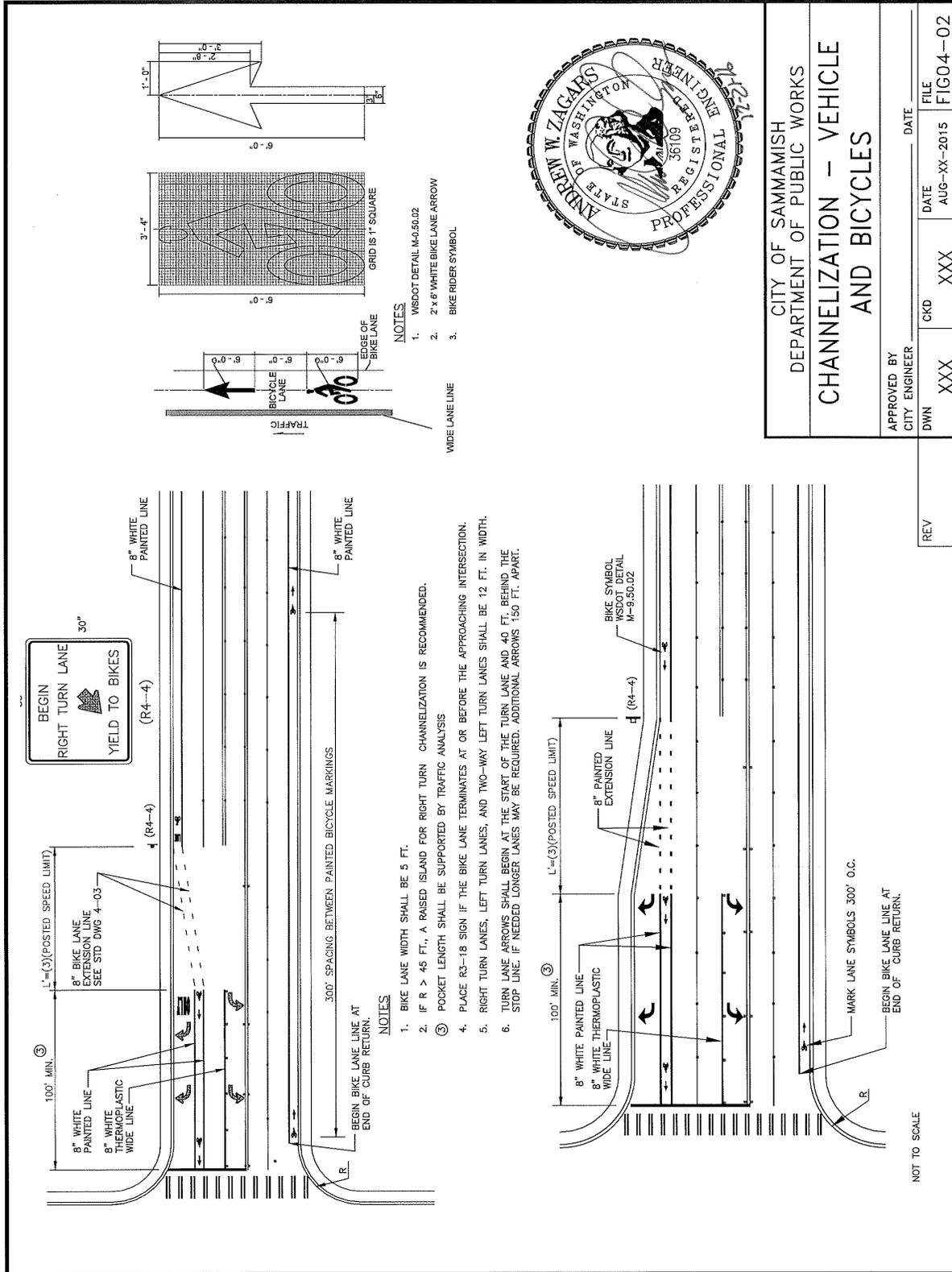
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**CHANNELIZATION - LEFT TURN LANES**

APPROVED BY  
CITY ENGINEER

DWN XXX CKD XXX DATE AUG-XX-2015 FILE FIG04-01

REV \_\_\_\_\_ DATE \_\_\_\_\_ REV. NO. X



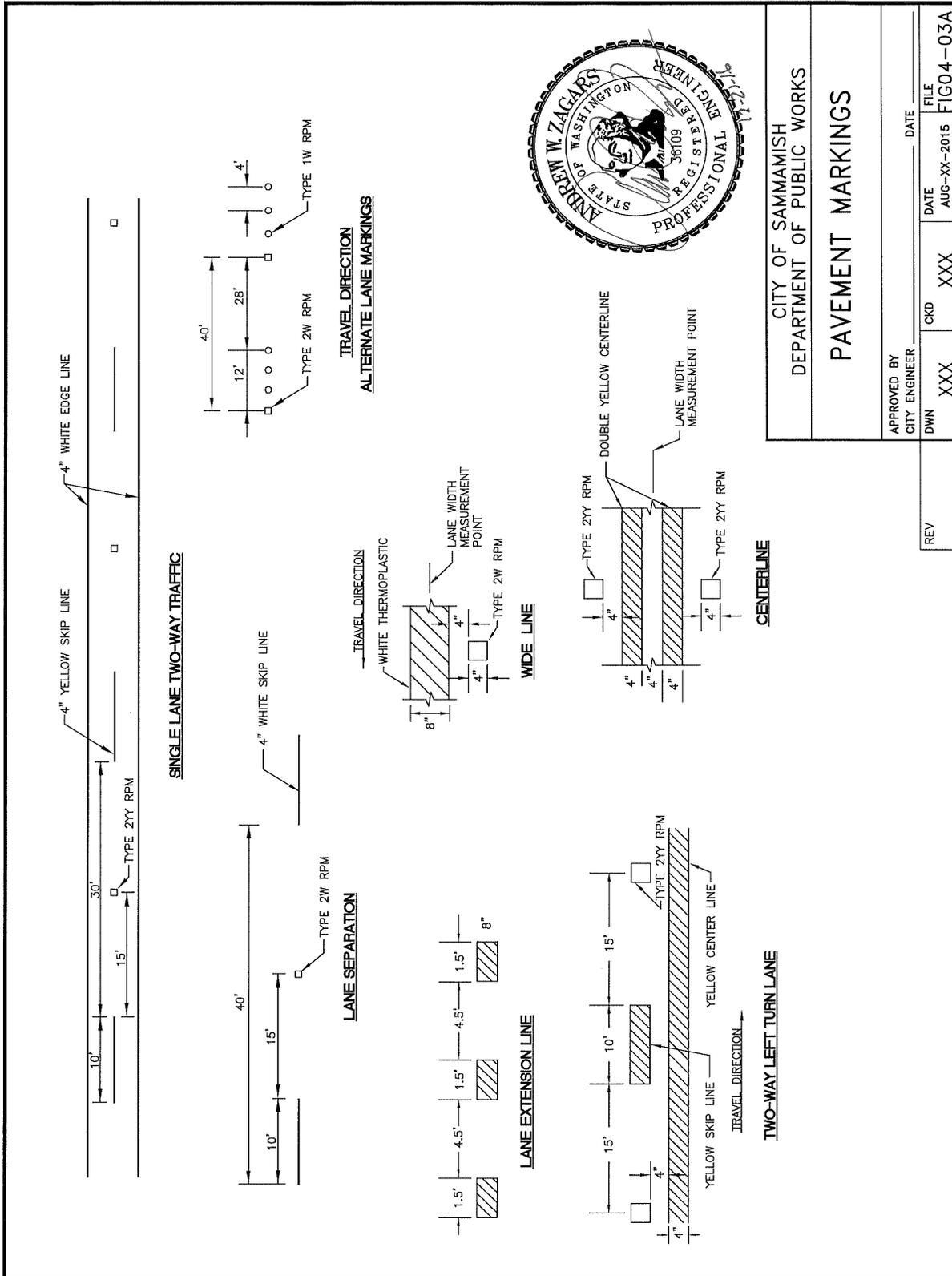
CITY OF SAMMAMISH  
 DEPARTMENT OF PUBLIC WORKS  
**CHANNELIZATION – VEHICLE  
 AND BICYCLES**

APPROVED BY  
 CITY ENGINEER  
 DWN XXX

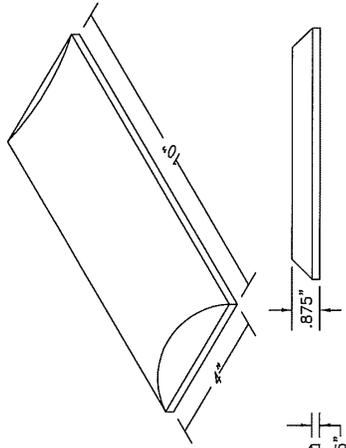
DATE  
 AUG-XX-2015

FILE  
 FIG04-02

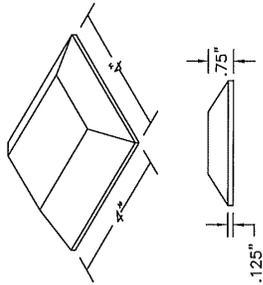
REV. NO. X



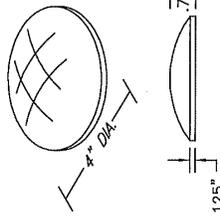
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>PAVEMENT MARKINGS</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	XXX
CKD	FILE
XXX	FIG04-03A
REV	REV. NO. X



**TYPE 3 RPM**

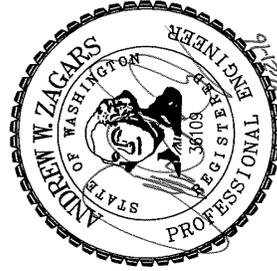


**TYPE 2 RPM**



**TYPE 1 RPM**

RAISED PAVEMENT MARKER COLORS	
TYPE 1W	NONREFLECTORIZED WHITE
TYPE 1Y	NONREFLECTORIZED YELLOW
TYPE 2W	REFLECTORIZED WHITE — ONE SIDE ONLY
TYPE 2Y	REFLECTORIZED YELLOW — ONE SIDE ONLY
TYPE 2XY	REFLECTORIZED YELLOW — BOTH SIDES

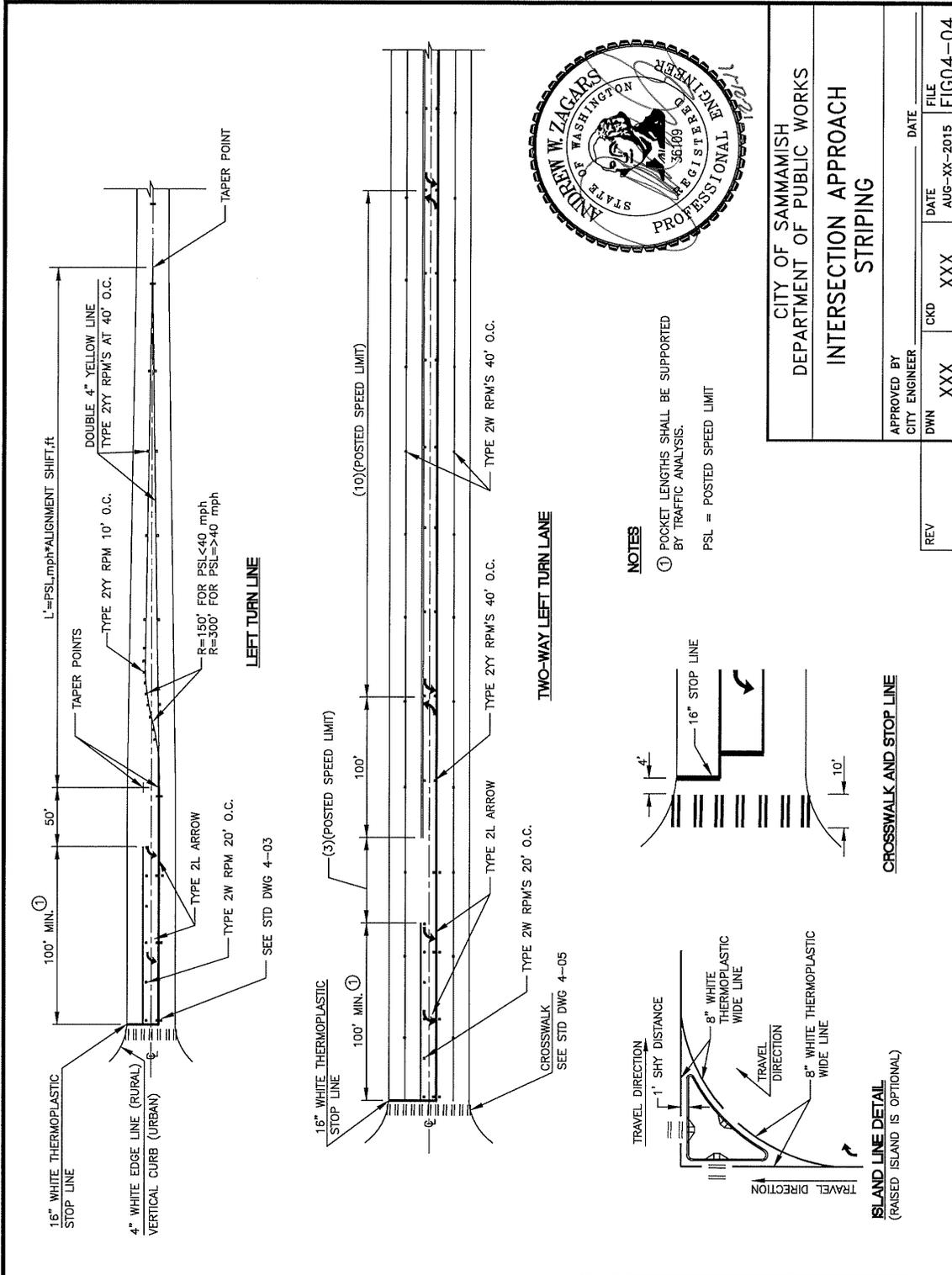


CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

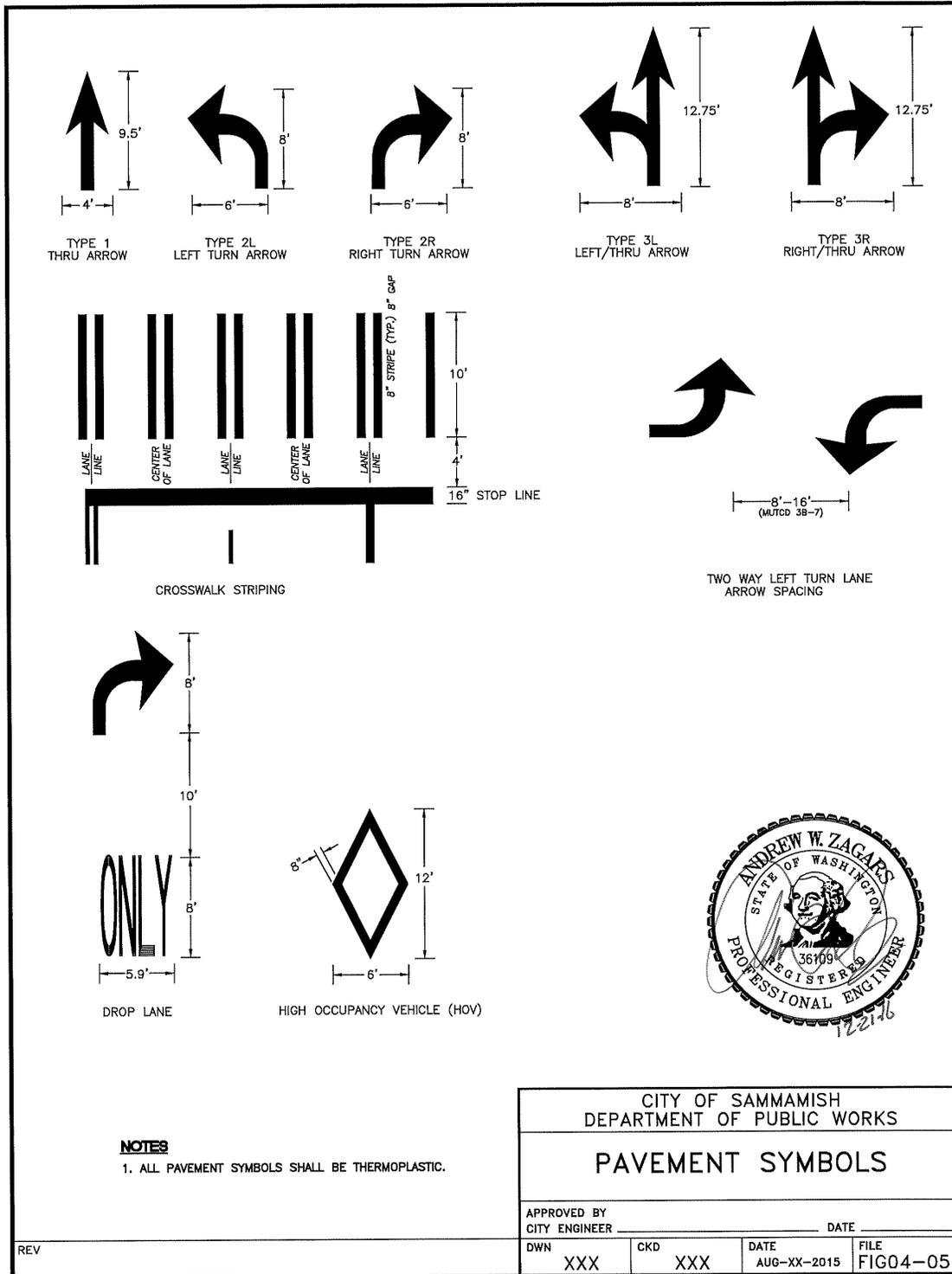
**RAISED PAVEMENT MARKERS**

APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE
	FIG04-03B

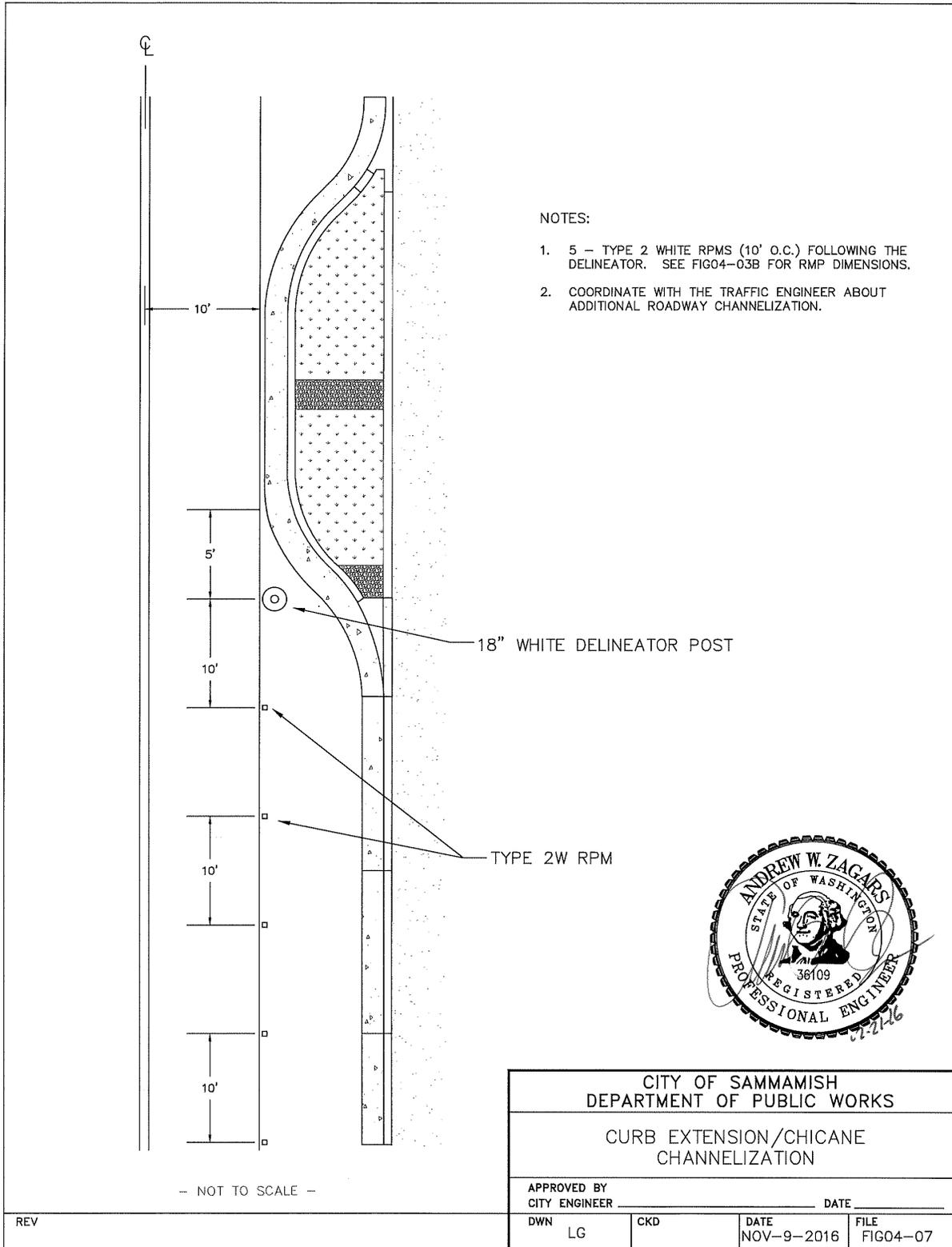
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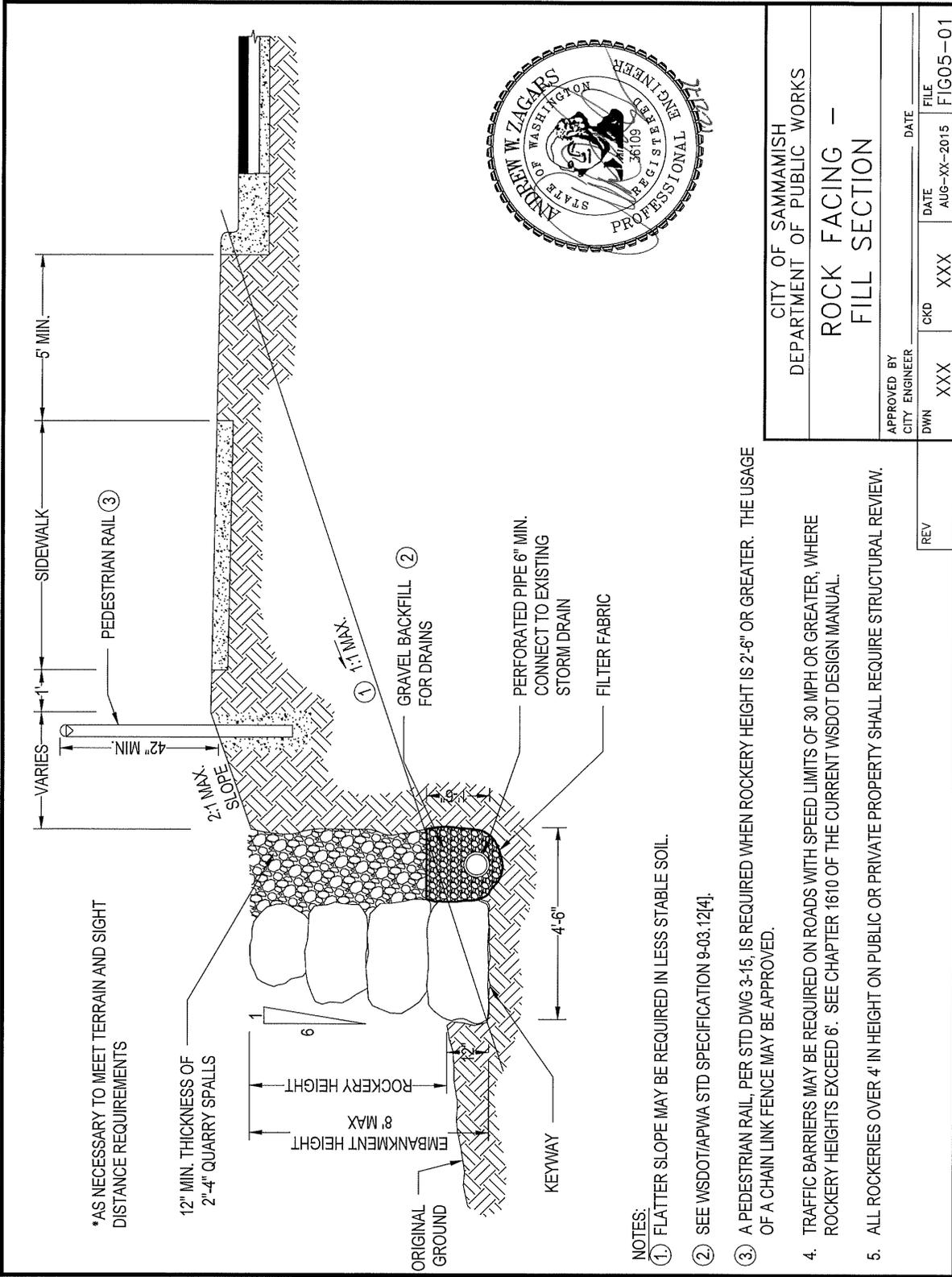


CITY OF SAMMAMISH		APPROVED BY	DATE	FILE
DEPARTMENT OF PUBLIC WORKS		CITY ENGINEER	AUG-XX-2015	FIG04-04
INTERSECTION APPROACH STRIPING		DWN	XXX	XXX
REV	CKD	DATE	REV. NO. X	









\*AS NECESSARY TO MEET TERRAIN AND SIGHT DISTANCE REQUIREMENTS

12" MIN. THICKNESS OF 2'x4' QUARRY SPALLS

ROCKERY HEIGHT

EMBAKMENT HEIGHT

8' MAX

ORIGINAL GROUND

KEYWAY

4'-6"

PERFORATED PIPE 6" MIN. CONNECT TO EXISTING STORM DRAIN

FILTER FABRIC

GRAVEL BACKFILL FOR DRAINS

1:1 MAX. SLOPE

2:1 MAX. SLOPE

SIDEWALK

5' MIN.

PEDESTRIAN RAIL (3)

VARIES

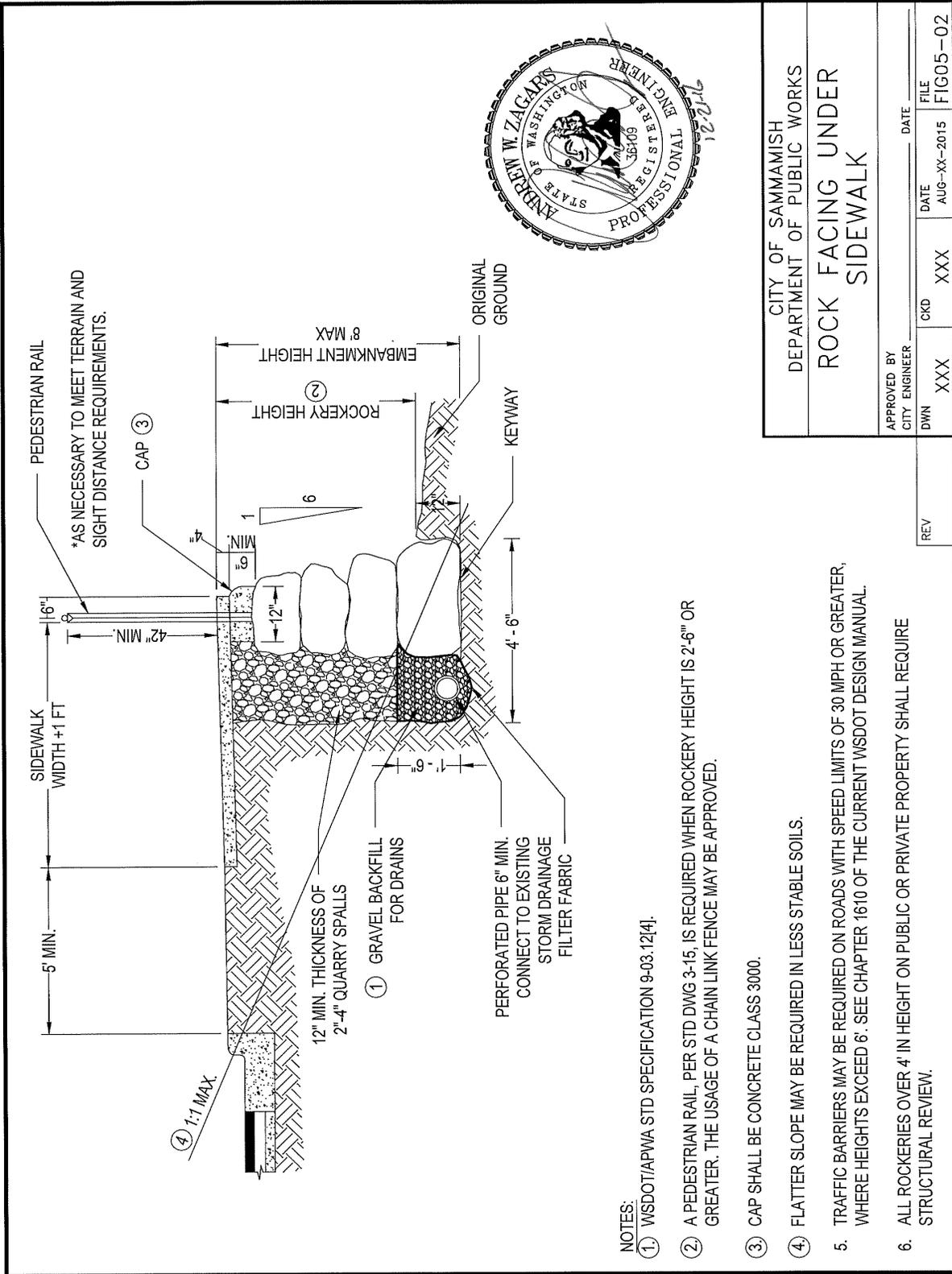
1'

42" MIN.

NOTES:

1. FLATTER SLOPE MAY BE REQUIRED IN LESS STABLE SOIL.
2. SEE WSDOT/APWA STD SPECIFICATION 9-03.12[4].
3. A PEDESTRIAN RAIL, PER STD DWG 3-15, IS REQUIRED WHEN ROCKERY HEIGHT IS 2'-6" OR GREATER. THE USAGE OF A CHAIN LINK FENCE MAY BE APPROVED.
4. TRAFFIC BARRIERS MAY BE REQUIRED ON ROADS WITH SPEED LIMITS OF 30 MPH OR GREATER, WHERE ROCKERY HEIGHTS EXCEED 6'. SEE CHAPTER 1610 OF THE CURRENT WSDOT DESIGN MANUAL.
5. ALL ROCKERIES OVER 4' IN HEIGHT ON PUBLIC OR PRIVATE PROPERTY SHALL REQUIRE STRUCTURAL REVIEW.

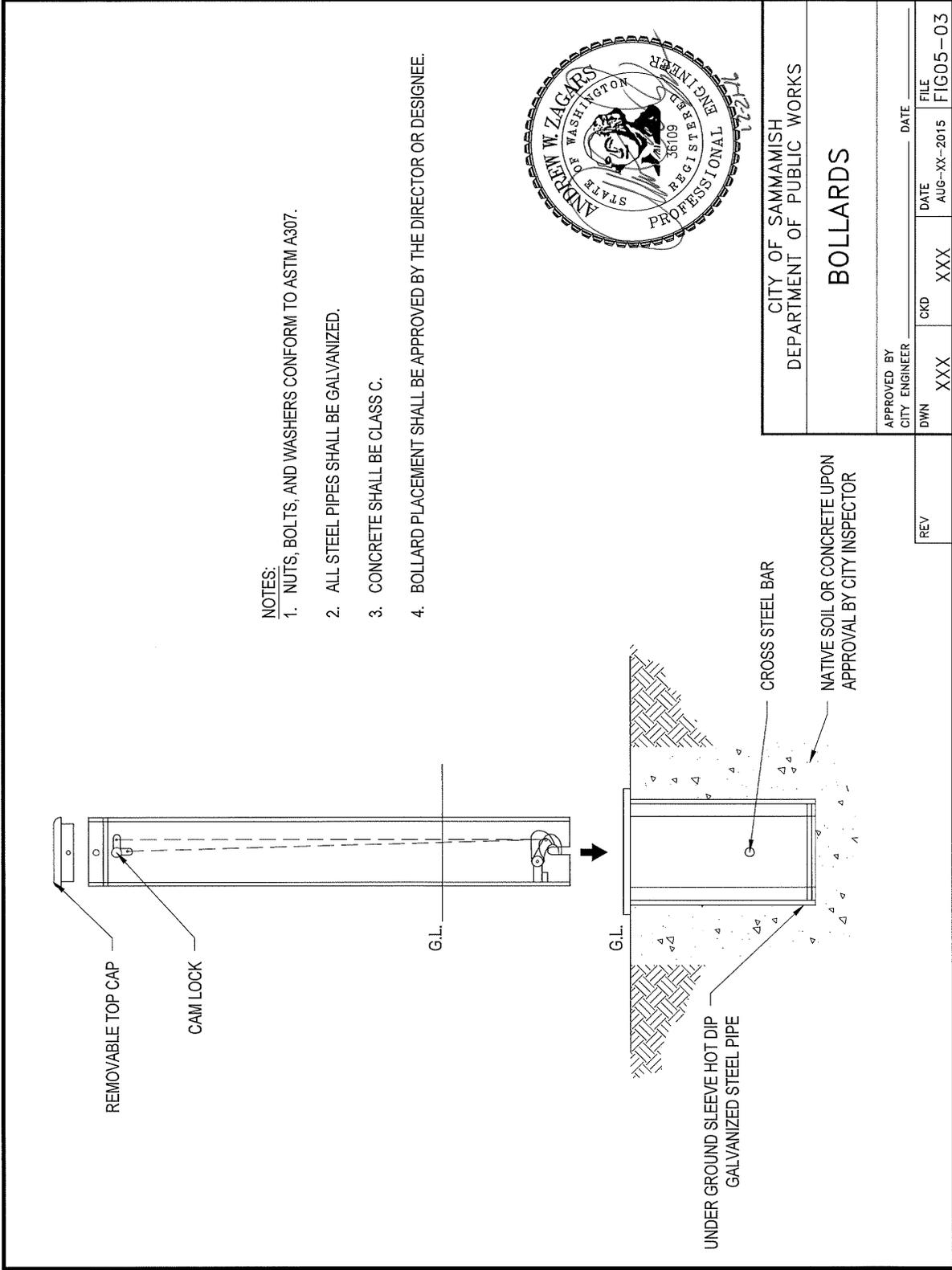
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		ROCK FACING - FILL SECTION	
APPROVED BY CITY ENGINEER	DATE	FILE	REV. NO. X
DWN XXX	AUG-XX-2015	FIG05-01	
CKD XXX			



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS  
ROCK FACING UNDER  
SIDEWALK

APPROVED BY	DATE	FILE
CITY ENGINEER	AUG-XX-2015	FIG05-02
DWN XXX	CKD XXX	REV. NO. X

- NOTES:
1. WSDOT/APWA STD SPECIFICATION 9-03.12[4].
  2. A PEDESTRIAN RAIL, PER STD DWG 3-15, IS REQUIRED WHEN ROCKERY HEIGHT IS 2'-6" OR GREATER. THE USAGE OF A CHAIN LINK FENCE MAY BE APPROVED.
  3. CAP SHALL BE CONCRETE CLASS 3000.
  4. FLATTER SLOPE MAY BE REQUIRED IN LESS STABLE SOILS.
  5. TRAFFIC BARRIERS MAY BE REQUIRED ON ROADS WITH SPEED LIMITS OF 30 MPH OR GREATER, WHERE HEIGHTS EXCEED 6'. SEE CHAPTER 1610 OF THE CURRENT WSDOT DESIGN MANUAL.
  6. ALL ROCKERIES OVER 4' IN HEIGHT ON PUBLIC OR PRIVATE PROPERTY SHALL REQUIRE STRUCTURAL REVIEW.

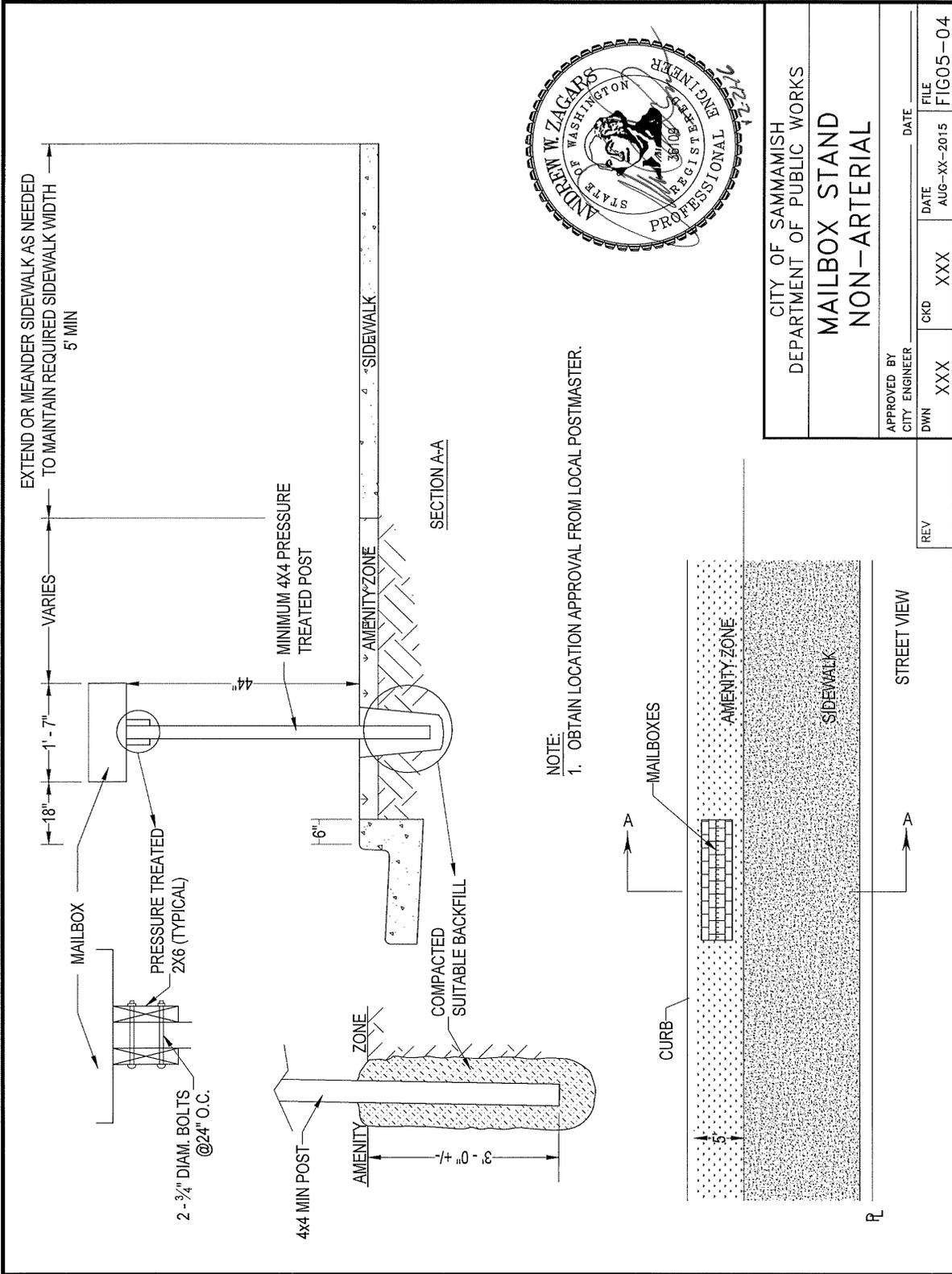


NOTES:

1. NUTS, BOLTS, AND WASHERS CONFORM TO ASTM A307.
2. ALL STEEL PIPES SHALL BE GALVANIZED.
3. CONCRETE SHALL BE CLASS C.
4. BOLLARD PLACEMENT SHALL BE APPROVED BY THE DIRECTOR OR DESIGNEE.

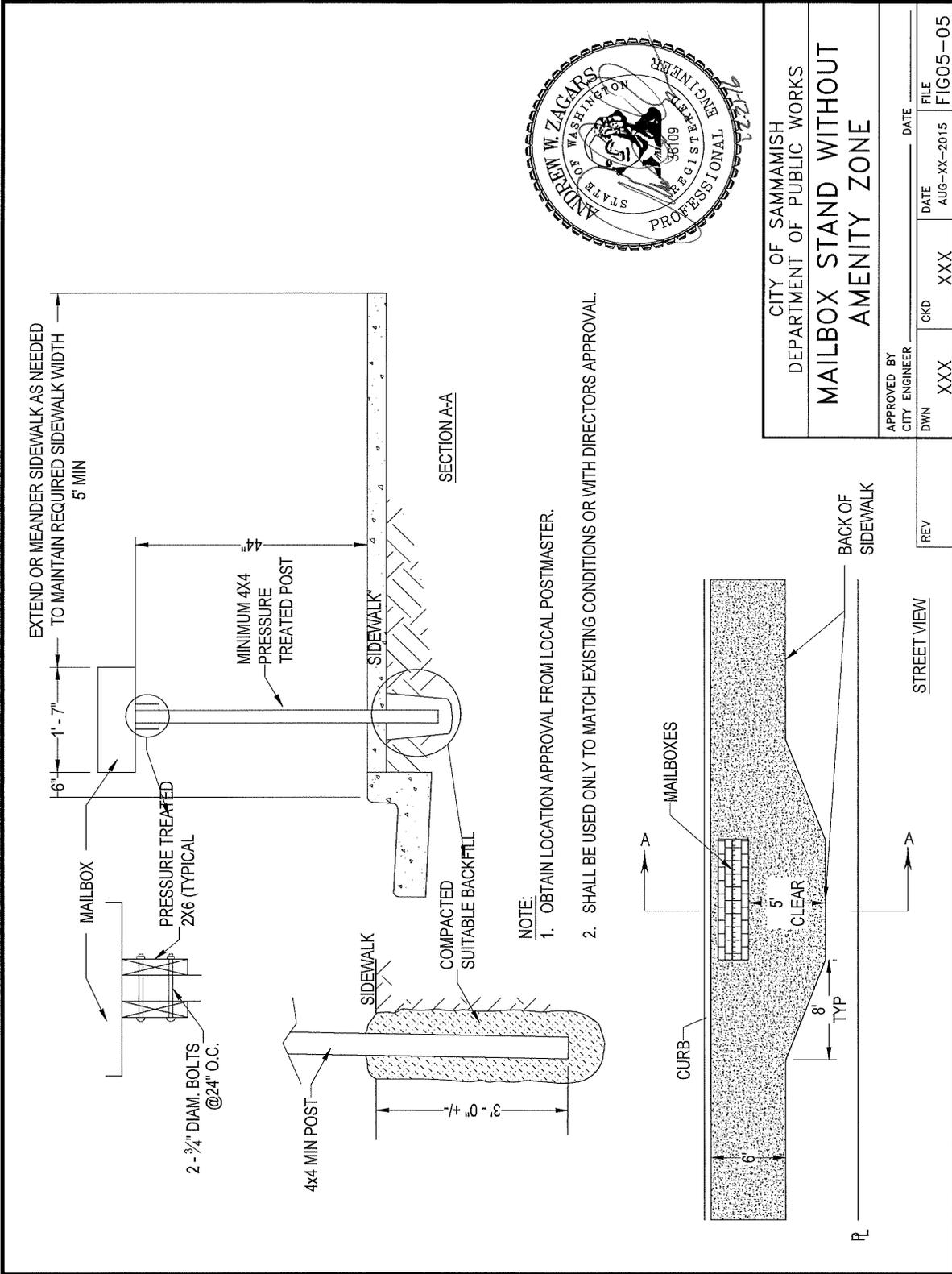


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>BOLLARDS</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE FIG05-03
REV. NO. X	



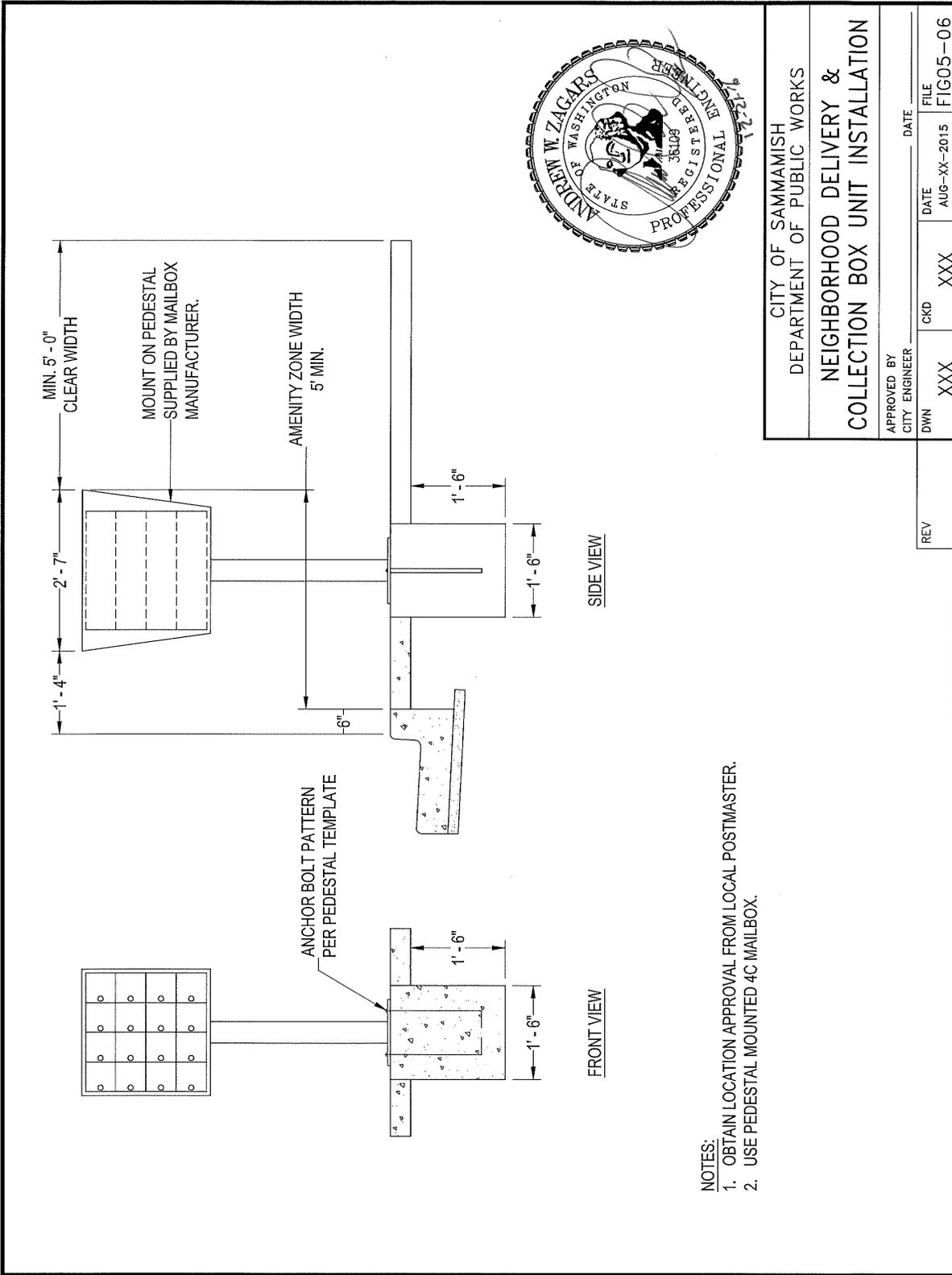
NOTE:  
1. OBTAIN LOCATION APPROVAL FROM LOCAL POSTMASTER.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
<b>MAILBOX STAND NON-ARTERIAL</b>		DWN XXX	AUG-XX-2015	FIG05-04
REV	CKD	XXX	DATE	REV. NO. X



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		DATE
<b>MAILBOX STAND WITHOUT AMENITY ZONE</b>		FILE FIG05-05
APPROVED BY CITY ENGINEER	CKD XXX	DATE AUG-XX-2015
DWN XXX	XXX	REV

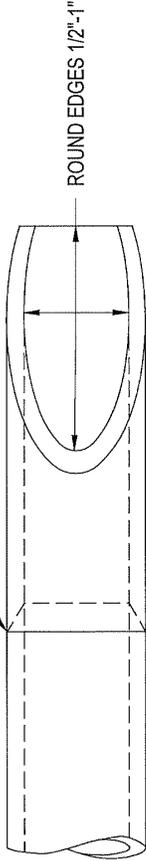
REV. NO. X



- NOTES:
1. OBTAIN LOCATION APPROVAL FROM LOCAL POSTMASTER.
  2. USE PEDESTAL MOUNTED 4C MAILBOX.

CITY OF SAMMAMISH		DATE	
DEPARTMENT OF PUBLIC WORKS		CKD	XXX
NEIGHBORHOOD DELIVERY & COLLECTION BOX UNIT INSTALLATION		DWN	XXX
APPROVED BY	CITY ENGINEER	DATE	FILE
		AUG--XX--2015	FIG05-06
REV			REV. NO. X

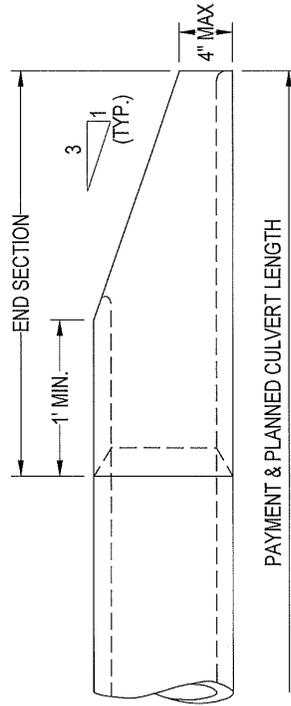
TONGUE END ON INLET END GROOVE END ON OUTLET  
END ENDS TO FIT ADJACENT PIPE SECTIONS



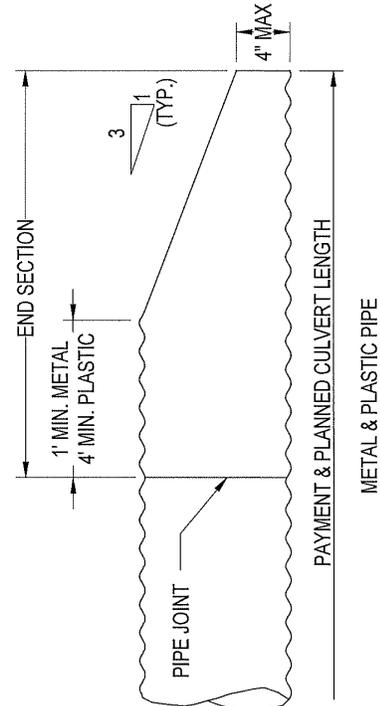
PLAN

NOTES:

1. SIDE SLOPE SHALL BE WARPED TO MATCH THE BEVELED PIPE END. WHEN CULVERT IS ON SKEW, BEVELED END SHALL BE ROTATED TO CONFORM TO SLOPE. IF SLOPE DIFFERS FROM 3:1, PIPE SHALL BE BEVELED TO MATCH SLOPE.
2. TRASH RACK MAY BE REQUIRED BY DIRECTOR OR DESIGNEE. (SEE STD DWG 7-02 FOR DETAILS).
3. INLET/OUTLET PROTECTION SHALL BE REQUIRED.



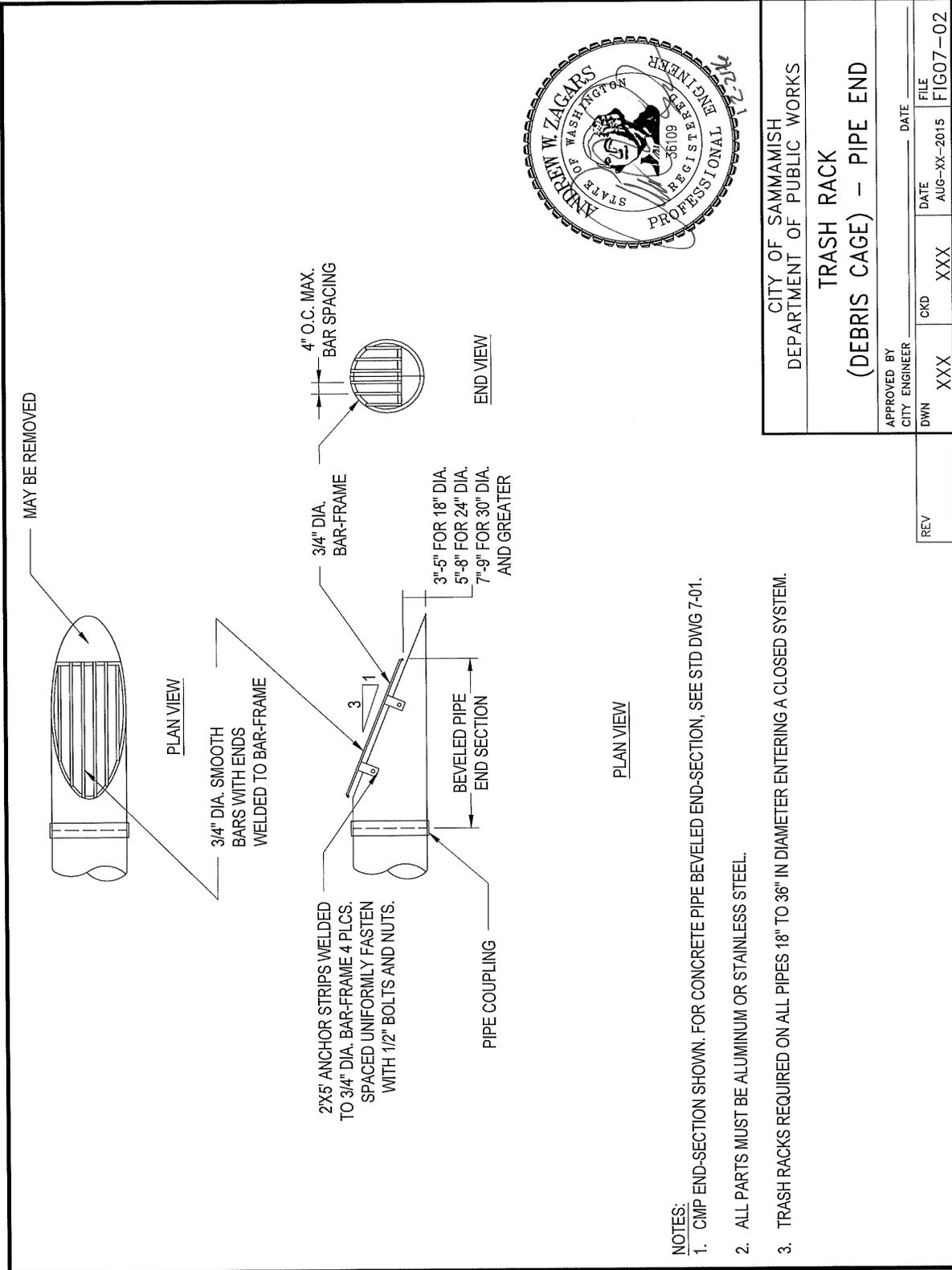
ELEVATION CONCRETE PIPE



METAL & PLASTIC PIPE



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER		DATE	FILE
BEVELED END PIPE SECTION		DWN	XXX	AUG--XX--2015	FIG07-01
CKD	XXX	DATE	XXX	REV	REV. NO. X

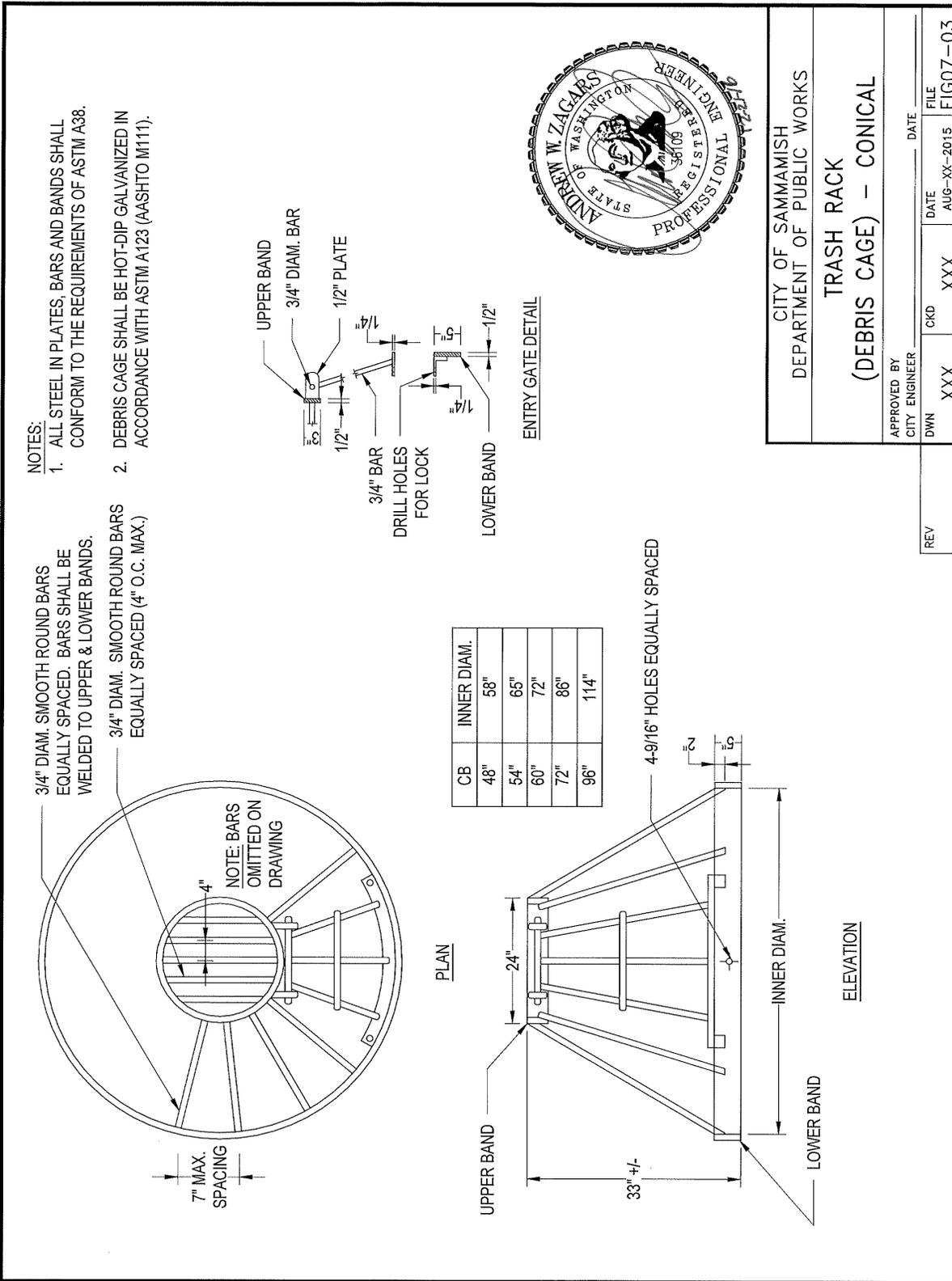


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>TRASH RACK (DEBRIS CAGE) – PIPE END</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE FIG07-02

REV	DWN	CKD	DATE	FILE
	XXX	XXX	AUG-XX-2015	FIG07-02

REV. NO. X

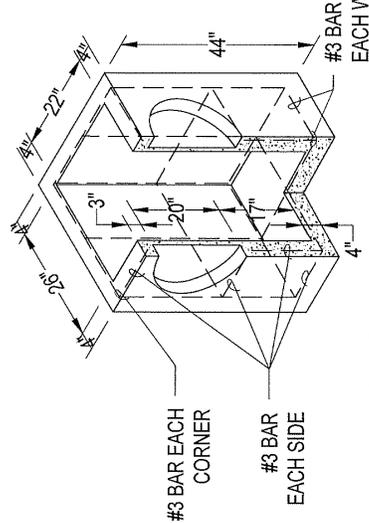
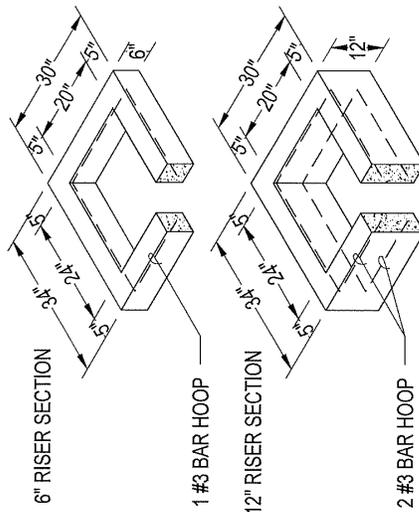
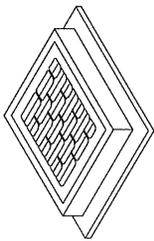
- NOTES:**
1. CMP END-SECTION SHOWN. FOR CONCRETE PIPE BEVELED END-SECTION, SEE STD DWG 7-01.
  2. ALL PARTS MUST BE ALUMINUM OR STAINLESS STEEL.
  3. TRASH RACKS REQUIRED ON ALL PIPES 18" TO 36" IN DIAMETER ENTERING A CLOSED SYSTEM.



**NOTES:**

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH WSDOT/APWA STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION A-A-60005. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT STANDARD PLAN B-5.60-01.
12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

FRAME AND GRATE  
SEE STD DWGS 7-16  
& 7-18 FOR DETAILS



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
CATCH BASIN TYPE 1		DWN	XXX	FIG07-04
REV	CKD	DATE	FILE	
	XXX	AUG--XX--2015	XXX	

REV. NO. X

**FRAME AND GRATE**  
SEE STD DWGS 7-16 & 7-18 FOR DETAILS

**RISER SECTION**

1 #3 BAR HOOP FOR 6"  
2 #3 BAR HOOP FOR 12"

**6" REDUCING SECTION**

2 #3 BAR HOOP

**PRECAST BASE SECTION**

#3 BAR EACH CORNER  
#3 BAR EACH SIDE  
#3 BAR EACHWAY

**NOTES:**

- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
- AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
- ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
- ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 26". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
- THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
- THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
- CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH WSDOT/APWA STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION A-A-60005. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
- FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
- FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT STANDARD PLAN B-5.60-01.
- EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

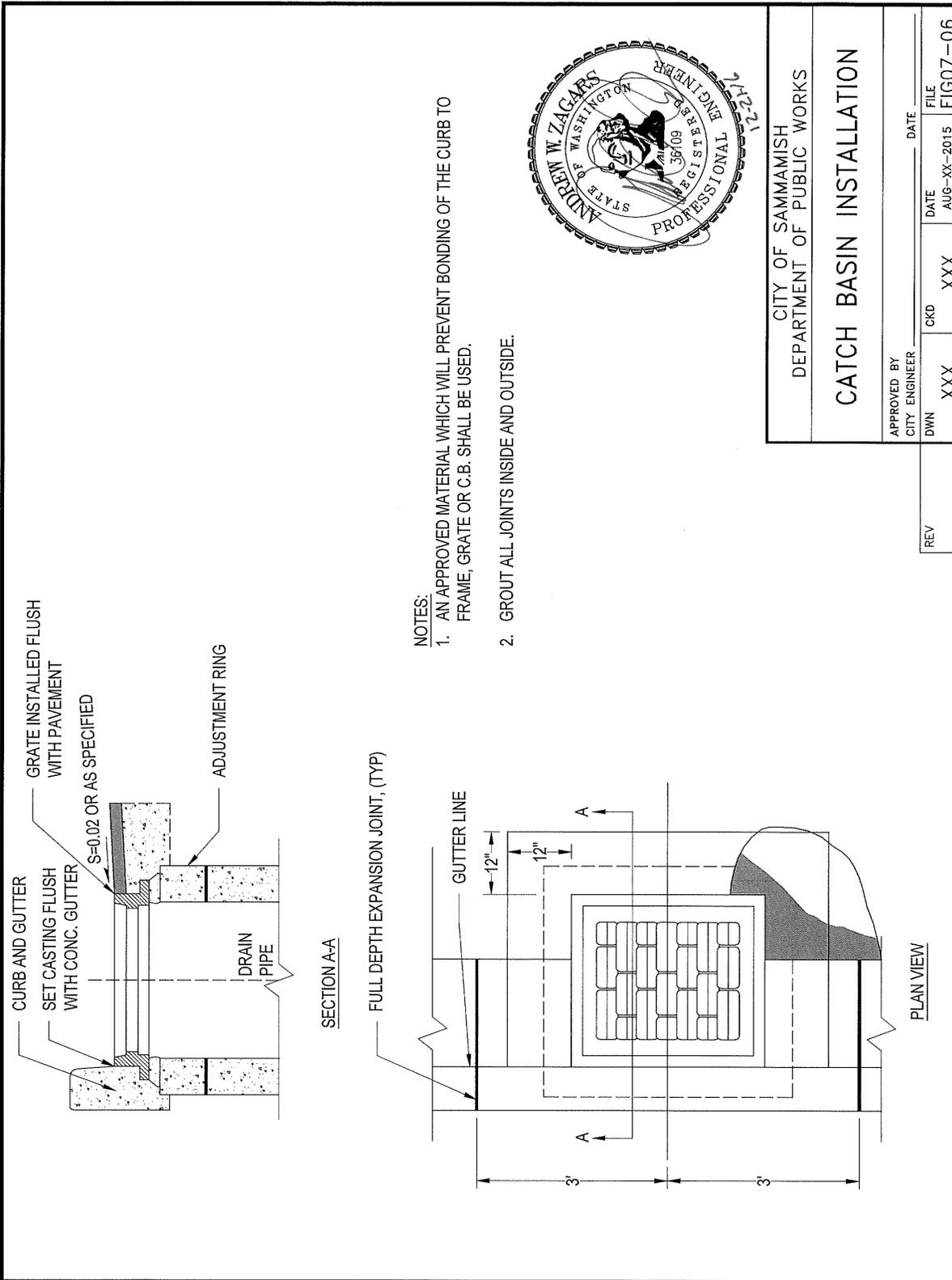
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**CATCH BASIN TYPE 1-L**

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
CITY ENGINEER

DWN XXX CKD XXX DATE AUG-XX-2015 FILE FIG07-05  
XXX XXX

REV. NO. X



**NOTES:**

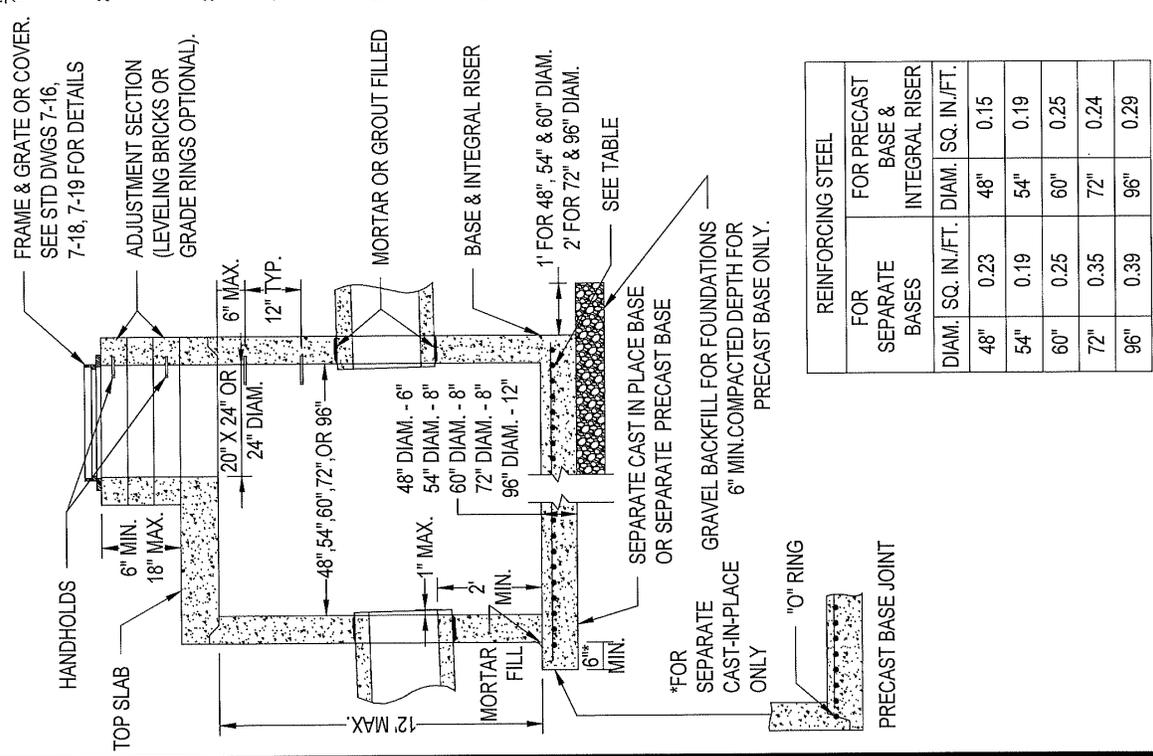
- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M199) AND ASTM C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
- HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MIN. CLEARANCE. SEE STD DWG 7-98, CATCH BASIN DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE MANHOLE.
- ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUDED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" CATCH BASIN, 42" FOR 54" C.B., 48" FOR 60" C.B., 60" FOR 72" C.B., 84" FOR 96" C.B. MIN. DISTANCE BETWEEN HOLES SHALL BE 8" FOR 48", 54", AND 60" C.B.; 12" FOR 72" AND 96" C.B.
- CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH STD DWGS 7-16, 7-18, & 7-19 AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION A-A-60005. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
- ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
- MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
- FOR DETAILS SHOWING LADDER, STEPS, HANDRAILS AND TOP SLABS, SEE STD DWG 7-98.
- SEE THE WSDOT STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.
- IF PIPE IS SMOOTH WALL PLASTIC, NOT CONCRETE, A SAND COLLAR IS REQUIRED.

**CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS**

**CATCH BASIN TYPE 2 -  
48", 54", 60", 72" & 96"**

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ FILE: FIG07-07  
 CITY ENGINEER: DWN XXX CKD XXX AUG-XX-2015  
 REV: \_\_\_\_\_

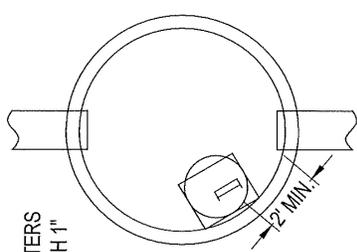
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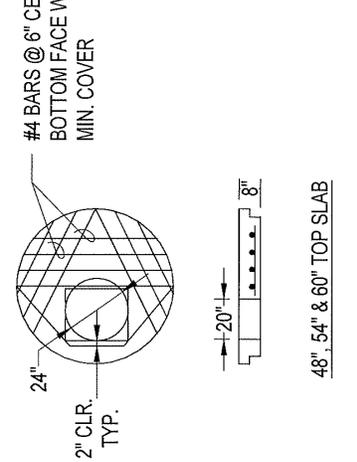
REINFORCING STEEL	
FOR SEPARATE BASES	FOR PRECAST BASE & INTEGRAL RISER
DIAM. SQ. IN./FT.	DIAM. SQ. IN./FT.
48" 0.23	48" 0.15
54" 0.19	54" 0.19
60" 0.25	60" 0.25
72" 0.35	72" 0.24
96" 0.39	96" 0.29

**NOTES:**

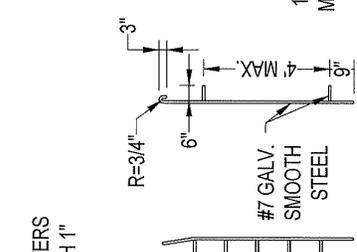
1. PROPRIETARY CATCH BASIN HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R, ASTM C478, AASHTO M-199 AND MEET ALL WISHA REQUIREMENTS.
2. CATCH BASIN STEPHANDHOLD LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY CATCH BASIN SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A LEG IS PROHIBITED.
3. HANDHOLDS AND STEPS SHALL HAVE "DROP" RUNGS AS SHOWN ON DETAIL OR PROTUBERANCES TO PREVENT SIDEWAYS SLIP.
4. SLAB OPENING MAY BE 24" X 20" OR 24" DIAM.
5. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A487.
6. LADDERS OR STEPS SHALL EXTEND TO WITHIN 16" OF BOTTOM OF CATCH BASIN.
7. HANGING LADDERS SHALL BE PERMANENTLY FASTENED AT TOP BY HANGING ON STEP OR BY BOLTING OR EMBEDDING IN CONCRETE. EACH SHALL BE EMBEDDED AT BOTTOM IN BASE.
8. ADDITIONAL SAFETY FEATURES MAY BE REQUIRED.



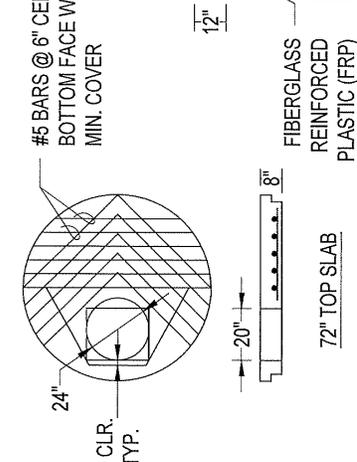
TYPICAL ORIENTATION FOR ACCESS AND STEPS



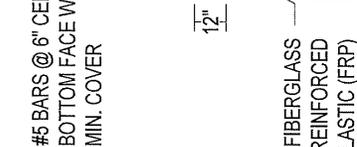
48" 54" & 60" TOP SLAB



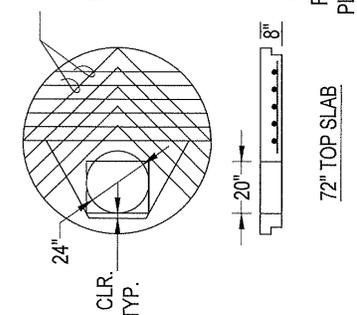
72" TOP SLAB



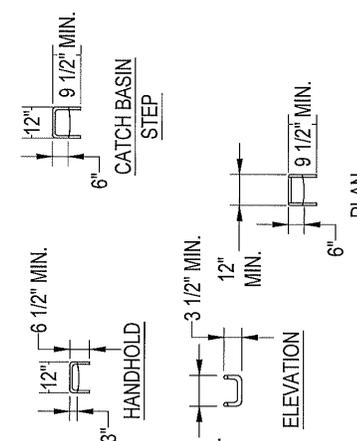
96" TOP SLAB



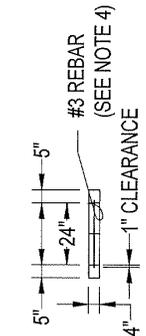
PREFABRICATED LADDER



FIBERGLASS REINFORCED PLASTIC (FRP)



PLAN



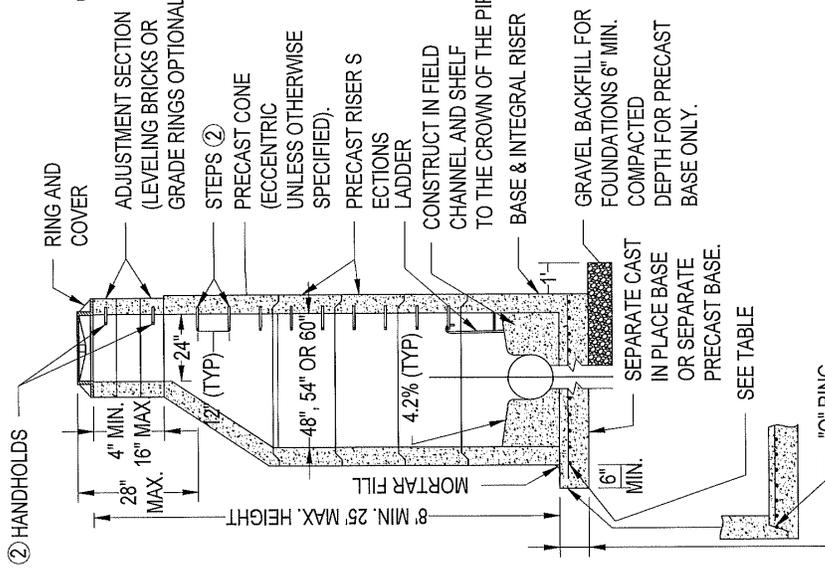
GRADE RING



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
CATCH BASIN - TYPE 2 DETAILS	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE FIG07-08
REV	REV. NO. X

**NOTES:**

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE STD DWG 7-12, "MANHOLE DETAILS." HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HAND HOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" MANHOLE, 42" FOR 54" MANHOLE, 48" FOR 60" M.H. MIN. DISTANCE BETWEEN HOLES SHALL BE 8".
6. MANHOLE RINGS AND COVERS SHALL MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION A-A-60005. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12', MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.
9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE STD DWG 7-12, "MANHOLE DETAILS".
10. SEE THE WSDOT STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.



REINFORCING STEEL		
FOR SEPARATE BASES	FOR PRECAST BASE & INTEGRAL RISER	
DIAM.	SQ. IN./FT.	DIAM.
48"	0.23	48"
54"	0.19	54"
60"	0.25	60"



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

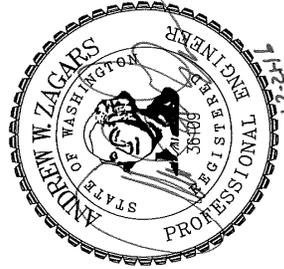
**MANHOLE TYPE 1-  
48", 54" & 60"**

APPROVED BY: CITY ENGINEER DWN XXX  
DATE: AUG-XX-2015  
FILE: FIG07-09

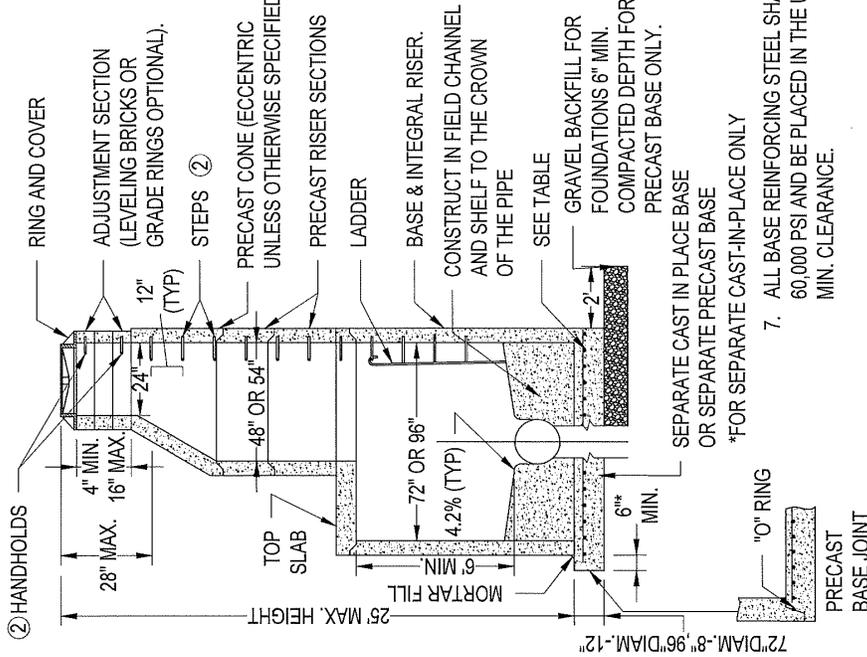
REV	CD	DATE	FILE
	XXX	AUG-XX-2015	FIG07-09

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. HANDHolds IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE STD DWG 7-12, "MANHOLE DETAILS." HANDHolds SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HAND HOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUDED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. MAX. HOLE SIZE SHALL BE 60" FOR 72" MANHOLE, 84" FOR 96" MANHOLE. MIN. DISTANCE BETWEEN HOLES SHALL BE 12".
6. MANHOLE RINGS AND COVERS SHALL MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION A-A-60005. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.



7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12', MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.
9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHolds, AND TOP SLABS, SEE STD DWG 7-12, "MANHOLE DETAILS".
10. SEE THE WSDOT STANDARD SPECIFICATIONS SEC. 7-45.3 FOR JOINT REQUIREMENTS.



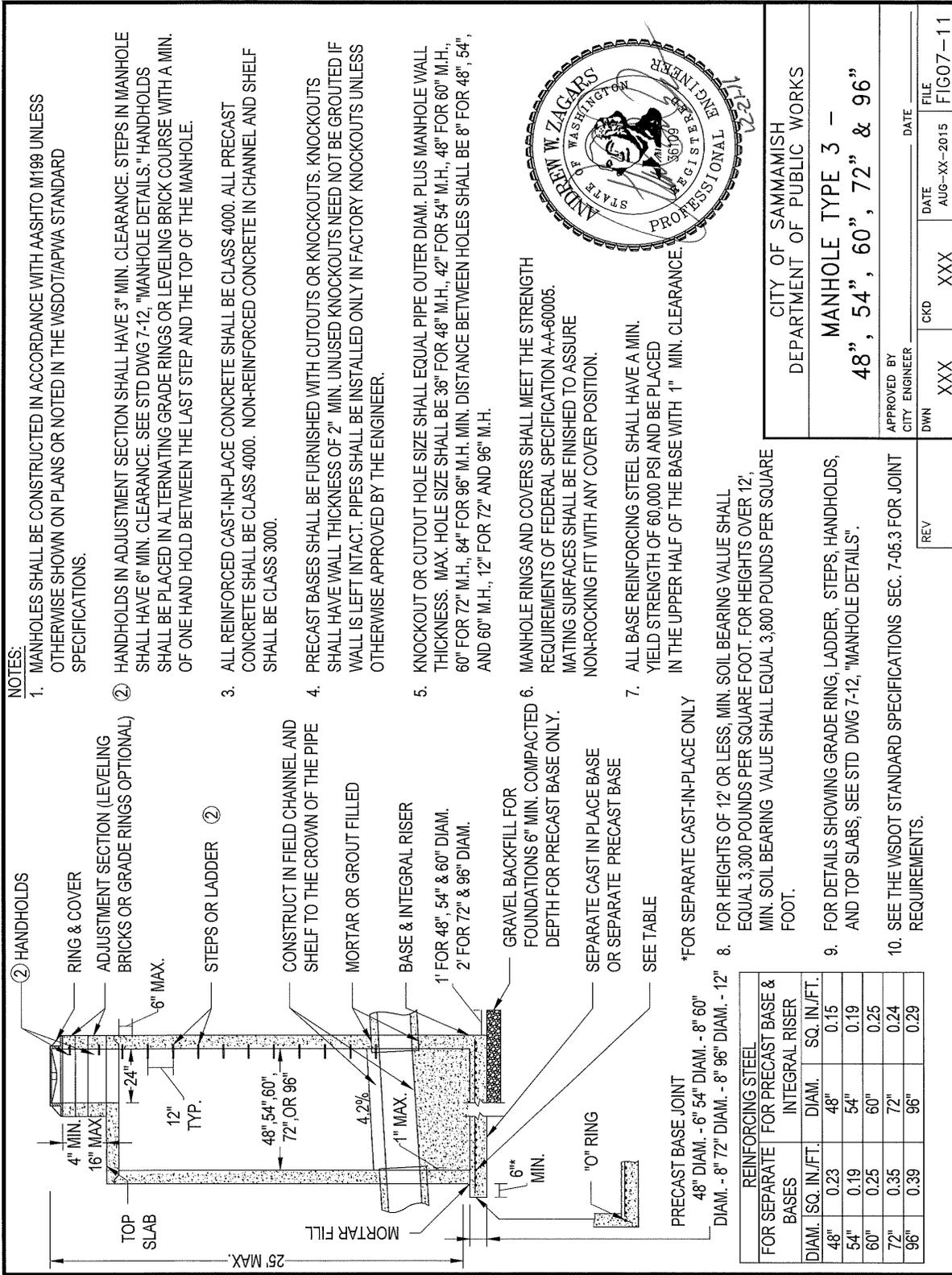
REINFORCING STEEL	
FOR SEPARATE BASES	FOR PRECAST BASE & INTEGRAL RISER
DIAM.	SQ. IN./FT.
72"	0.35
96"	0.39

CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

MANHOLE TYPE 2 -  
72" & 96"

APPROVED BY  
CITY ENGINEER

DWN XXX CKD XXX DATE AUG-XX-2015 FILE FIG07-10



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
MANHOLE TYPE 3 - 48", 54", 60", 72" & 96"	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	AUG-XX-2015
CKD XXX	FILE FIG07-11

REINFORCING STEEL FOR SEPARATE CAST-IN-PLACE BASES	DIAM. IN./FT.	SQ. IN./FT.
48"	0.23	0.15
54"	0.19	0.19
60"	0.25	0.25
72"	0.35	0.24
96"	0.39	0.29

**NOTES:**

- PROPRIETARY MANHOLE HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R, ASTM C478, AASHTO M199 AND MEET ALL WISHA REQUIREMENTS.
- MANHOLE STEPHANDHOLD LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY MANHOLE SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A LEG IS PROHIBITED.
- HANDHOLDS AND STOPS SHALL HAVE "DROP" RUNGS OR PROTUBERANCES TO PREVENT SIDEWAYS SLIP.
- LADDERS OR STEPS SHALL EXTEND TO WITHIN 16" OF BOTTOM OF MANHOLE.
- HANGING LADDERS SHALL BE PERMANENTLY FASTENED AT TOP BY HANGING ON STEP OR BY BOLTING OR EMBEDDING IN CONCRETE. EACH SHALL BE EMBEDDED AT BOTTOM IN BASE.
- ADDITIONAL SAFETY FEATURES MAY BE REQUIRED.



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**MANHOLE DETAILS**

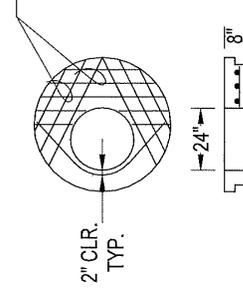
APPROVED BY  
CITY ENGINEER

DWN XXX CKD XXX DATE AUG--XX--2015 FILE FIG07-12 REV. NO. X

**\*ALL STEPS & RUNGS 1" DIAM. GALV. REBAR OR COPOLYMER PROPYLENE.**

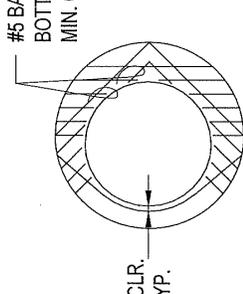
**#4 BARS @ 6" CENTERS BOTTOM FACE WITH 1" MIN. COVER**



2" CLR. TYP.

48" 54" & 60" TOP SLAB

**#5 BARS @ 6" CENTERS BOTTOM FACE WITH 1" MIN. COVER**

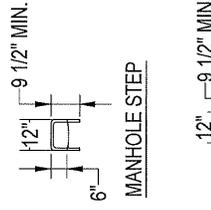


2" CLR. TYP.

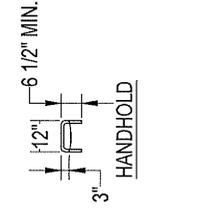
72" TOP SLAB

96" TOP SLAB

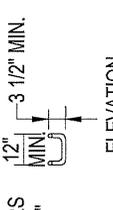
**MANHOLE STEP**



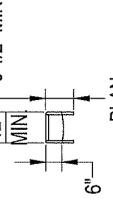
**HANDHOLD**



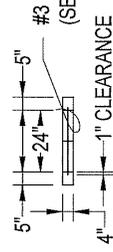
**ELEVATION**



**PLAN**



**GRADE RING**

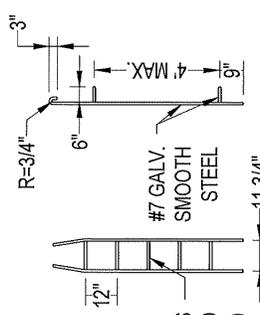


#3 REBAR (SEE NOTE 4)

1" CLEARANCE

**FIBERGLASS REINFORCED PLASTIC (FRP)**



#7 GALV. SMOOTH STEEL

3"

6"

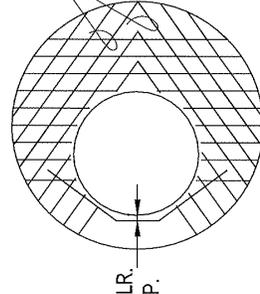
4" MAX.

9"

11 3/4"

**PREFABRICATED LADDER**

**#6 BARS @ 7" CENTERS BOTTOM FACE WITH 1" MIN. COVER**

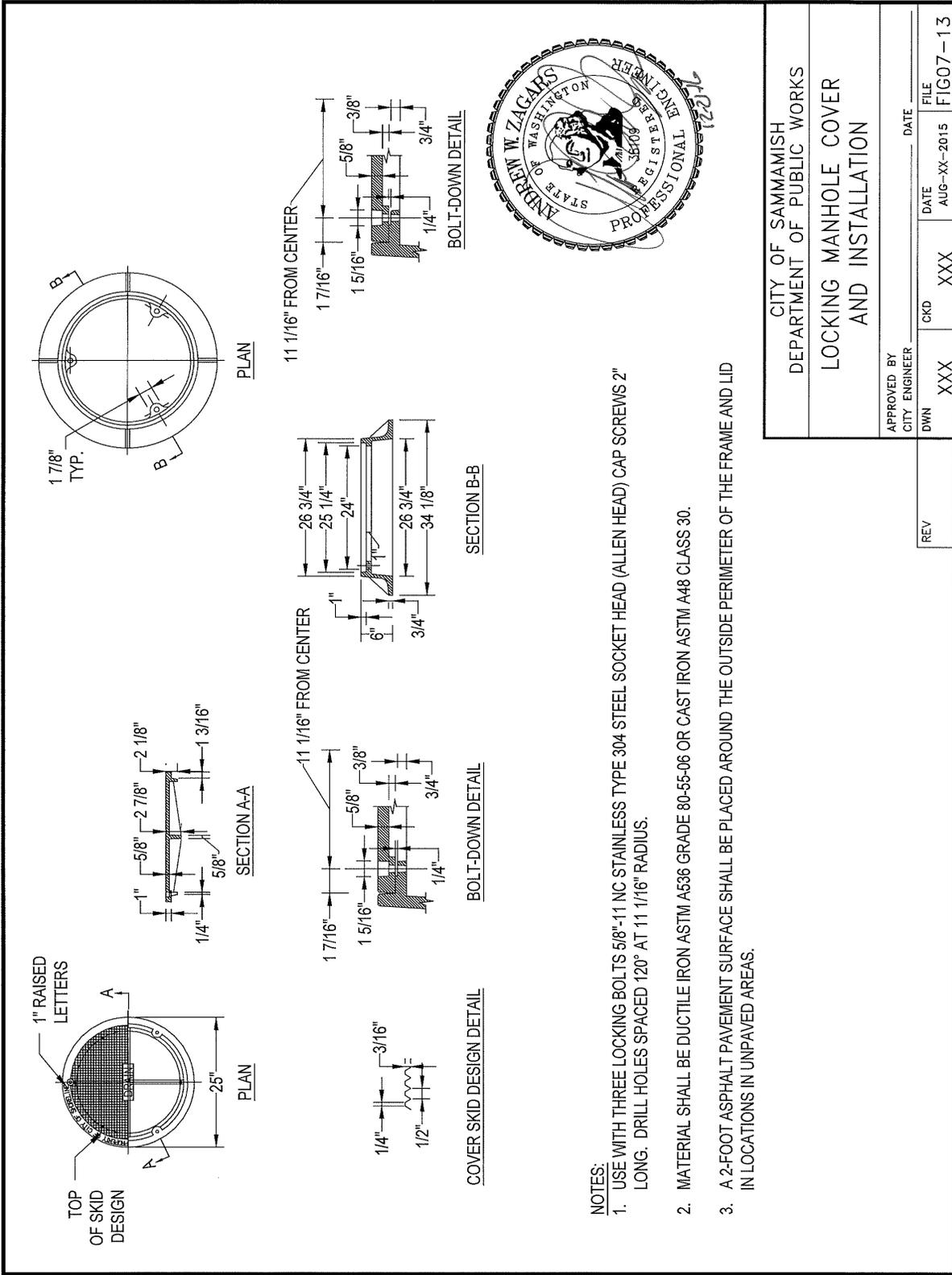


2" CLR. TYP.

48" 54" & 60" TOP SLAB

72" TOP SLAB

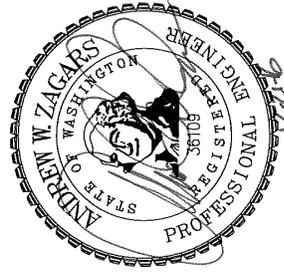
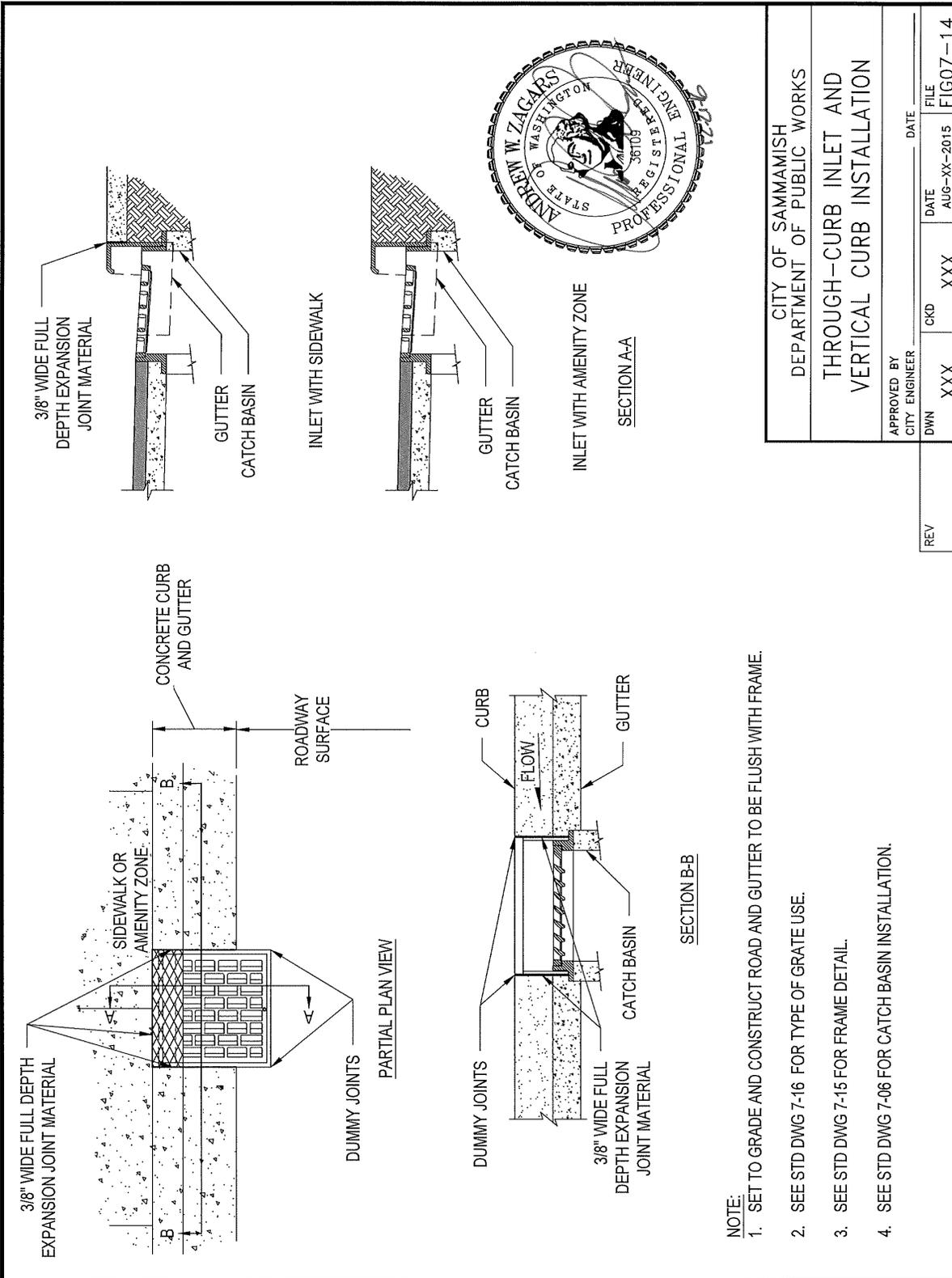
96" TOP SLAB



**NOTES:**

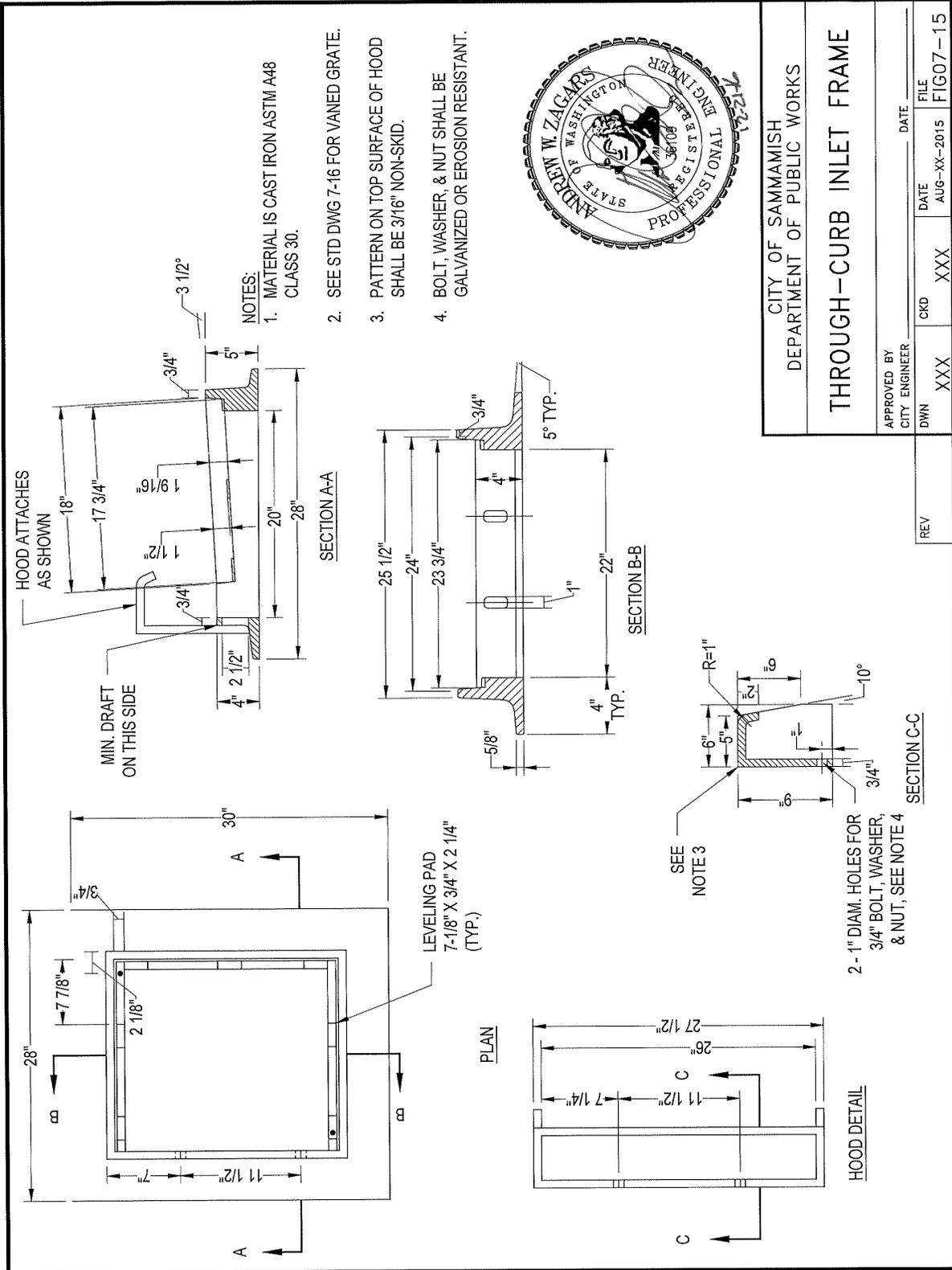
1. USE WITH THREE LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG. DRILL HOLES SPACED 120° AT 11 1/16" RADIUS.
2. MATERIAL SHALL BE DUCTILE IRON ASTM A536 GRADE 80-55-06 OR CAST IRON ASTM A48 CLASS 30.
3. A 2-FOOT ASPHALT PAVEMENT SURFACE SHALL BE PLACED AROUND THE OUTSIDE PERIMETER OF THE FRAME AND LID IN LOCATIONS IN UNPAVED AREAS.

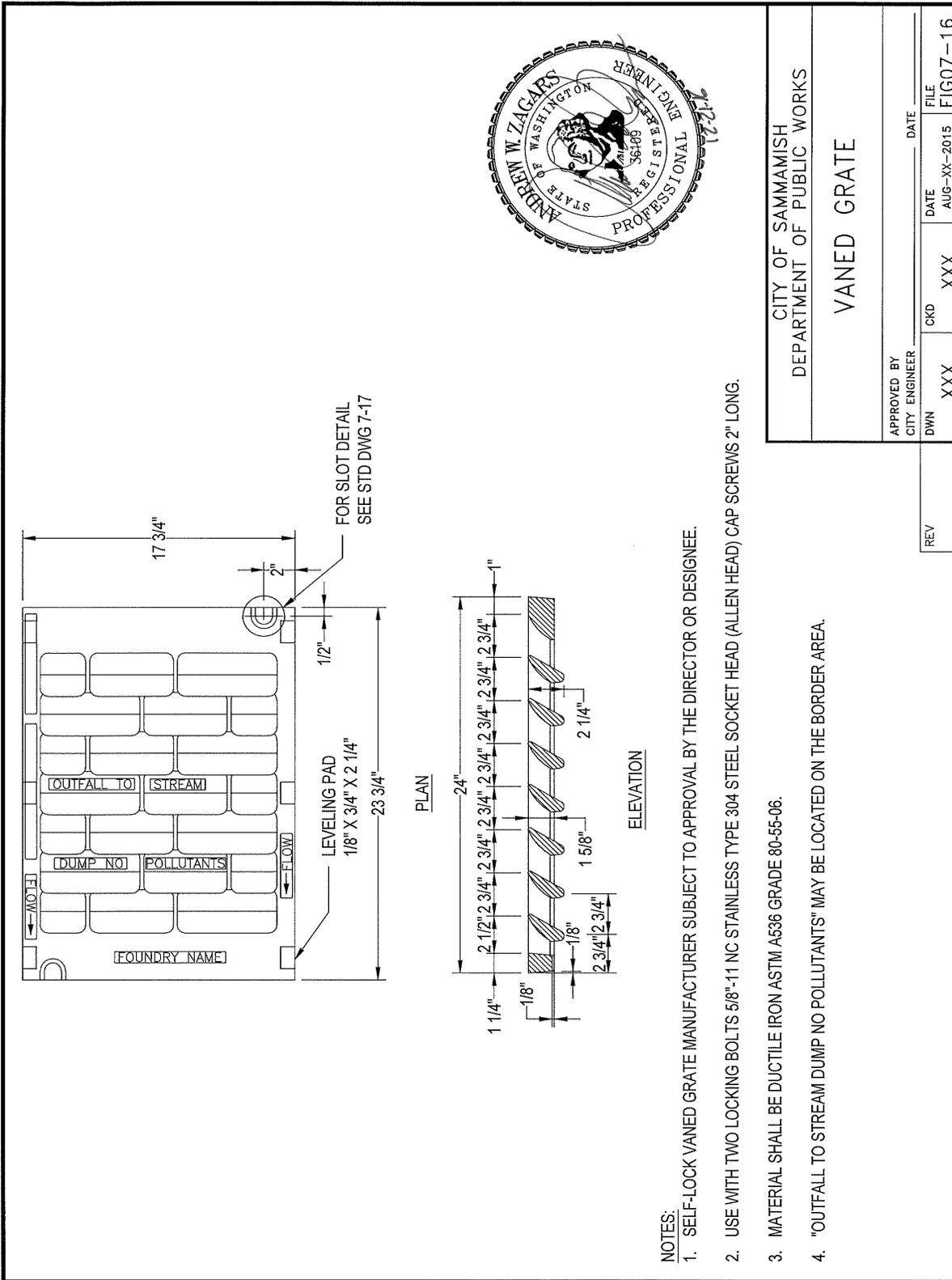
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
LOCKING MANHOLE COVER AND INSTALLATION		DWN	AUG-XX-2015	FIG07-13
REV	CKD	XXX	DATE	REV. NO. X
	XXX	XXX		



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
THROUGH-CURB INLET AND VERTICAL CURB INSTALLATION			
APPROVED BY CITY ENGINEER	DATE	FILE	REV. NO. X
DWN XXX	AUG-XX-2015	FIG07-14	
CKD XXX			

- NOTE:**
1. SET TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.
  2. SEE STD DWG 7-16 FOR TYPE OF GRATE USE.
  3. SEE STD DWG 7-15 FOR FRAME DETAIL.
  4. SEE STD DWG 7-06 FOR CATCH BASIN INSTALLATION.

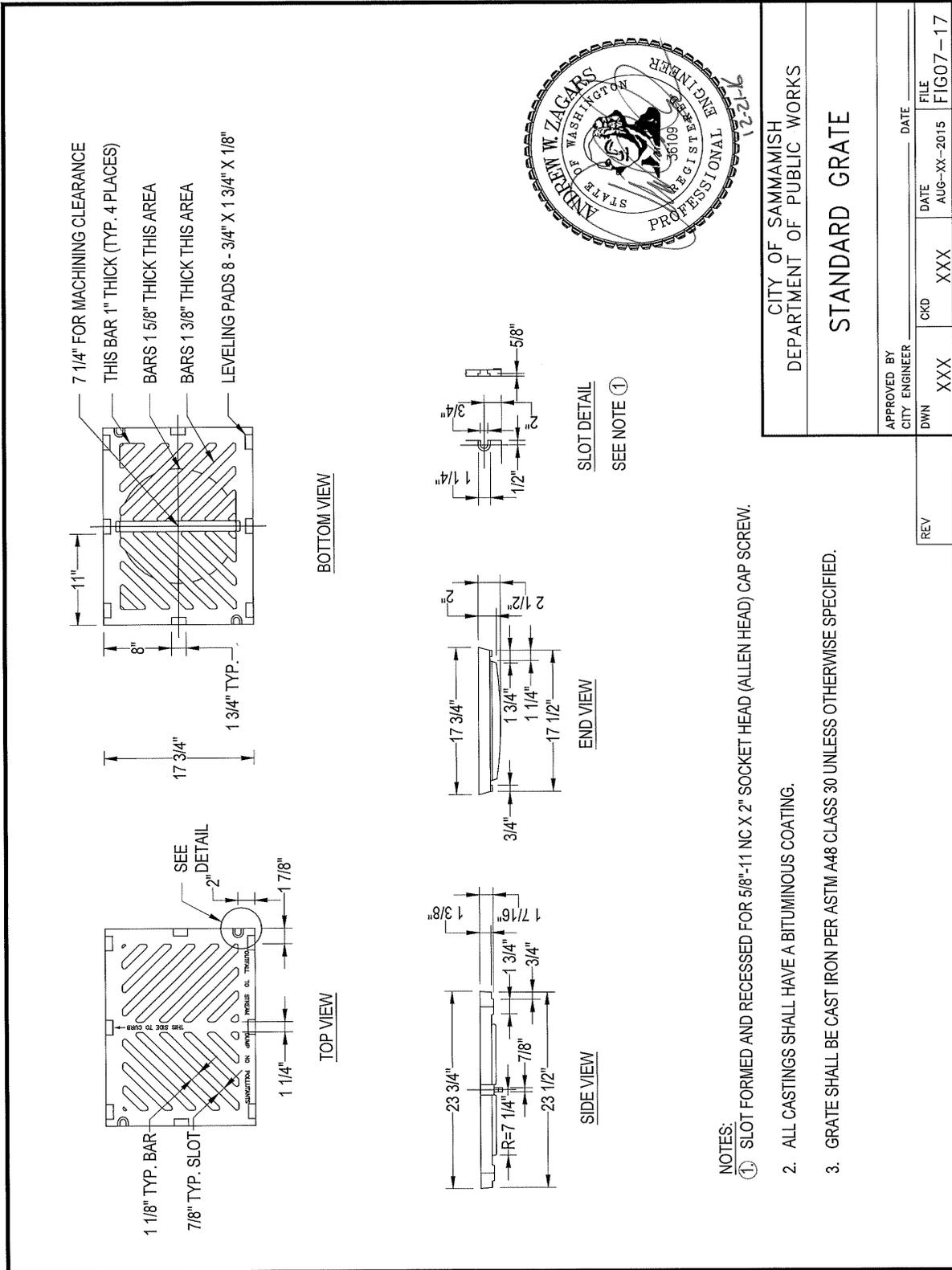




**NOTES:**

1. SELF-LOCK VANED GRATE MANUFACTURER SUBJECT TO APPROVAL BY THE DIRECTOR OR DESIGNEE.
2. USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG.
3. MATERIAL SHALL BE DUCTILE IRON ASTM A536 GRADE 80-55-06.
4. "OUTFALL TO STREAM DUMP NO POLLUTANTS" MAY BE LOCATED ON THE BORDER AREA.

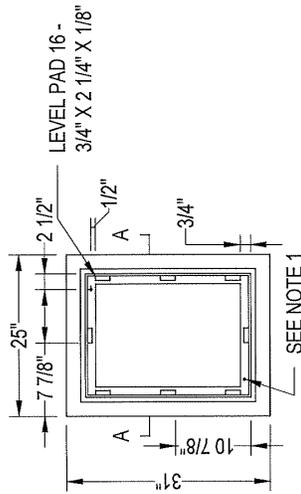
CITY OF SAMMAMISH		DATE	
DEPARTMENT OF PUBLIC WORKS		AUG--XX--2015	
VANED GRATE		CKD	XXX
APPROVED BY	DWN	XXX	FILE
CITY ENGINEER			FIG07-16
REV			REV. NO. X



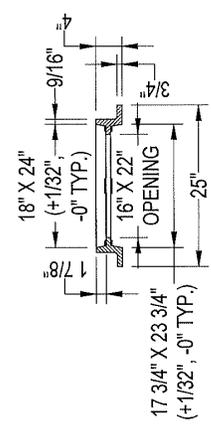
NOTES:  
① SLOT FORMED AND RECESSED FOR 5/8"-11 NC X 2" SOCKET HEAD (ALLEN HEAD) CAP SCREW.

2. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.

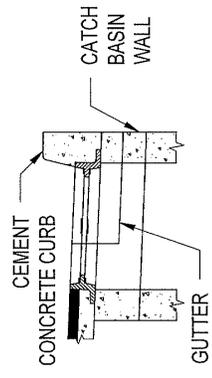
3. GRATE SHALL BE CAST IRON PER ASTM A48 CLASS 30 UNLESS OTHERWISE SPECIFIED.



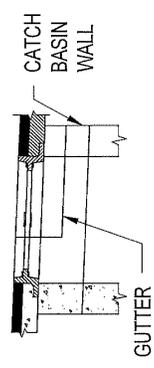
PLAN



SECTION A-A



CURB



NO CURB



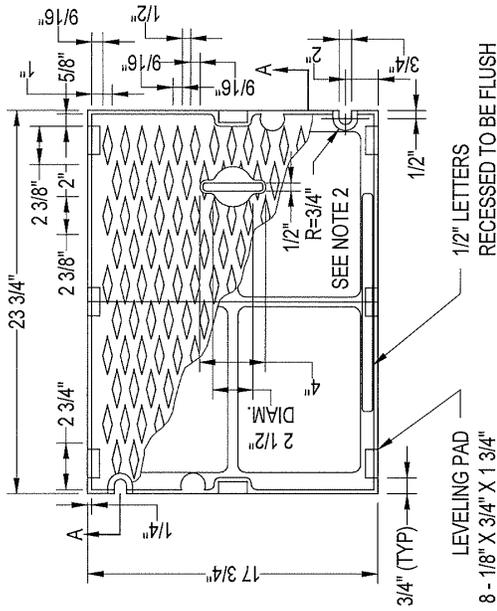
NOTES:  
 1. TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG WHEN USED WITH SOLID COVER (STND DWG 7-19) OR WHEN SPECIFIED BY ENGINEER.

2. FRAME MATERIAL SHALL BE CAST IRON PER ASTM A48 CLASS 30.

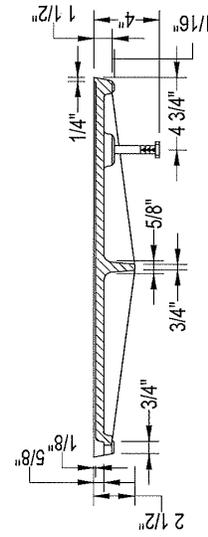
3. SET FRAME TO GRADE & CONSTRUCT ROAD & GUTTER TO BE FLUSH WITH FRAME.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
REV	DWN	XXX	AUG--XX--2015	FIG07-18
	CKD	XXX		REV. NO. X

STANDARD FRAME INSTALLATION



PLAN COVER



SECTION A-A

- NOTES:
1. USE WITH FRAME (SEE STD DWG 7-18) DRILLED & TAPPED FOR LOCKING BOLTS.
  2. FOR FRAME AND GRATES WITHIN THE TRAVEL LANE USE, FOUR LOCKING BOLTS.
  3. USE WITH TWO LOCKING 5/8"-11 NC STAINLESS STEEL TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG.
  4. MATERIAL SHALL BE CAST IRON PER ASTM A48 CLASS 30.

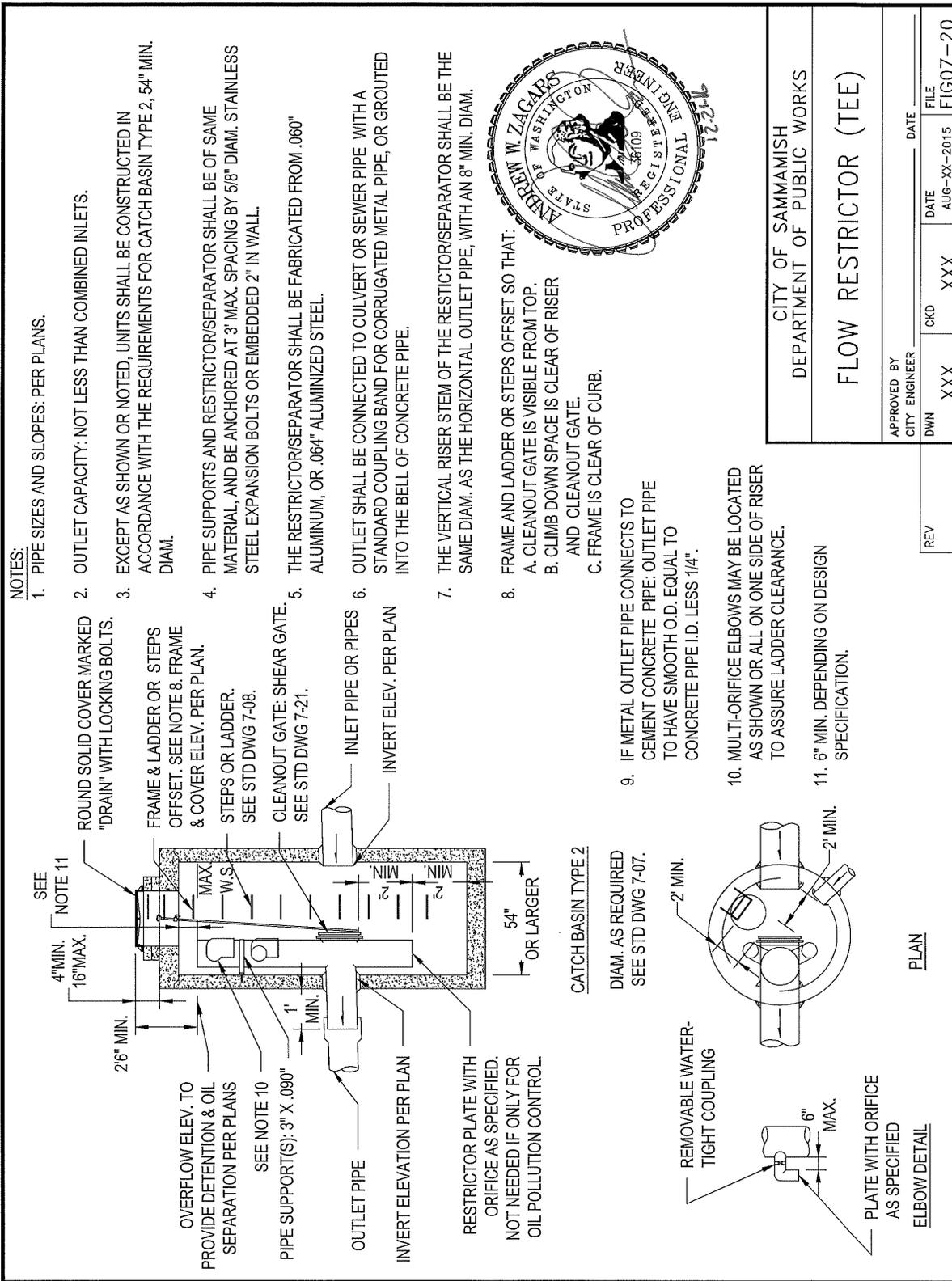


CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

SOLID COVER

REV	APPROVED BY CITY ENGINEER	DATE	FILE
	DWN XXX	AUG--XX--2015	FIG07-19
	CKD XXX		

REV. NO. X



**NOTES:**

1. PIPE SIZES AND SLOPES: PER PLANS.
2. OUTLET CAPACITY: NOT LESS THAN COMBINED INLETS.
3. EXCEPT AS SHOWN OR NOTED, UNITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS FOR CATCH BASIN TYPE 2, 54" MIN. DIAM.
4. PIPE SUPPORTS AND RESTRICTOR/SEPARATOR SHALL BE OF SAME MATERIAL, AND BE ANCHORED AT 3' MAX. SPACING BY 5/8" DIAM. STAINLESS STEEL EXPANSION BOLTS OR EMBEDDED 2" IN WALL.
5. THE RESTRICTOR/SEPARATOR SHALL BE FABRICATED FROM .060" ALUMINUM, OR .064" ALUMINIZED STEEL.
6. OUTLET SHALL BE CONNECTED TO CULVERT OR SEWER PIPE WITH A STANDARD COUPLING BAND FOR CORRUGATED METAL PIPE, OR GROUTED INTO THE BELL OF CONCRETE PIPE.
7. THE VERTICAL RISER STEM OF THE RESTRICTOR/SEPARATOR SHALL BE THE SAME DIAM. AS THE HORIZONTAL OUTLET PIPE, WITH AN 8" MIN. DIAM.
8. FRAME AND LADDER OR STEPS OFFSET SO THAT:
  - A. CLEANOUT GATE IS VISIBLE FROM TOP.
  - B. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
  - C. FRAME IS CLEAR OF CURB.



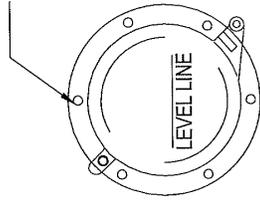
9. IF METAL OUTLET PIPE CONNECTS TO CEMENT CONCRETE PIPE: OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4".
10. MULTI-ORIFICE ELBOWS MAY BE LOCATED AS SHOWN OR ALL ON ONE SIDE OF RISER TO ASSURE LADDER CLEARANCE.
11. 6" MIN. DEPENDING ON DESIGN SPECIFICATION.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
FLOW RESTRICTOR (TEE)	
APPROVED BY CITY ENGINEER DWN XXX	DATE AUG--XX--2015
CKD XXX	FILE FIG07-20

PLAN

ELBOW DETAIL

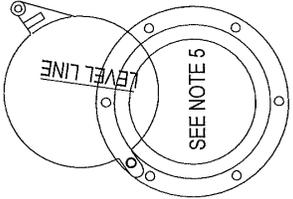
REV. NO. X



SIX EVENLY SPACED HOLES ON 10 3/8" BOLT CIRCLE FOR BOLTING TO FLANGE CONNECTION.

LEVEL LINE

FRONT

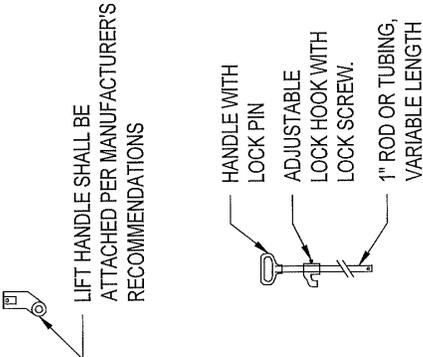


LEVEL LINE

SEE NOTE 5

MAXIMUM OPENING OF GATE

SIDE



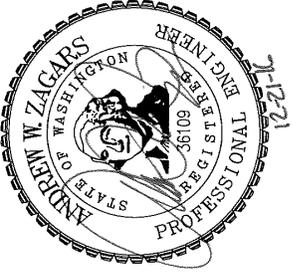
LIFT HANDLE SHALL BE ATTACHED PER MANUFACTURER'S RECOMMENDATIONS

HANDLE WITH LOCK PIN

ADJUSTABLE LOCK HOOK WITH LOCK SCREW.

1" ROD OR TUBING, VARIABLE LENGTH

LIFT HANDLE



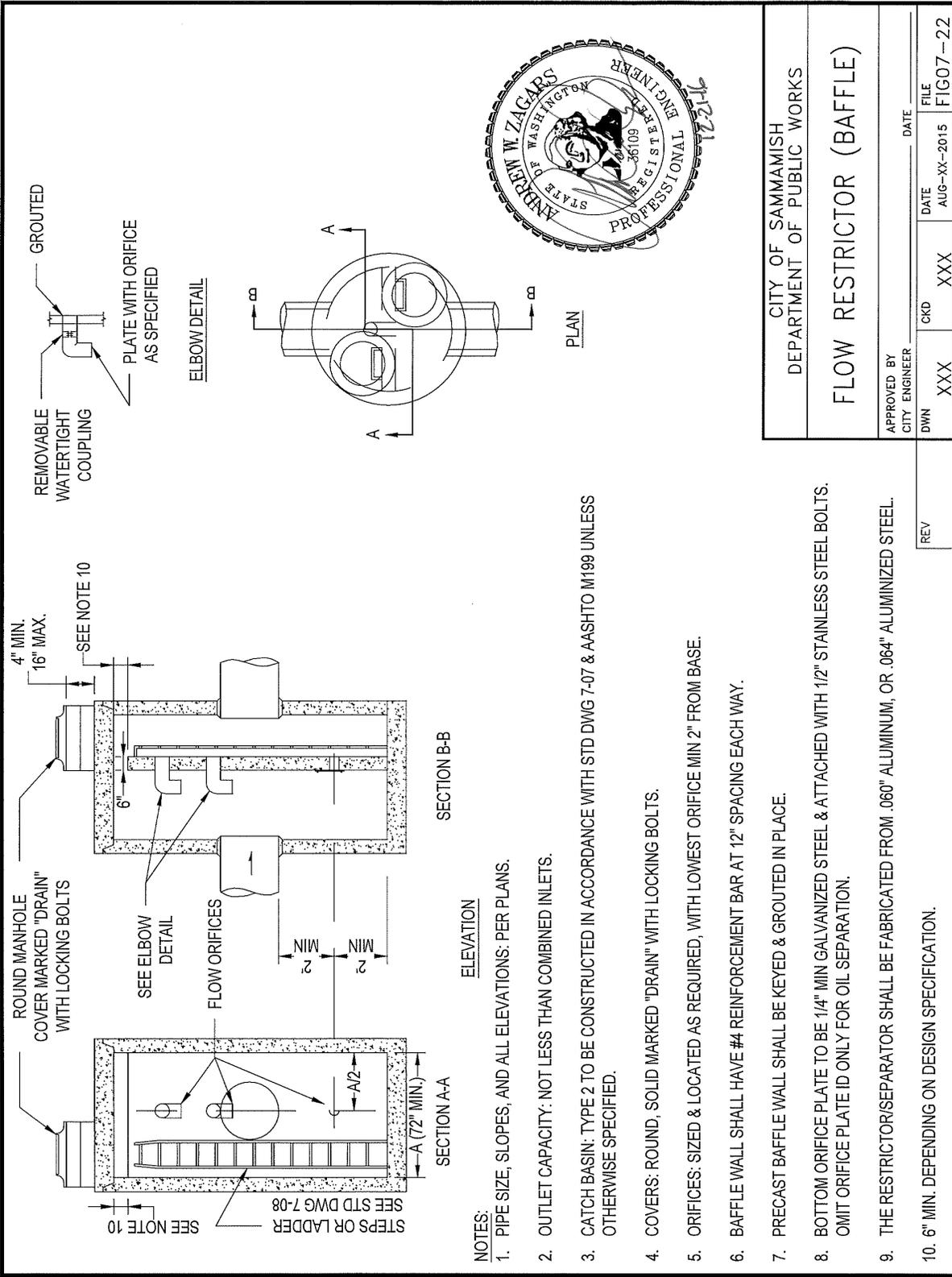
**NOTES:**

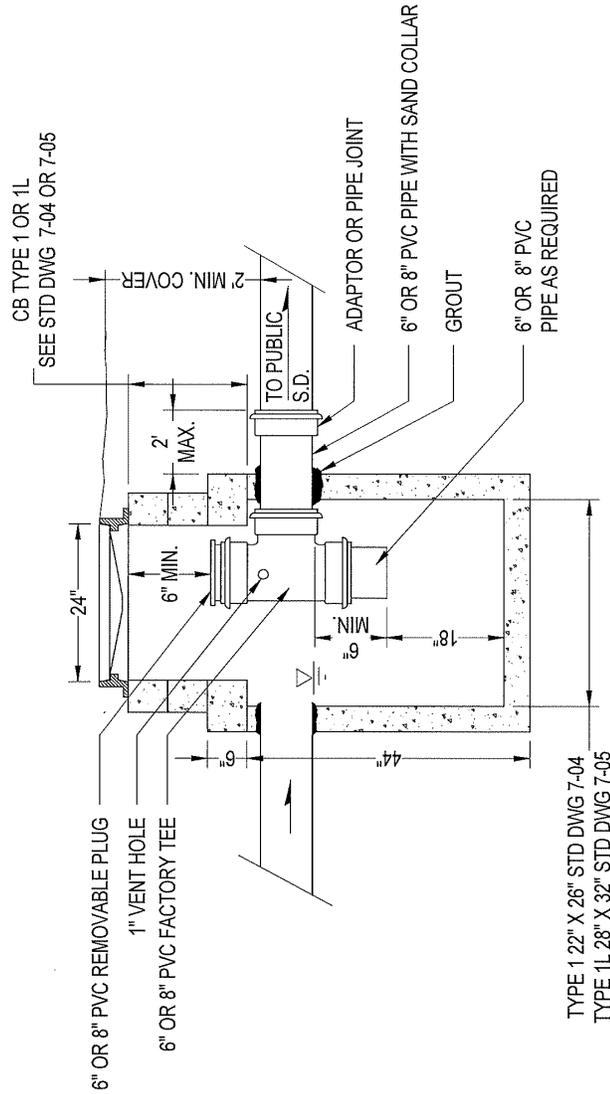
- SHEAR GATE SHALL BE ALUMINUM ALLOY PER ASTM B-26-ZG-32a OR CAST IRON ASTM A48 CLASS 308 AS REQUIRED.
- GATE SHALL BE 8" DIAMETER UNLESS OTHERWISE SPECIFIED.
- GATE SHALL BE JOINED TO TEE SECTION BY BOLTING (THROUGH FLANGE) OR WELDED.
- LIFT ROD: AS SPECIFIED BY MANUFACTURER WITH HANDLE EXTENDING TO WITHIN 1 FOOT OF COVER & ADJUSTABLE HOOK LOCK FASTENED TO FRAME OR UPPER HANDHOLD.
- GATE SHALL NOT OPEN BEYOND THE CLEAR OPENING BY LIMITED HINGE MOVEMENT, STOP TAB, OR SOME OTHER DEVICE.
- NEOPRENE RUBBER GASKET REQUIRED BETWEEN RISER MOUNTING FLANGE AND GATE FLANGE.
- MATING SURFACES OF LID AND BODY TO BE MACHINED FOR PROPER FIT.
- FLANGE MOUNTING BOLTS SHALL BE 3/8" DIAMETER STAINLESS STEEL.
- ALTERNATIVE CLEANOUT/SHEAR GATES TO THE DESIGN SHOWN ARE ACCEPTABLE, PROVIDED THEY MEET THE MATERIAL SPECIFICATIONS ABOVE AND HAVE A SIX BOLT, 10 3/8" BOLT CIRCLE FOR BOLTING TO THE FLANGE CONNECTION.

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DEPARTMENT OF PUBLIC WORKS

**FROP-T SHEAR GATE DETAIL**

APPROVED BY CITY ENGINEER	DATE	FILE	DATE
DWN XXX	AUG-XX-2015	XXX	AUG-XX-2015
CKD XXX	XXX	XXX	XXX
REV		FIG07-21	REV. NO. X



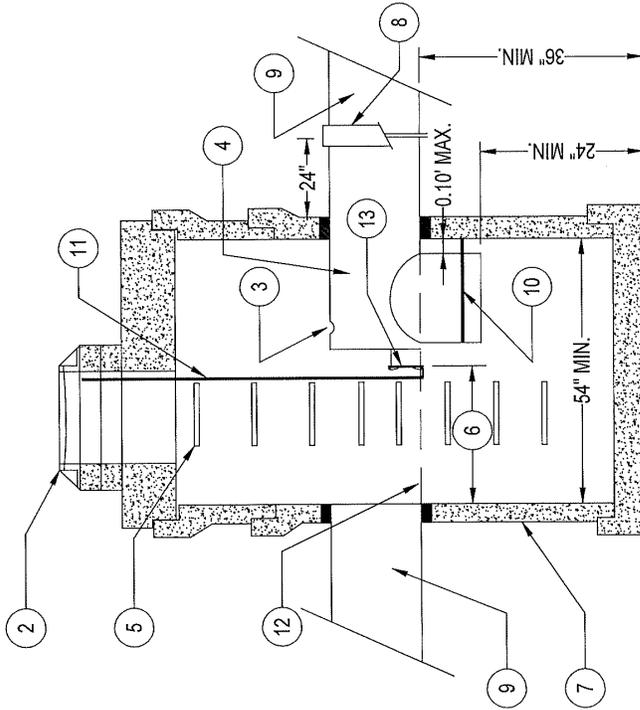


- NOTE:
1. MAX. RIM EL. INV. EL. DIFFERENCE GREATER THAN 5' SEE STD DWG 7-15.
  2. GROUT ALL JOINTS INSIDE AND OUTSIDE.

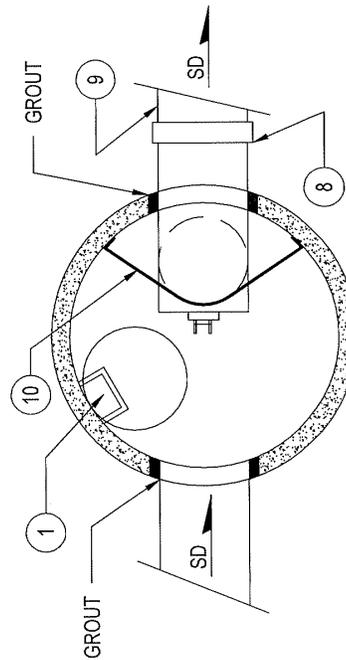
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE AUG--XX--2015	FILE FIG07-23
SEPARATOR - 6" OR 8" PIPE	CKD XXX	DWN XXX	DATE AUG--XX--2015	FILE FIG07-23
REV. NO. X				

NOTES:

1. INSTALL MANHOLE ACCESS SO THAT LIFT GATE IS VISIBLE THROUGH OPENING AND STEPS CLEAR INLET AND RESTRICTOR UNIT.
2. INSTALL SOLID LID WITH LOCKING COVER, FOR MANHOLES OR WHEN IT IS TO BE A CATCH BASIN THEN USE STD DWG 7-06.
3. 1" VENT HOLE.
4. SEPARATOR ASSEMBLY.
5. POLYPROPYLENE LADDER OR STEPS. SEE STD DWG 7-08.
6. MIN CLEARANCE: 36" FOR OUTLETS OF 24" AND LARGER 18" FOR OUTLETS OF 18" AND SMALLER.
7. 54" TYPE 2 CB OR LARGER.
8. BAND STRAP WITH GASKET.
9. SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPE ENTERING AND EXITING CB.
10. SECURE SEPARATOR TO CB WITH 8 STAINLESS STEEL STRAP. BOLT TO CB WALL WITH STAINLESS STEEL ANCHOR BOLTS AND TACK WELD TO SEPARATOR UNIT.
11. SHEAR GATE LIFT HANDLE SEE STD DWG 7-21.
12. INV. EL.: SEE PLANS AND SPECIFICATIONS.
13. SHEAR LATE CLEAN OUT, 8" MIN. DIA., 12" DIA. FOR 24" DIA. AND LARGER OUTLET PIPE.
14. GROUT ALL JOINTS INSIDE AND OUTSIDE.



ELEVATION

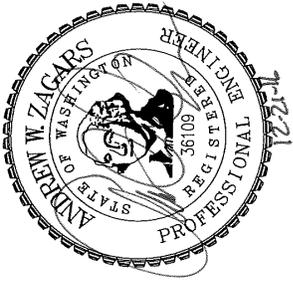


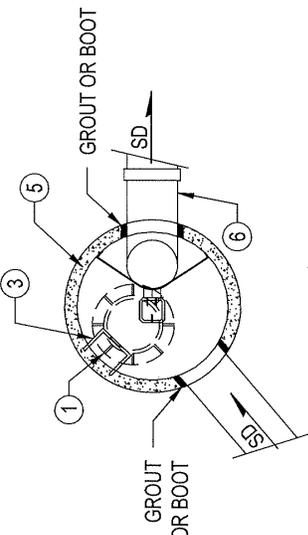
PLAN

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
FLOATABLE MATERIAL SEPARATOR - 12" & LARGER		DWN	AUG-XX-2015	FIG07-24
REV	CKD	XXX	XXX	REV. NO. X

**NOTES:**

1. INSTALL 1'-24" DIA. MH. ACCESS PER STD DWG 7-12, SO THAT THE LIFT GATE IS VISIBLE AND THE STEPS ARE CLEAR AND DIRECTLY ACCESSIBLE.
2. FLOW RESTRICTOR UNIT - SEE STD DWG 7-20.
3. POLYPROPYLENE PLASTIC STEP OR LADDER, SEE STND DWG 7-08. OFFSET STEPS OR LADDER FROM FRAME SO THAT:
  - A. CLEANOUT GATE IS VISIBLE FROM TOP.
  - B. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
  - C. FRAME IS CLEAR OF CURB.
4. MIN CLEARANCE: 36" FOR OUTLETS OF 24" AND LARGER 18" FOR OUTLETS OF 18" AND SMALLER.
5. 54" OR 60" TYPE 2 CB.
6. SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPES ENTERING AND EXITING CB.





	CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	CONTROL STRUCTURE - 54" DIAMETER	APPROVED BY CITY ENGINEER DWN XXX	DATE AUG-XX-2015	FILE FIG07-25
REV	CKD	XXX	DATE	DATE	REV. NO. X

ELEVATION

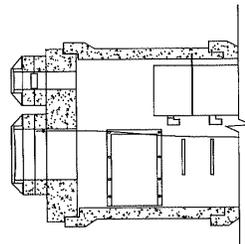
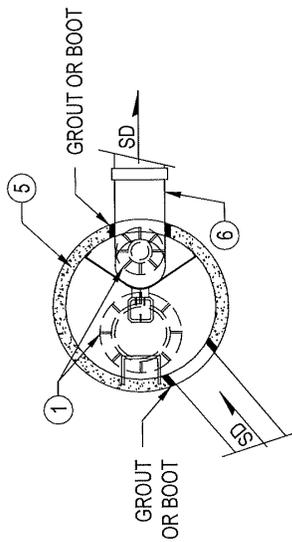
- NOTES:
1. INSTALL 1-18" AND 1-24" DIA. MH. ACCESS PER STD DWG 7-12, SO THAT THE LIFT GATE IS VISIBLE AND THE STEPS ARE CLEAR AND DIRECTLY ACCESSIBLE.

2. FLOW RESTRICTOR UNIT - SEE STD DWG 7-20.

3. POLYPROPYLENE PLASTIC STEP OR LADDER, SEE STND DWG 7-08. OFFSET STEPS OR LADDER FROM FRAME SO THAT:
  - A. CLEANOUT GATE IS VISIBLE FROM TOP.
  - B. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
  - C. FRAME IS CLEAR OF CURB.

4. 70" TYPE 2 CB OR LARGER.

5. SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPES ENTERING AND EXITING CB.

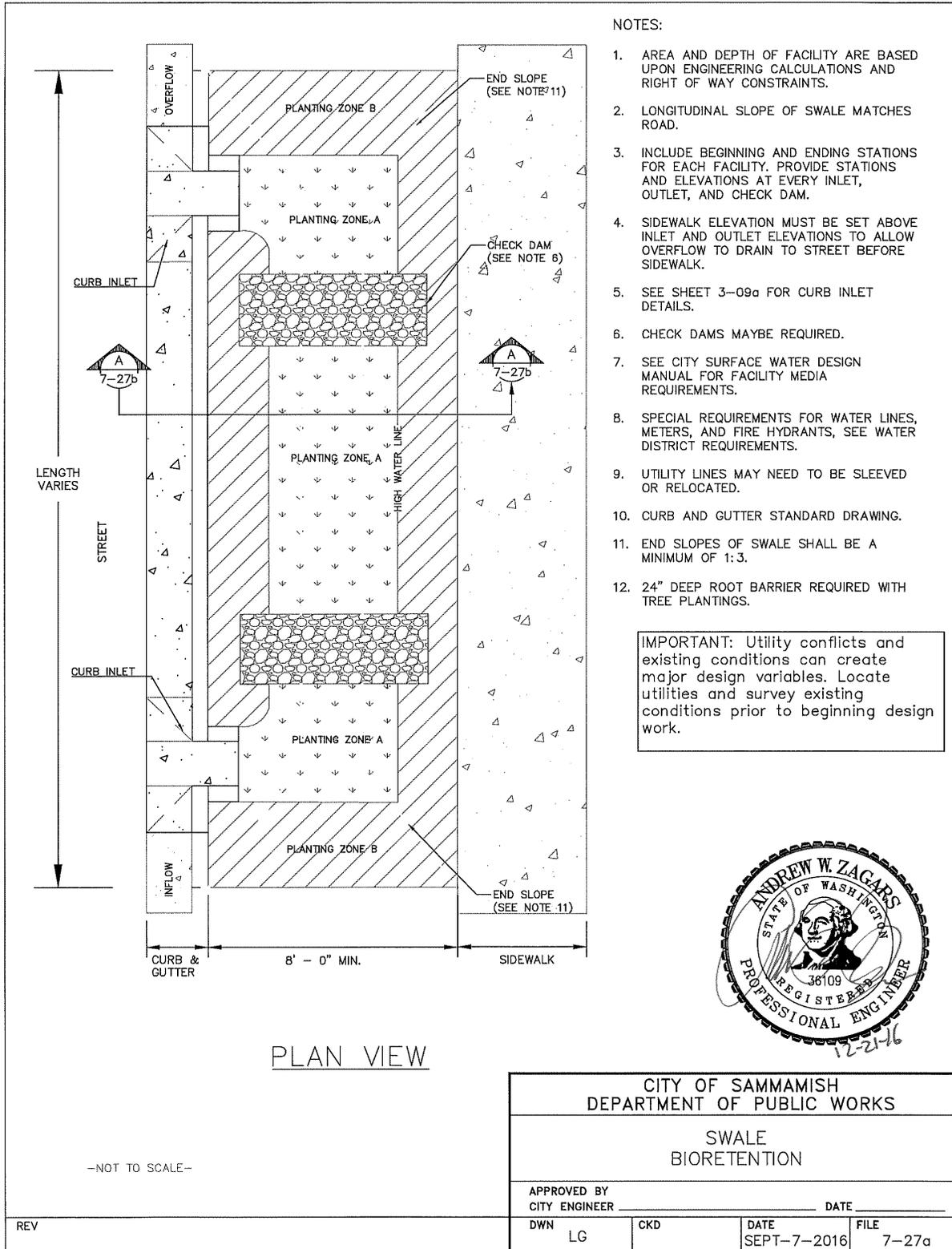


ROUND SOLID COVER MARKED "DRAIN"  
WITH LOCKING BOLTS SEE STD DWG 7-13.  
FRAME & LADDER OR STEPS OFFSET.  
SEE NOTE 3. FRAME & COVER ELEV. PER PLAN.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		APPROVED BY CITY ENGINEER	DATE	FILE
CONTROL STRUCTURE - 72" DIAMETER OR LARGER		DWN XXX	AUG-XX-2015	FIG07-26
REV	CKD XXX	DATE	FILE	REV. NO. X

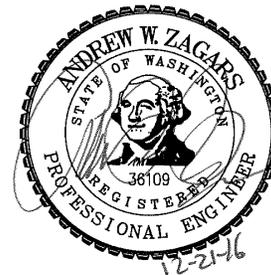
ELEVATION



NOTES:

1. AREA AND DEPTH OF FACILITY ARE BASED UPON ENGINEERING CALCULATIONS AND RIGHT OF WAY CONSTRAINTS.
2. LONGITUDINAL SLOPE OF SWALE MATCHES ROAD.
3. INCLUDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY. PROVIDE STATIONS AND ELEVATIONS AT EVERY INLET, OUTLET, AND CHECK DAM.
4. SIDEWALK ELEVATION MUST BE SET ABOVE INLET AND OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
5. SEE SHEET 3-09a FOR CURB INLET DETAILS.
6. CHECK DAMS MAYBE REQUIRED.
7. SEE CITY SURFACE WATER DESIGN MANUAL FOR FACILITY MEDIA REQUIREMENTS.
8. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS, SEE WATER DISTRICT REQUIREMENTS.
9. UTILITY LINES MAY NEED TO BE SLEEVED OR RELOCATED.
10. CURB AND GUTTER STANDARD DRAWING.
11. END SLOPES OF SWALE SHALL BE A MINIMUM OF 1:3.
12. 24" DEEP ROOT BARRIER REQUIRED WITH TREE PLANTINGS.

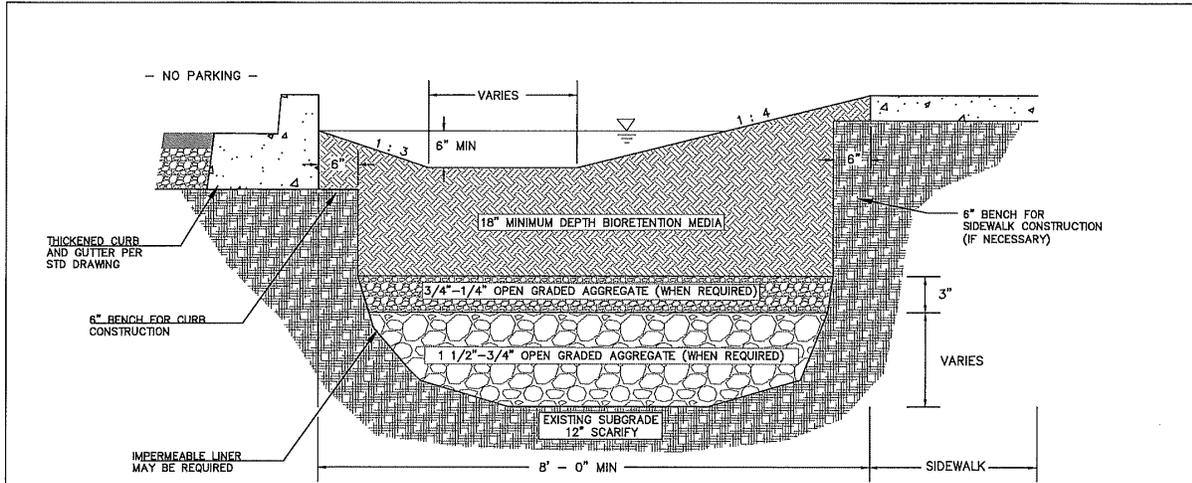
IMPORTANT: Utility conflicts and existing conditions can create major design variables. Locate utilities and survey existing conditions prior to beginning design work.



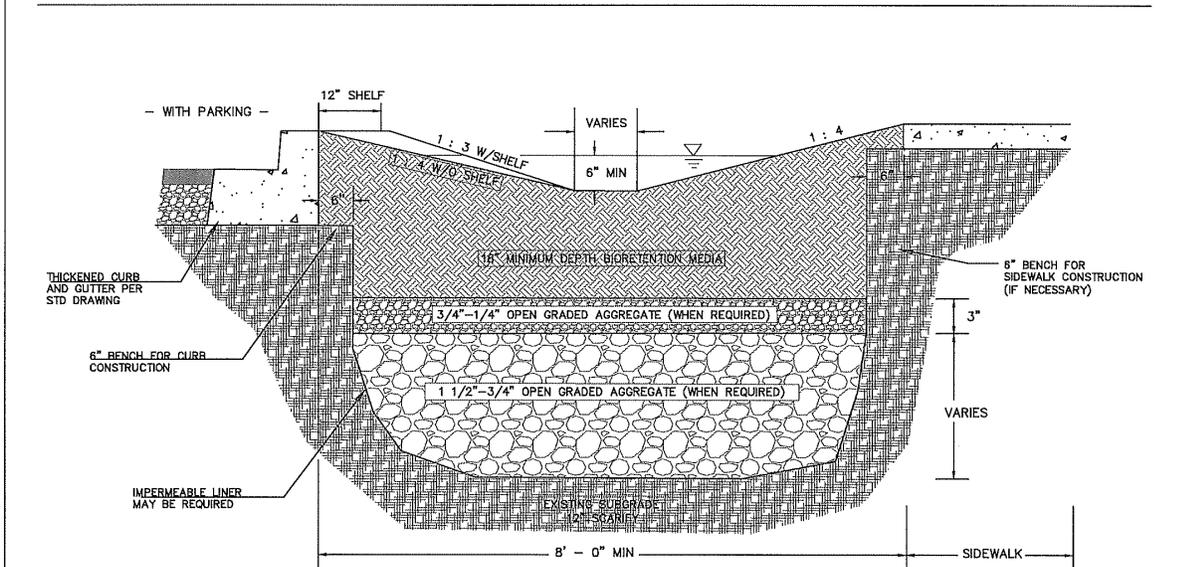
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
SWALE BIORETENTION			
APPROVED BY CITY ENGINEER		DATE	
DWN LG	CKD	SEPT-7-2016	FILE 7-27a

REV

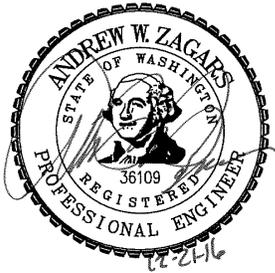
REV. NO. X



SECTION A-A  
BIORETENTION WITHOUT PARKING



SECTION A-A  
BIORETENTION WITH PARKING



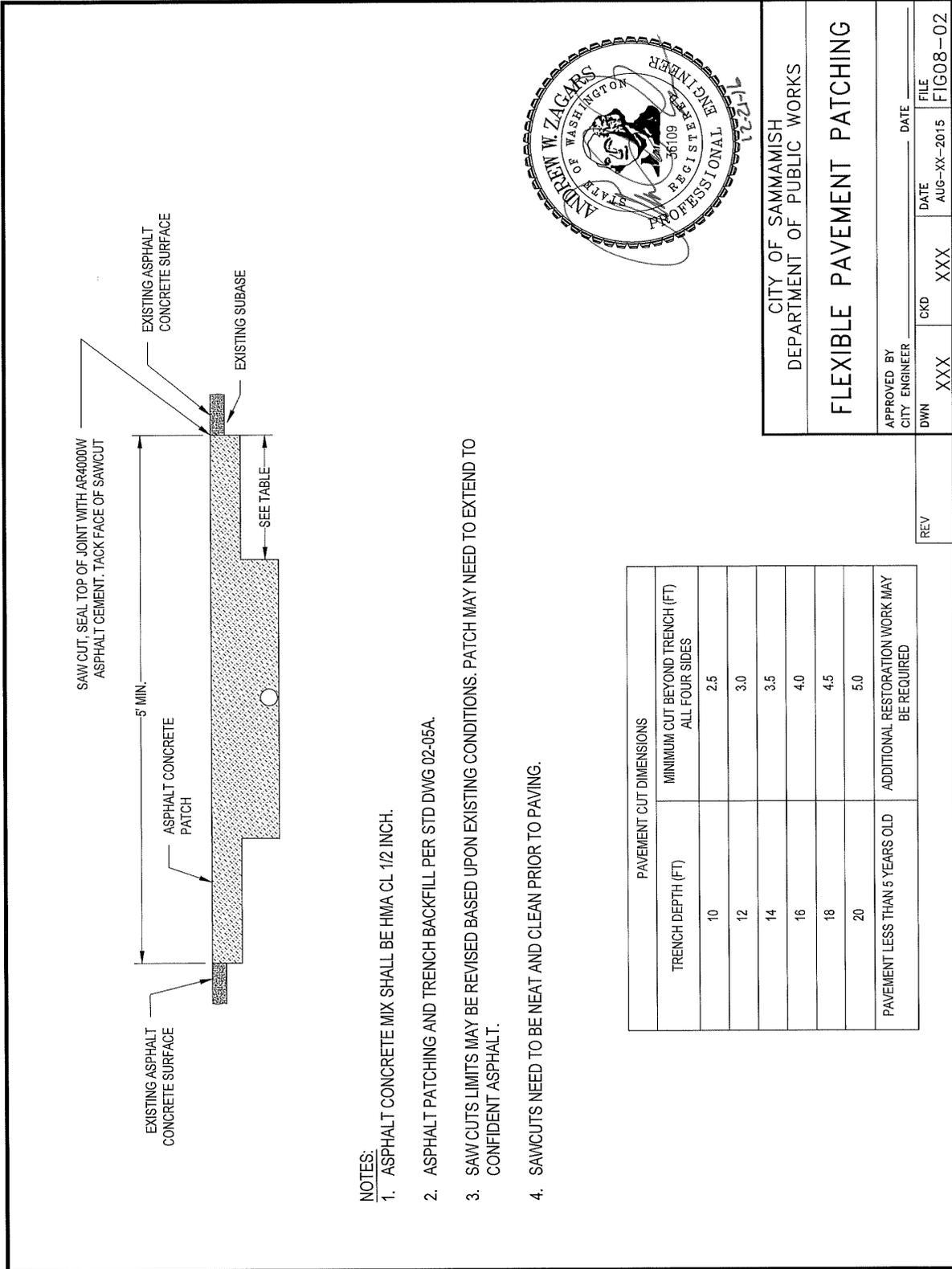
--NOT TO SCALE--

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
SWALE SECTION BIORETENTION			
APPROVED BY CITY ENGINEER		DATE	
DWN LG	CKD	DATE SEPT-7-2016	FILE 7-27b

REV

REV. NO. X





**NOTES:**

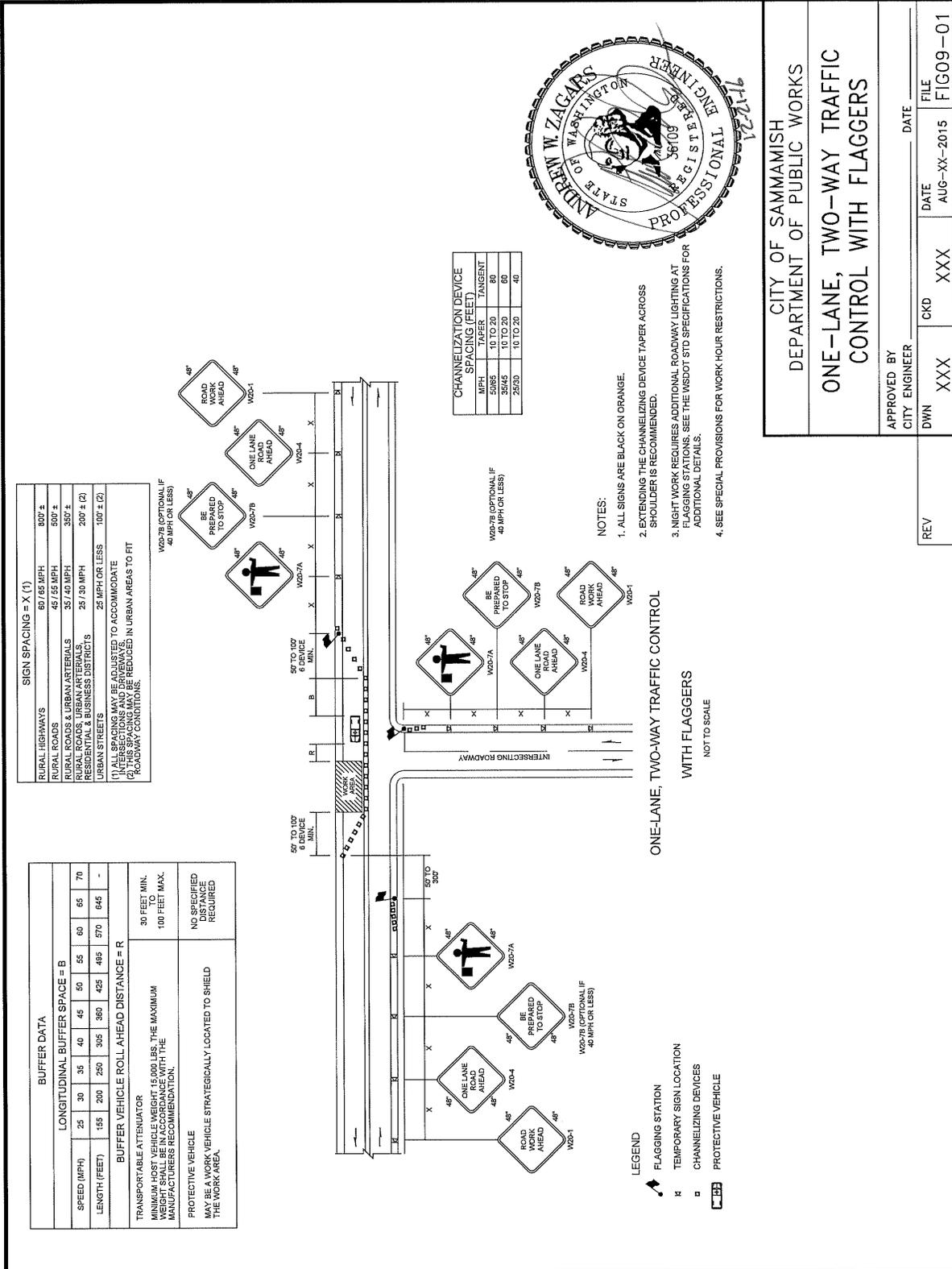
1. ASPHALT CONCRETE MIX SHALL BE HMA CL 1/2 INCH.
2. ASPHALT PATCHING AND TRENCH BACKFILL PER STD DWG 02-05A.
3. SAWCUTS LIMITS MAY BE REVISED BASED UPON EXISTING CONDITIONS. PATCH MAY NEED TO EXTEND TO CONFIDENT ASPHALT.
4. SAWCUTS NEED TO BE NEAT AND CLEAN PRIOR TO PAVING.

PAVEMENT CUT DIMENSIONS	
TRENCH DEPTH (FT)	MINIMUM CUT BEYOND TRENCH (FT) ALL FOUR SIDES
10	2.5
12	3.0
14	3.5
16	4.0
18	4.5
20	5.0
PAVEMENT LESS THAN 5 YEARS OLD ADDITIONAL RESTORATION WORK MAY BE REQUIRED	

CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

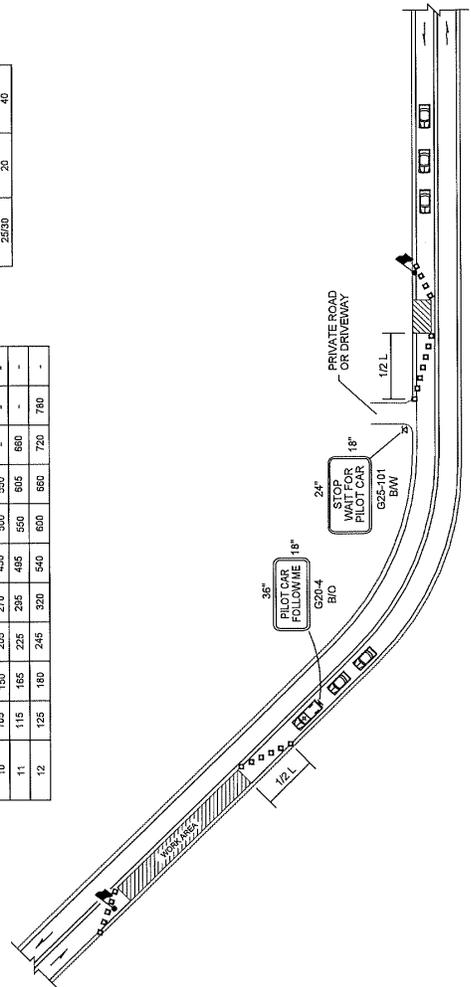
**FLEXIBLE PAVEMENT PATCHING**

APPROVED BY	DATE	FILE
CITY ENGINEER	AUG-XX-2015	FIG08-02
DWN XXX	CKD XXX	REV. NO. X



CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50MS	40	80
35MS	30	60
25SD	20	40

LANE WIDTH (feet)	MINIMUM TAPER LENGTH = L (feet)										
	25	30	35	40	45	50	55	60	65	70	75
10	105	150	205	270	450	500	550	-	-	-	-
11	115	165	225	295	465	550	605	600	-	-	-
12	125	180	245	320	540	600	660	720	760	-	-



- LEGEND**
- ▲ FLAGGING STATION
  - TEMPORARY SIGN LOCATION
  - CHANNELIZING DEVICES
  - ▬ PILOT VEHICLE
  - ▬ MOTORIST VEHICLE

- NOTES:**
- SEE STD DWG 9-01 FOR ADDITIONAL SIGNING AND FLAGGING DETAILS NOT SHOWN.
  - CHANNELIZING DEVICES ARE RECOMMENDED ALONG CENTERLINE TO SEPARATE TRAFFIC FROM WORK OPERATIONS. DEVICES ARE REQUIRED AT TAPERS TO SHIFT TRAFFIC MOVEMENT BETWEEN LANES AND TO PROTECT FLAGGING STATIONS.
  - SIGN G25-01 IS RECOMMENDED FOR NON-STOP SIGN CONTROLLED APPROACHES SUCH AS PRIVATE ROADS AND DRIVEWAYS. THIS SIGN IS NOT REQUIRED TO BE ALUMINUM SUBSTRATE AND CAN BE MADE OF ALTERNATIVE MATERIALS.



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**PILOT CAR OPERATION**

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER \_\_\_\_\_

REV \_\_\_\_\_ CKD XXX XXX FILE FIG09-02  
DWN XXX XXX DATE AUG--XX--2015

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
	25	30	35	40	45	50	55	60	65	70
LENGTH (ft)	158	200	250	305	390	425	465	570	645	730
BUFFER VEHICLE ROLL-AHEAD DISTANCE = R										
36 FEET MIN. TO 100 FEET MAX.										

SIGN SPACING = X (1)	
FREWAYS & EXPRESSWAYS	55/70 MPH 150' ±
RURAL HIGHWAYS	60/65 MPH 500' ±
RURAL ROADS	45/55 MPH 350' ±
RURAL ROADS & URBAN ARTERIALS	55/70 MPH 200' ± (2)
RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH 100' ± (2)
URBAN STREETS	25 MPH OR LESS 100' ± (2)

(1) INTERCHANGES MAY BE ADJUSTED TO ACCOMMODATE INTERSECTION RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.  
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)	
LANE WIDTH (feet)	Posted Speed (mph)
25	30 35 40 45 50 55 60 65 70
10	105 150 205 270 450 500 550 - -
11	115 165 225 295 495 550 605 660 - -
12	125 180 245 320 540 600 660 720 780 840

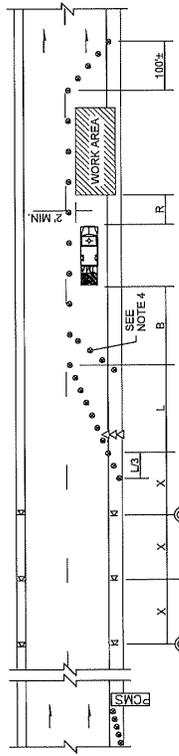
MINIMUM SHOULDER TAPER LENGTH = L/3 (feet)	
SHOULDER WIDTH (feet)	Posted Speed (mph)
8'	25 30 35 40 45 50 55 60 65 70
8'	40 60 80 90 120 130 150 160 170 180
10'	40 60 80 90 120 130 150 160 170 180 200 220 240

USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 6'.

CHANGE LATERATION DEVICE SPACING (ft)		
MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60
25/30	20	40

POMS	
1	2
RIGHT MILE CLOSURE AHEAD	2.0 SEC 2.0 SEC

FIELD LOCATE 1 MILE ± IN ADVANCE OF LANE CLOSURE SIGNING.



- NOTES:
- SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.
  - EXTEND DEVICE TAPER AT L/A ACROSS SHOULDER.
  - DEVICES SHALL NOT ENCRORACH INTO THE ADJACENT LANE.
  - USE TRANSVERSE DEVICES IN CLOSED LANE EVERY 1000' (FT) (RECOMMENDED).
  - DEVICE SPACING FOR THE DOWNSTREAM TAPER SHALL BE 20' (FT).
  - ALL SIGNS ARE BLACK ON ORANGE.

- LEGEND
- TEMPORARY SIGN LOCATION
  - TRAFFIC SAFETY DRUM
  - SEQUENTIAL ARROW SIGN
  - PORTABLE ATTENUATOR
  - PORTABLE CHANGEABLE MESSAGE SIGN

CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**SINGLE-LANE CLOSURE FOR MULTI-LANE ROADWAYS**

APPROVED BY  
CITY ENGINEER

DWN XXX CKD XXX DATE AUG-XX-2015 FILE FIG09-03

REV. NO. X

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)									
LANE WIDTH (feet)	Posted Speed (mph)								
	25	30	35	40	45	50	55	60	65
10	105	150	225	270	450	550	650	750	-
11	115	165	225	285	465	550	625	680	-
12	125	180	245	320	540	600	660	720	840

MINIMUM SHOULDER TAPER LENGTH = L/S (feet)									
SHOULDER WIDTH (feet)	Posted Speed (mph)								
	25	30	35	40	45	50	55	60	65
8	40	40	60	60	120	130	150	160	170
10	40	60	90	90	150	170	190	200	240

USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.

SIGN SPACING = X (1)									
FREWAYS & EXPRESSWAYS	55/70 MPH	1500' ±							
RURAL HIGHWAYS	60/65 MPH	800' ±							
RURAL ROADS	45/55 MPH	500' ±							
RURAL ROADS & URBAN ARTERIALS	35/40 MPH	350' ±							
RURAL ROADS & URBAN ARTERIALS	25/30 MPH	200' ± (2)							
RESIDENTIAL & BUSINESS DISTRICTS	25 MPH OR LESS	100' ± (2)							
URBAN STREETS	25 MPH OR LESS	100' ± (2)							

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE TRAFFIC SIGNALS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.  
 (2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

CHANNELIZATION DEVICE SPACING (feet)										
MPH	25	30	35	40	45	50	55	60	65	70
SPACING	50/70	40	30	20	20	20	20	20	20	20

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPD (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	485	570	645	730

TRANSPORTABLE ATTENUATOR  
 MINIMUM HOST VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.  
 39 FEET MIN.  
 100 FEET MAX.

ADVANCE OF LANE CLOSURE SIGNING.

FIELD LOCATE 1 MILE IN ADVANCE OF LANE CLOSURE SIGNING.

NOTES:

- SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.
- EXTEND DEVICE TAPER AT L/S ACROSS SHOULDER.
- DEVICES SHALL NOT ENCRGACH INTO THE ADJACENT LANES.
- USE TRANSVERSE DEVICES IN CLOSED LANE EVERY 1000' (FT) (RECOMMENDED).
- DEVICE SPACING FOR THE DOWNSTREAM TAPER SHALL BE 20' (FT).
- ALL SIGNS ARE BLACK ON ORANGE.

LEGEND

- TRAFFIC SAFETY DRUM
- H TEMPORARY SIGN LOCATION
- ⇨ SEQUENTIAL ARROW SIGN
- PCMS TRANSPORTABLE ATTENUATOR
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- 9 TEMPORARY SIGN LOCATION (6' (FT) MOUNTING HEIGHT)

CITY OF SAMMAMISH  
 DEPARTMENT OF PUBLIC WORKS

## DOUBLE-LANE CLOSURE FOR MULTI-LANE ROADWAYS

APPROVED BY  
 CITY ENGINEER

REV DWN XXX CKD XXX DATE AUG-XX-2015 FILE FIG09-04

DATE \_\_\_\_\_ REV. NO. X

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305						

BUFFER VEHICLE ROLL AHEAD DISTANCE = R

TRANSPORTABLE ATTENUATOR	30 FEET MIN.
MINIMUM FRONT VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT PER AXLE IN COMPLIANCE WITH THE MANUFACTURERS RECOMMENDATION.	100 FEET MAX.

PROTECTIVE VEHICLE  
MAY BE USED AS A VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.

NO SPECIFIED DISTANCE REQUIRED

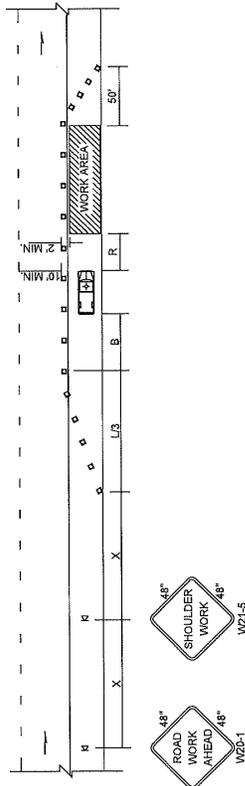
CHANNELIZATION DEVICE SPACING (feet)			
MPH	TAPER	TANGENT	
35-60	30	60	
25-30	20	40	

MINIMUM SHOULDER TAPER LENGTH = L <sub>S</sub> (feet)										
SHOULDER WIDTH (feet)	Posted Speed (mph)									
		25	30	35	40	45	50	55	60	65
8'	40	40	60	60	90	-	-	-	-	-
10'	40	60	60	90	90	-	-	-	-	-

USE A-3 DEVICES TAPER FOR SHOULDERS LESS THAN 8'

SIGN SPACING = X (1)		
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
RURAL ROADS & URBAN ARTERIALS	25 / 30 MPH	200' ± (2)
URBAN STREETS	25 MPH OR LESS	100' ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.  
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



- LEGEND
- ⊠ TEMPORARY SIGN LOCATION
  - CHANNELIZING DEVICES
  - ▭ PROTECTIVE VEHICLE

- NOTES:
1. DEVICE SPACING FOR THE DOWNSTREAM TAPER SHALL BE 20' (FT).
  2. ALL SIGNS ARE BLACK ON ORANGE.



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**SHOULDER CLOSURE – LOW SPEED  
(40 MPH OR LESS)**

APPROVED BY  
CITY ENGINEER

REV \_\_\_\_\_ DATE \_\_\_\_\_

DWN XXX CKD XXX FILE FIG09-05

DATE AUG-XX-2015 REV. NO. X

SIGN SPACING = X (1)		500' ±
RURAL ROADS	48/75 MPH	3500 ±
RURAL ROADS & URBAN ARTERIALS	35/40 MPH	2000 ± (2)
RURAL ROADS & URBAN ARTERIALS	25/30 MPH	1000 ± (2)
RESIDENTIAL & BUSINESS DISTRICTS	25 MPH OR LESS	100 ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND ROADWAY CONDITIONS.  
 (2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

MINIMUM TAPER LENGTH = L (feet)	
LANE WIDTH (feet)	Posted Speed (mph)
10	25 30 35 40 45 50 55 60 65 70
11	105 150 205 270 335 400 465 530 600
12	125 180 245 310 375 440 505 570 640

CHANNELIZATION DEVICE SPACINGS (feet)		
MPH	TAPER	TANGENT
50	40	80
35-45	30	60
25-30	20	40

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	-	-	-	-

BUFFER VEHICLE ROLL AHEAD DISTANCE = R

TRANSPORTABLE ATTENUATOR	30 FEET MIN. TO 100 FEET MAX.
MINIMUM HOST VEHICLE WEIGHT: 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.	NO SPECIFIED DISTANCE REQUIRED

PROTECTIVE VEHICLE MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.

PCMS #1	
1	RIGHT 1 MILE AHEAD
2	CLOSED 2.0 SEC

FIELD LOCATE IN ADVANCE OF TEMPORARY SIGNS.

PCMS #2	
1	CENTER NHD TURNING
2	CLOSED 2.0 SEC

FIELD LOCATE IN ADVANCE OF TEMPORARY SIGNS.

**NOTES:**

- SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.
- RECOMMEND EXTENDING DEVICE TAPER (L3) ACROSS SHOULDER.
- FOR POSTED SPEED LIMITS OF 30 MPH OR LESS, USE SIGN W1-3 IN LIEU OF SIGN W1-4.
- ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

**LEGEND**

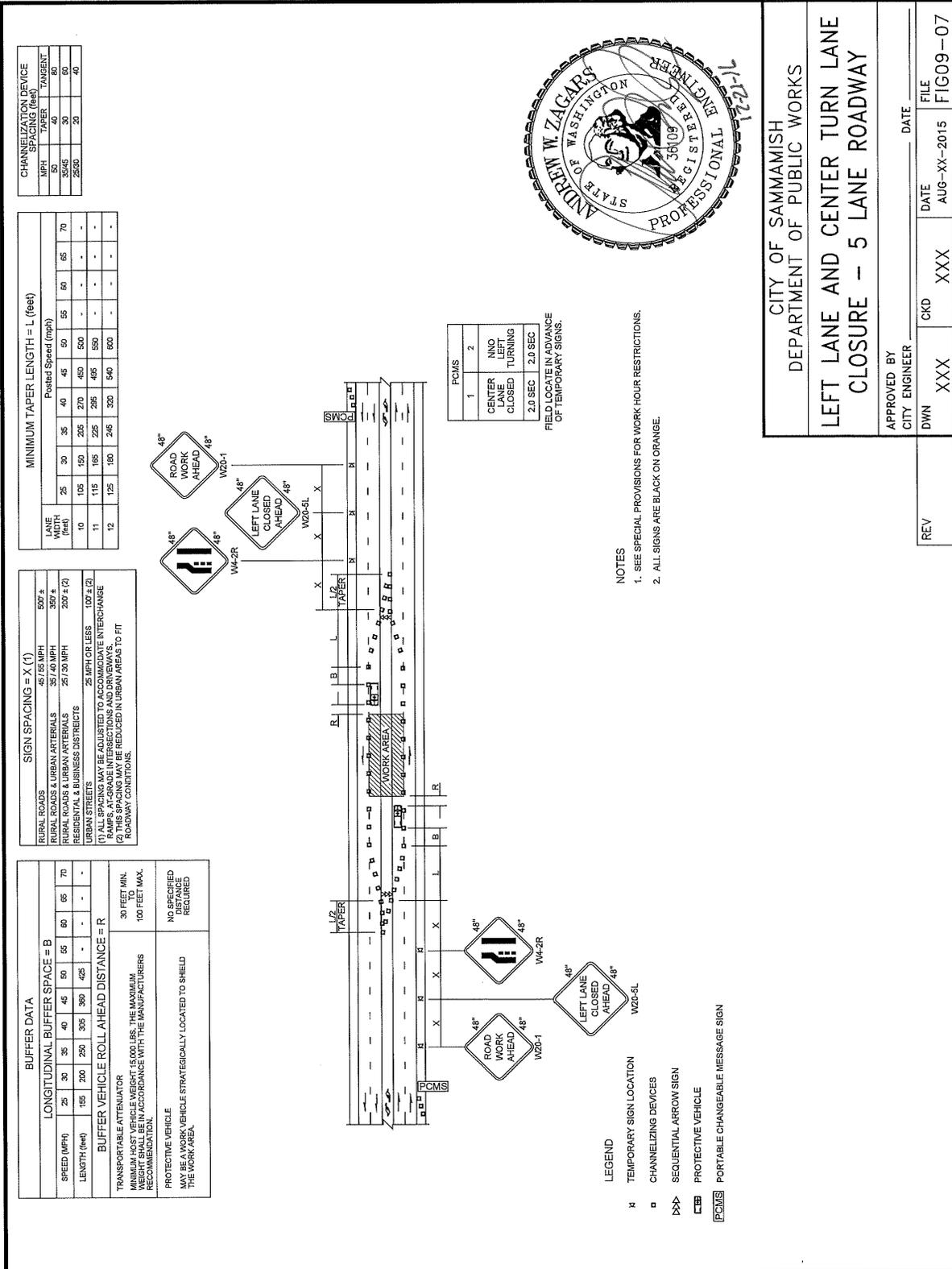
- TEMPORARY SIGN LOCATION
- ▣ CHANNELIZING DEVICES
- ▢ SEQUENTIAL ARROW SIGN
- ▤ PROTECTIVE VEHICLE
- ▥ PORTABLE CHANGEABLE MESSAGE SIGN
- ⊗ TEMPORARY SIGN LOCATION (F' MOUNTING HEIGHT)

**CITY OF SAMMAMISH**  
**DEPARTMENT OF PUBLIC WORKS**

**RIGHT LANE CLOSURE WITH SHIFT -**  
**5 LANE ROADWAY**

APPROVED BY	REV	DWN	XXX	CKD	XXX	DATE	AUG-XX-2015	FILE	FIG09-06
CITY ENGINEER									

REV. NO. X



MPH	TAPER	TANGENT
35/45	30	60
25/30	20	40

LANE WIDTH (feet)	Posted Speed (mph)					
	25	30	35	40	45	50
10	105	150	205	270	465	500
11	115	165	225	285	465	500
12	125	180	245	320	540	600

ROAD TYPE	507 ±	307 ±
RURAL ROADS & URBAN ARTERIALS	167.50 MPH	300 ±
RURAL ROADS & URBAN ARTERIALS	35.70 MPH	200 ± (2)
RESIDENTIAL & BUSINESS DISTRICTS	25.70 MPH	100 ± (2)
URBAN STREETS	25 MPH OR LESS	100 ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.  
 (2) SPACING REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	25	30	35	40	45	50
LENGTH (feet)	155	200	250	305	360	425

BUFFER VEHICLE ROLL AHEAD DISTANCE = R

TRANSPORTABLE ATTENUATOR  
 MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.  
 PROTECTIVE VEHICLE  
 MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.  
 NO SPECIFIED DISTANCE REQUIRED

1	CENTER LANE CLOSED	2.0 SEC
2	NO LEFT TURNING	2.0 SEC

FIELD LOCATE IN ADVANCE OF TEMPORARY SIGNS.

NOTES  
 1. SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.  
 2. ALL SIGNS ARE BLACK ON ORANGE.



CITY OF SAMMAMISH  
 DEPARTMENT OF PUBLIC WORKS  
**LEFT LANE AND CENTER TURN LANE CLOSURE - 5 LANE ROADWAY**

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CITY ENGINEER: \_\_\_\_\_

REV: \_\_\_\_\_ CKD: XXX DATE: AUG-XX-2015 FILE: FIG09-07  
 DWN: XXX

REV. NO. X

- LEGEND
- X TEMPORARY SIGN LOCATION
  - CHANNELIZING DEVICES
  - ▷▷ SEQUENTIAL ARROW SIGN
  - CB PROTECTIVE VEHICLE
  - PCMS PORTABLE CHANGEABLE MESSAGE SIGN

MPH	TAPER	TANGENT
30	30	30
35	35	35
40	40	40
45	45	45
50	50	50
55	55	55
60	60	60
65	65	65
70	70	70

LANE WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	430	500	550	-	-	-
11	115	165	225	295	465	530	585	650	-	-
12	125	180	245	320	500	570	630	700	770	840

ROADWAY TYPE	30 MPH	40 MPH	50 MPH	60 MPH
RURAL HIGHWAYS	600'	475'	350'	225'
RURAL ROADS & URBAN ARTERIALS	350'	275'	200'	125'
RURAL ROADS & URBAN ARTERIALS	350'	275'	200'	125'
RESIDENTIAL & BUSINESS DISTRICTS	250'	175'	100'	75'
URBAN STREETS	250'	175'	100'	75'

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS. SPACING SHOULD BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

SPEED (MPH)	LONGITUDINAL BUFFER SPACE = B									
	25	30	35	40	45	50	55	60	65	70
10	155	200	250	305	360	425	495	570	645	-

BUFFER VEHICLE ROLL-AHEAD DISTANCE = R

TRANSPORTABLE ATTENUATOR: 30 FEET MIN. TO 100 FEET MAX.

MINIMUM POST VEHICLE WEIGHT: 10,000 LBS. THE MAXIMUM WEIGHT IS 15,000 LBS. FOR ALL MANUFACTURERS.

PROTECTIVE VEHICLE: NO SPECIFIED DISTANCE REQUIRED TO SHIELD THE WORK AREA.

**LEGEND**

- ⊠ TEMPORARY SIGN LOCATION
- CHANNELIZING DEVICES
- ⇨⇨ SEQUENTIAL ARROW SIGN
- ⊠ TRANSPORTABLE ATTENUATOR
- ⊠ PORTABLE CHANGEABLE MESSAGE SIGN
- ⊠ TEMPORARY SIGN LOCATION (5' MOUNTING HEIGHT)

**NOTES**

- SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.
- FOR SPEED LIMIT OF 30 MPH OR LESS, USE SIGN W1-3 IN LIEU OF SIGN W1-4.
- RECOMMENDED EXTENDING DEVICE TAPER (L/D) ACROSS SHOULDER.
- ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

**POINTS #1**

1	LEFT LANE CLOSURE	2.0 SEC
2	1 MILE AHEAD	2.0 SEC

FIELD LOCATE IN ADVANCE OF TEMPORARY SIGNS.

**POINTS #2**

1	LANE SHIFTS LEFT	2.0 SEC
2	1 MILE AHEAD	2.0 SEC

FIELD LOCATE IN ADVANCE OF TEMPORARY SIGNS.

**CITY OF SAMMAMISH**  
**DEPARTMENT OF PUBLIC WORKS**

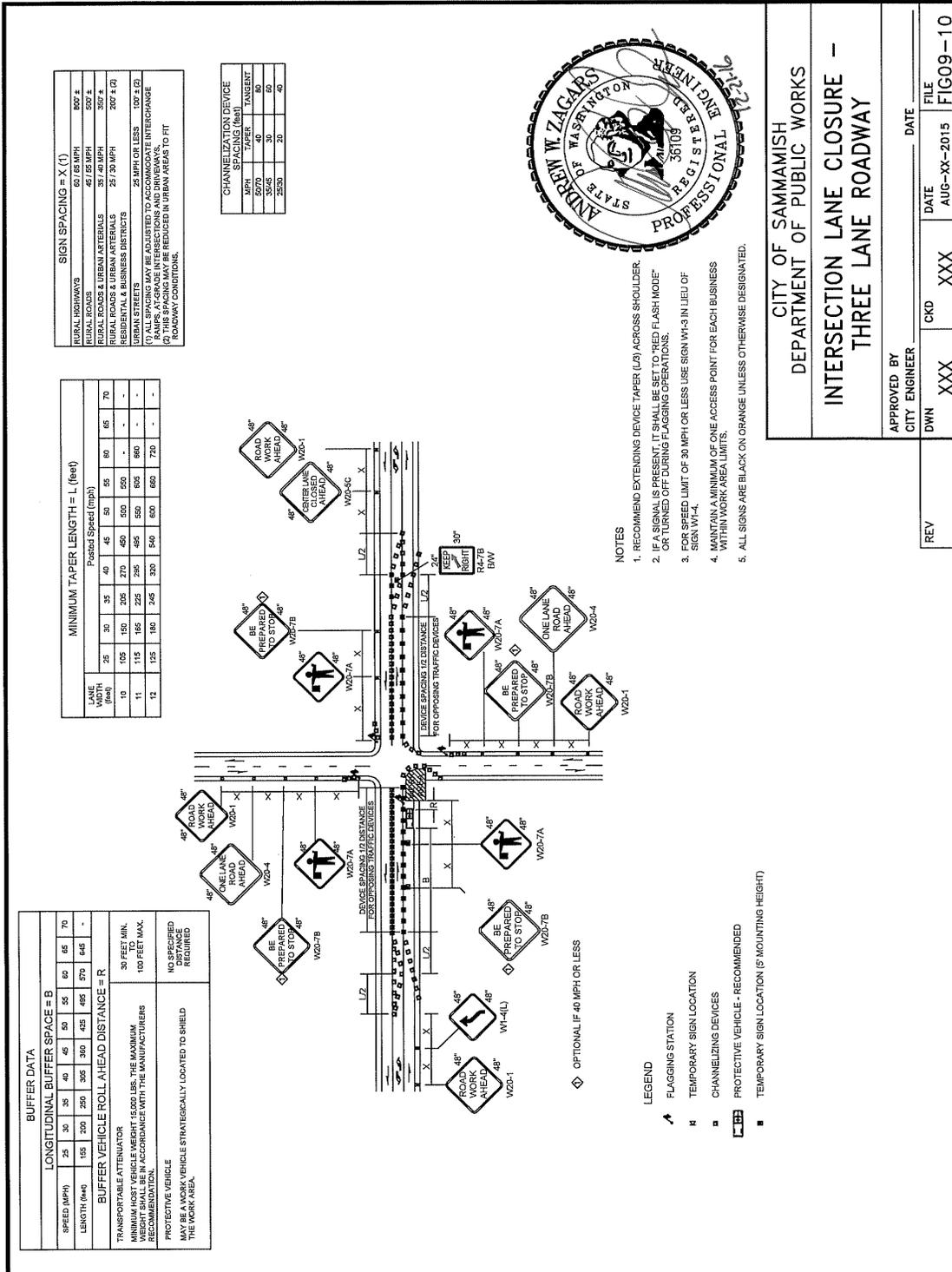
**LANE SHIFT –**  
**THREE LANE ROADWAY**

APPROVED BY: DWN XXX CKD XXX DATE: AUG-XX-2015 FILE: FIG09-08  
 CITY ENGINEER

REV \_\_\_\_\_ DATE \_\_\_\_\_

REV. NO. X





CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS  
**INTERSECTION LANE CLOSURE --  
THREE LANE ROADWAY**

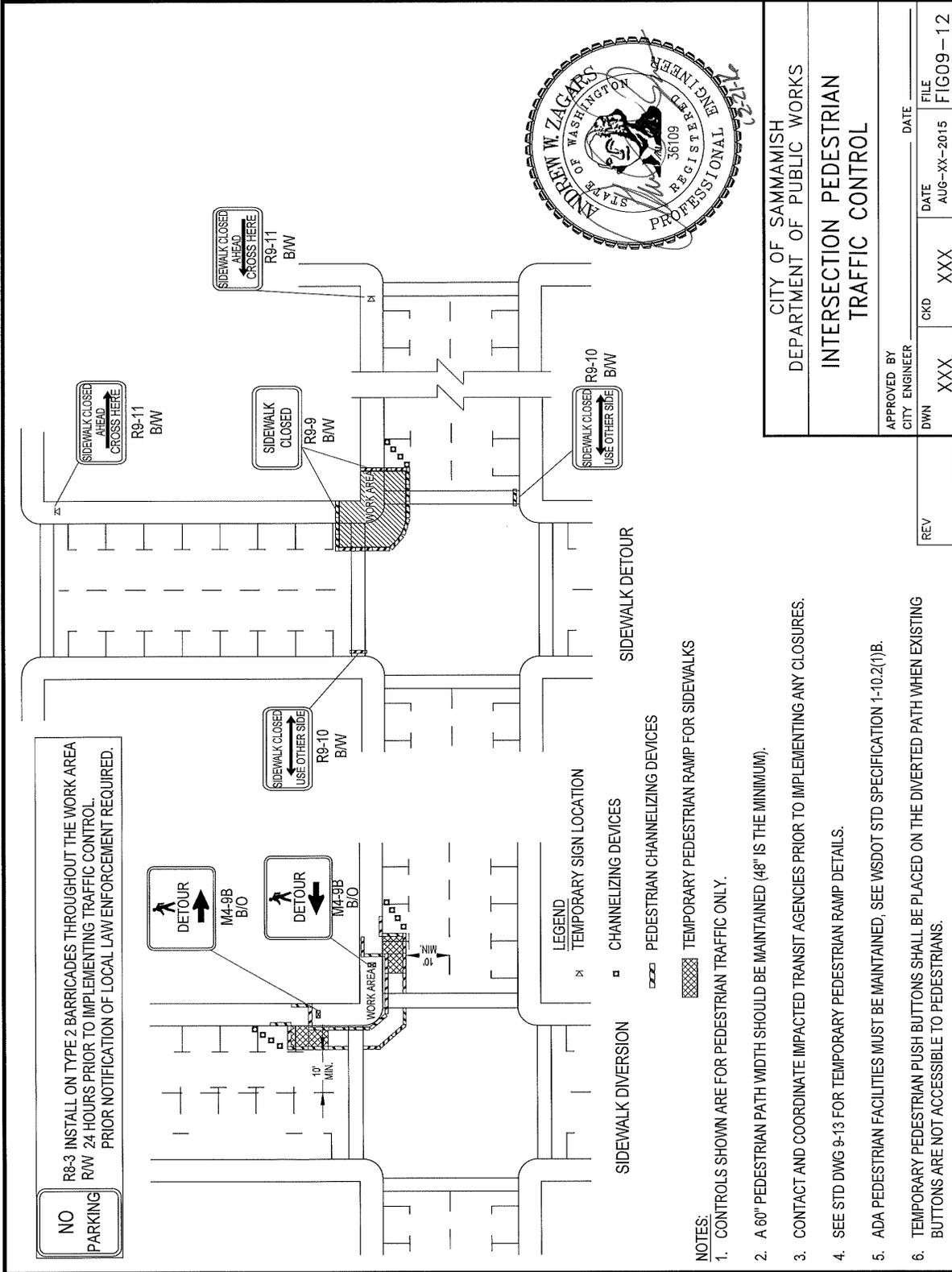
APPROVED BY  
CITY ENGINEER

DATE  
AUG-XX-2015

FILE  
FIG09-10

REV | DWN | XXX | CKD | XXX | DATE | AUG-XX-2015 | FILE | FIG09-10 | REV. NO. X





CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>INTERSECTION PEDESTRIAN TRAFFIC CONTROL</b>			
APPROVED BY CITY ENGINEER	DATE	FILE	DATE
DWN XXX	AUG--XX--2015	FIG09-12	REV. NO. X
CKD XXX	XXX		



BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B					BUFFER VEHICLE ROLL AHEAD DISTANCE = R					
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (ft)	155	200	250	305	360	425	485	570	645	730

MINIMUM POST VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.

30 FEET MIN. TO 100 FEET MAX.

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)		
LANE WIDTH (feet)	Posted Speed (mph)	L (feet)
25	30	35
30	35	40
35	40	45
40	45	50
45	50	55
50	55	60
55	60	65
60	65	70
65	70	75
70	75	80
75	80	85
80	85	90
85	90	95
90	95	100
95	100	105
100	105	110
105	110	115
110	115	120
115	120	125
120	125	130
125	130	135
130	135	140
135	140	145
140	145	150
145	150	155
150	155	160
155	160	165
160	165	170
165	170	175
170	175	180
175	180	185
180	185	190
185	190	195
190	195	200
195	200	205
200	205	210
205	210	215
210	215	220
215	220	225
220	225	230
225	230	235
230	235	240
235	240	245
240	245	250
245	250	255
250	255	260
255	260	265
260	265	270
265	270	275
270	275	280
275	280	285
280	285	290
285	290	295
290	295	300
295	300	305
300	305	310
305	310	315
310	315	320
315	320	325
320	325	330
325	330	335
330	335	340
335	340	345
340	345	350
345	350	355
350	355	360
355	360	365
360	365	370
365	370	375
370	375	380
375	380	385
380	385	390
385	390	395
390	395	400
395	400	405
400	405	410
405	410	415
410	415	420
415	420	425
420	425	430
425	430	435
430	435	440
435	440	445
440	445	450
445	450	455
450	455	460
455	460	465
460	465	470
465	470	475
470	475	480
475	480	485
480	485	490
485	490	495
490	495	500
495	500	505
500	505	510
505	510	515
510	515	520
515	520	525
520	525	530
525	530	535
530	535	540
535	540	545
540	545	550
545	550	555
550	555	560
555	560	565
560	565	570
565	570	575
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640	645	650
645	650	655
650	655	660
655	660	665
660	665	670
665	670	675
670	675	680
675	680	685
680	685	690
685	690	695
690	695	700
695	700	705
700	705	710
705	710	715
710	715	720
715	720	725
720	725	730
725	730	735
730	735	740
735	740	745
740	745	750
745	750	755
750	755	760
755	760	765
760	765	770
765	770	775
770	775	780
775	780	785
780	785	790
785	790	795
790	795	800
795	800	805
800	805	810
805	810	815
810	815	820
815	820	825
820	825	830
825	830	835
830	835	840

MINIMUM SHOULDER TAPER LENGTH = LS (feet)		
SHOULDER WIDTH (feet)	Posted Speed (mph)	LS (feet)
25	30	35
30	35	40
35	40	45
40	45	50
45	50	55
50	55	60
55	60	65
60	65	70
65	70	75
70	75	80
75	80	85
80	85	90
85	90	95
90	95	100
95	100	105
100	105	110
105	110	115
110	115	120
115	120	125
120	125	130
125	130	135
130	135	140
135	140	145
140	145	150
145	150	155
150	155	160
155	160	165
160	165	170
165	170	175
170	175	180
175	180	185
180	185	190
185	190	195
190	195	200
195	200	205
200	205	210
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210	215	220
215	220	225
220	225	230
225	230	235
230	235	240
235	240	245
240	245	250
245	250	255
250	255	260
255	260	265
260	265	270
265	270	275
270	275	280
275	280	285
280	285	290
285	290	295
290	295	300
295	300	305
300	305	310
305	310	315
310	315	320
315	320	325
320	325	330
325	330	335
330	335	340
335	340	345
340	345	350
345	350	355
350	355	360
355	360	365
360	365	370
365	370	375
370	375	380
375	380	385
380	385	390
385	390	395
390	395	400
395	400	405
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405	410	415
410	415	420
415	420	425
420	425	430
425	430	435
430	435	440
435	440	445
440	445	450
445	450	455
450	455	460
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460	465	470
465	470	475
470	475	480
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485	490	495
490	495	500
495	500	505
500	505	510
505	510	515
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530	535	540
535	540	545
540	545	550
545	550	555
550	555	560
555	560	565
560	565	570
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760	765	770
765	770	775
770	775	780
775	780	785
780	785	790
785	790	795
790	795	800
795	800	805
800	805	810
805	810	815
810	815	820
815	820	825
820	825	830
825	830	835
830	835	840

CHANNELIZATION DEVICE SPACING (feet)	
TANGENT	CHORD
50/70	40
60/70	40
70/70	40
80/70	40
90/70	40
100/70	40
120/70	40
150/70	40
200/70	40
250/70	40

- LEGEND**
- K TEMPORARY SIGN LOCATION
  - CHANNELIZING DEVICES
  - TRAFFIC SAFETY DRUM
  - ⇄ SEQUENTIAL ARROW SIGN
  - PORTABLE ATTENUATOR
  - PORTABLE CHANGEABLE MESSAGE SIGN

SIGN SPACING = X (1)	
FREeways & EXPRESSWAYS	55 TO MPH 1500' ±
RURAL HIGHWAYS	50 TO MPH 800' ±
RURAL ROADS	45 TO MPH 500' ±
RURAL ROADS & URBAN ARTERIALS	35 TO 40 MPH 350' ±
RURAL ROADS & BUSINESS DISTRICTS	25 TO 30 MPH 200' ± (2)
URBAN STREETS	25 MPH



**TOP VIEW**

$\varnothing 7.5"$

5.2"

**FRONT VIEW**

BIKE 1

BIKE 2

BIKE 3

BIKE 4

BIKE 5

3.5"

3.32"

**RIGHT SIDE VIEW**

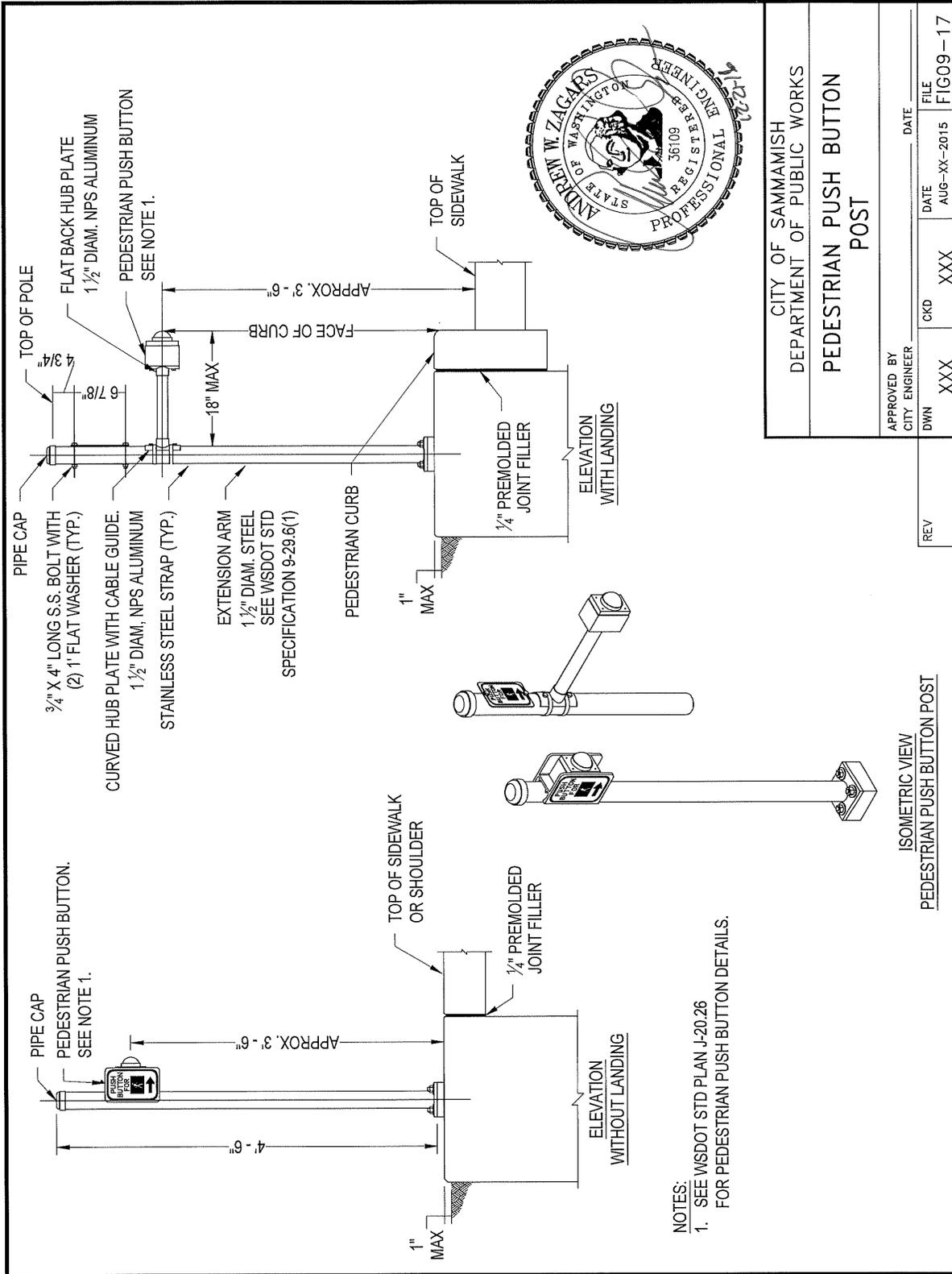
$\varnothing 2.38$

ANDREW W. ZAGARS  
STATE OF WASHINGTON  
REGISTERED PROFESSIONAL ENGINEER  
36109

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS		BIKE RACK	
APPROVED BY CITY ENGINEER	DATE	FILE FIG09-16	REV. NO. X
DWN XXX	XXX	AUG-XX-2015	XXX
CKD	XXX	DATE	DATE

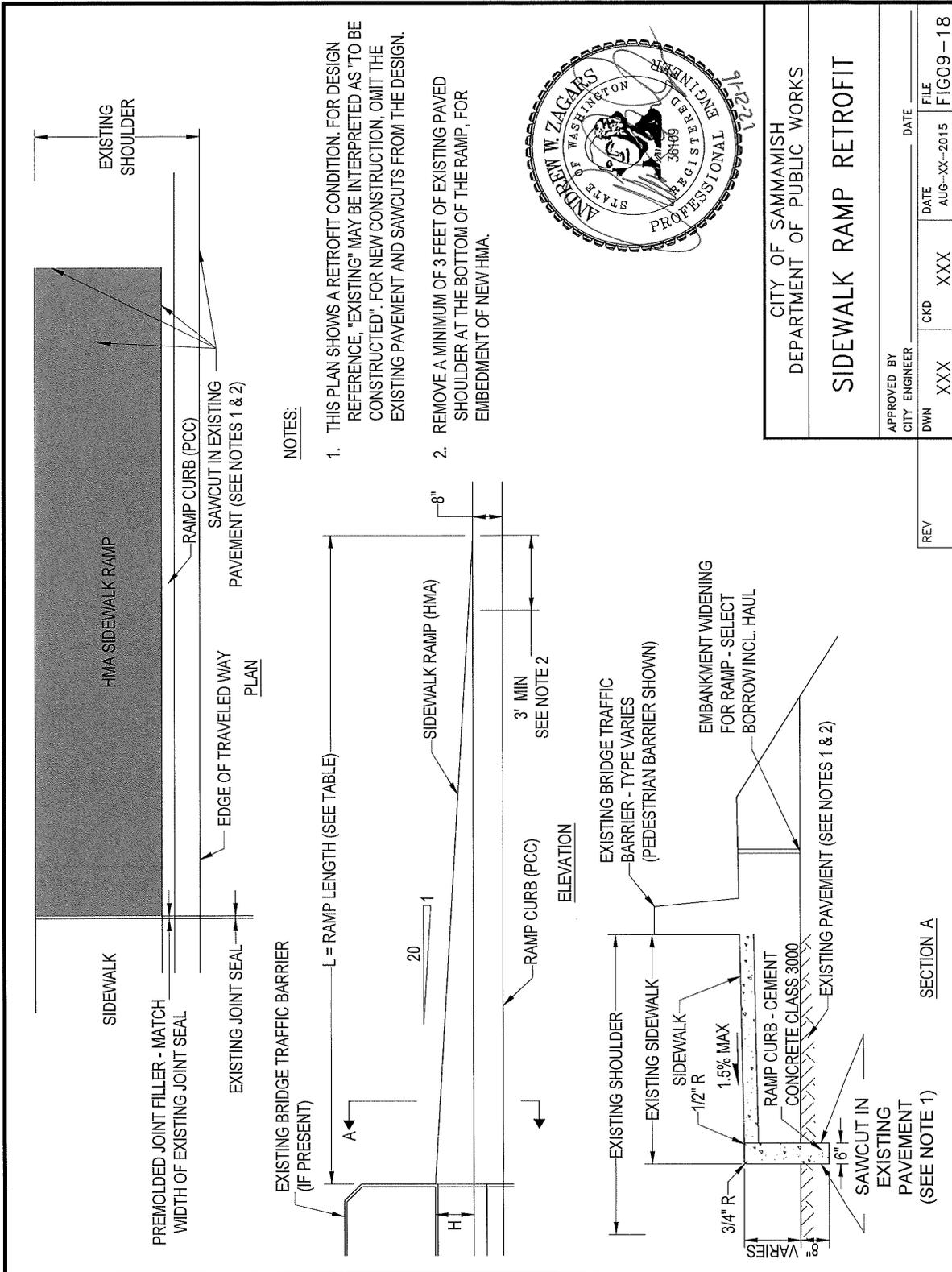
**MATERIALS LIST:**

1. TUBING -  $\varnothing 2\frac{3}{8}"$  x 0.154" WALL STEEL TUBING
2. SURFACE PLAT -  $\varnothing 7\frac{1}{2}"$  x  $\frac{1}{4}"$  THICK STEEL PLATE WITH THREE  $\varnothing \frac{5}{16}"$  MOUNTING HOLES
3. MOUNTED WITH SIX  $\varnothing \frac{1}{2}"$  x 4-5" STAINLESS STEEL ANCHOR BOLTS



CITY OF SAMMAMISH		DATE	
DEPARTMENT OF PUBLIC WORKS		AUG--XX--2015	
PEDESTRIAN PUSH BUTTON POST		CKD	XXX
APPROVED BY	DWN	XXX	FILE
CITY ENGINEER			FIG09-17
			REV. NO. X

ISOMETRIC VIEW  
PEDESTRIAN PUSH BUTTON POST



**NOTES:**

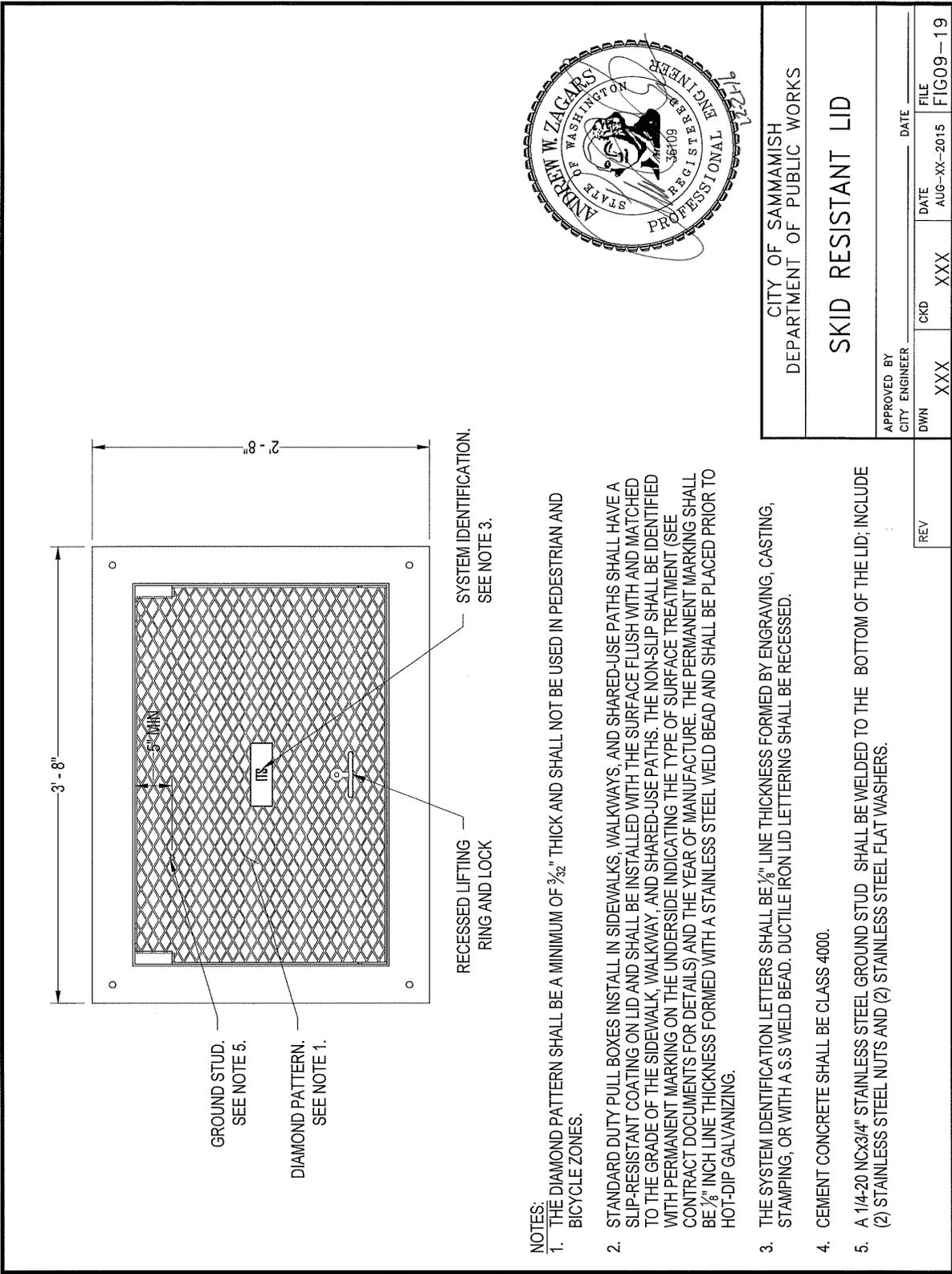
1. THIS PLAN SHOWS A RETROFIT CONDITION. FOR DESIGN REFERENCE, "EXISTING" MAY BE INTERPRETED AS "TO BE CONSTRUCTED". FOR NEW CONSTRUCTION, OMIT THE EXISTING PAVEMENT AND SAWCUTS FROM THE DESIGN.
2. REMOVE A MINIMUM OF 3 FEET OF EXISTING PAVED SHOULDER AT THE BOTTOM OF THE RAMP, FOR EMBEDMENT OF NEW HMA.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS	
<b>SIDEWALK RAMP RETROFIT</b>	
APPROVED BY CITY ENGINEER	DATE
DWN XXX	XXX
CKD XXX	AUG-XX-2015
REV	FILE
	FIG09-18

REV. NO. X

**SECTION A**



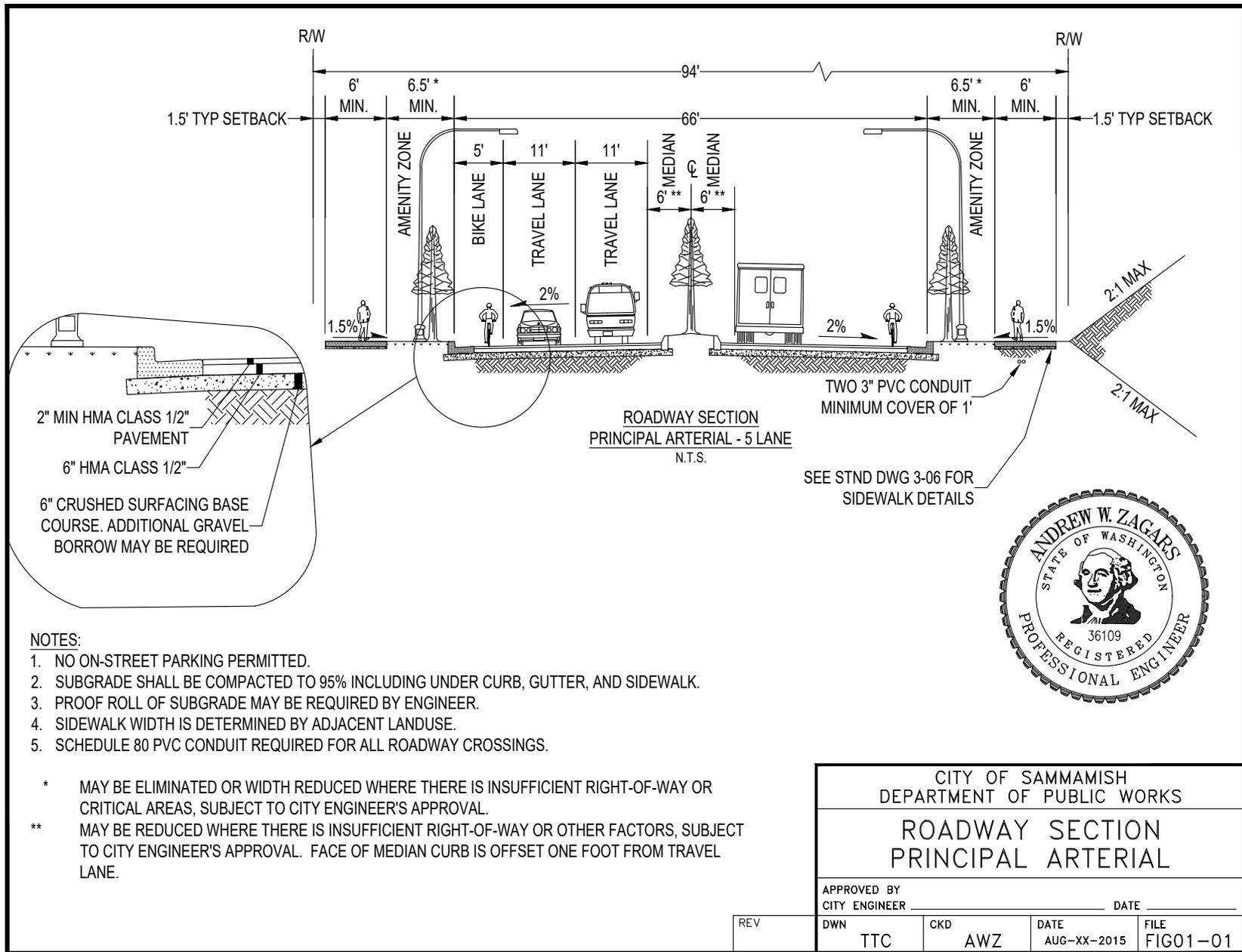
**NOTES:**

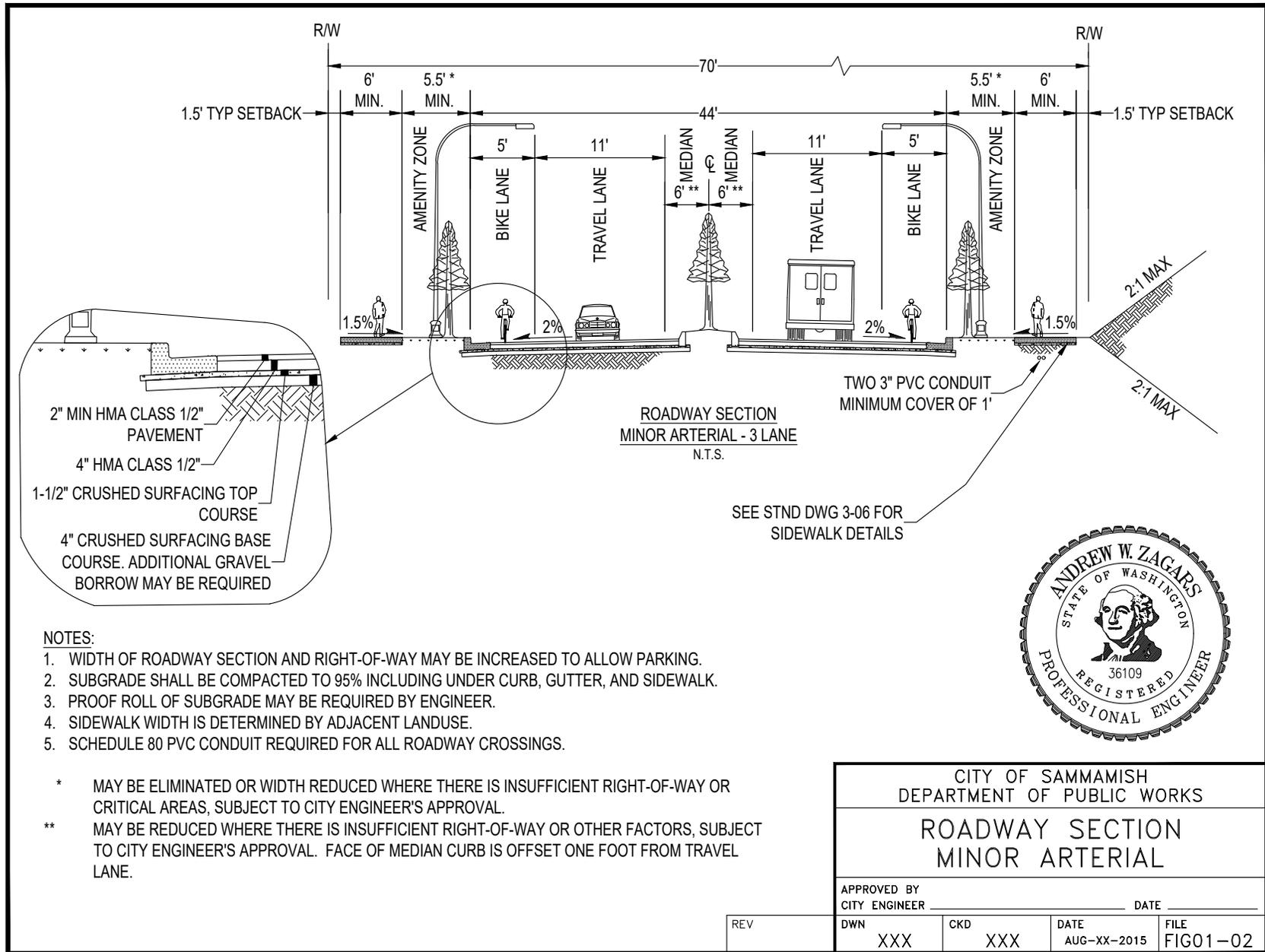
1. THE DIAMOND PATTERN SHALL BE A MINIMUM OF 3/32" THICK AND SHALL NOT BE USED IN PEDESTRIAN AND BICYCLE ZONES.
2. STANDARD DUTY PULL BOXES INSTALL IN SIDEWALKS, WALKWAYS, AND SHARED-USE PATHS SHALL HAVE A SLIP-RESISTANT COATING ON LID AND SHALL BE INSTALLED WITH THE SURFACE FLUSH WITH AND MATCHED TO THE GRADE OF THE SIDEWALK, WALKWAY, AND SHARED-USE PATHS. THE NON-SLIP SHALL BE IDENTIFIED WITH PERMANENT MARKING ON THE UNDERSIDE INDICATING THE TYPE OF SURFACE TREATMENT (SEE CONTRACT DOCUMENTS FOR DETAILS) AND THE YEAR OF MANUFACTURE. THE PERMANENT MARKING SHALL BE 1/8" INCH LINE THICKNESS FORMED WITH A STAINLESS STEEL WELD BEAD AND SHALL BE PLACED PRIOR TO HOT-DIP GALVANIZING.
3. THE SYSTEM IDENTIFICATION LETTERS SHALL BE 1/2" LINE THICKNESS FORMED BY ENGRAVING, CASTING, STAMPING, OR WITH A S.S WELD BEAD. DUCTILE IRON LID LETTERING SHALL BE RECESSED.
4. CEMENT CONCRETE SHALL BE CLASS 4000.
5. A 1/4-20 NCx3/4" STAINLESS STEEL GROUND STUD SHALL BE WELDED TO THE BOTTOM OF THE LID; INCLUDE (2) STAINLESS STEEL NUTS AND (2) STAINLESS STEEL FLAT WASHERS.

CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**SKID RESISTANT LID**

APPROVED BY CITY ENGINEER	DATE	FILE
DWN XXX	AUG-XX-2015	FIG09-19
CKD XXX		REV. NO. X





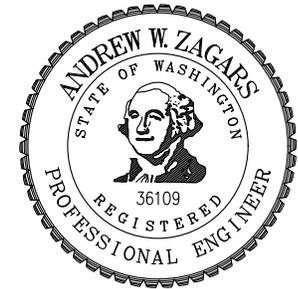
**NOTES:**

1. WIDTH OF ROADWAY SECTION AND RIGHT-OF-WAY MAY BE INCREASED TO ALLOW PARKING.
2. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
4. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.
5. SCHEDULE 80 PVC CONDUIT REQUIRED FOR ALL ROADWAY CROSSINGS.

\* MAY BE ELIMINATED OR WIDTH REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR CRITICAL AREAS, SUBJECT TO CITY ENGINEER'S APPROVAL.

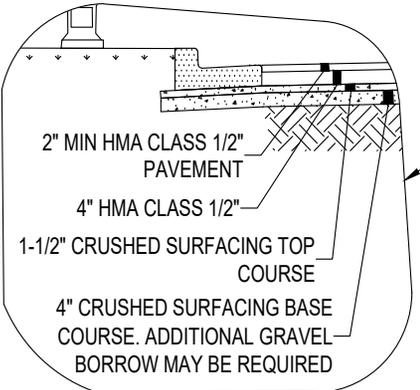
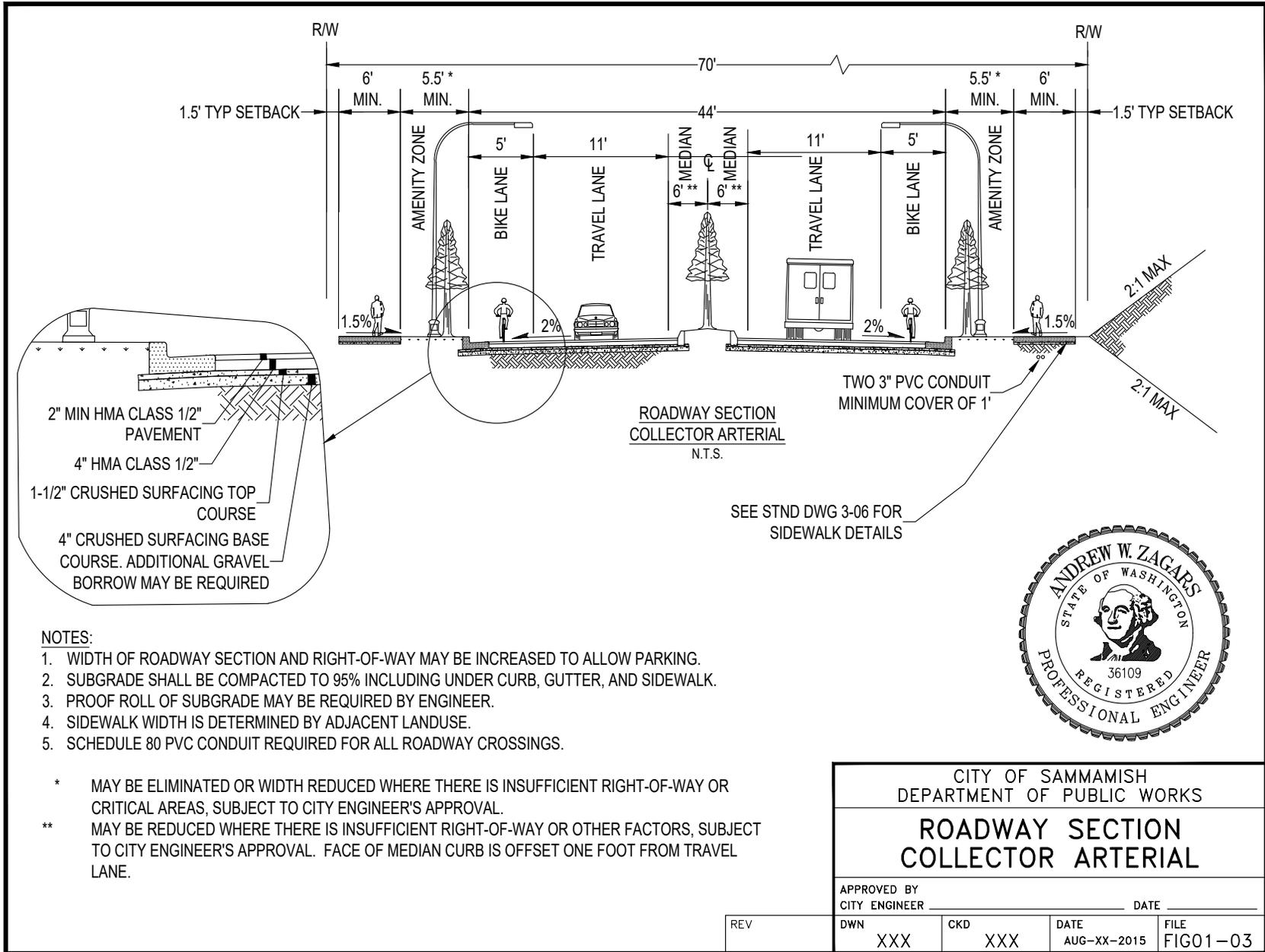
\*\* MAY BE REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR OTHER FACTORS, SUBJECT TO CITY ENGINEER'S APPROVAL. FACE OF MEDIAN CURB IS OFFSET ONE FOOT FROM TRAVEL LANE.

SEE STND DWG 3-06 FOR SIDEWALK DETAILS



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
ROADWAY SECTION MINOR ARTERIAL			
APPROVED BY CITY ENGINEER _____		DATE _____	
REV	DWN XXX	CKD XXX	DATE AUG-XX-2015
			FILE FIG01-02

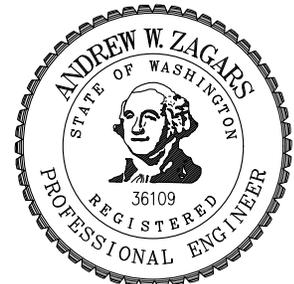
REV. NO. X



**NOTES:**

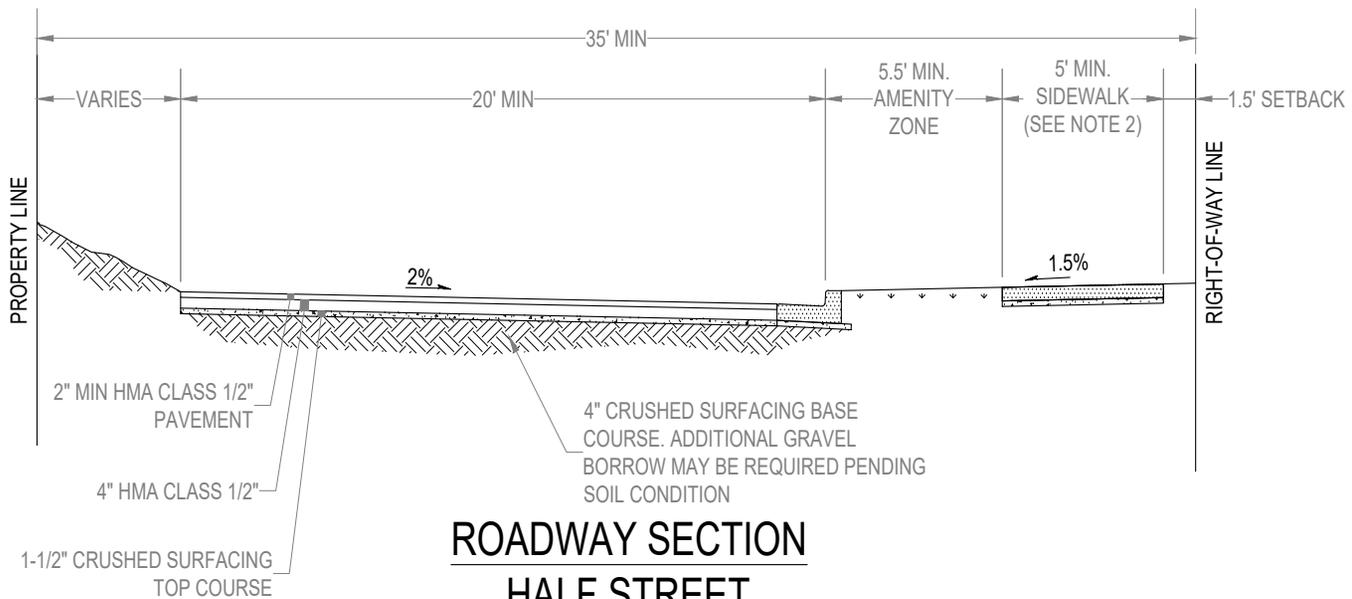
1. WIDTH OF ROADWAY SECTION AND RIGHT-OF-WAY MAY BE INCREASED TO ALLOW PARKING.
2. SUBGRADE SHALL BE COMPACTED TO 95% INCLUDING UNDER CURB, GUTTER, AND SIDEWALK.
3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
4. SIDEWALK WIDTH IS DETERMINED BY ADJACENT LANDUSE.
5. SCHEDULE 80 PVC CONDUIT REQUIRED FOR ALL ROADWAY CROSSINGS.

\* MAY BE ELIMINATED OR WIDTH REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR CRITICAL AREAS, SUBJECT TO CITY ENGINEER'S APPROVAL.  
 \*\* MAY BE REDUCED WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY OR OTHER FACTORS, SUBJECT TO CITY ENGINEER'S APPROVAL. FACE OF MEDIAN CURB IS OFFSET ONE FOOT FROM TRAVEL LANE.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>ROADWAY SECTION COLLECTOR ARTERIAL</b>			
APPROVED BY CITY ENGINEER		DATE	
REV	DWN XXX	CKD XXX	FILE AUG-XX-2015 FIG01-03

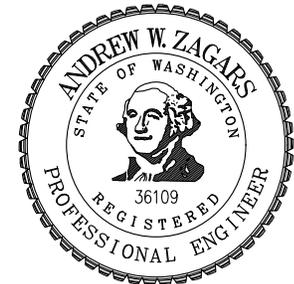
REV. NO. X



**ROADWAY SECTION**  
**HALF STREET**  
N.T.S.

**NOTES:**

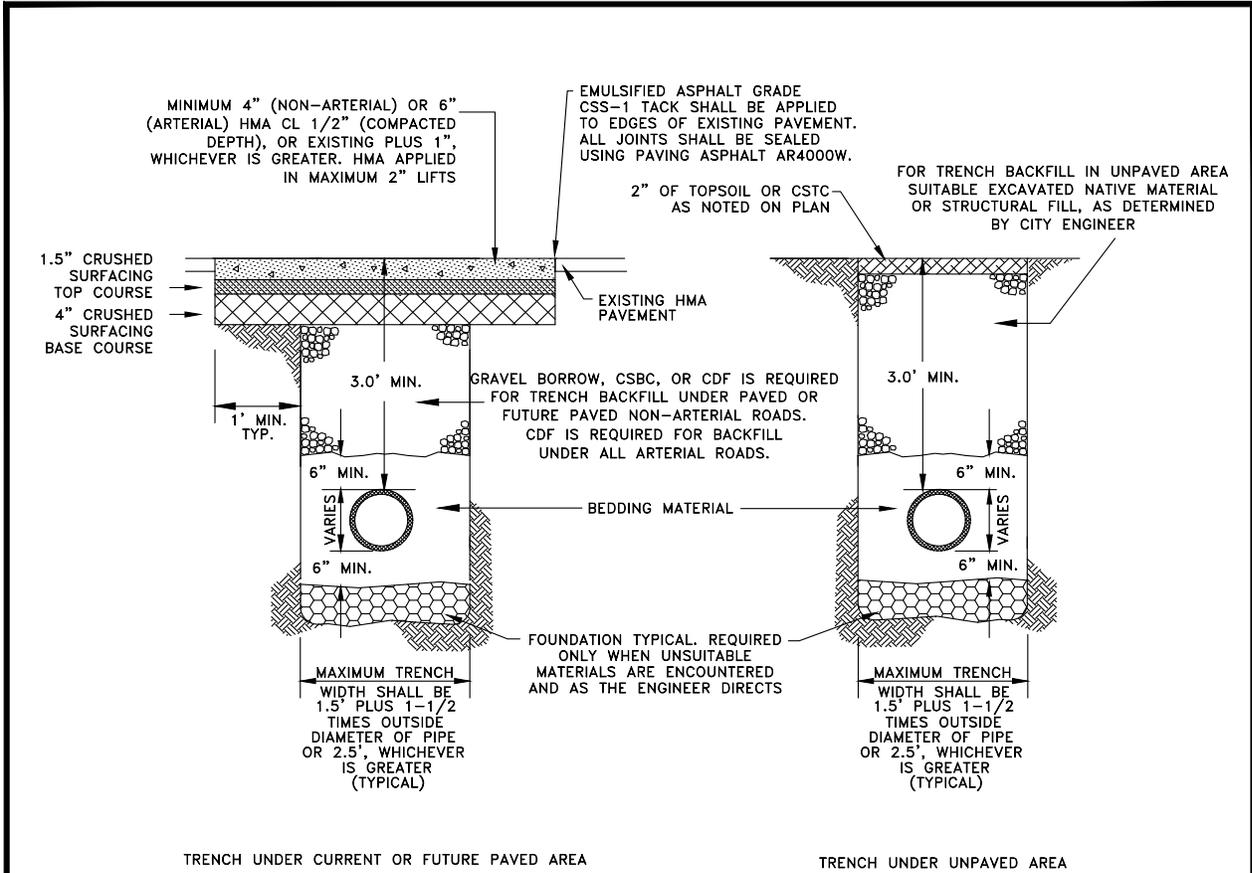
1. EDGE OF PAVEMENT TO BE CONSTRUCTED AS SHOWN FOR CUT OR FILL SECTION AS APPROPRIATE.
2. SEE STND DWG 3-06 FOR SIDEWALK DETAILS.
3. PROOF ROLL OF SUBGRADE MAY BE REQUIRED BY ENGINEER.
4. IF PAVING SEAM IS REQUIRED, IT SHALL BE PLACED AT FUTURE CROWN LOCATION.
5. INSTALL NO PARKING SIGNS ON BOTH SIDE OF STREET PER DIRECTION OF ENGINEER.
6. FUTURE ROADWAY CROWN LOCATIONS WILL VARY DEPENDING ON ZONING. THE CROWN WILL BE 18' OFF OF THE EXISTING CURB FACE (2' REMOVAL OF PAVEMENT ABOVE) FOR A R6. THE CROWN WILL BE 10' OFF THE EXISTING CURB FACE (10' REMOVAL OF PAVEMENT ABOVE).



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>NON-ARTERIAL ROADWAY SECTION HALF STREET</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG01-07

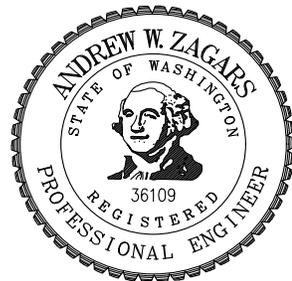
REV	
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REV. NO. X



NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM; GREATER THICKNESS MAY BE REQUIRED BY CITY ENGINEER.
2. ALL MATERIALS EXCEPT HMA AND BEDDING MATERIAL SHALL BE COMPACTED IN 6-INCH MAXIMUM LIFTS TO 95% DENSITY.
3. BEDDING SHALL CONFORM TO SECTION 9-03.12(3) OF STANDARD SPECIFICATIONS.
4. COMPACTION: BEDDING SHALL BE COMPACTED TO 95% MAX. AS DETERMINED BY ASTM D1557. BACKFILL SHALL BE COMPACTED TO 90% IN UNPAVED AREA, AND 95% IN PAVED OR SHOULDER AREAS AS DETERMINED BY ASTM D1557.
5. ALL MATERIALS, WORKMANSHIP, AND INSTALLATION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.
6. KEEP TRENCH BOTTOM COMPACTED WITH UNIFORM GRADE. A BELL JOINT SHALL BE REQUIRED AT EACH JOINT FOR PROPER SUPPORT. NO TEMPORARY SUPPORTS, I.E. BLOCKS, WILL BE ALLOWED TO SUPPORT PIPE. TRENCH BOTTOM SHALL BE TO GRADE PRIOR TO PIPE INSTALLATION.



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

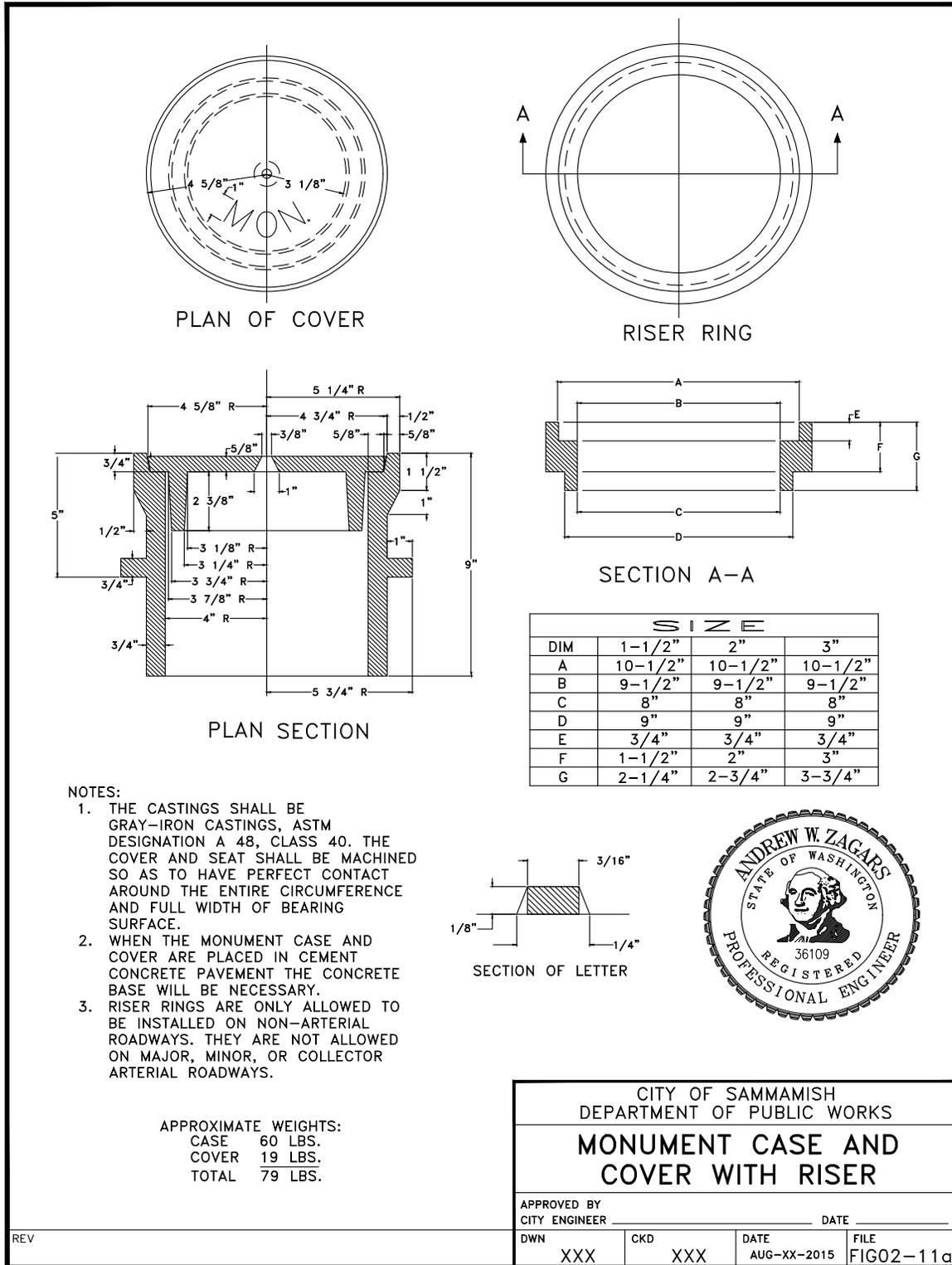
TRENCH-PAVEMENT  
RESTORATION DETAIL

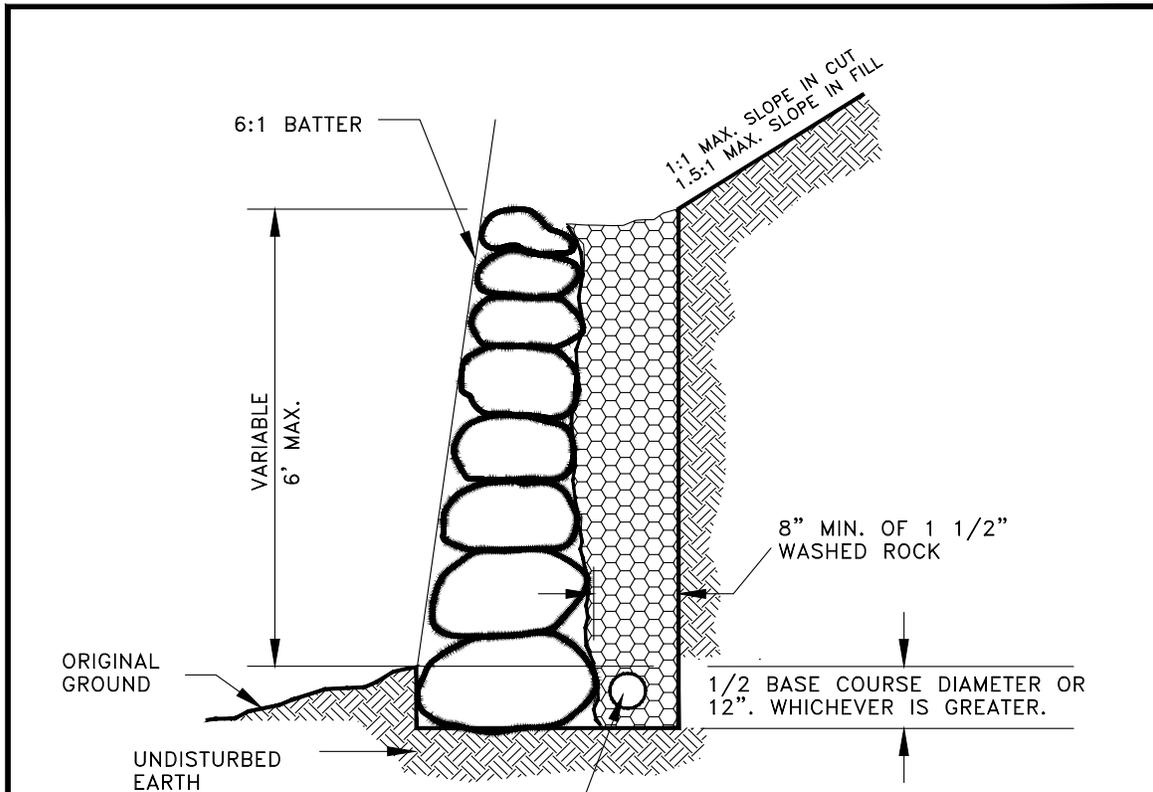
APPROVED BY  
CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

REV

DWN	XXX	CKD	XXX	DATE	AUG-XX-2015	FILE	FIG02-05a
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REV. NO. X

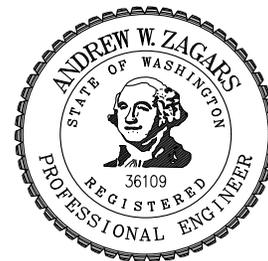




AS DIRECTED BY CITY ENGINEER  
 PERF. DRAIN WITH 4" MIN. OF  
 ROCK UNDER PIPE. ROUTE TO  
 DRAINAGE SYSTEM.

**GENERAL NOTES:**

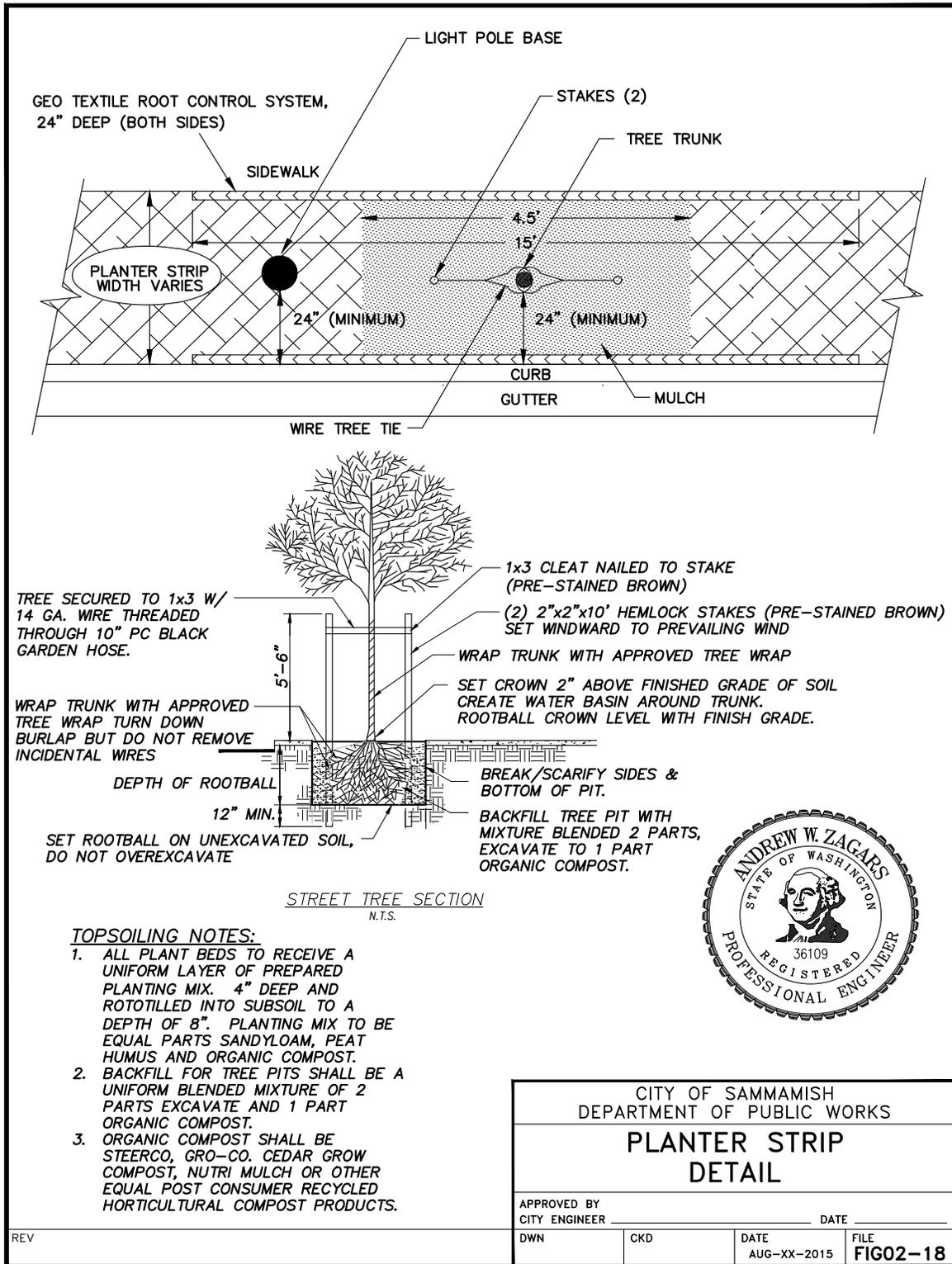
1. ROCKERIES HIGHER THAN 5' SHALL BE CONSTRUCTED OF ROCKS OF GRADUATED SIZES FROM 5-MAN TO 2-MAN FROM BOTTOM TO TOP. ROCKERIES OF 5' OR LOWER SHALL BE CONSTRUCTED OF 3-MAN TO 2-MAN FROM BOTTOM TO TOP. ROCK SIZE CATEGORIES SHALL INCLUDE:
  - 1.1. TWO-MAN ROCKS (300 TO 600 POUNDS), 13 INCHES IN LEAST DIMENSION;
  - 1.2. THREE-MAN ROCKS (800 TO 1200 POUNDS), 16 INCHES IN LEAST DIMENSION;
  - 1.3. FOUR-MAN ROCKS (1500 TO 2200 POUNDS); 18 INCHES IN LEAST DIMENSION;
  - 1.4. FIVE-MAN ROCKS (2400 TO 3400 POUNDS); 24 INCHES IN LEAST DIMENSION.
2. THE ROCKERY SHALL BE INSTALLED WITH A SMOOTH FACE.
3. THE LONG DIMENSION OF THE ROCKS SHALL EXTEND INTO THE EARTH TO PROVIDE THE MAXIMUM STABILITY.
4. THE ROCK SHALL BE PLACED SO AS TO LOCK INTO TWO ROCKS IN THE LOWER TIER.
5. CALL FOR INSPECTION PRIOR TO BASE COURSE BEING PLACED (FOR VERIFICATION OF ROCKERY HEIGHT, FOUNDATION MATERIAL AND ROCK SIZE).
6. DESIGN VARYING FROM THOSE INDICATED SHALL CARRY THE SEAL OF A CIVIL OR GEOTECHNICAL ENGINEER EXPERIENCED IN SOIL MECHANICS.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>ROCK RETAINING WALL</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG02-15

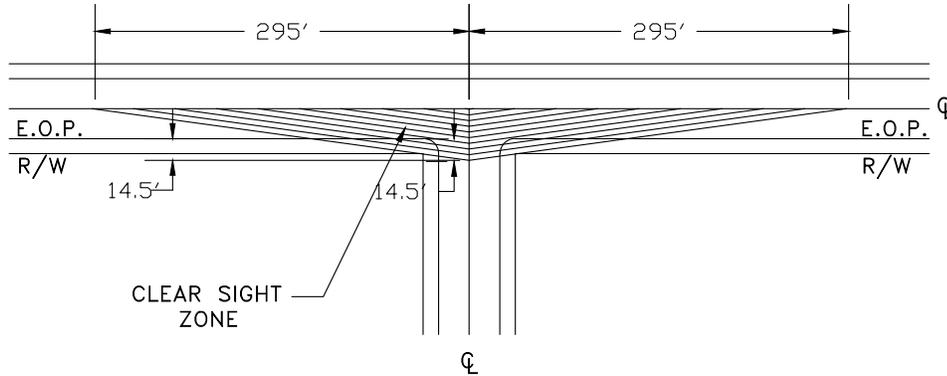
REV

REV. NO. X

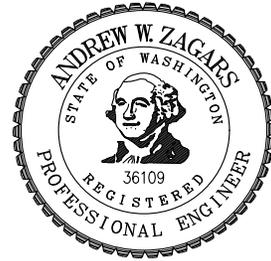


## STOP CONTROLLED INTERSECTIONS

EXAMPLE: MAJOR STREET SPEED LIMIT = 20 M.P.H.



POSTED SPEED	ENTERING SIGHT DISTANCE (FT)
20 MPH	295
25 MPH	355
30 MPH	415
35 MPH	470
40 MPH	530
45 MPH	590



CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

### SIGHT OBSTRUCTION

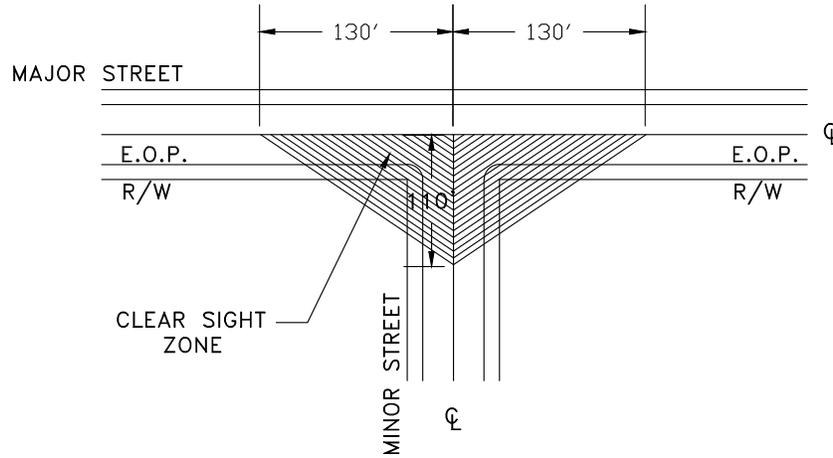
APPROVED BY		DATE	
CITY ENGINEER			
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG02-19A

REV

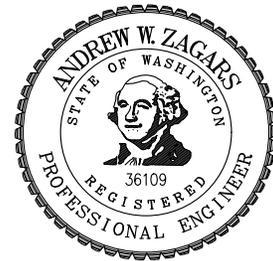
REV. NO. X

## UNCONTROLLED OR YIELD-CONTROLLED INTERSECTIONS

EXAMPLE: MAJOR STREET SPEED LIMIT = 30 M.P.H.  
 MINOR STREET SPEED LIMIT = 25 M.P.H.



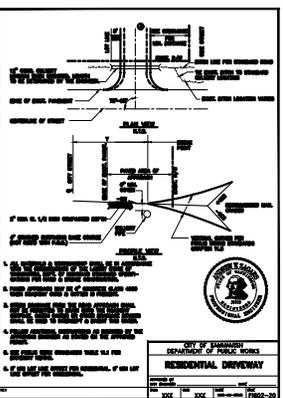
POSTED SPEED	SIGHT DISTANCE (FT)
20 MPH	90
25 MPH	110
30 MPH	130
35 MPH	155
40 MPH	180

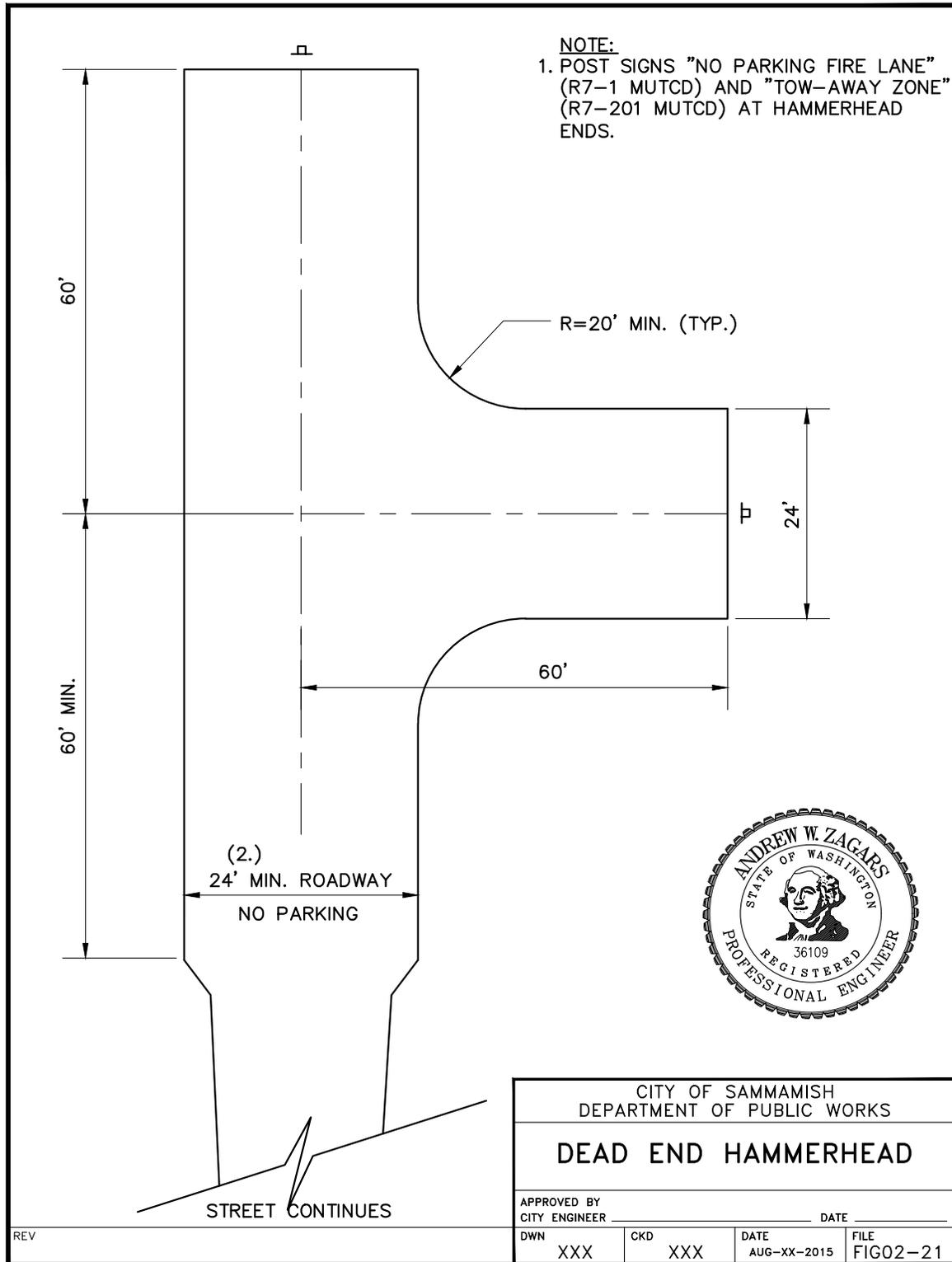


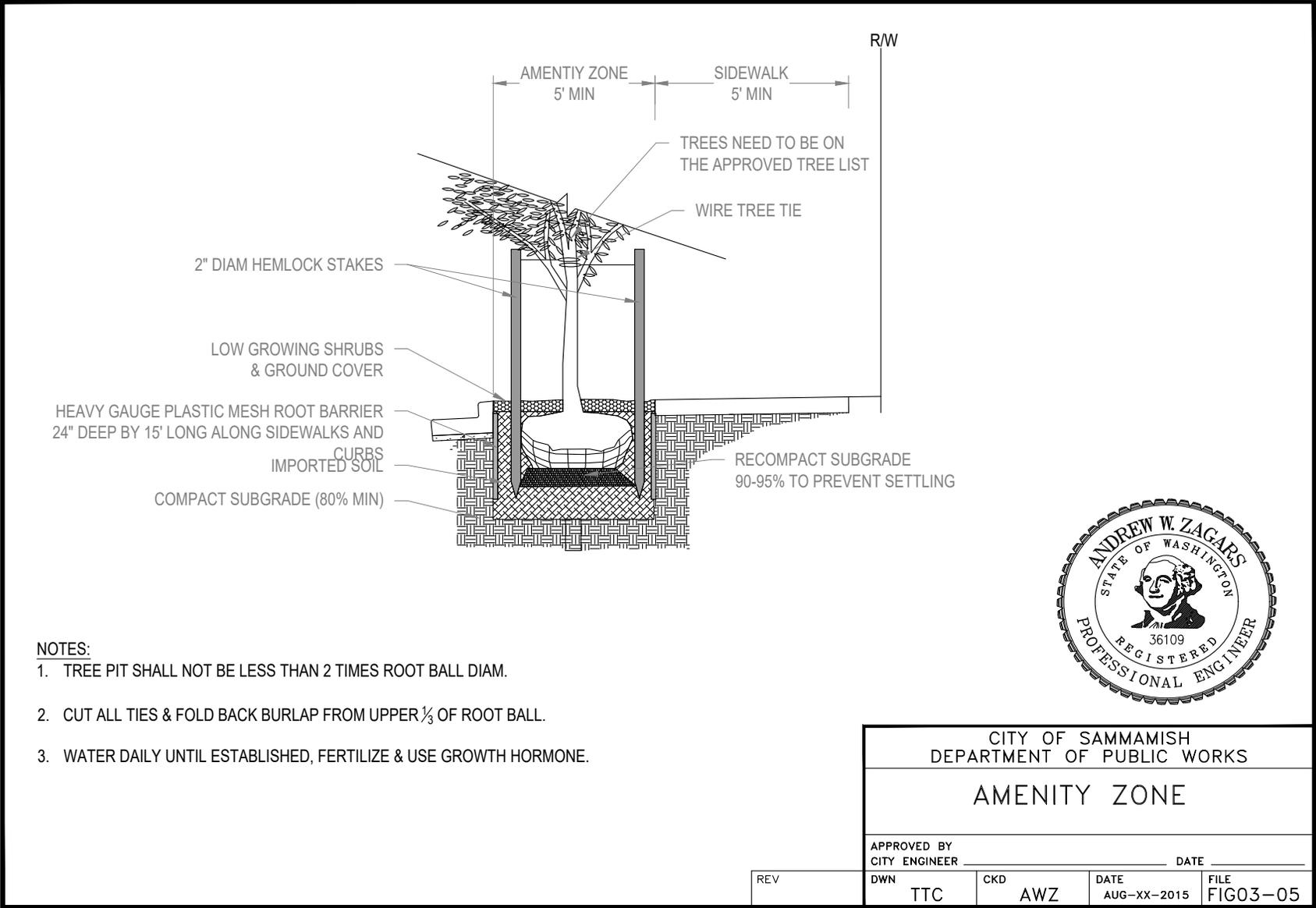
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>SIGHT OBSTRUCTION</b>			
APPROVED BY CITY ENGINEER		DATE	
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG02-19B

REV

REV. NO. X

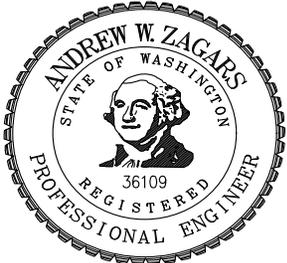




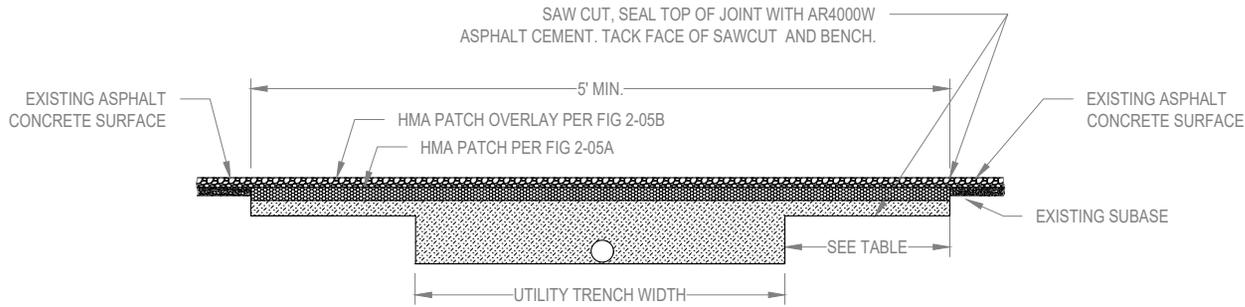


**NOTES:**

1. TREE PIT SHALL NOT BE LESS THAN 2 TIMES ROOT BALL DIAM.
2. CUT ALL TIES & FOLD BACK BURLAP FROM UPPER 1/3 OF ROOT BALL.
3. WATER DAILY UNTIL ESTABLISHED, FERTILIZE & USE GROWTH HORMONE.



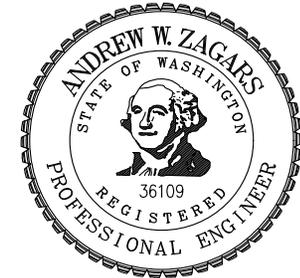
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
AMENITY ZONE			
APPROVED BY CITY ENGINEER		DATE	
REV	DWN TTC	CKD AWZ	DATE AUG-XX-2015 FILE FIG03-05
REV. NO. X			



**NOTES:**

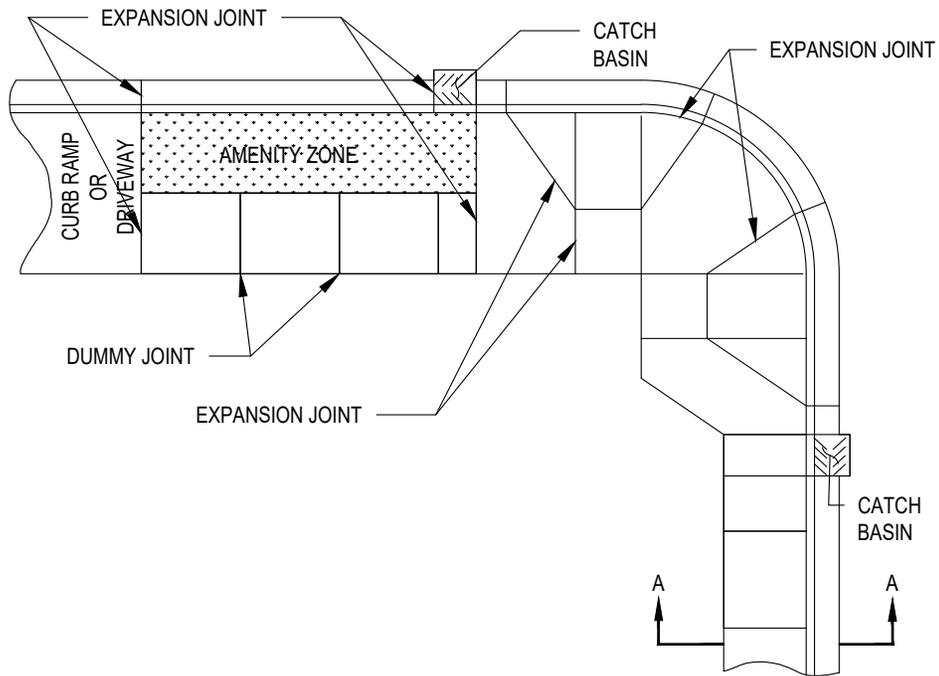
1. ASPHALT CONCRETE MIX SHALL BE HMA CL 1/2 INCH.
2. ASPHALT PATCHING AND TRENCH BACKFILL PER STD DWG 02-05A.
3. SAW CUTS LIMITS MAY BE REVISED BASED UPON EXISTING CONDITIONS. PATCH MAY NEED TO EXTEND TO CONFIDENT ASPHALT.
4. SAWCUTS NEED TO BE NEAT AND CLEAN PRIOR TO PAVING.
5. SEE 2-05A FOR TRENCH RESTORATION INFORMATION.
6. SEE 2-05B FOR PAVEMENT OVERLAY FOR TRENCH REPAIR WIDTHS.

PAVEMENT CUT DIMENSIONS	
TRENCH DEPTH (FT)	MINIMUM CUT BEYOND TRENCH (FT) ALL FOUR SIDES
10	2.5
12	3.0
14	3.5
16	4.0
18	4.5
20	5.0
PAVEMENT LESS THAN 5 YEARS OLD	ADDITIONAL RESTORATION WORK MAY BE REQUIRED

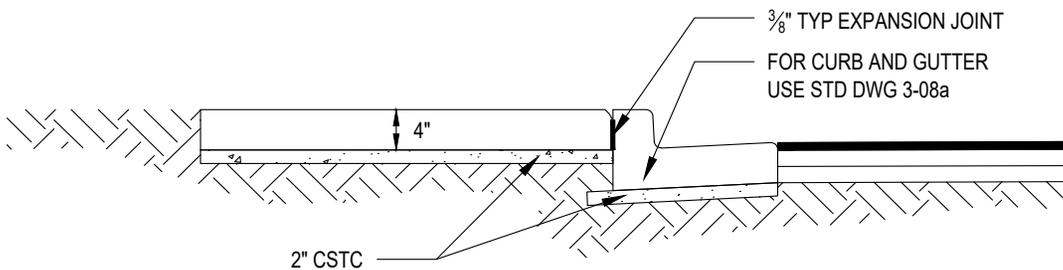


CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>FLEXIBLE PAVEMENT PATCHING</b>			
APPROVED BY CITY ENGINEER _____		DATE _____	
REV	DWN XXX	CKD XXX	DATE AUG-XX-2015
			FILE FIG02-05C

REV. NO. X



VERTICAL CURB & SIDEWALK



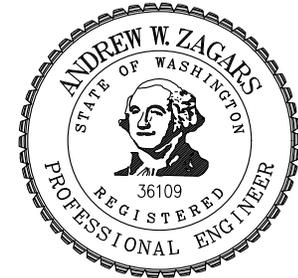
SECTION A-A

EXPANSION JOINT @ MAX. 15' C-C, 10' TYP, 15' MAX, ALONG CURB

1/4" "V" GROOVE/DUMMY JOINT @ MAX. 5' C-C

NOTES:

1. SIDEWALK JOINTS SHOULD MATCH CURB EXPANSION JOINTS.
2. MAXIMUM SPACING BETWEEN EXPANSION JOINTS IS 15'.
3. EXPANSION JOINTS MUST BE ON BOTH SIDES OF A CATCH BASIN.
4. ALL CONCRETE MUST BE A MINIMUM OF 4000 PSI MIX.

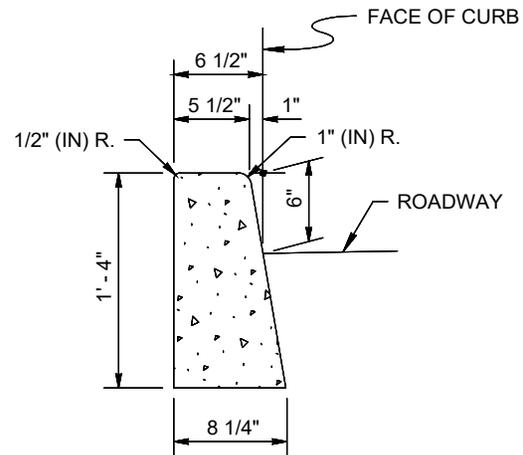
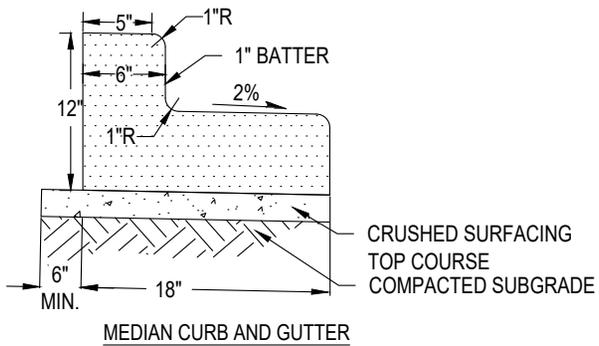
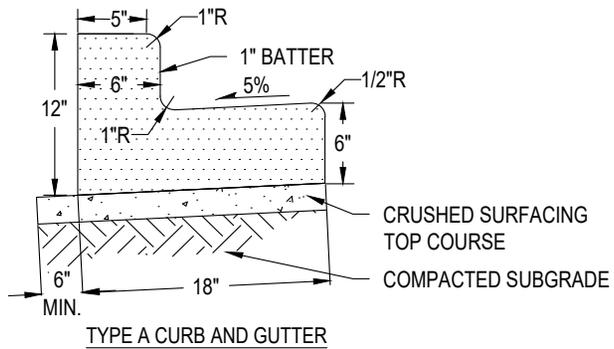


CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

SIDEWALK

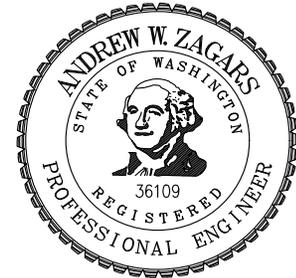
APPROVED BY CITY ENGINEER	DATE
DWN TTC	CKD AWZ
DATE AUG-XX-2015	FILE FIG03-06

REV. NO. X



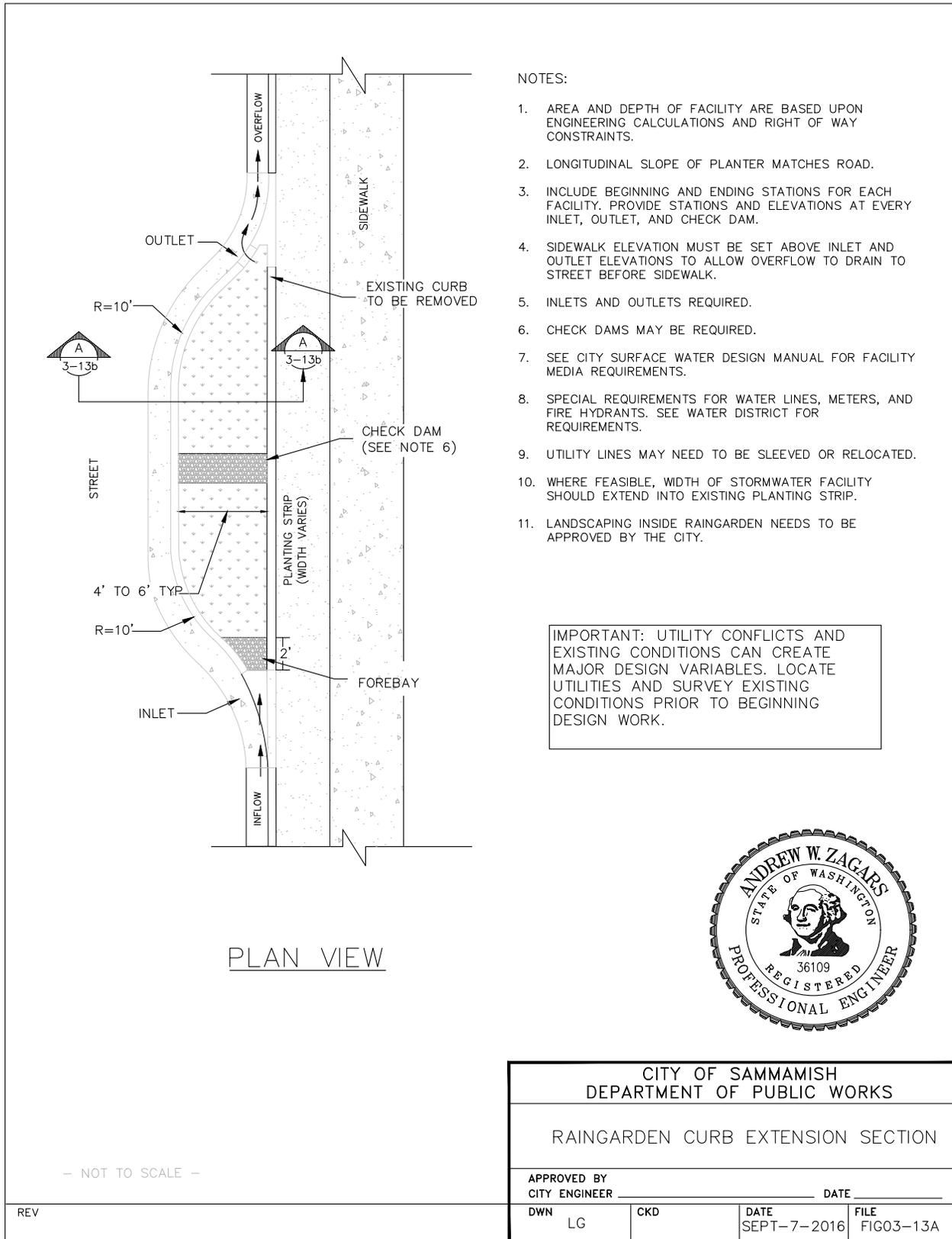
**NOTES:**

1. CONSTRUCT 10 FT LONG CURB TYPE TRANSITION BETWEEN DIFFERENT CURB TYPES.
2. CEMENT CONCRETE TRAFFIC CURB SHALL NOT REPLACE TYPE A CURB AND GUTTER ALONG THE SIDE OF THE ROADWAY. CEMENT CONCRETE TRAFFIC CURB IS ONLY TO BE USED AS A CURB BARRIER WITHIN THE ROADWAY AND MUST RECEIVE APPROVAL BY THE CITY ENGINEER BEFORE IT CAN BE USED.



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
CURBS			
APPROVED BY CITY ENGINEER _____		DATE _____	
REV	DWN TTC	CKD AWZ	DATE AUG-XX-2015 FILE FIG03-8a

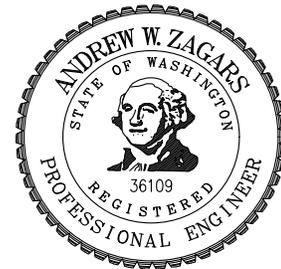
REV. NO. X



NOTES:

1. AREA AND DEPTH OF FACILITY ARE BASED UPON ENGINEERING CALCULATIONS AND RIGHT OF WAY CONSTRAINTS.
2. LONGITUDINAL SLOPE OF PLANTER MATCHES ROAD.
3. INCLUDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY. PROVIDE STATIONS AND ELEVATIONS AT EVERY INLET, OUTLET, AND CHECK DAM.
4. SIDEWALK ELEVATION MUST BE SET ABOVE INLET AND OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
5. INLETS AND OUTLETS REQUIRED.
6. CHECK DAMS MAY BE REQUIRED.
7. SEE CITY SURFACE WATER DESIGN MANUAL FOR FACILITY MEDIA REQUIREMENTS.
8. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS. SEE WATER DISTRICT FOR REQUIREMENTS.
9. UTILITY LINES MAY NEED TO BE SLEEVED OR RELOCATED.
10. WHERE FEASIBLE, WIDTH OF STORMWATER FACILITY SHOULD EXTEND INTO EXISTING PLANTING STRIP.
11. LANDSCAPING INSIDE RAINGARDEN NEEDS TO BE APPROVED BY THE CITY.

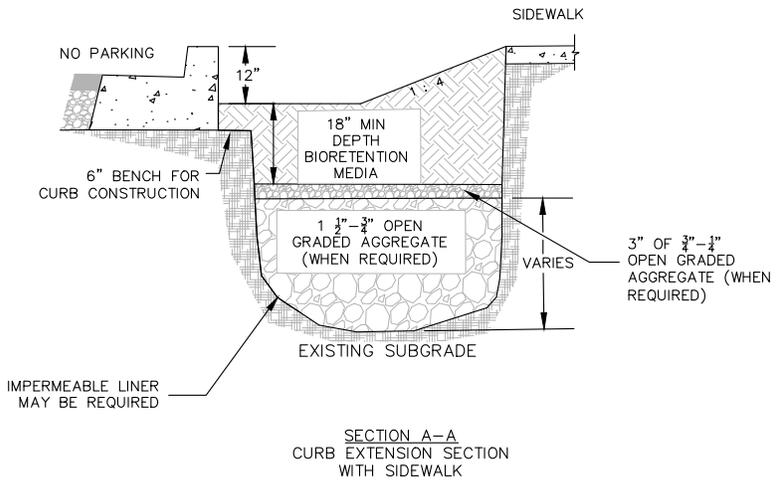
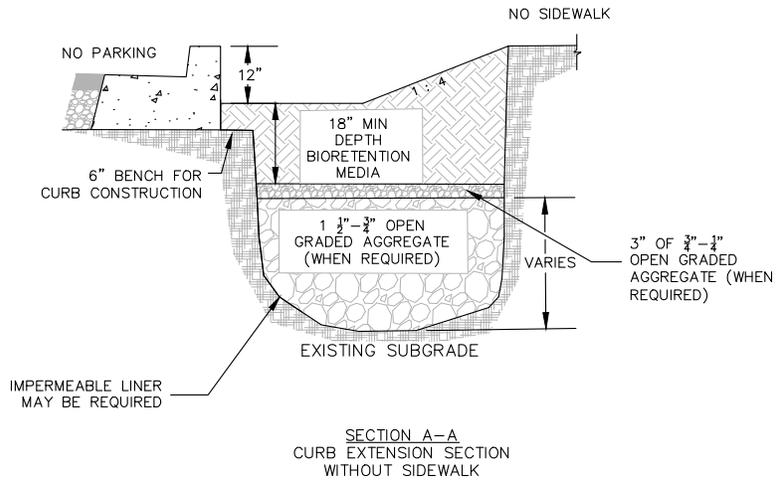
IMPORTANT: UTILITY CONFLICTS AND EXISTING CONDITIONS CAN CREATE MAJOR DESIGN VARIABLES. LOCATE UTILITIES AND SURVEY EXISTING CONDITIONS PRIOR TO BEGINNING DESIGN WORK.



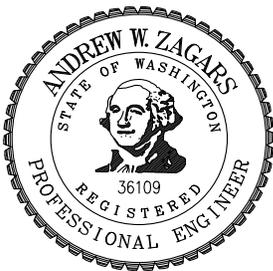
CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
RAINGARDEN CURB EXTENSION SECTION			
APPROVED BY CITY ENGINEER _____		DATE _____	
DWN LG	CKD	DATE SEPT-7-2016	FILE FIG03-13A

- NOT TO SCALE -

REV

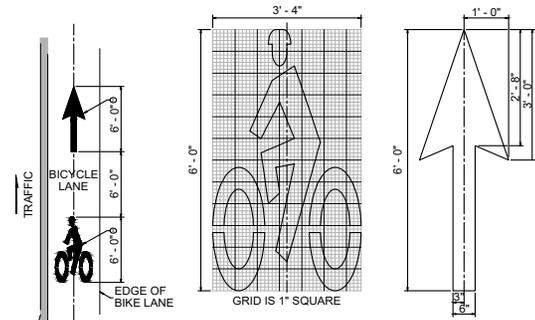
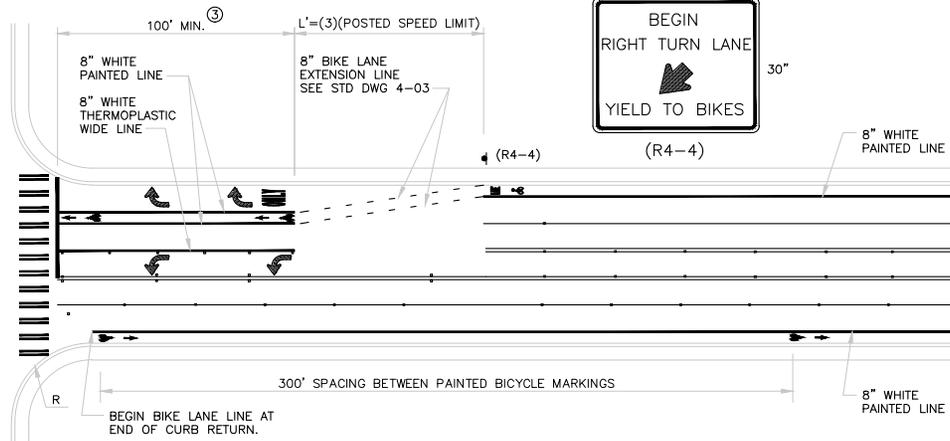


- NOT TO SCALE -



CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
RAINGARDEN CURB EXTENSION SECTION			
APPROVED BY CITY ENGINEER _____		DATE _____	
DWN LG	CKD	DATE SEPT-7-2016	FILE FIG03-13B

REV

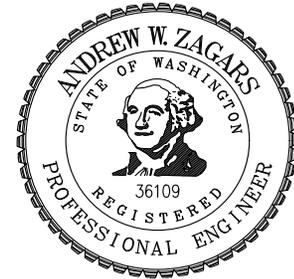
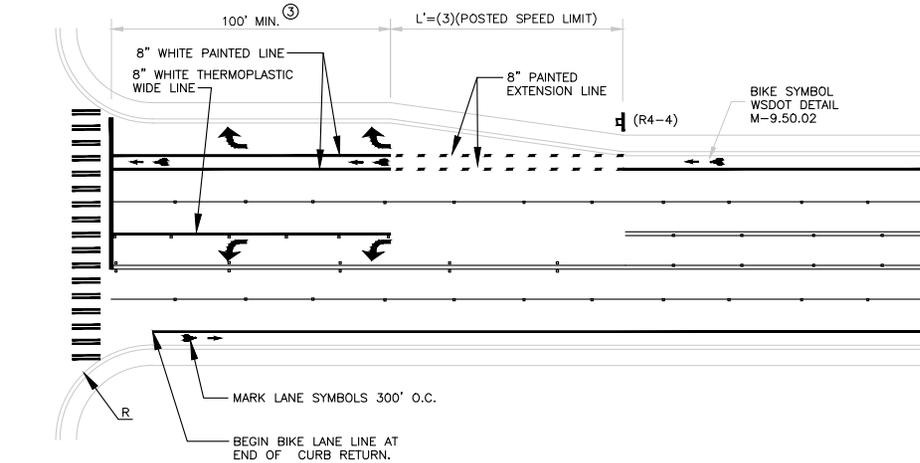


**NOTES**

1. BIKE LANE WIDTH SHALL BE 5 FT.
2. IF R > 45 FT., A RAISED ISLAND FOR RIGHT TURN CHANNELIZATION IS RECOMMENDED.
3. POCKET LENGTH SHALL BE SUPPORTED BY TRAFFIC ANALYSIS
4. PLACE R3-18 SIGN IF THE BIKE LANE TERMINATES AT OR BEFORE THE APPROACHING INTERSECTION.
5. RIGHT TURN LANES, LEFT TURN LANES, AND TWO-WAY LEFT TURN LANES SHALL BE 12 FT. IN WIDTH.
6. TURN LANE ARROWS SHALL BEGIN AT THE START OF THE TURN LANE AND 40 FT. BEHIND THE STOP LINE. IF NEEDED LONGER LANES MAY BE REQUIRED. ADDITIONAL ARROWS 150 FT. APART.

**NOTES**

1. WSDOT DETAIL M-9.50.02
2. 2' x 6' WHITE BIKE LANE ARROW
3. BIKE RIDER SYMBOL
4. BIKE RIDER SYMBOL AND ARROW SHALL BE THERMOPLASTIC

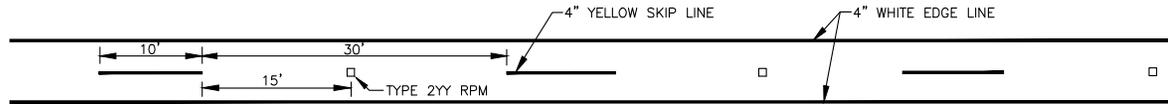


CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS  
**CHANNELIZATION – VEHICLE  
AND BICYCLES**

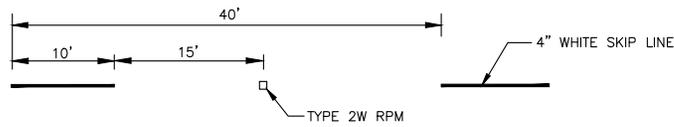
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

REV	DWN XXX	CKD XXX	DATE AUG-XX-2015	FILE FIG04-02
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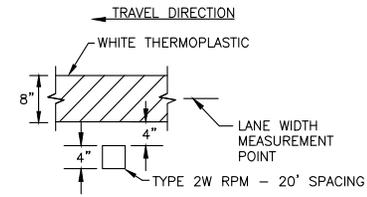
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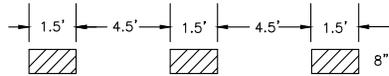
**SINGLE LANE TWO-WAY TRAFFIC**



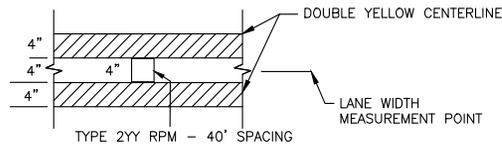
**LANE SEPARATION**



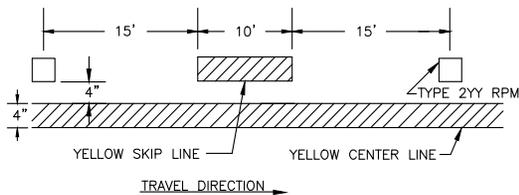
**WIDE LANE LINE**



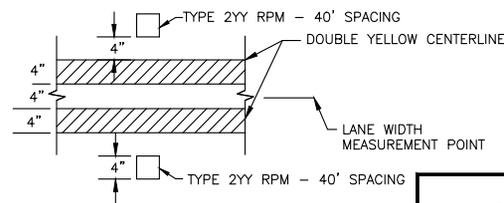
**LANE EXTENSION LINE**



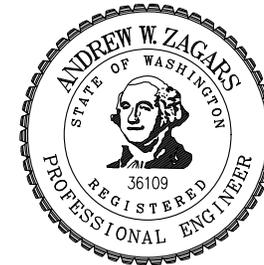
**CENTERLINE - NON-PRINCIPAL ARTERIALS**



**TWO-WAY LEFT TURN LANE**



**CENTERLINE - PRINCIPAL ARTERIALS**



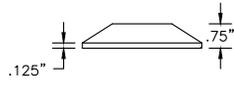
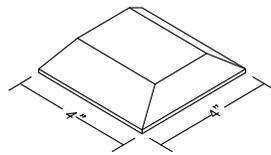
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**PAVEMENT MARKINGS**

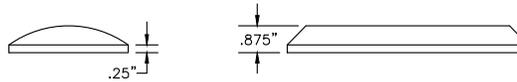
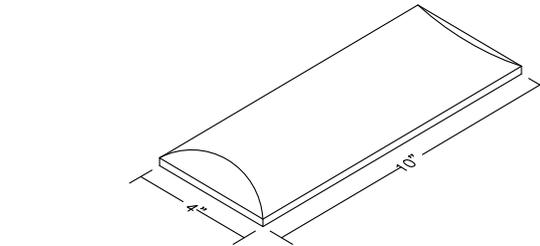
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

REV	DWN	CKD	DATE	FILE
	XXX	XXX	AUG-XX-2015	FIG04-03A

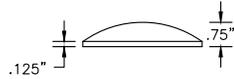
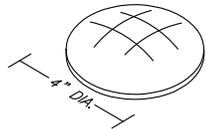
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**TYPE 2 RPM**

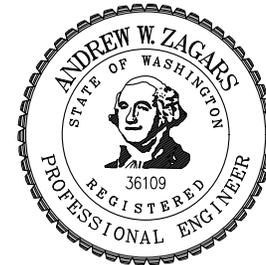


**TYPE 3 RPM**



**TYPE 1 RPM**

RAISED PAVEMENT MARKER COLORS	
TYPE 1W	NONREFLECTORIZED WHITE
TYPE 1Y	NONREFLECTORIZED YELLOW
TYPE 2W	REFLECTORIZED WHITE - ONE SIDE ONLY
TYPE 2Y	REFLECTORIZED YELLOW - ONE SIDE ONLY
TYPE 2YY	REFLECTORIZED YELLOW - BOTH SIDES
TYPE 2BB	REFLECTORIZED BLUE - BOTH SIDES



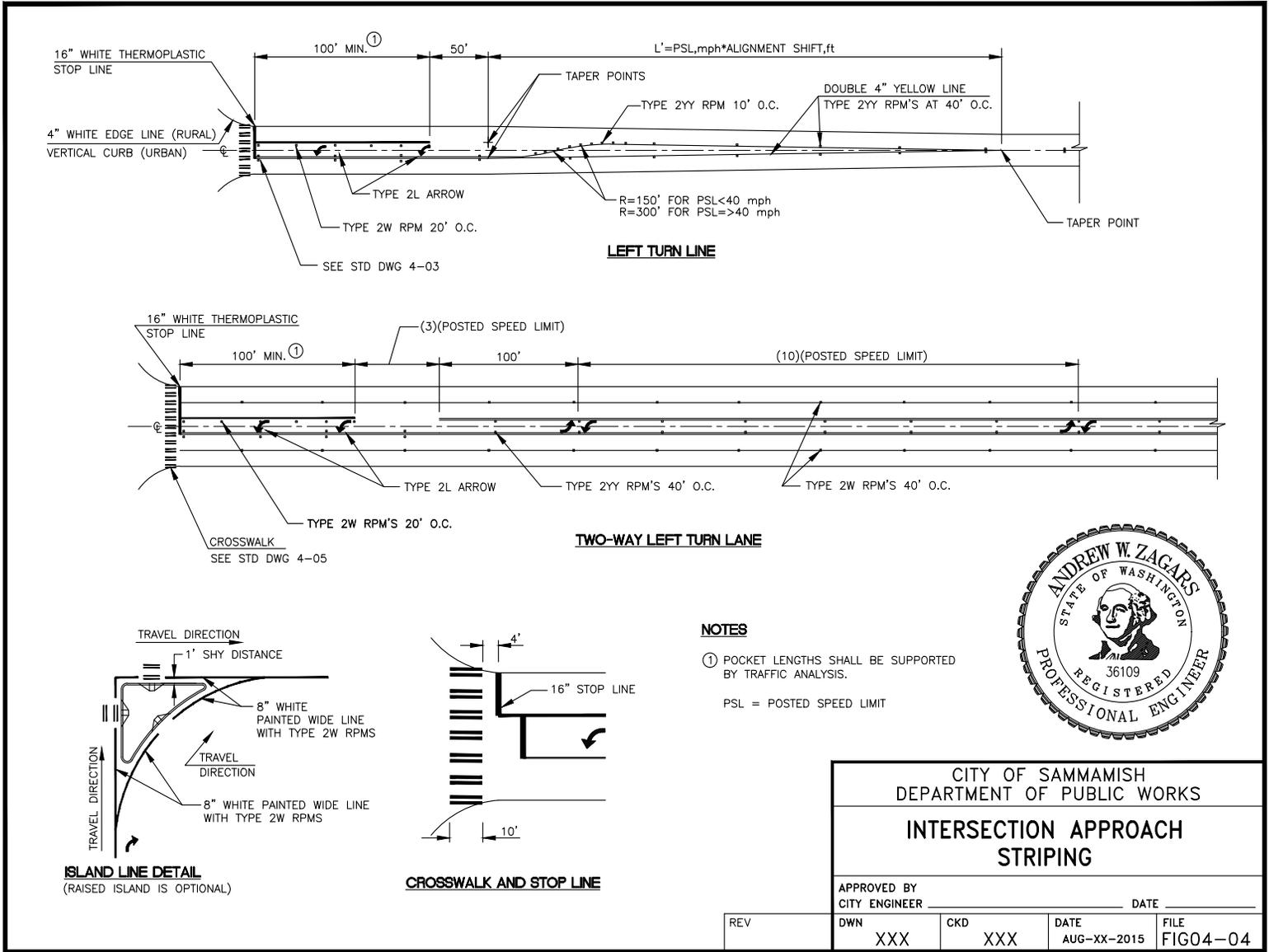
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

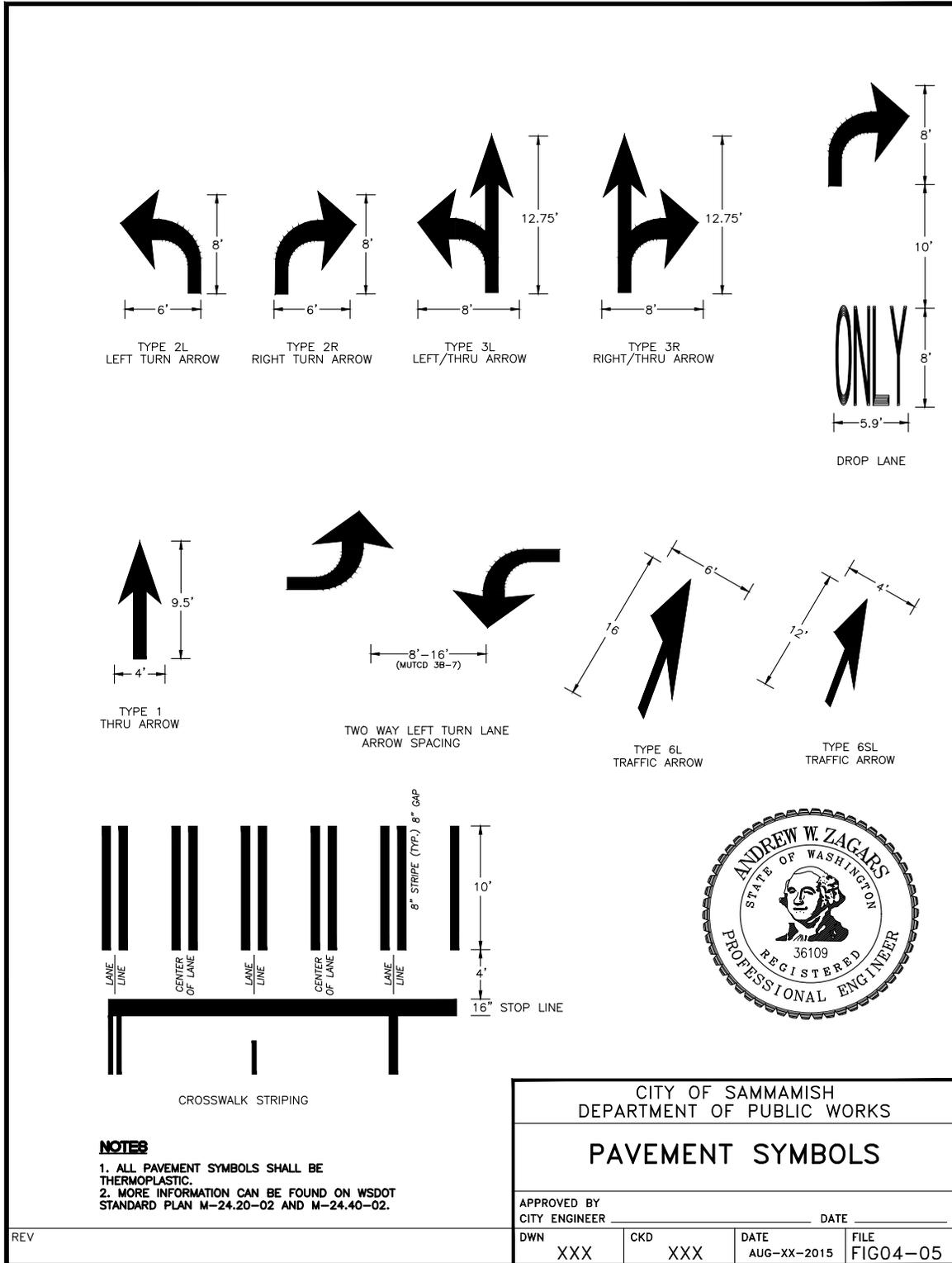
**RAISED PAVEMENT MARKERS**

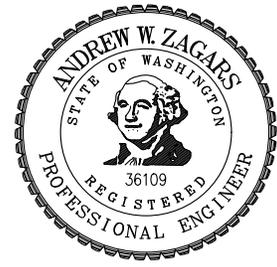
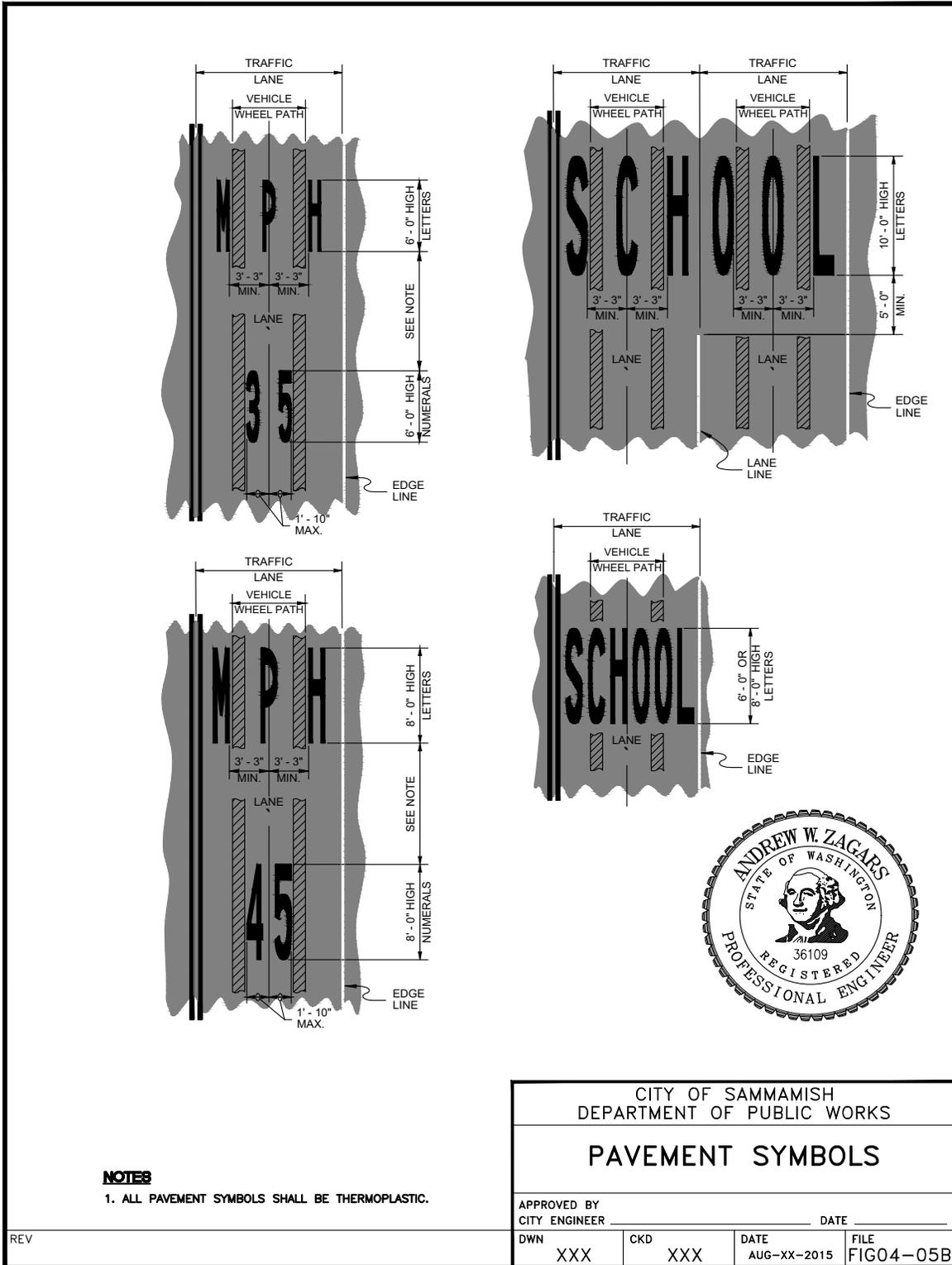
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

REV	DWN	CKD	DATE	FILE
	XXX	XXX	AUG-XX-2015	FIG04-03B

REV. NO. X







**NOTES**

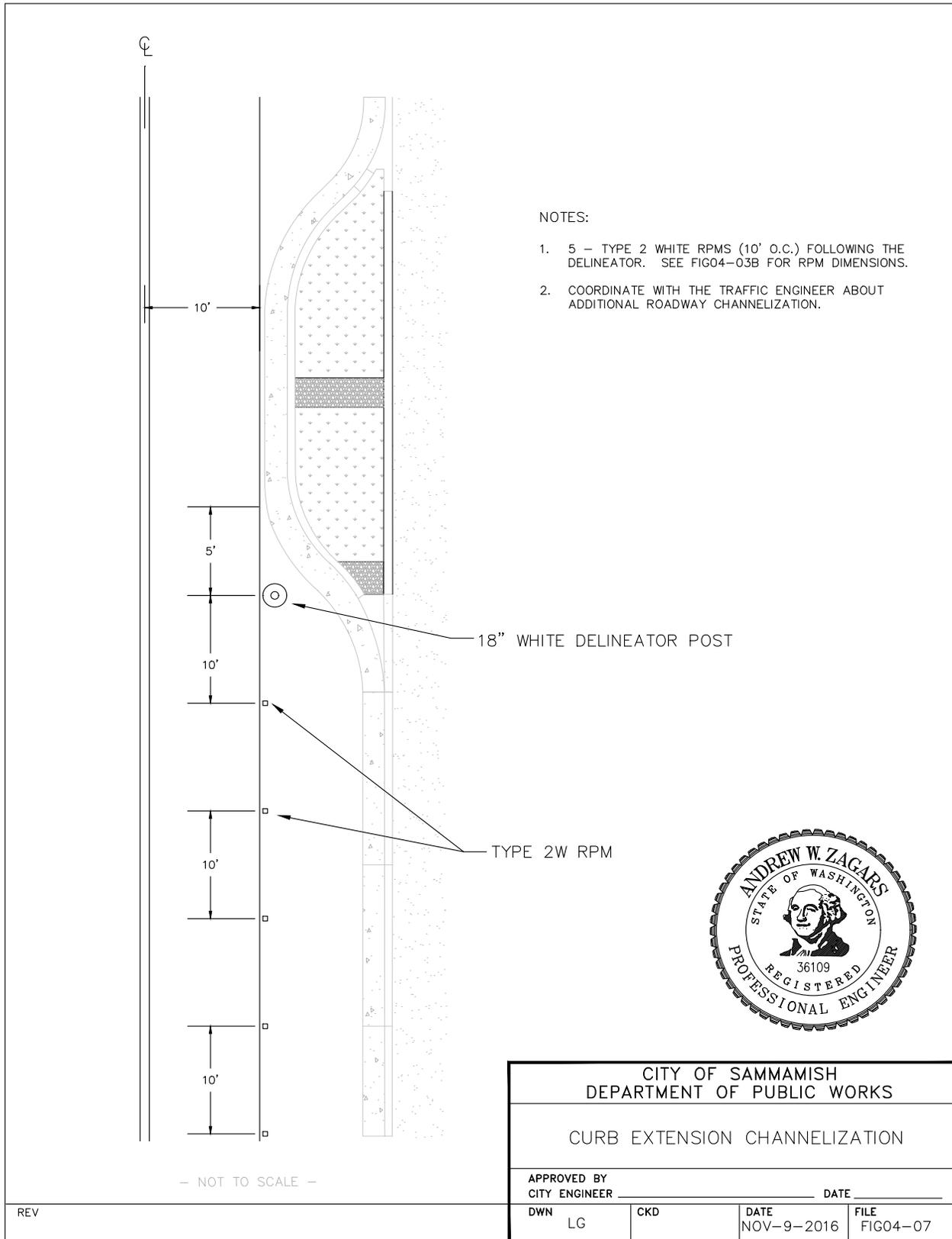
1. ALL PAVEMENT SYMBOLS SHALL BE THERMOPLASTIC.

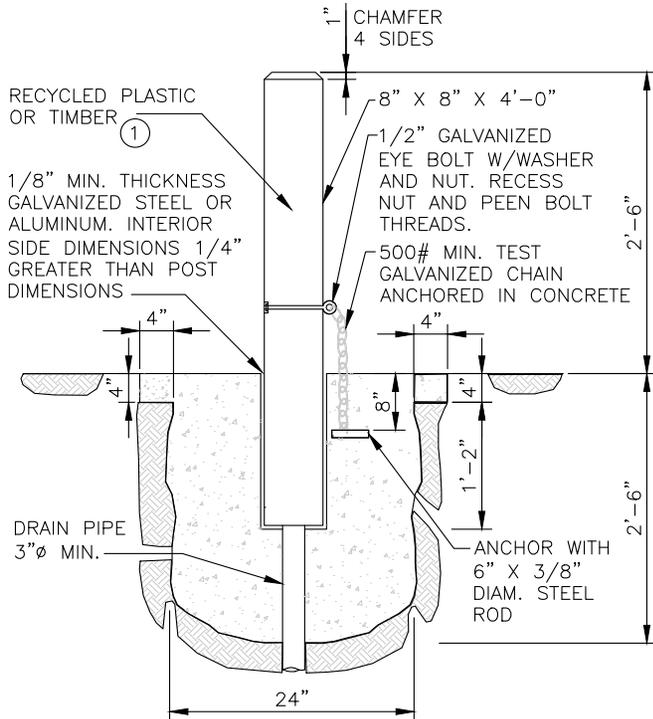
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**PAVEMENT SYMBOLS**

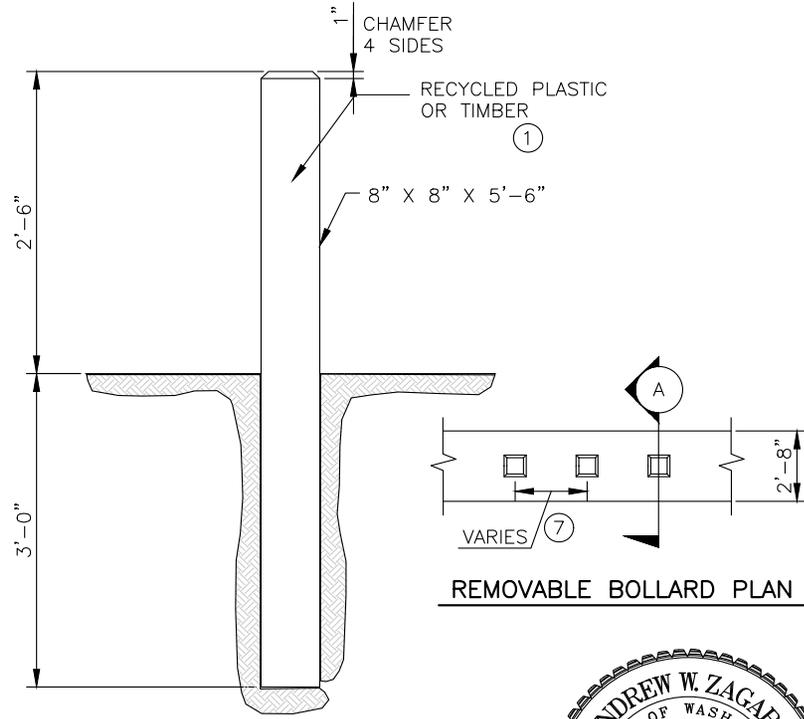
APPROVED BY CITY ENGINEER		DATE	
DWN	CKD	DATE	FILE
XXX	XXX	AUG-XX-2015	FIG04-05B

REV. NO. X

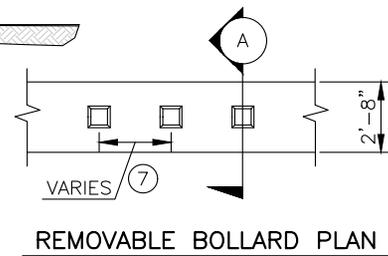




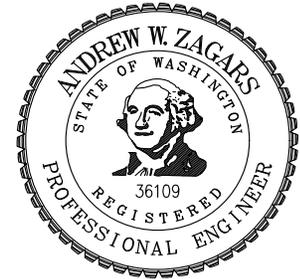
**REMOVABLE BOLLARD SECTION A**



**FIXED BOLLARD**



**REMOVABLE BOLLARD PLAN**

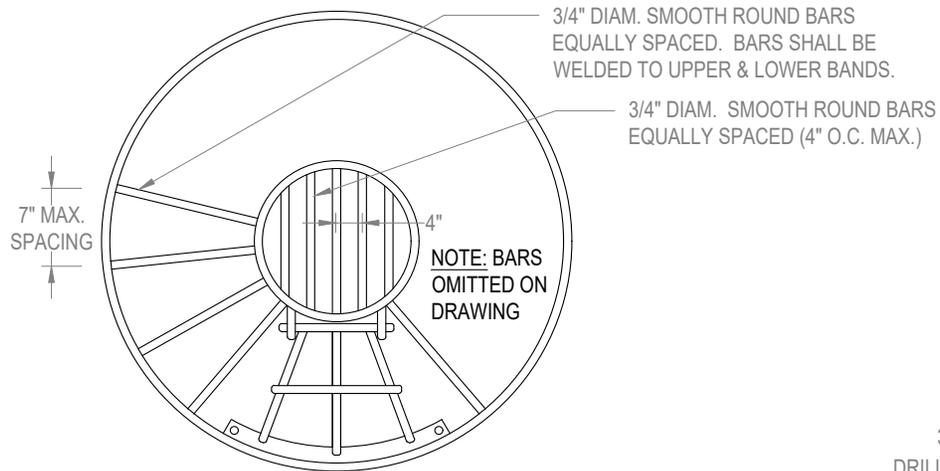


**NOTES:**

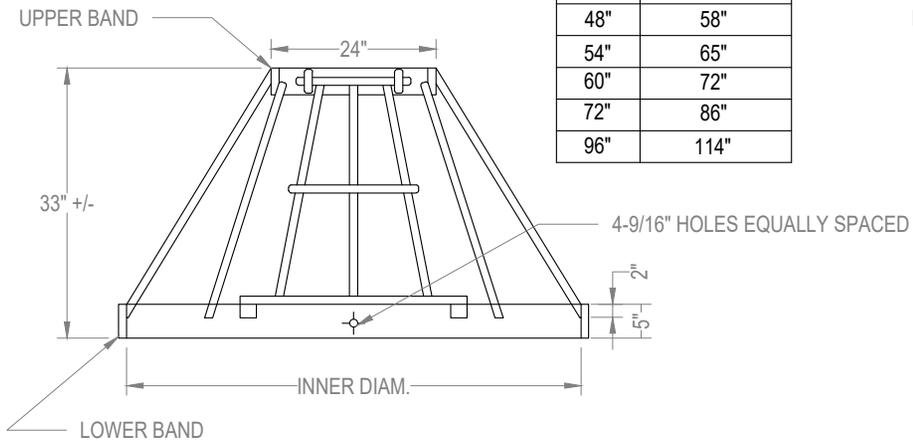
- ① RECYCLED PLASTIC BOLLARD SHALL BE WHITE. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE PRESSURE TREATED WITH A WATERBORNE PRESERVATIVE (ACA, CCA, ACZA) IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. 9-09.3 (1) OF THE WSDOT/APWA STANDARD SPECIFICATIONS. TOP 5 IN. OF TIMBER SHALL BE PAINTED WHITE.
- 2. STEEL TUBE SHALL CONFORM TO ASTM A53 GRADE A.
- 3. NUTS, BOLTS, & WASHERS SHALL CONFORM TO ASTM A307.
- 4. ALL STEEL PARTS SHALL BE GALVANIZED.
- 5. CONCRETE SHALL BE CLASS 4000.
- 6. SEE SEC. 5.08.
- ⑦ MIN. 50 IN. SPACING ON TRAILS LESS THAN 10 FT. WIDE. 60 IN. SPACING ON TRAILS 10 FT. OR WIDER.

CITY OF SAMMAMISH DEPARTMENT OF PUBLIC WORKS			
<b>BOLLARDS</b>			
APPROVED BY CITY ENGINEER		DATE	
REV	DWN XXX	CKD XXX	DATE AUG-XX-2015 FILE FIG05-03

REV. NO. X



PLAN

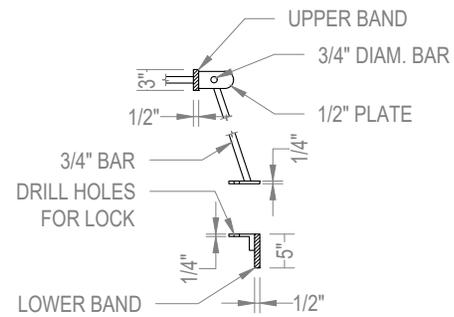


ELEVATION

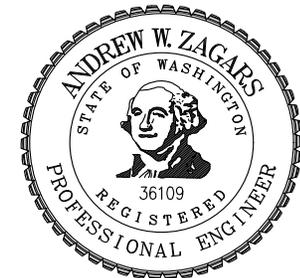
CB	INNER DIAM.
48"	58"
54"	65"
60"	72"
72"	86"
96"	114"

NOTES:

1. ALL STEEL IN PLATES, BARS AND BANDS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36.
2. DEBRIS CAGE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 (AASHTO M111).



ENTRY GATE DETAIL



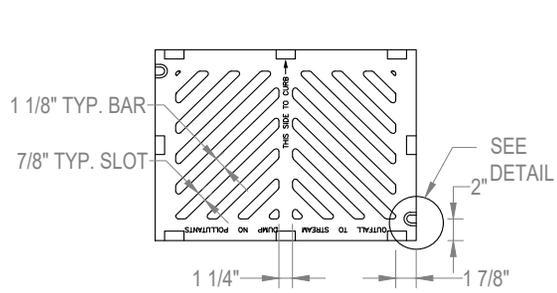
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

**TRASH RACK  
(DEBRIS CAGE) – CONICAL**

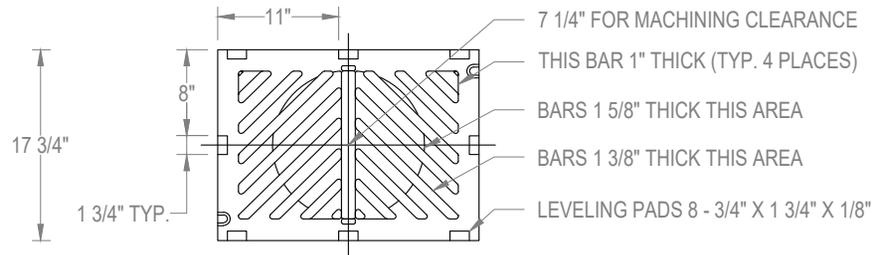
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

REV	DWN	CKD	DATE	FILE
	XXX	XXX	AUG-XX-2015	FIG07-03

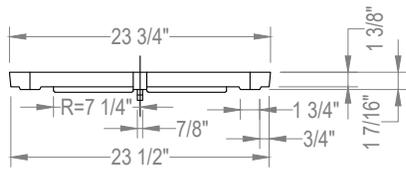
REV. NO. X



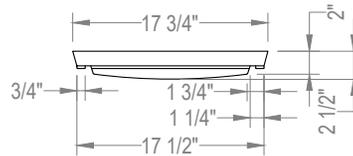
TOP VIEW



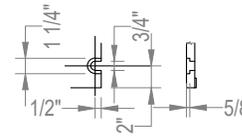
BOTTOM VIEW



SIDE VIEW

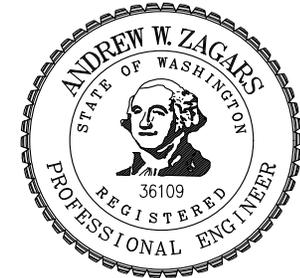


END VIEW



SLOT DETAIL

SEE NOTE ①



NOTES:

- ① SLOT FORMED AND RECESSED FOR 5/8"-11 NC X 2" SOCKET HEAD (ALLEN HEAD) CAP SCREW.
2. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.
3. GRATE SHALL BE CAST IRON PER ASTM A48 CLASS 30 UNLESS OTHERWISE SPECIFIED.
4. GRATE SHALL NOT BE USED WITHIN THE ROADWAY.

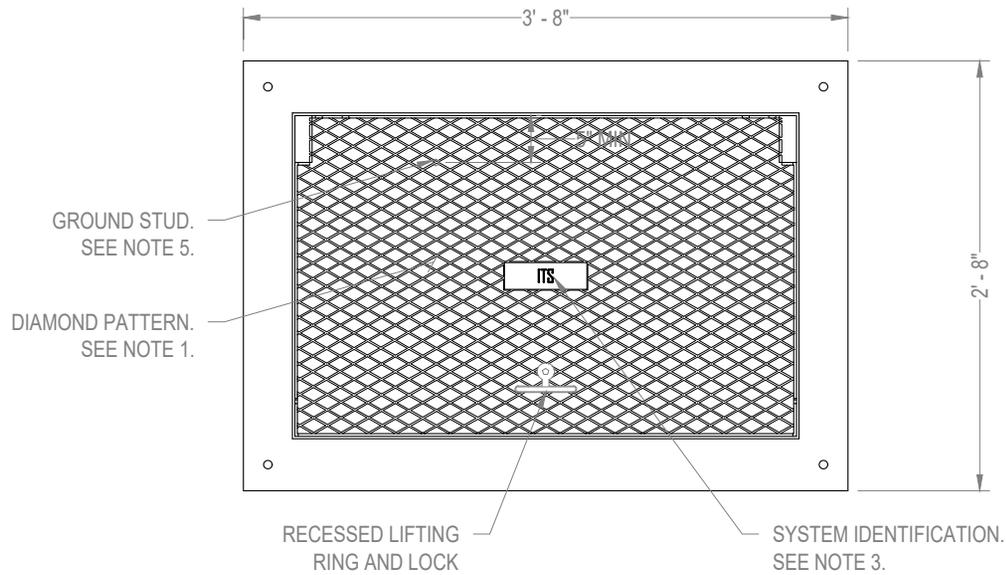
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

STANDARD GRATE

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CITY ENGINEER

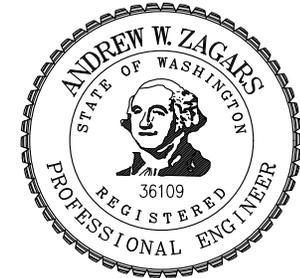
REV	DWN	CKD	DATE	FILE
	XXX	XXX	AUG-XX-2015	FIG07-17

REV. NO. X



NOTES:

1. THE DIAMOND PATTERN SHALL BE A MINIMUM OF  $\frac{3}{32}$ " THICK AND SHALL NOT BE USED IN PEDESTRIAN AND BICYCLE ZONES.
2. STANDARD DUTY PULL BOXES INSTALL IN SIDEWALKS, WALKWAYS, AND SHARED-USE PATHS SHALL HAVE A SLIP-RESISTANT COATING ON LID AND SHALL BE INSTALLED WITH THE SURFACE FLUSH WITH AND MATCHED TO THE GRADE OF THE SIDEWALK, WALKWAY, AND SHARED-USE PATHS. THE NON-SLIP SHALL BE IDENTIFIED WITH PERMANENT MARKING ON THE UNDERSIDE INDICATING THE TYPE OF SURFACE TREATMENT (SEE CONTRACT DOCUMENTS FOR DETAILS) AND THE YEAR OF MANUFACTURE. THE PERMANENT MARKING SHALL BE  $\frac{1}{8}$ " INCH LINE THICKNESS FORMED WITH A STAINLESS STEEL WELD BEAD AND SHALL BE PLACED PRIOR TO HOT-DIP GALVANIZING.
3. THE SYSTEM IDENTIFICATION LETTERS SHALL BE  $\frac{1}{8}$ " LINE THICKNESS FORMED BY ENGRAVING, CASTING, STAMPING, OR WITH A S.S WELD BEAD. DUCTILE IRON LID LETTERING SHALL BE RECESSED.
4. CEMENT CONCRETE SHALL BE CLASS 4000.
5. A 1/4-20 NCx3/4" STAINLESS STEEL GROUND STUD SHALL BE WELDED TO THE BOTTOM OF THE LID; INCLUDE (2) STAINLESS STEEL NUTS AND (2) STAINLESS STEEL FLAT WASHERS.



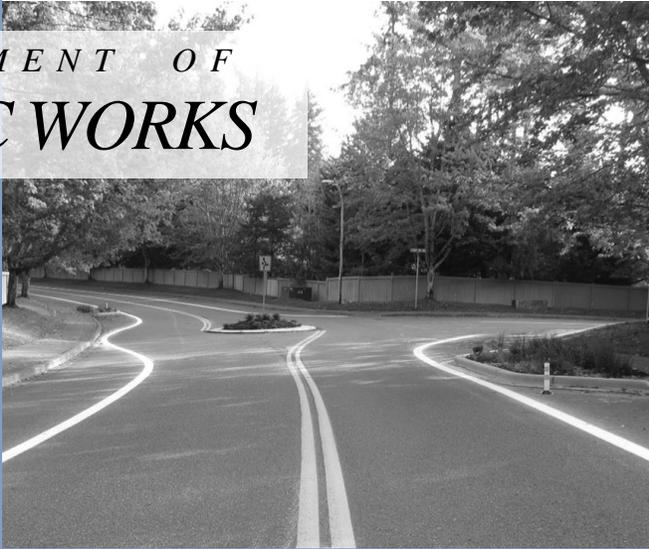
CITY OF SAMMAMISH  
DEPARTMENT OF PUBLIC WORKS

PULL BOX LID

APPROVED BY CITY ENGINEER _____		DATE _____	
REV	DWN XXX	CKD XXX	DATE AUG-XX-2015
			FILE FIG09-19

REV. NO. X

DEPARTMENT OF  
*PUBLIC WORKS*



## PUBLIC WORKS STANDARDS 2018 Update

**City Council Study Session  
November 13, 2018**



# Meeting Purpose

- Discuss proposed edits to the 2016 Public Works Standards
- Discuss schedule to adopt revisions

# Proposed Changes

- PWS Change Summary Table
- Public Works Redline PDF

# Next Steps

- November 2018-Draft Public Works Standards available for review
- December 2018 – SEPA DNS
- January 2019 – Public Hearing/Ordinance Adoption

# Thank You

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Public Works Website: <https://www.sammamish.us/government/departments/public-works/>

**Agenda Bill**  
 City Council Regular Meeting  
 November 13, 2018



<b>SUBJECT:</b>	Roadway corridor and segment capacities, and LOS standard options.														
<b>DATE SUBMITTED:</b>	October 11, 2018														
<b>DEPARTMENT:</b>	Public Works														
<b>NEEDED FROM COUNCIL:</b>	<input checked="" type="checkbox"/> Action <input type="checkbox"/> Direction <input type="checkbox"/> Informational														
<b>RECOMMENDATION:</b>	Review and approve preferred roadway capacity methodology and volume-to-capacity Level of Service standards to be added to the City's existing concurrency program.														
<b>EXHIBITS:</b>	<a href="#">1. Exhibit 1 - HCM+ Capacity Method memo</a> <a href="#">2. Attachment A - 2016 &amp; 2024 HCM+ V/C Results</a>														
<b>BUDGET:</b>	<table border="0"> <tr> <td>Total dollar amount</td> <td>N/A</td> <td><input type="checkbox"/></td> <td><b>Approved in budget</b></td> </tr> <tr> <td>Fund(s)</td> <td>N/A</td> <td><input checked="" type="checkbox"/></td> <td><b>Budget reallocation required</b></td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/></td> <td><b>No budgetary impact</b></td> </tr> </table>			Total dollar amount	N/A	<input type="checkbox"/>	<b>Approved in budget</b>	Fund(s)	N/A	<input checked="" type="checkbox"/>	<b>Budget reallocation required</b>			<input type="checkbox"/>	<b>No budgetary impact</b>
Total dollar amount	N/A	<input type="checkbox"/>	<b>Approved in budget</b>												
Fund(s)	N/A	<input checked="" type="checkbox"/>	<b>Budget reallocation required</b>												
		<input type="checkbox"/>	<b>No budgetary impact</b>												
<b>WORK PLAN FOCUS AREAS:</b>	<table border="0"> <tr> <td><input checked="" type="checkbox"/>  Transportation</td> <td><input type="checkbox"/>  Community Safety</td> </tr> <tr> <td><input type="checkbox"/>  Communication &amp; Engagement</td> <td><input checked="" type="checkbox"/>  Community Livability</td> </tr> <tr> <td><input type="checkbox"/>  High Performing Government</td> <td><input type="checkbox"/>  Culture &amp; Recreation</td> </tr> <tr> <td><input type="checkbox"/>  Environmental Health &amp; Protection</td> <td><input checked="" type="checkbox"/>  Financial Sustainability</td> </tr> </table>			<input checked="" type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety	<input type="checkbox"/> Communication & Engagement	<input checked="" type="checkbox"/> Community Livability	<input type="checkbox"/> High Performing Government	<input type="checkbox"/> Culture & Recreation	<input type="checkbox"/> Environmental Health & Protection	<input checked="" type="checkbox"/> Financial Sustainability				
<input checked="" type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety														
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<input type="checkbox"/> High Performing Government	<input type="checkbox"/> Culture & Recreation														
<input type="checkbox"/> Environmental Health & Protection	<input checked="" type="checkbox"/> Financial Sustainability														

**NEEDED FROM COUNCIL:**  
 Review and approve preferred roadway capacities and volume-to-capacity Level of Service standards to be added to the City's existing concurrency program.

**KEY FACTS AND INFORMATION SUMMARY:**  
Background  
 After much analysis and discussion, the Council affirmed their preferred concurrency policy to be an intersection-wide, volume weighted average delay approach with a Level of Service (LOS) of C for minor and collector arterials, and an LOS of D for principal arterials, with allowance for LOS E where LOS D cannot be achieved with three approach lanes per direction in February, 2018. Council unanimously approved emergency amendments to the Comprehensive Plan and updates to the

affected codes that reflect this revised concurrency policy on [September 18, 2018](#), and directed staff to return in October to discuss three methods for establishing roadway LOS standards.

At the Council's meeting on [October 1, 2018](#) three methods to determine road capacities were described, which included the 2015 Comp Plan Table T-8 (with and without the non-motorized components), the Florida Department of Transportation (FDOT), and the Highway Capacity Manual (HCM 6th Ed.). The project team also reviewed the draft capacities and draft LOS for nine road segments resulting from each method as well as presented the remaining policies requiring Council direction. It is important to note that the road characteristic adjustments to the base capacities allowed by each method's approach means that the City is limited to implementing those respective characteristics to increase a segment's/corridor's vehicular capacity. Council chose to eliminate Table T-8 from further consideration and directed staff to return on October 16th with capacities and V/C results for all principal and minor arterials.

The project team met with the Council on [October 16, 2018](#) and [October 22, 2018](#) to present the remaining policies needing Council direction, the draft capacities and V/C results for principal and minor arterial corridor and segments. As a result, the Council made the following decisions:

- Use principal and minor arterial corridors and segments as defined in the 2017 draft Comp Plan update but do not include East Lake Sammamish Parkway (ELSP).
- Use the HCM, 6th Ed. method but want it modified to include the FDOT allowances for increasing vehicular capacities when left turn pockets, right turn lanes and medians exist. (Exhibit 1)
- Show V/C results for the following combinations:

Max. Allowable Corridor Capacity	Max. Allowable Segment Capacity
≤ 1.0	≤ 1.25 (10% incr)
≤ 1.1	≤ 1.21 (10% incr)
≤ 1.25	≤ 1.56 (25% incr)

The Council also voted on the following motions at the October 16, 2018 meeting. Both motions excluded ELSP and prescribed the HCM method:

- Maximum allowable V/C for corridors and any one segment within that corridor: 1.25 and 25% (1.56) of the corridor value, respectively. Motion failed 4-3 with Mayor Malchow, Deputy Mayor Moran, CM Hornish and CM Ross dissenting.
- Maximum allowable V/C for Sahalee, Duthie Hill Rd, and IPLR corridors and any one segment within those corridors: 1.15 and 25% (1.44) of the corridor value; and 1.0 and 25% for all other corridors and segments. Motion failed 1-6 with all but CM Hornish dissenting.

#### Next steps

The outstanding policies still needing Council decisions are to confirm the capacity methodology, and decide on the corridor and segment LOS standard(s). Staff will be available at the meeting to answer questions regarding the attached capacity and LOS results for the 2016 and 2024 conditions using the proposed HCM Plus approach (Attachment 1).

**FINANCIAL IMPACT:**

It is unknown what the financial impact is until the Council approves the scope of work needed to address their concerns.

**OTHER ALTERNATIVES CONSIDERED:**

Although Council directed staff to modify the HCM method to allow for increased vehicular capacities for right turn lanes and medians, staff continues to strongly recommend that Council provide for additional flexibility in how segment capacities are calculated. While the proposed HCM Plus methodology offers an objective basis that is tied to the most recent Highway Capacity Manual guidance, it is still fairly generalized and doesn't consider improvements like ITS and flashing yellow arrows, which can measurably improve corridor capacity.

Staff is concerned that without including additional elements into the concurrency calculation, the City's TIP may include project improvements that might not be the most efficient or cost effective approach to add capacity. For example, intersections are the pinch points along a roadway. However, the proposed concurrency methodology will restrict the project scope of work to adding lanes or a right turn lane when in fact, making improvements to the intersection is what will add capacity and reduce congestion.

**RELATED CITY GOALS, POLICIES, AND MASTER PLANS:**

[Comprehensive Plan](#) - [Transportation Element](#)

City of Sammamish  
November 9, 2018  
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## MEMORANDUM

Date: November 9, 2018  
To: Cheryl Paston, City of Sammamish  
From: Kendra Breiland and Daniel Dye, Fehr & Peers  
Subject: **Measuring Concurrency for Segments and Corridors: Volume Threshold Options**

SE17-0536

Over the past several months, we have worked with the staff and Council to update the City's concurrency program. The Council adopted a program based on AM and PM peak hour delay at intersections at the September 18th meeting. This system recognizes that intersections are the main pinch points in Sammamish's transportation system that cause congestion.

At the October 22<sup>nd</sup> Council meeting, staff were provided direction to develop a methodology for evaluating segment and corridor performance, based on volume-to-capacity (V/C) ratios measured by direction during the AM and PM peak hours.<sup>1</sup> The methodology, as directed by Council, leverages the default values provided in the Highway Capacity Manual (HCM), 6<sup>th</sup> Edition<sup>2</sup>, but also makes adjustments to better account for roadway characteristics like the presence of turn lanes and medians. This methodology, which is described in more detail below, is referred to as "HCM Plus" for the remainder of this memo.

Using the HCM Plus methodology, staff then evaluated how corridors and individual segments performed based on three tests requested by Council during the October 22<sup>nd</sup> meeting:

- **Test 1:** Allowable corridor V/C ratio cannot exceed 1.0; individual segment V/C cannot exceed 1.25
- **Test 2:** Allowable corridor V/C ratio cannot exceed 1.1; individual segment V/C cannot exceed 1.21
- **Test 3:** Allowable corridor V/C ratio cannot exceed 1.25; individual segment V/C cannot exceed 1.56

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<sup>1</sup> AM peak hour is 7-8 am on a Tuesday-Thursday; PM peak hour is 4:45-5:45pm on a Tuesday-Thursday.

<sup>2</sup> Att B: Table 16-16

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The analysis was performed using both 2016 count volumes as well as 2024 forecasts, which were developed using the City's pipeline model that considers growth in traffic expected by 2024 based on approved development in the City and regional growth. The results of this technical analysis for all segments and corridors in the City are included as **Attachment A** to this memo.

### HCM PLUS METHODOLOGY

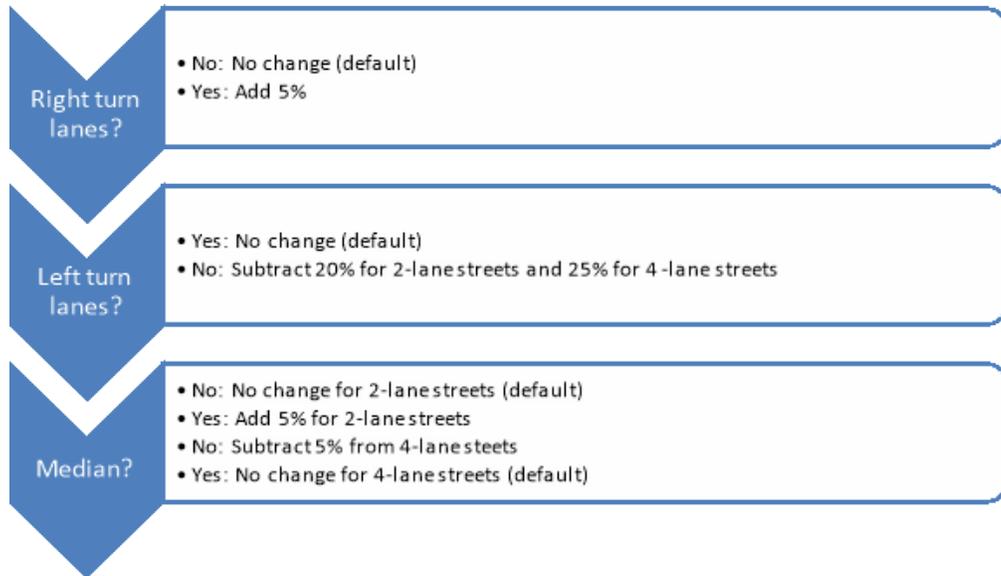
The HCM Plus methodology leverages Table 16-16 of the HCM, 6<sup>th</sup> Edition, which was presented to Council at the October 16<sup>th</sup> and 22<sup>nd</sup> meetings (see **Attachment B**). Identified advantages of leveraging data from Table 16-16 are that it is from the newest edition of the HCM and is fairly straightforward to implement. The generic nature of the capacities provided in Table 16-16, which consider few roadway characteristics that impact capacity, was identified as a shortcoming.

To address this shortcoming, Council directed staff to develop an HCM Plus methodology. This methodology includes the base capacities provided in Table 16-16 plus adjustments to account for the presence of turn lanes and medians. **Figure 1** below describes the HCM Plus methodology, which pivots from the default assumptions listed in Table 16-16 to adjust for individual roadway characteristics.



**FIGURE 1: HCM PLUS ADJUSTMENTS**

**First, start with default HCM flow rate based on numbers of lanes and speed. Then apply following adjustments:**



These adjustments generally follow the guidance from the Florida Department of Transportation (FDOT) tables for similar facility types (see **Attachment C**).

**RESULTS SUMMARY**

While the full results of this analysis are shown in **Attachment A**, we include a high-level summary of the segments and corridors that fail under each test in **Tables 1 and 2**. Some observations:

- **East Lake Sammamish Parkway Corridor:** This corridor fails all tests under both 2016 and 2024 conditions. Council previously decided to exclude this corridor from concurrency tests since no reasonable capacity project has been identified. It is therefore included for informational purposes only.
- **Sahalee Way-228<sup>th</sup> North Corridor:** This corridor fails tests 1 and 2 in both 2016 and 2024, and just barely passes test 3, which allows a corridor V/C ratio of 1.25. By adopting a 1.25 V/C standard for this corridor, it would allow the corridor to pass concurrency with previously approved development, but likely require capacity enhancements to be proposed with any additional growth.

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- **Issaquah Pine Lake Road Corridor:** This corridor and/or individual segments fail tests 1 and 2 in both 2016 and 2024 but would pass these tests once the IPLR Phase 2 project is constructed (currently funded outside of the city's six-year horizon). The corridor passes test 3 in both years.
- **Issaquah Fall City Road Corridor:** While the corridor passes all three tests, individual segments between 245<sup>th</sup> Avenue SE and Klahanie Drive SE fail tests 1 and 2 in 2016. These failures are fixed by the current project which is scheduled for construction next year.
- **Duthie Hill Road:** This corridor fails in the NB/EB direction in the PM peak hour under test 1 in 2024.



**TABLE 1: 2016 HCM PLUS RESULTS**

	Segment		AM	PM	AM	PM	AM	PM
			Test 1 Corridor ≤ 1.0 Segment ≤ 1.25		Test 2 Corridor ≤1.1 Segment ≤1.21		Test 3 Corridor ≤1.25 Segment ≤1.56	
	<b>East Lake Sammamish Parkway North Corridor</b>	NB	Fail	Pass	Fail	Pass	Fail	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Fail
1	E Lk Sammamish Pkwy, City limits - 196th Ave NE (Weber PI) <sup>1</sup>	NB	Fail	Pass	Fail	Pass	Fail	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Fail
2	E Lk Sammamish Pkwy, 196th Ave NE - NE 26th PI	NB	Fail	Pass	Fail	Pass	Fail	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Fail
3	E Lk Sammamish Pkwy, NE 26th PI - NE Inglewood Hill Rd	NB	Pass	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Pass	Pass	Fail	Pass	Pass
	<b>East Lake Sammamish Parkway South Corridor</b>	NB	Pass	Fail	Pass	Pass	Pass	Pass
		SB	Pass	Pass	Pass	Pass	Pass	Pass
	<b>Sahalee Way–228th Avenue North Corridor</b>	NB	Fail	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Fail	Pass	Pass	Pass	Pass
9	Sahalee Way/228th Ave NE, City Limit – NE 37th Way	NB	Fail	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Pass	Pass	Pass	Pass	Pass
	<b>Issaquah-Pine Lake Road Corridor</b>	EB/SB	Pass	Pass	Pass	Pass	Pass	Pass
		WB/NB	Pass	Fail	Pass	Pass	Pass	Pass
33	Issaquah-Pine Lk Rd, SE 46th St - SE 48th St	NB	Pass	Fail	Pass	Fail	Pass	Pass
		SB	Pass	Pass	Fail	Pass	Pass	Pass
	<b>Issaquah-Fall City Road Corridor</b>	NB/EB	Pass	Pass	Pass	Pass	Pass	Pass
		SB/WB	Pass	Pass	Pass	Pass	Pass	Pass
39	SE Issaquah-Fall City Rd, 245th Ave SE - Klahanie Dr SE	EB	Pass	Fail	Pass	Fail	Pass	Pass
		WB	Fail	Pass	Fail	Pass	Pass	Pass
		<b>Corridor Failures</b>	2	4	2	1	1	1
		<b>Segment Failures</b>	4	4	6	5	2	2

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**TABLE 2: 2024 HCM PLUS RESULTS**

	Segment		AM	PM	AM	PM	AM	PM
			Test 1 Corridor ≤ 1.0 Segment ≤ 1.25		Test 2 Corridor ≤ 1.1 Segment ≤ 1.21		Test 3 Corridor ≤ 1.25 Segment ≤ 1.56	
	<b>East Lake Sammamish Parkway North Corridor</b>	NB	Fail	Pass	Fail	Pass	Fail	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Fail
1	E Lk Sammamish Pkwy, City limits - 196th Ave NE (Weber PI) <sup>1</sup>	NB	Fail	Pass	Fail	Pass	Fail	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Fail
2	E Lk Sammamish Pkwy, 196th Ave NE - NE 26th PI	NB	Fail	Pass	Fail	Pass	Fail	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Fail
3	E Lk Sammamish Pkwy, NE 26th PI - NE Inglewood Hill Rd	NB	Pass	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Pass
	<b>Sahalee Way–228th Avenue North Corridor</b>	NB	Fail	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Fail	Pass	Fail	Pass	Pass
9	Sahalee Way/228th Ave NE, City Limit – NE 37th Way	NB	Fail	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Pass	Pass	Fail	Pass	Pass
10	Sahalee Way/228th Ave NE, NE 37th Way - NE 36th St <sup>2</sup>	NB	Fail	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Pass	Pass	Pass	Pass	Pass
11	Sahalee Way/228th Ave NE, NE 36th St - 223rd Ave NE <sup>2</sup>	NB	Fail	Pass	Fail	Pass	Pass	Pass
		SB	Pass	Pass	Pass	Pass	Pass	Pass
	<b>Issaquah-Pine Lake Road Corridor</b>	EB/SB	Fail	Pass	Pass	Pass	Pass	Pass
		WB/NB	Pass	Fail	Pass	Pass	Pass	Pass
33	Issaquah-Pine Lk Rd, SE 46th St - SE 48th St	NB	Pass	Fail	Pass	Fail	Pass	Pass
		SB	Fail	Pass	Fail	Pass	Pass	Pass
	<b>Duthie Hill Road Corridor</b>	NB/EB	Pass	Fail	Pass	Pass	Pass	Pass
		SB/WB	Pass	Pass	Pass	Pass	Pass	Pass

<b>Corridor Failures</b>	3	4	2	2	1	1
<b>Segment Failures</b>	6	4	7	5	2	2

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**ATTACHMENT A: 2016 AND 2024 CORRIDOR AND SEGMENT RESULTS**





**ATTACHMENT C: FDOT PEAK DIRECTIONAL VOLUMES FOR URBANIZED AREAS**

INTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS					
Class I (40 mph or higher posted speed limit)					
Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**
Class II (35 mph or slower posted speed limit)					
Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420
Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Non-State Signalized Roadways - 10%					
Median & Turn Lane Adjustments					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors	
1	Divided	Yes	No	+5%	
1	Undivided	No	No	-20%	
Multi	Undivided	Yes	No	-5%	
Multi	Undivided	No	No	-25%	
-	-	-	Yes	+5%	
One-Way Facility Adjustment					
Multiply the corresponding directional volumes in this table by 1.2					

\* Cannot be achieved using table input value defaults.

\*\* Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Segment	AM Volume	PM Volume	Characteristics	Capacities	AM V/C	PM V/C	AM	PM	AM	PM	AM	PM	AM	PM
<b>East Lake Sammamish Parkway North Corridor</b>														
	NB				1.52	0.78	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass
	SB				0.44	1.55	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
1	EB	1,145	586	35	705	1.62	0.83	Fail	Pass	Fail	Pass	Fail	Pass	Fail
	NB	365	1,238			0.52	1.76	Pass	Fail	Pass	Fail	Pass	Fail	Pass
2	EB	1,198	614	35	705	1.70	0.87	Fail	Pass	Fail	Pass	Fail	Pass	Fail
	NB	309	1,167			0.44	1.65	Pass	Fail	Pass	Fail	Pass	Fail	Pass
3	EB	1,202	623	35	960	1.24	0.64	Pass	Pass	Fail	Pass	Pass	Pass	Pass
	NB	358	1,209			0.37	1.25	Pass	Pass	Pass	Fail	Pass	Pass	Pass
<b>East Lake Sammamish Parkway Central Corridor</b>														
	NB					0.61	0.65	Pass						
	SB					0.97	0.72	Pass						
4	EB	649	529	35	925	0.70	0.57	Pass						
	NB	363	759			0.39	0.82	Pass						
5	EB	385	454	35	705	0.55	0.64	Pass						
	NB	335	545			0.48	0.72	Pass						
6	EB	345	523	35	705	0.49	0.74	Pass						
	NB	378	494			0.54	0.70	Pass						
<b>East Lake Sammamish Parkway South Corridor</b>														
	NB					0.53	1.02	Pass	Fail	Pass	Pass	Pass	Pass	Pass
	SB					0.87	0.80	Pass						
7	EB	331	545	35	705	0.47	0.77	Pass						
	NB	450	545			0.64	0.77	Pass						
8	EB	429	881	35	749	0.57	1.18	Pass						
	NB	790	620			1.00	0.83	Pass						
<b>Sahalee Way-228th Avenue North Corridor</b>														
	NB					1.12	0.67	Fail	Pass	Fail	Pass	Pass	Pass	Pass
	SB					0.56	1.01	Pass	Fail	Pass	Pass	Pass	Pass	Pass
9	EB	1,256	373	45	951	1.32	0.60	Fail	Pass	Fail	Pass	Pass	Pass	Pass
	NB	474	1,102			0.50	1.18	Pass						
10	EB	1,043	547	45	906	1.15	0.60	Pass						
	NB	474	989			0.52	1.09	Pass						
11	EB	1,023	531	45	906	1.13	0.50	Pass						
	NB	385	947			0.57	1.04	Pass						
12	EB	950	545	45	906	1.05	0.60	Pass						
	NB	450	840			0.50	0.93	Pass						
13	EB	711	790	45	906	0.78	0.87	Pass						
	NB	660	796			0.71	0.80	Pass						
<b>228th Avenue Central Corridor</b>														
	NB					0.61	0.69	Pass						
	SB					0.79	0.77	Pass						
14	EB	727	894	35	925	0.79	0.87	Pass						
	NB	807	870			0.87	0.84	Pass						
15	EB	808	1,058	35	1,772	0.46	0.60	Pass						
	NB	1,024	1,052			0.58	0.59	Pass						
16	EB	923	1,085	40	1,772	0.52	0.63	Pass						
	NB	1,200	1,148			0.46	0.65	Pass						
17	EB	854	1,209	40	1,772	0.48	0.68	Pass						
	NB	954	1,078			0.54	0.61	Pass						
18	EB	1,086	1,303	40	1,772	0.61	0.74	Pass						
	NB	1,087	1,233			0.61	0.70	Pass						
<b>228th Avenue South Corridor</b>														
	NB					0.57	0.87	Pass						
	SB					0.73	0.69	Pass						
19	EB	1,128	1,426	40	1,861	0.61	0.77	Pass						
	NB	1,116	1,341			0.61	0.72	Pass						
20	EB	454	953	40	925	0.49	1.03	Pass						
	NB	827	565			0.89	0.61	Pass						
<b>244th Avenue North Corridor</b>														
	NB					0.39	0.40	Pass						
	SB					0.48	0.42	Pass						
21	EB	295	293	35	705	0.42	0.42	Pass						
	NB	313	320			0.44	0.45	Pass						
22	EB	320	354	35	705	0.45	0.47	Pass						
	NB	467	350			0.66	0.50	Pass						
23	EB	369	306	35	925	0.40	0.33	Pass						
	NB	295	375			0.32	0.41	Pass						
24	EB	189	342	35	881	0.21	0.39	Pass						
	NB	371	291			0.42	0.33	Pass						
<b>NE Ingwood Hill Road Corridor</b>														
	NB					0.32	0.80	Pass						
	WB					0.78	0.40	Pass						
25	EB	180	678	35	705	0.25	0.56	Pass						
	NB	681	288			0.97	0.41	Pass						
26	EB	334	560	35	925	0.36	0.63	Pass						
	NB	480	364			0.52	0.39	Pass						
<b>NE 8th Street Corridor</b>														
	NB					0.36	0.54	Pass						
	WB					0.47	0.36	Pass						
27	EB	385	554	35	925	0.42	0.60	Pass						
	NB	461	344			0.50	0.37	Pass						
28	EB	228	393	35	881	0.26	0.45	Pass						
	NB	384	288			0.44	0.33	Pass						
<b>SE 8th Street Corridor</b>														
	NB					0.28	0.40	Pass						
	WB					0.68	0.32	Pass						
29	EB	257	372	30	925	0.28	0.40	Pass						
	NB	585	292			0.63	0.32	Pass						
<b>Issaquah-Pine Lake Road Corridor</b>														
	NB					0.98	0.85	Pass						
	WB					0.55	1.07	Pass	Fail	Pass	Pass	Pass	Pass	Pass
30	EB	467	802	35	925	0.50	0.82	Pass						
	NB	589	613			0.64	0.66	Pass						
31	EB	505	747	35	881	0.57	0.85	Pass						
	NB	610	754			0.69	0.86	Pass						
32	EB	391	990	35	881	0.44	1.12	Pass						
	NB	679	747			1.11	0.86	Pass						
33	EB	444	1,207	35	881	0.50	1.37	Pass	Fail	Pass	Fail	Pass	Pass	Pass
	NB	1,078	717			1.22	0.81	Pass						
<b>SE 32nd Way/Street - Issaquah-Beaver Lake Road Corridor</b>														
	NB					0.46	0.41	Pass						
	WB					0.25	0.67	Pass						
34	EB	178	475	35	705	0.55	0.47	Pass						
	NB	390	329			0.25	0.54	Pass						
35	EB	173	381	35	705	0.40	0.37	Pass						
	NB	285	264			0.31	0.60	Pass						
36	EB	216	429	35	705	0.52	0.47	Pass						
	NB	364	333			0.19	0.32	Pass						
37	EB	171	282	35	881	0.29	0.37	Pass						
	NB	257	285			0.29	0.37	Pass						
<b>Issaquah-Fall City Road Corridor</b>														
	NB					0.26	0.50	Pass						

Segment	AM Volume	PM Volume	Characteristics	Capacities	AM V/C	PM V/C	AM	PM	AM	PM	AM	PM	Corridor s 1.0		Corridor s1.1		Corridor s1.25			
													2024 HCM+	2024 HCM+	Segment s 1.0	Segment s 1.0	Segment s1.1	Segment s1.1	Segment s1.25	Segment s1.25
<b>East Lake Sammamish Parkway North Corridor</b>													1.52	0.82	Fail	Pass	Fail	Pass	Fail	Pass
<b>SB</b>													0.84	1.61	Pass	Fail	Pass	Fail	Pass	Fail
1	NB	1,144	611	35	705	1.62	0.87	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass					
	SB	442	1,285			0.63	1.82	Pass	Fail	Pass	Fail	Pass	Fail	Pass						
<b>2 E Lk Sammamish Pkwy, 196th Ave NE - NE 26th Pl</b>													1.70	0.91	Fail	Pass	Fail	Pass	Fail	Pass
	SB	385	1,215			0.55	1.73	Pass	Fail	Pass	Fail	Pass	Fail	Pass						
3	NB	1,201	653	35	969	1.24	0.67	Pass	Pass	Fail	Pass	Pass	Pass	Pass						
	SB	433	1,258			0.45	1.30	Pass	Fail	Pass	Fail	Pass	Pass							
<b>East Lake Sammamish Parkway Central Corridor</b>													0.64	0.98	Pass	Pass	Pass	Pass	Pass	Pass
<b>SB</b>													0.80	0.78	Pass	Pass	Pass	Pass	Pass	Pass
4	NB	678	541	35	925	0.73	0.58	Pass	Pass	Pass	Pass	Pass	Pass	Pass						
	SB	383	762			0.41	0.82	Pass	Pass	Pass	Pass	Pass	Pass							
5	NB	415	475	35	705	0.59	0.67	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	361	557			0.51	0.79	Pass	Pass	Pass	Pass	Pass	Pass							
6	NB	374	541	35	705	0.53	0.77	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	404	501			0.57	0.72	Pass	Pass	Pass	Pass	Pass	Pass							
<b>East Lake Sammamish Parkway South Corridor</b>													0.85	0.72	Pass	Pass	Pass	Pass	Pass	Pass
7	NB	362	567	35	881	0.41	0.64	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	487	546			0.55	0.62	Pass	Pass	Pass	Pass	Pass	Pass							
8	NB	451	904	35	749	0.60	1.23	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	781	610			1.04	0.81	Pass	Pass	Pass	Pass	Pass	Pass							
<b>Sahalee Way-228th Avenue North Corridor</b>													1.24	0.73	Fail	Pass	Fail	Pass	Pass	Pass
<b>SB</b>													0.88	1.18	Pass	Fail	Pass	Fail	Pass	Pass
9	NB	1,382	582	45	951	1.45	0.63	Fail	Pass	Fail	Pass	Pass	Pass							
	SB	485	1,178			0.51	1.24	Pass	Pass	Pass	Fail	Pass	Pass							
10	NB	1,164	571	45	906	1.29	0.63	Fail	Pass	Fail	Pass	Pass	Pass							
	SB	495	1,071			0.55	1.18	Pass	Pass	Pass	Pass	Pass	Pass							
11	NB	1,139	561	45	906	1.26	0.62	Fail	Pass	Fail	Pass	Pass	Pass							
	SB	474	1,033			0.52	1.14	Pass	Pass	Pass	Pass	Pass	Pass							
12	NB	1,047	585	45	906	1.16	0.65	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	473	911			0.52	1.03	Pass	Pass	Pass	Pass	Pass	Pass							
13	NB	810	836	45	906	0.89	0.93	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	683	872			0.75	0.96	Pass	Pass	Pass	Pass	Pass	Pass							
<b>228th Avenue Central Corridor</b>													0.62	0.78	Pass	Pass	Pass	Pass	Pass	Pass
<b>SB</b>													0.63	0.78	Pass	Pass	Pass	Pass	Pass	Pass
14	NB	825	937	35	925	0.89	1.01	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	858	924			0.93	1.00	Pass	Pass	Pass	Pass	Pass	Pass							
15	NB	884	1,099	35	1,772	0.50	0.63	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	973	1,124			0.55	0.63	Pass	Pass	Pass	Pass	Pass	Pass							
16	NB	984	1,159	40	1,772	0.56	0.65	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	788	1,237			0.44	0.70	Pass	Pass	Pass	Pass	Pass	Pass							
17	NB	948	1,344	40	1,772	0.53	0.78	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	1,032	1,249			0.58	0.70	Pass	Pass	Pass	Pass	Pass	Pass							
18	NB	1,127	1,408	40	1,772	0.64	0.79	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	1,130	1,350			0.64	0.70	Pass	Pass	Pass	Pass	Pass	Pass							
<b>228th Avenue South Corridor</b>													0.62	0.92	Pass	Pass	Pass	Pass	Pass	Pass
<b>SB</b>													0.77	0.73	Pass	Pass	Pass	Pass	Pass	Pass
19	NB	1,190	1,504	40	1,861	0.64	0.81	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	1,203	1,424			0.65	0.77	Pass	Pass	Pass	Pass	Pass	Pass							
20	NB	526	997	40	925	0.57	1.09	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	861	608			0.93	0.66	Pass	Pass	Pass	Pass	Pass	Pass							
<b>244th Avenue North Corridor</b>													0.35	0.39	Pass	Pass	Pass	Pass	Pass	Pass
<b>SB</b>													0.48	0.48	Pass	Pass	Pass	Pass	Pass	Pass
21	NB	303	332	35	881	0.34	0.38	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	318	351			0.36	0.40	Pass	Pass	Pass	Pass	Pass	Pass							
22	NB	330	374	35	881	0.37	0.42	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	474	382			0.43	0.43	Pass	Pass	Pass	Pass	Pass	Pass							
23	NB	370	320	35	925	0.40	0.35	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	298	375			0.32	0.41	Pass	Pass	Pass	Pass	Pass	Pass							
24	NB	195	368	35	881	0.22	0.42	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	393	299			0.34	0.44	Pass	Pass	Pass	Pass	Pass	Pass							
<b>NE Inglewood Hill Road Corridor</b>													0.75	0.41	Pass	Pass	Pass	Pass	Pass	Pass
<b>WB</b>													0.33	1.04	Pass	Pass	Pass	Pass	Pass	Pass
25	NB	236	734	35	705	0.53	0.45	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	654	320			0.25	0.69	Pass	Pass	Pass	Pass	Pass	Pass							
26	NB	227	544	35	925	0.52	0.36	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	479	335			0.35	0.56	Pass	Pass	Pass	Pass	Pass	Pass							
<b>NE 8th Street Corridor</b>													0.40	0.38	Pass	Pass	Pass	Pass	Pass	Pass
<b>EB</b>													0.41	0.63	Pass	Pass	Pass	Pass	Pass	Pass
27	NB	375	585	35	925	0.51	0.40	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	470	373			0.25	0.45	Pass	Pass	Pass	Pass	Pass	Pass							
28	NB	230	415	35	925	0.47	0.32	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	385	316			0.28	0.40	Pass	Pass	Pass	Pass	Pass	Pass							
<b>SE 8th Street Corridor</b>													0.65	0.33	Pass	Pass	Pass	Pass	Pass	Pass
<b>EB</b>													0.28	0.43	Pass	Pass	Pass	Pass	Pass	Pass
29	NB	256	396	30	925	0.65	0.33	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	600	304			0.65	0.33	Pass	Pass	Pass	Pass	Pass	Pass							
<b>Issaquah-Pine Lake Road Corridor</b>													1.05	0.86	Fail	Pass	Pass	Pass	Pass	Pass
<b>NB/WB</b>													0.53	1.09	Pass	Fail	Pass	Pass	Pass	Pass
30	NB	422	845	35	925	0.46	0.91	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	509	629			0.55	0.68	Pass	Pass	Pass	Pass	Pass	Pass							
31	NB	540	778	35	925	0.58	0.84	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	682	782			0.24	0.85	Pass	Pass	Pass	Pass	Pass	Pass							
32	NB	408	1,020	35	881	0.46	1.16	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	1,015	751			1.15	0.85	Pass	Pass	Pass	Pass	Pass	Pass							
33	NB	456	1,236	35	881	0.52	1.40	Pass	Fail	Pass	Fail	Pass	Pass							
	SB	1,107	723			1.26	0.82	Fail	Pass	Fail	Pass	Pass	Pass							
<b>SE 32nd Way/Street - Issaquah-Beaver Lake Road Corridor</b>													0.34	0.62	Pass	Pass	Pass	Pass	Pass	Pass
<b>WB</b>													0.51	0.44	Pass	Pass	Pass	Pass	Pass	Pass
34	NB	255	524	35	749	0.34	0.70	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	458	353			0.61	0.49	Pass	Pass	Pass	Pass	Pass	Pass							
35	NB	228	449	35	705	0.32	0.64	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	326	281			0.46	0.40	Pass	Pass	Pass	Pass	Pass	Pass							
36	NB	286	479	35	705	0.41	0.68	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	401	365			0.57	0.52	Pass	Pass	Pass	Pass	Pass	Pass							
37	NB	242	298	35	881	0.27	0.34	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	274	295			0.31	0.34	Pass	Pass	Pass	Pass	Pass	Pass							
<b>Issaquah-Fall City Road Corridor</b>													0.25	0.83	Pass	Pass	Pass	Pass	Pass	Pass
<b>NB/WB</b>													0.79	0.46	Pass	Pass	Pass	Pass	Pass	Pass
38	NB	532	1,494	40	1,772	0.30	0.84	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	1,353	787			0.76	0.44	Pass	Pass	Pass	Pass	Pass	Pass							
39	NB	147	1,385	40	1,861	0.08	0.74	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	1,430	721			0.77	0.39	Pass	Pass	Pass	Pass	Pass	Pass							
40	NB	227	951	40	925	0.26	1.03	Pass	Pass	Pass	Pass	Pass	Pass							
	WB	795	528			0.86	0.57	Pass	Pass	Pass	Pass	Pass	Pass							
41	NB	211	585	40	881	0.24	0.66	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	693	287			0.79	0.33	Pass	Pass	Pass	Pass	Pass	Pass							
<b>Duthie Hill Road Corridor</b>													0.84	1.02	Pass	Fail	Pass	Pass	Pass	Pass
<b>NB/WB</b>													0.96	0.64	Pass	Pass	Pass	Pass	Pass	Pass
42	NB	271	839	45	725	0.37	1.16	Pass	Pass	Pass	Pass	Pass	Pass							
	SB	794	544			1.09	0.75	Pass	Pass	Pass										



## Memorandum

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**Date:** November 6, 2018  
**To:** Mayor Malchow and City Councilors  
**From:** Larry Patterson, Interim City Manager  
**Re:** City Manager's Report

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1. Annual Retreat --- A few of you have asked about an annual retreat. You have also seen the cancellation of such for January. My suggestion was the Council should wait this year to hold a retreat until you have your permanent manager on board. I think it is important that he or she should be part of your annual retreat as it will be important for them to get a sense of where you are on issues and it will help them in shaping your budget for next year. Item 2 in this report will discuss the issues you currently have in the pipeline. You will see your plate is full and you have more issues beyond these holding. However, in rethinking the issue I believe the Council needs to have a retreat to focus on how you function better as a governing body and as Councilors. Attached is a draft agenda that outlines topics to be discussed. Keep in mind this is a draft and there maybe changes. Additionally, I am trying to arrange a couple of speakers that I think might be helpful but do not know their availability at this time. Also, you will need to decide if you want to have a retreat and determine dates that all of you can attend (We have proposed a couple of dates but those are not carved in granite. We remain flexible to find dates that work better for all.). Finally, we could add a second day in which you could review the issues in the current pipeline for action. The purpose would be to determine each of your individual views and positions on issues, a path forward, and priorities.
  
2. Issues on Council's Plate --- Below are a list and update on the issues in your pipeline for action at present.

- a. City Manager Recruitment – The Council’s subcommittee interviewed prospective firms to conduct your City Manager recruitment on October 25th. The subcommittee will bring to you a recommendation on which firm you should contract with at your November 6<sup>th</sup> meeting. The goal should be to get this recruitment started by late November or early December.
- b. Concurrency – Council needs to decide on its V/C measure. This decision is a land use decision. Because of this the Planning Commission is mandated to make a recommendation to the City Council on this decision. A public hearing is required somewhere in this review process. The Planning Commission can choose to hold a public hearing, and/or the City Council may hold a public hearing.
- c. Moratorium – The Council has provided several exemptions regarding the moratorium. The major issue to still be addressed is the Town Center. We are presently negotiating an MOU with STCA in the town Center to bring to the Council. Possibly we will have an MOU for your consideration at your November 6<sup>th</sup> meeting. Council will still need to determine what it wishes to do regarding the lifting of the moratorium.
- d. MOU – Staff is negotiating with STCA on an MOU that we hope to bring to Council in November. This may be as soon as your November 6<sup>th</sup> meeting. That will depend on the speed of our negotiations.
- e. Transportation Master Plan --- Waiting on completion of concurrency model and Council direction to begin.
- f. Capital Improvement Program
  - i. Streets
    - 1. SE 4<sup>th</sup> --- Construction through late Spring of 2020
    - 2. Louis Thompson Hill Slide Repair – Construction is underway however the road closure due to equipment size needed to build the wall will begin shortly.
      - a. 7am to 6pm Monday through Friday (November 12 to November 27)

- b. \*Lake WA School Buses will be accommodated through the road closure at scheduled times.
  - 3. Issaquah Fall City Road 242<sup>nd</sup> Ave SE to Klahanie – Construction begins this winter (December bid)
  - 4. Issaquah Pine Lake Road – Analysis and 10% design report to Council January 19<sup>th</sup>
  - 5. Flashing Yellow Arrow Signals – Approaching finish [6 installations remain]
  - 6. 228<sup>th</sup> Corridor Intersection Improvements (Completed)
  - 7. 228<sup>th</sup> ITS Phase 2 – Design begins this winter
  - 8. SE 8th Street: 212<sup>th</sup> Ave SE to SE 4<sup>th</sup> Street –
  - 9. 218<sup>th</sup> Ave SE/216<sup>th</sup> Ave SE: SE 4<sup>th</sup> Street to Inglewood Hill Road NE Analysis –
- ii. Storm Water
  - 1. Zackuse Basin Plan – Underway March 19<sup>th</sup> introduction to Council
  - 2. Zackuse Creek Fish Passage Culvert and Stream Restoration – Completion due shortly
  - 3. Laughing Jacobs Basin Park – Consultant selection in January
  - 4. George Davis Basin Plan – Phase 2 design to Council in January
  - 5. Sahalee Way Storm Water Outfall – Construction underway – 90-day completion schedule
  - 6. Storm water Code Updates – Will pick back up in January
  - 7. NPDES Phase 2 – Regulation changes, introduce to Council in Q1 or Q2 2019
  - 8. Town Center Regional Storm water evaluation
- iii. Parks
  - 1. Big Rock Park – Council is discussing Site B Phase 1 Improvements. Council will take this issue back up at the November 20th Council meeting. The design, construction documents and permitting will follow approval to proceed. Projected time winter and spring 2019. The Parks Board may wish to have some

discussion on this topic at your joint meeting on November 13th.

2. Lower Commons Master Plan/Town Center Plaza – Council will receive an update on November 13<sup>th</sup> in a Joint Meeting with the Parks Board
- g. Budget --- Council will discuss the budget again at your November 5<sup>th</sup> Work Session. Council had asked several questions at your first session on the Budget. We will have answer to those questions at the November 5<sup>th</sup> work session. The Council’s Finance subcommittee has met and can offer their thoughts as well.
  - h. Interim Development Regulations – This item is scheduled for a public hearing on November 6<sup>th</sup>. Council will take up again the issue of an amendment to provide grandfathering for those projects that had approved Development Review prior to the new regulations being approved on September 18<sup>th</sup>. Council has 6 months from that date to integrate these development regulations into city code. This integration will be part of your Subdivision and Zoning Code update.
  - i. Police Study – Council will discuss this issue again at your study session on December 3rd. The Council has several major questions with large cost implications to answer regarding this study. The major questions in my opinion you need to consider are:
    - i. Creating a 4<sup>th</sup> patrol district and the required staffing. In creating such we will want to discuss businesses and surrounding urban areas.
    - ii. Administrative relief
    - iii. Community and cultural outreach and the use of non-uniform personnel for minor issues and more community policing without having to employ more uniform police officers.
    - iv. Various equipment and training needs
  - j. Class Comp Study --- We should be receiving the consultant’s report in November. Once that is received staff will have considerable work to complete prior to getting this to the Council. Currently that is scheduled to come to the Council in January.

- k. Housing Strategy – Scheduled for Public Hearing on November 6<sup>th</sup>
  - l. Urban Forest Management Plan – Staff will be back in early January for another check in with the City Council. The legislative review process with the Planning Commission will begin in March 2019, with a Planning Commission recommendation to the City Council anticipated in May/June 2019.
  - m. Branding --- After reviewing a draft of the logo and conceptual use in branding the Council has put this issue on hold. At some point a decision still needs to be made on whether to move forward on this branding approach or shelve the concept and develop a fresh start. The Port has closed out the grant based on the information we forwarded to them.
  - n. Sound Transit Parking and Ride --- We have begun discussions with Sound Transit to site a park and ride facility in Sammamish. Please see earlier email.
  - o. Comprehensive Plan Docket --- Council needs to set the docket regarding possible amendments to the Comprehensive Plan in 2019
  - p. Comprehensive Plan Amendments --- Council needs to approve 2018 amendments to the Comprehensive Plan
3. School Impact Fees – Council is scheduled to hold a public hearing on School Impact Fees at its November 6<sup>th</sup> Council Meeting. Presently the City of Issaquah is debating whether the School Impact Fees are sufficient. The Issaquah Council has differing opinions and they are not scheduled to decide this issue until December. Since the Issaquah School District overlaps both cities the Council may want to receive testimony and delay a decision until after Issaquah decides on the fee it will set. If the Council has concerns about the fee or two different fees being set, you may want a joint meeting with both the City of Issaquah and the School District. (See Position Paper)

4. Cameras in Public Parks – The Parks Department is developing a proposal for the acquisition and installation of park surveillance cameras in conjunction with the King County Sheriff's (KCSO) office. These cameras were initially requested by KCSO and has available funding identified. We are requesting a check-in with City Council to gauge if you have any concerns prior to us proceeding with installing surveillance camera in several of our parks before further development of this program.

We have checked with Legal and their conclusion is that “surveillance cameras in parks are legal and constitutional, but caution should be exercised in their placement and use”. Legal also suggests consideration of several issues including camera recordings are subject to Public Records Act, the posting of notice related to the cameras as well as adoption of policies and procedures prior to installation and program implementation.

5. Kokanee Work Group (KWG) – The KWG is planning to once again live stream the Kokanee returning to Ebright Creek with the Kokanee Cam. They again plan to set up an underwater camera and a link to it. This was done back in 2015 and evidently was a very popular stream. They have asked to advertise the link on our website and we plan to allow them to do this unless you have any objections. Link [here](#)
6. Human Resources Director Recruitment --- I mentioned in a previous Manager's report the plan to change from an Administrative Services Director and replace that position with a Human Resources Director. We are in the process of recruiting for that position.
7. Communication Manager Recruitment --- We are recruiting for a Communication Manager's position. Subsequently Debbie and I visited with the firm Tripepi Smith about providing these services on a contractual basis. We are in the process of conducting due diligence on this firm. We will decide on a direction and discuss with Council in the next two weeks as to which direction we will go.
8. Legislative Priorities --- Attached please find a copy of the 2019 Legislative Priorities of the Eastside Transportation Partnership and the SCA Draft 2019 Legislative Agenda. Both documents arrived after our last Legislative Committee meeting. The Council and Subcommittee may wish to think

about how to incorporate our legislative priorities within the framework of these efforts.

9. Chamber of Commerce Roundtable --- Deb Sogge has contacted me regarding scheduling a round table with the Sammamish Business Community. She reports they are concerned about the direction of the City and that local business are feeling a little beat up. She believes it would be helpful to have the City and local business people engage in a roundtable discussion of viewpoints. I have indicated the City would be happy to participate. The entire Council would like to participate in this discussion. There are two options I have talked with Deb Sogge on to accommodate this discussion. First is to hold the original scheduled meeting on November 8<sup>th</sup> at 9:00 a.m. for a subcommittee of the City Council. I think that subcommittee should be made of up of a carefully selected 3 Councilors that represent the various positions on the Council. Beyond that meeting Deb and I have discussed quarterly meeting that we could rotate Council members to attend so the entire Council could have an on-going conversation with the City's business community.



**City Council Retreat**

**Date**

**Place**

**Day 1:**

0800– 0830	Continental Breakfast
	<b>Session 1: War Stories</b>
	<ul style="list-style-type: none"> <li>• Building &amp; Implementing a Successful Team &amp; Strategies and Overcoming Dysfunction – (Presently talking with two former Mayors who have dealt with such issues as to their availability to talk with you about their experiences)</li> </ul>
1030 – 1045	Break
1115 – 1200	<b>Session 2: Becoming an Effective Council and Councilor</b>
	<b>Topics Covered in Session 2</b>
	<ul style="list-style-type: none"> <li>• Challenges to Governmental Credibility</li> <li>• Council Arenas for Action</li> <li>• Council Rules</li> <li>• Roles and Responsibilities – Council and City Manager/Staff</li> </ul>
1200 – 1300	Lunch
1300 – 1500	<b>Session 2: Becoming an Effective Council and Councilor Continued</b>
	<ul style="list-style-type: none"> <li>• Robert’s Rules of Order</li> <li>• Traits of an Effective Board</li> <li>• A Guideline for Council Behavior: Becoming an Effective Councilperson</li> <li>• Communications</li> <li>• Building an Effective Organization</li> </ul>
1500	Recess until 0800 for Day 2

**Any topic not completed in day 1 will roll to day 2**

**City Council Retreat**

**Date**

**Place**

**Day 2:**

0800 – 0830	Continental Breakfast
0830 – 1030	<p><b>Session 3: City 6-Month Work Plan and Council Positions and Priorities</b></p> <p><b>Topics to Be Discussed</b></p> <ul style="list-style-type: none"> <li>• City Manager Recruitment</li> <li>• Concurrency</li> <li>• Moratorium</li> <li>• Transportation Master Plan</li> <li>• Capital Improvement Projects</li> </ul>
1030 – 1045	Break
1045 – 1300*	<p><b>Session 3: City 6-month Work Plan and Council Positions and Priorities Continued</b></p> <ul style="list-style-type: none"> <li>• Budget</li> <li>• Interim Development Regulations</li> <li>• Police Study</li> <li>• Classification Compensation Study</li> <li>• Housing Strategy</li> <li>• Urban Forest Management Plan</li> <li>• Branding</li> <li>• Sound Transit Park and Ride</li> <li>• Comprehensive Plan Docket and 2019 Amendments</li> </ul>
1300	Adjourn

\*This session will feature a working lunch if needed so we can finish this discussion



## Memorandum

**Date:** November 1, 2018  
**To:** Mayor Malchow and City Councilors  
**From:** Larry Patterson, Interim City Manager  
**Re:** School Impact Fees

**Issue:** The City Council will hold a public hearing on School Impact Fees at its November 6, 2018 meeting. At this meeting you will be asked to approve collection of the fees. The School Districts set their budgets in the Spring of each year. They have a July 1 to June 30 fiscal year. Part of that budget is their capital improvement program (CIP). Funding on the CIP is based on the anticipated collection of school impact fees. The Districts will have developed and applied a methodology on which these fees are set.

There has been expressed a concern that perhaps these fees are too low. There is also fear that because these fees are not adequate that the schools do not have sufficient funds to address capital demands when needed and must asked their communities for bonds to address these shortfalls in capital funding.

Each school district covers more than one city. Therefore, the collection of fees if different in each jurisdiction covered by a district imposes inequities in addressing capital needs. Cities do not set these fees, but they are responsible for the collection of fees. Should they not approve school district's request no fees would be collected until a new fee could be established, approved, and the collection of fees approved.

**Discussion:** Should cities not approve the collection of these fees because they feel the fees are incorrect, they do not have the choice of just increasing the fees or lowering the fees. This is because the fees are set based on a defined methodology and modification to the methodology with new calculations would have to be made to establish the new fee. If cities chose not to collect them it is quite possible the District would not collect any fees until a new methodology could be put in place and all approvals gained. Such a process may take several months up to a year or more.

The City of Sammamish does not have the option of taking no action as its code indicates, "impact fees will be imposed on a district-by district basis, on behalf of any school district that provides to the City a capital facilities plan, the district's standards of service for the various grade spans, estimates of the cost of providing needed facilities

and other capital improvements, and the data from the district called for by the formula in SMC 21A.105.040.” Additionally, nonaction may be a violation of our interlocal agreement.

**Recommendation:** If the City of Sammamish disagrees with the fees as proposed to be collected, the city should approve these fees proposed to insure on-going collections. Then joint meetings should be held between jurisdictions and school districts to come to a meeting of the minds on how to proceed. At that time if all parties can agree we can work collectively to establish a new fee that all parties agree to. Keep in mind should the District’s disagree it is not clear that cities have the legal authority to establish these fees. Additionally, such a process could result in litigation as a debate over fees will surely raise concerns. Finally, if two cities which are overlapped by one school district imposes two different fees sorting out the inequities created will be an interesting and difficult task.

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**AGENDA CALENDAR**

Meeting Date	Packet Material Due	Time	Meeting Type	Topics
<b>Nov 2018</b>				
<b>Tues 11/20</b>	11/12	6:30 pm	Regular Meeting	Public Hearing/Ordinance: Amending Surface Water System Development Charge (15 minutes) Public Hearing/Ordinance: Condemnation Resolution: 2019 Fee Schedule Resolution: 2019 Medical Premium Co-pay  <u>Consent:</u> Proclamation: Small Business Saturday Resolution: Sahalee Way Stormwater Tightline Project Acceptance Contract: Big Rock Park Site B Phase I Improvements / KPG Contract: 2019-2020 Traffic Control and Flagging Services / Altus Traffic Management, LLC
<b>Dec 2018</b>				
<b>Mon 12/03</b>	11/26	6:30 pm	Study Session	Discussion: 2019 Comprehensive Plan Amendments – Docket Requests (60-minutes) Presentation: Youth Eastside Services/Crosspath Counseling Partnership

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<b>Tues 12/04</b>	11/26	6:30 pm	Regular Meeting	<p>Public Hearing/Resolution: 2019 Comprehensive Plan Amendments – Docket Requests (30-minutes)                      Ordinance: Annual Amendments to the Comprehensive Plan (30-minutes)                      Resolution: Adopting the Police Services Study</p> <p><u>Consent:</u>                      Contract: Public Defender/TBD                      Contract: Prosecutor/TBD                      Contract: Environmental Review Support Services/TBD                      Contract: Building Inspection Support Services/TBD                      Contract: Building Plan Review Support Services/TBD                      Contract: Planning Review Support Services/TBD                      Contract: Klahanie Master Plan/TBD                      Contract: Park Landscaping/Badgleys Landscape                      Contract: ROW Landscaping/Badgleys Landscap                      Contract: Parks Street Cleaning/Best Parking Lot                      Contract: Fence Repair/Industrial Solutions                      Contract: ROW Slope Mowing/Plantscapes                      Contract: Janitorial/Patriot Maintenance                      Contract: Stormwater System Cleaning/TBD                      Contract: Traffic Control/Altus Traffic                      Contract: Bark Services/Pacific Topsoil                      Contract: Pressure Washing/Durham Painting                      Contract: Door Access/Western Entrance                      Contract: Pond Mowing/AtWork!                      Contract: Excavation/May Valley                      Contract: HVAC Monitoring/Ecotone                      Contract: HVAC Repair/Pacific Air                      Contract: 2019-2020 City-wide Water Quality Monitoring -                      Resolution: 212<sup>th</sup> Way SE Project Acceptance                      Resolution: East Lake Sammamish Parkway Ditch Maintenance Project Acceptance</p>
<b>Tues 12/11</b>	12/03	6:30 pm	Study Session	
<b>Tues 12/18</b>	12/10	6:30 pm	Regular Meeting	<u>Consent:</u>
<b>Jan 2019</b>				
<b>Mon 1/7</b>	1/2	6:30 pm	Study Session	Discussion: Urban Forest Management Plan
<b>Tues 1/8</b>	1/2	6:30 pm	Regular Meeting	<p><u>Consent:</u>                      Resolution: ELSP/SE 33rd Crosswalk Project Acceptance                      Contract: ITS Phase 2 Design/TBD</p>

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<b>Tues 1/15</b>	1/9	6:30 pm	Study Session	
<b>Tue 1/22</b>	1/16	6:30 pm	Regular Meeting	Council Retreat Week (tentative) Update: Issaquah Pine Lake Road Design  Consent: Resolution: Flashing Yellow Arrow Installation Project Acceptance Resolution: Minor Intersection Improvements Project Acceptance
<b>Feb 2019</b>				
<b>Mon 2/4</b>	1/30	6:30 pm	Study Session	
<b>Tues 2/5</b>	1/30	6:30 pm	Regular Meeting	
<b>Tues 2/12</b>	1/6	6:30 pm	Study Session	
<b>Tue 2/19</b>	1/13	6:30 pm	Regular Meeting	
<b>Mar 2019</b>				
<b>Mon 3/4</b>	2/27	6:30 pm	Study Session	
<b>Tues 3/5</b>	2/27	6:30 pm	Regular Meeting	
<b>Tues 3/12</b>	3/6	6:30 pm	Study Session	
<b>Tue 3/19</b>	3/13	6:30 pm	Regular Meeting	
<b>Apr 2019</b>				
<b>Mon 4/1</b>	3/27	6:30 pm	Study Session	
<b>Tues 4/2</b>	3/27	6:30 pm	Regular Meeting	
<b>Tues 4/9</b>	4/3	6:30 pm	Study Session	
<b>Tue 4/16</b>	4/10	6:30 pm	Regular Meeting	
	<b>To Be Scheduled</b>		<b>To Be Scheduled</b>	<b>Parked Items</b>

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	<ul style="list-style-type: none"> <li>• Lk. Sammamish Water Level</li> <li>• Growth Centers</li> <li>• Internet Usage &amp; Social Media Policies</li> <li>• Small Cell Facility Technology</li> <li>• <u>Discussion</u>: Issaquah Pine Lake Road Phase 1- Project Update (moved to 2019)</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Special Events Ordinance</li> <li>• Maintenance Safety Program Adoption</li> <li>• M&amp;O Strategic Plan</li> <li>• Fleet Management Policy</li> <li>• Roadway Funding Strategy</li> <li>• Maintenance &amp; Fire Station Facility Assessment</li> <li>• Franchise Agreement/SPWS</li> <li>• Comprehensive Solid Waste Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Inner City Bus Service</li> <li>• Good Samaritan Law</li> <li>• Plastic Bags</li> <li>• Policy on Drones in Parks</li> <li>• Review of regulations regarding the overlay areas, low impact development and special protection areas for lakes.</li> <li>• Contract: Beaver Lake Park Phase 1 Improvements, Design/TBD</li> </ul>
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