City of Tacoma Regional Stormwater Facility Plan:
ATTACHMENT 1: FLETT CREEK WATERSHED

Aerial Photo of Flett Holding Ponds and Flett Wetlands

Gravel Pit Stormwater Regional Facility and Outlet Structure

August 2017 Revision

Prepared by

City of Tacoma
Environmental Services Department
Science and Engineering Division, Environmental Programs Group

Tacoma SURFACEWATER SOLIDWASTE WASTEWATER Tacoma
ENVIRONMENTAL SERVICES DEPARTMENT

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Abstract

The City of Tacoma is expanding the holding capacity of the existing Gravel Pit Regional Stormwater Facility. The expansion will be enrolled in the Payment In-Lieu-of Construction Program and will allow the City to accelerate environmental improvements in the Flett Creek Watershed and to Flett Creek. New development and redevelopment projects within the Flett Creek Watershed will have the option of participating in the Payment In-Lieu-Of Construction Program by paying a system development charge in-lieu-of providing individual site-specific stormwater flow control best management practices in order to meet Minimum Requirement (MR) #7. Public and private projects are eligible for participation in the program. This is a voluntary program.

The system development charge and available capacity to be included in the program is:

System Development Charge ($/square feet of mitigated area required)	$0.97
Net Capacity Credit Available (acres)	68.82
Total Impervious Surface Area Available (acres)	58.5
Total Lawn/Landscaped Area Available (acres)	10.32

The system development charge is based upon an assumption that the drainage area will be fully built out to 85% impervious surface coverage. At 85% impervious surface coverage, the mitigation area available is a total of 68.82 acres of which 58.5 acres is considered impervious surface and 10.32 acres is considered lawn/landscaped.

Projects must meet all Minimum Requirements applicable to the project even if the system development charge will be used to mitigate for MR #7. A Stormwater Site Plan must be submitted for review and approval – the project proponent may state that they are utilizing the Gravel Pit Regional Stormwater Facility to meet the intent of MR #7.

Flett Creek Watershed

1.1 Overview

The Flett Creek Watershed is approximately 7,126 acres and is the second largest watershed in the City (see Figure 1-1). The Flett Creek Watershed is located in the Chambers-Clover Water Resource Inventory Area (WRIA#12). Stormwater runoff from the entire watershed ultimately flows into the Flett Creek Holding Basins and discharges from a single point to the Flett Dairy Wetlands and Flett Creek. The area is predominately residential with commercial and light industrial uses in localized areas. The watershed is 43 percent impervious as shown in Figure 1-2.

Flett Creek Watershed is bordered by the Thea Foss Watershed on the east, Leach Creek Watershed on the west and Pierce County to the south. The watershed includes the Hosmer System, the Flett Creek Holding Ponds, Snake Lake, Wapato Lake, portions of Interstate 5, the South Tacoma Groundwater Protection District and the former South Tacoma Channel Superfund Site.

1.2 The Flett Creek Watershed Stormwater Collection System

All 7,126 acres of the watershed drain into the Flett Creek Holding Basins which are pumped from a single pump station into the Flett Dairy Wetlands and Flett Creek. For the purpose of describing flow through the Flett Creek Watershed, the watershed is divided into an eastern and western portion. Both portions ultimately discharge to Flett Creek which is located outside the City of Tacoma city limits. Stormwater is conveyed through the watershed primarily by underground conveyance systems though some localized ditch systems exist (see Figure 1-3). There are no streams or creeks located in the Flett Creek Watershed in the city limits.

1.2.1 Flett Creek Watershed – Eastern Portion

Stormwater runoff from the eastern portion of the watershed flows through a series of holding ponds formerly known as the Hosmer System (See Figure 1-5). The Hosmer System consists of the Hosmer Holding Basin, the Ward's Lake Holding Basin, and the Gravel Pit Holding Basin – each described in more detail below. The drainage area for the Hosmer system is 3,1138.29 acres of which 41% is impervious surface. Stormwater from the drainage area is conveyed to the Hosmer Holding Basin by an underground conveyance system. Water from the Hosmer Holding Basin is conveyed via gravity flow to Ward's Lake. Water from Ward's Lake is conveyed via gravity flow to the Gravel Pit Holding Basin where water is then conveyed via gravity flow to the Flett Creek Holding Ponds. Water flow out of the Gravel Pit is controlled by a storm gate maintained at 70% open. In addition to Tacoma's flow contribution, approximately 800 acres of Pierce County stormwater runoff flows into the Hosmer Holding Basin. A portion of stormwater runoff from Lakewood and WSDOT right-of-way flows into Ward's Lake. A portion of stormwater runoff from the City of Lakewood also enters the Gravel Pit Holding Basin.

Wapato Lake is also located in the eastern portion of the Flett Creek Watershed. Stormwater contributions to Wapato Lake are limited to a small drainage basin in the vicinity of the lake. Currently stormwater enters the north cell of Wapato Lake and exits via the bypass pipe for conveyance to Ward's Lake. During intense storm events, stormwater in the north cell will overflow into the main lake; otherwise stormwater is generally bypassed around the lake.

Water flowing from Wapato Lake enters Ward's Lake Holding Basin via a gravity stormwater system.

1.2.1.1 Hosmer Holding Basin

The Hosmer Holding Basin consists of two cells that receive stormwater runoff from commercial and residential areas to the north, south, and east of the basin.

1.2.1.2 Ward's Lake

Ward's Lake is a single cell basin which receives water from the Hosmer Holding Basin, WSDOT right-of-way, and Wapato Lake. Water exits the holding basin through a pair of gates, one designed for normal flow conditions and one designed as an emergency overflow.

1.2.1.3 Gravel Pit Regional Stormwater Facility

The Gravel Pit Regional Stormwater Facility (formerly known as the Gravel Pit Holding Basin) was originally an open pit gravel extraction facility. Gravel was extracted in the 1950s for use in road construction. In 1959, when gravel mining ceased, the City began using the gravel pit as a regional stormwater detention facility. The Gravel Pit is a single cell holding basin which receives water from the Ward's Lake Holding Basin and a small portion of water from the City of Lakewood. This basin was expanded in 2016 which is described in Section 3.

1.2.1.4 Wapato Lake

Wapato Lake is a 30-acre urban lake and is the central feature of Wapato Park. This park is an 80-acre facility owned by Metro Parks Tacoma. The surrounding land uses are predominantly residential but include commercial uses and portions of Interstate 5. The lake's valued uses have included recreation (fishing and swimming), wildlife habitat and flood control. Historically, aquatic weed growth, algae blooms, siltation, waterfowl related "swimmers' itch" and other problems have limited the recreational enjoyment of the lake. Currently, the City and Metro Parks are working to improve the lake quality with some success.

In the 1970s, a dike was constructed across the northern portion of the lake and a bypass storm pipe was constructed along its west side.

Two major drainage basins (approximately 900 acres total), including stormwater from Interstate 5, discharge into the north cell of the lake.

1.2.2 Flett Creek Watershed – Western Portion

Stormwater runoff from the western portion of the watershed flows directly to the Flett Creek Holding Basins via the piped stormwater conveyance system or flows through Snake Lake and the South Tacoma Channel. Stormwater runoff from the northwest portion of the watershed discharges to Snake Lake which flows to the South Tacoma Channel. Water reaching the South Tacoma Channel enters a series of open ditches and is largely infiltrated. During periods of above normal precipitation, stormwater runoff leaves the South Tacoma Channel and flows to the Flett Creek Holding Basins via piped conveyance.

1.2.2.1 Snake Lake

Snake Lake is a 17-acre urban lake and wetland. It is the central feature of the Tacoma Nature Center, a 54-acre facility dedicated to nature education, research and appreciation, operated by Metro Parks Tacoma. Valued recreational uses include walking the trails and viewing wildlife. The lake does not support fishing or swimming.

The lake drains an urban residential watershed of approximately 584 acres and the associated urban stormwater contributes approximately 80% of the annual flow. Large impervious areas in this drainage basin include the eastern portion of Cheney Stadium, Foss High School and a Fred Meyer shopping center. Cheney Stadium was recently retrofitted with a pervious

pavement parking lot and bioretention facilities and most of the stormwater now infiltrates and no longer directly discharges to the lake.

Snake Lake sustains large seasonal fluctuations in its surface area; from 17 acres during wet weather to less than 4 acres during the summer. The water from Snake Lake discharges to the South Tacoma Channel and eventually to the Flett Creek Holding Basins.

Also located in this drainage basin is the Delong Pond wetland. It currently is an isolated water body (in the past it had a pumped outlet to the storm drainage system). It drains a small tributary area in the basin. The Pierce County Conservations Futures Program purchased part of the wetland and buffer to be preserved as wildlife habitat and open space.

1.2.3 Flett Creek Holding Basins

Stormwater runoff from the entire watershed ultimately flows into the Flett Creek Holding Basins, located in the City of Lakewood. In 1957, before widespread development, the Flett Creek Holding Ponds were originally called the "South Tacoma Swamp," a natural depressed area that was the headwaters of Flett Creek. The South Tacoma Swamp spanned from South 48th Street to South 74th Street. A threaded channel within the wetland buffer ran from the South Tacoma Swamp location to Bridgeport Way. From 1903-1979, Flett Creek above Bridgeport Way was maintained as a distinct channel to support hay production and pasture for the Flett Dairy. Because the channel wasn't maintained after 1979, existing roads and other natural mechanisms such as vegetation, beaver dams, and channel infilling blocked channel flow (B&C 1957 and Tacoma 2010).

The current Flett Creek Holdings Ponds and pump station were constructed in 1981 to alleviate localized flooding. The pump station was upgraded in 2014-2015 including pump replacement.

The Flett Creek Holding Basin system consists of 4 consecutive connected cells, approximately 4,500 feet in length, with associated piping, and a pump station. Water entering the Flett Creek Holding Basin discharges to the Flett Dairy Wetlands and Flett Creek. When the water levels in the holding basin reach a preset level, a pump station located in the most downstream cell automatically turns on to discharge water into the Flett Dairy Wetlands which discharges via gravity into Flett Creek. The gate at the Gravel Pit and the Flett Creek Holding Basin pumps regulate flows into the Flett Dairy Wetlands and Flett Creek. Flett Creek converges with Chambers Creek which ultimately discharges to the Puget Sound.

1.3 South Tacoma Groundwater Protection District

In 1985, the City of Tacoma adopted the South Tacoma Plan which formally designates the South Tacoma Groundwater Protection District (STGPD) as an "environmentally sensitive" area (see Figure 1-4). The plan specifically listed several action steps designed to protect the South Tacoma Aquifer which is used as a drinking water supply for the City of Tacoma. One of the steps mandated that a local groundwater protection program be developed for the STGPD. The ordinance is set out in Tacoma Municipal Code Chapters 13.09.010 through 13.09.200.

The purpose of the STGPD is to stop potential pollution problems before they create environmental contamination. This program is administered by the Tacoma-Pierce County Health Department (TPCHD) in coordination with City of Tacoma Environmental Services, Tacoma Water and the Tacoma Fire Department. TPCHD is responsible for reviewing, authorizing, and issuing permits for business and industrial operations that are regulated under the program. TPCHD staff also perform site inspections. The City of Tacoma Environmental Services is responsible for the review and approval of all stormwater and wastewater plans.

The City of Tacoma Public Works Department and Tacoma-Pierce County Health Department developed a guidance document that provides the circumstances and requirements for approval of infiltration facilities for managing pollution-generating stormwater runoff in the STGPD. The document, “Implementation of Stormwater Infiltration for Pollution-Generating Surfaces in the South Tacoma Groundwater Protection District” is available online at www.cityoftacoma.org/stormwatermanual.

Figure 1-1
City of Tacoma Watersheds

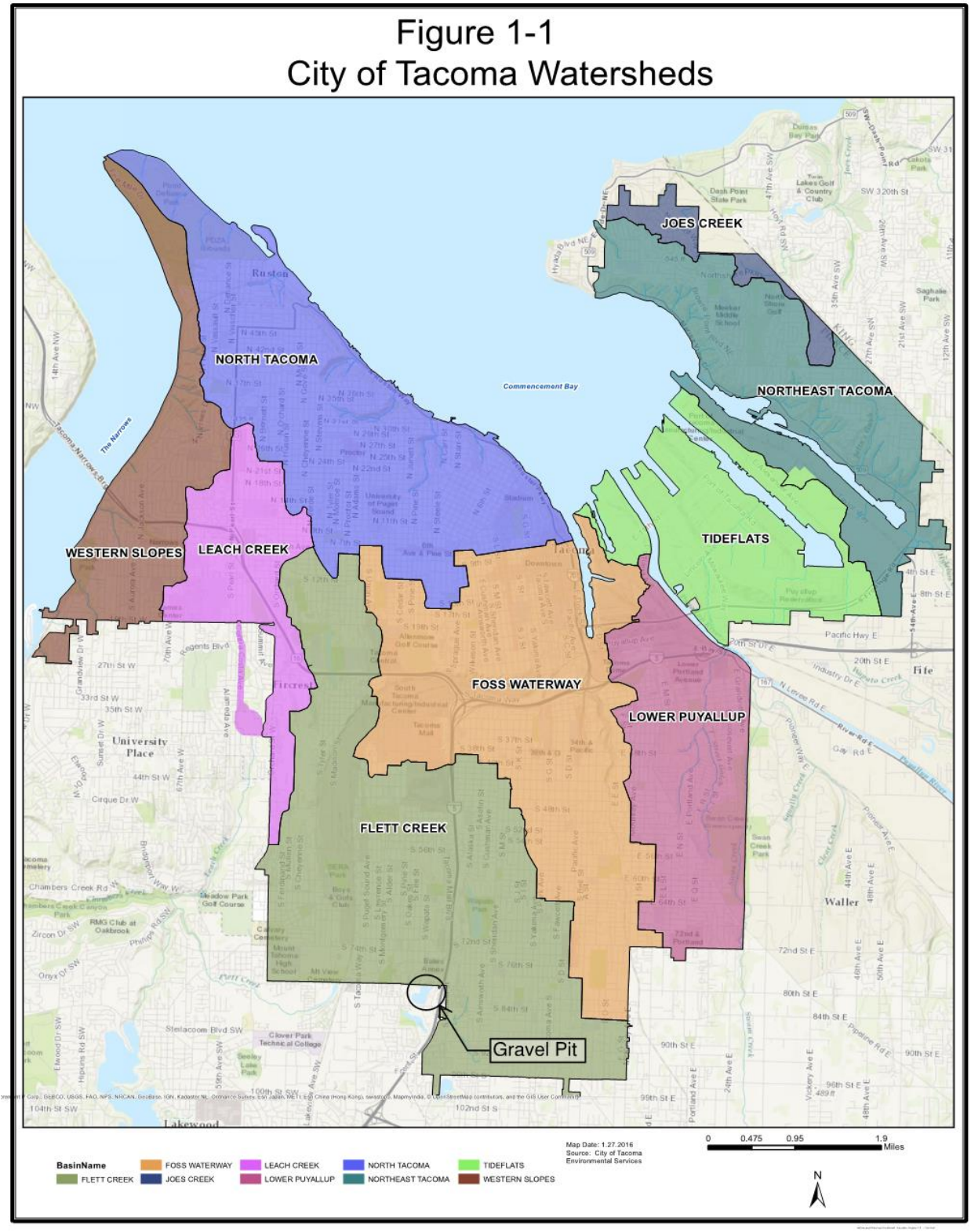


Figure 1-2
Flett Creek Watershed 2015 Impervious Surface Coverage

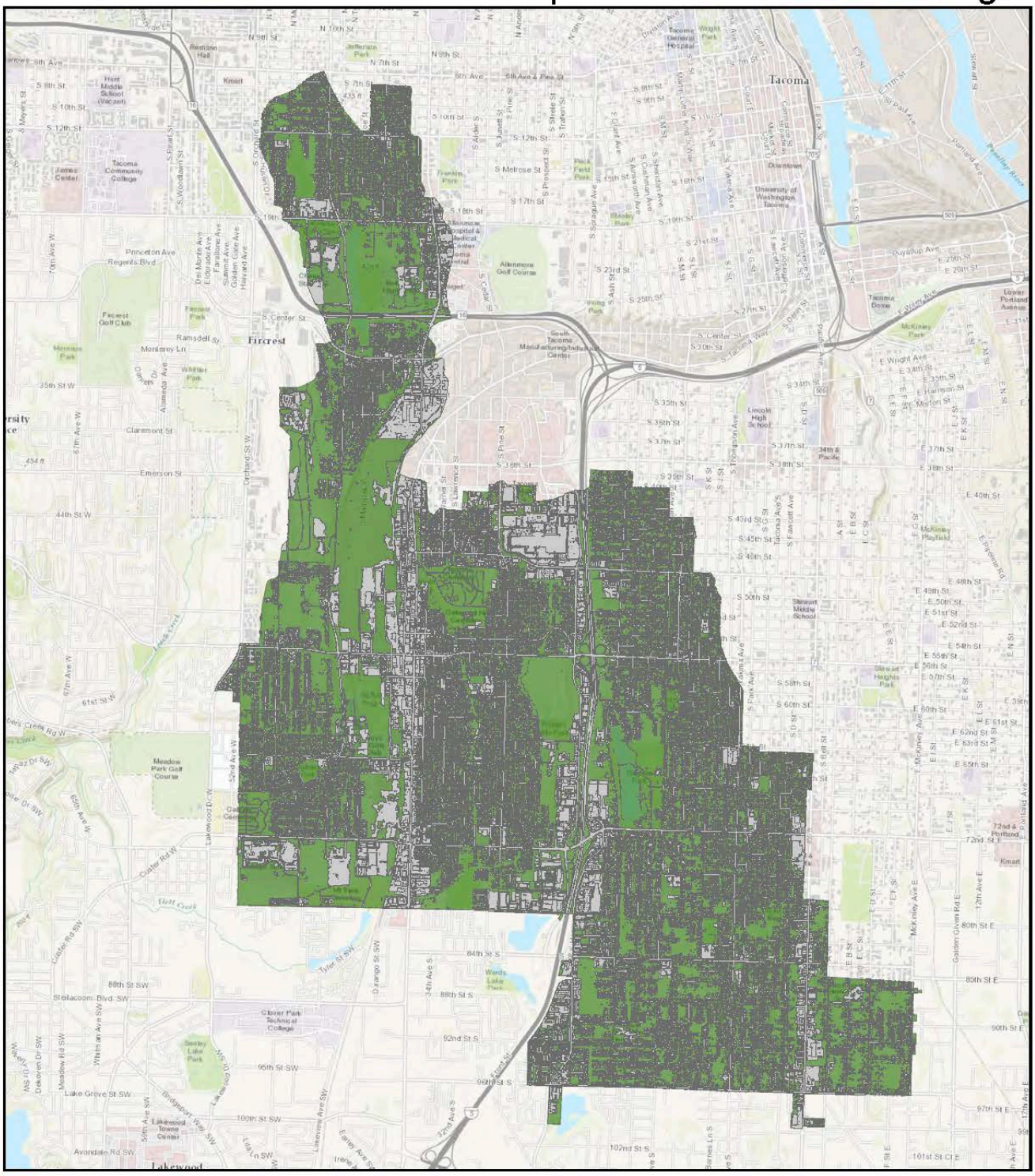


Figure 1-3
Flett Creek System

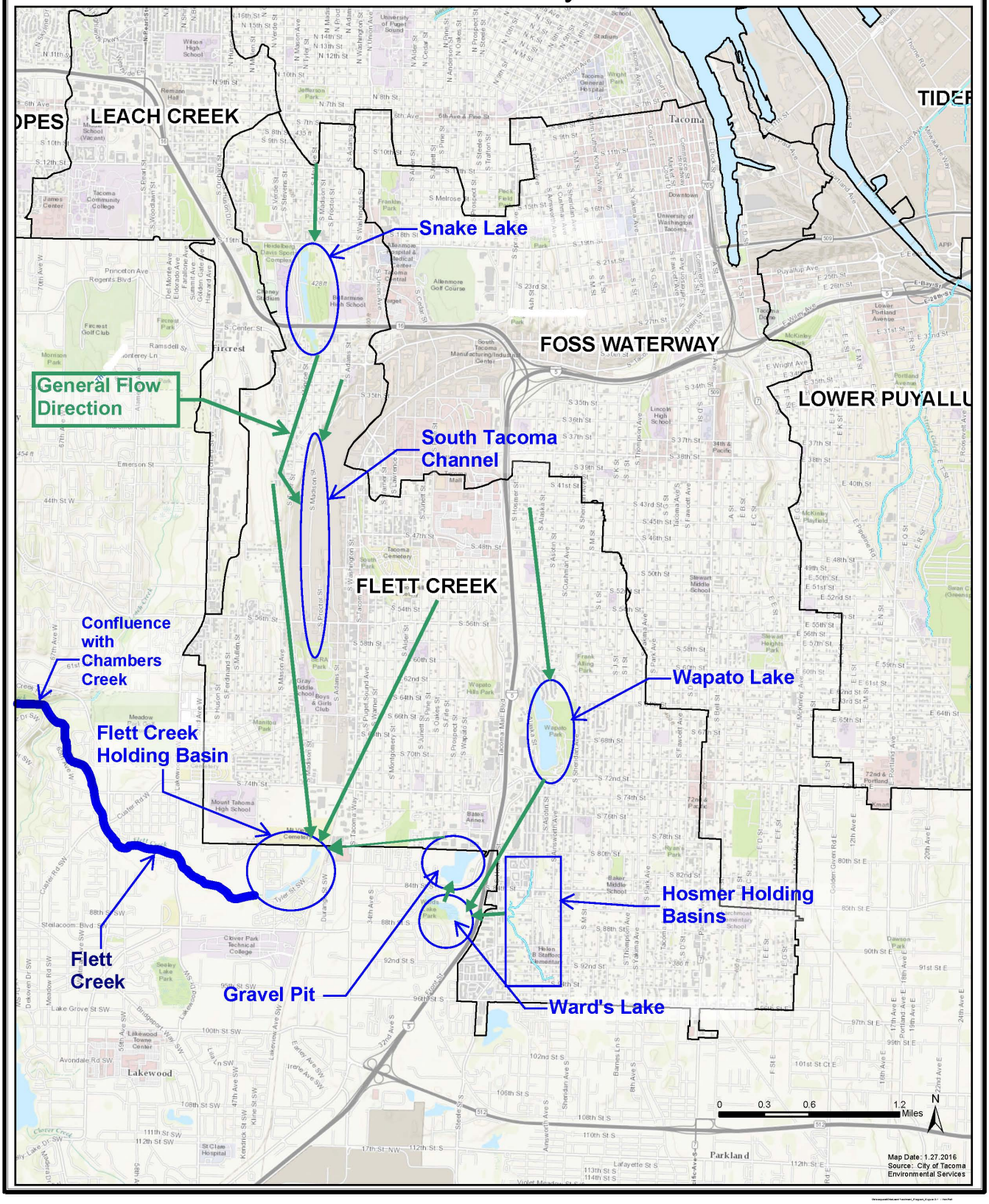
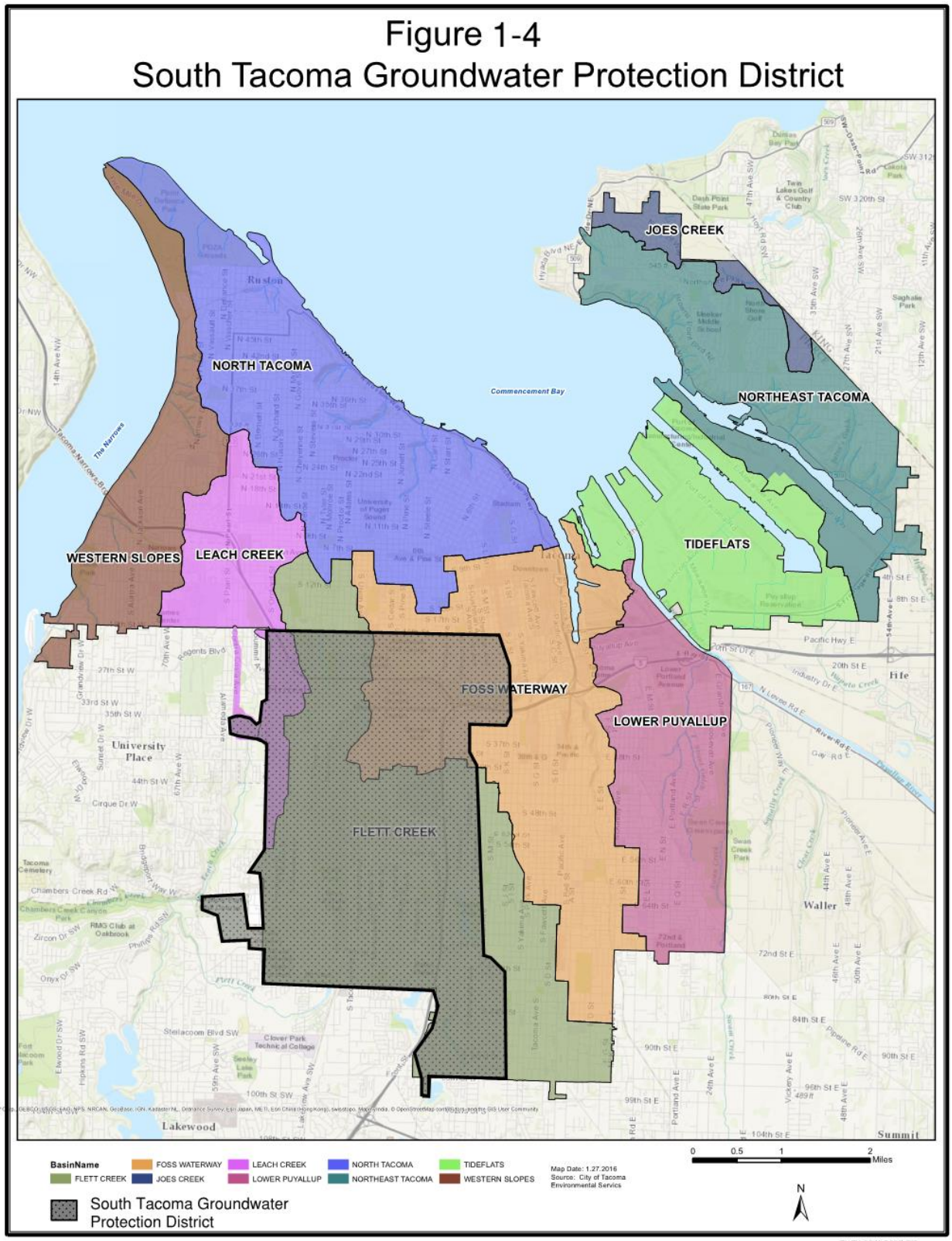
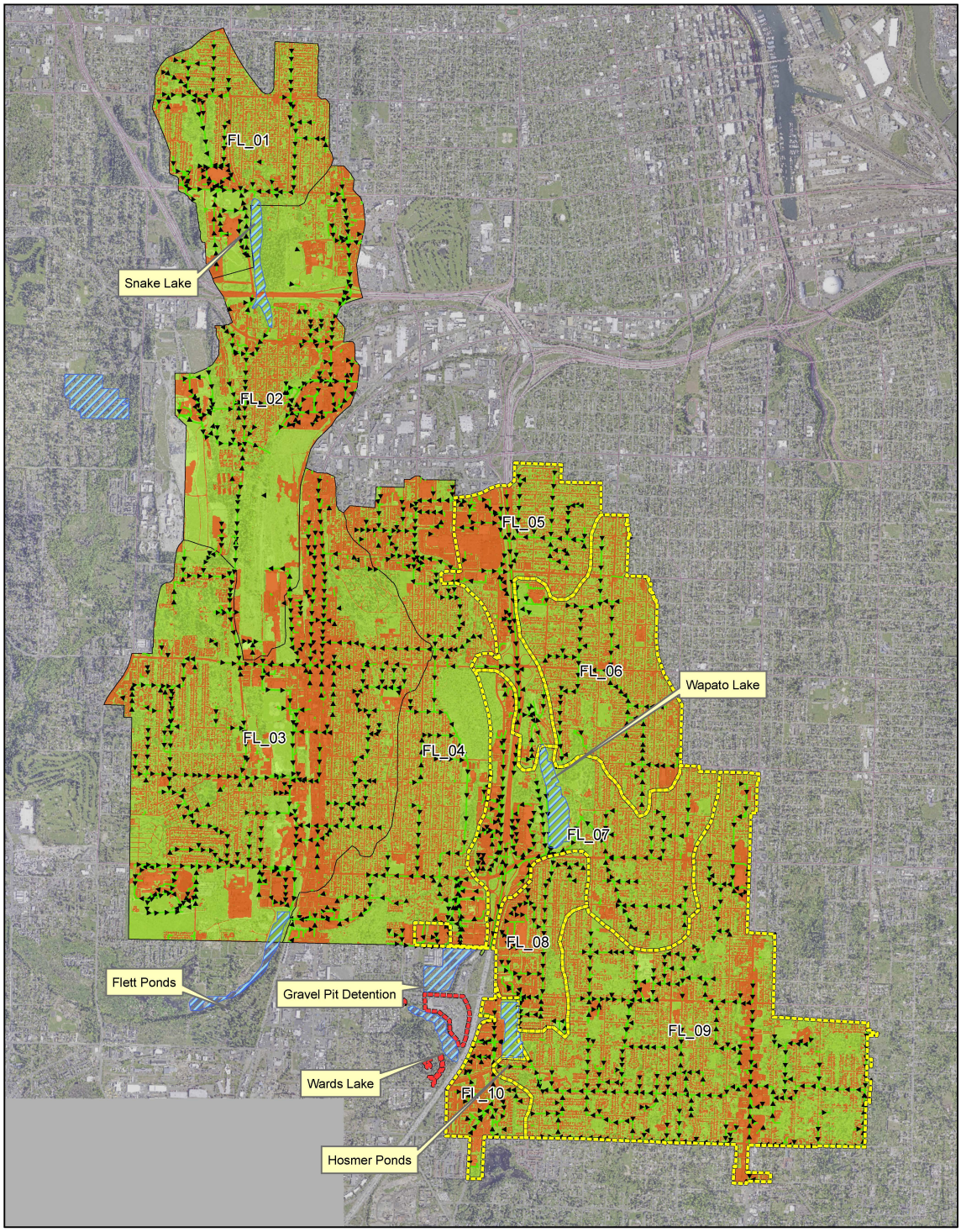


Figure 1-4
South Tacoma Groundwater Protection District



Flett Creek Watershed Contribution Areas

Figure 1-5



Area	Pervious Acres	Impervious
FL_01	296.5	205.1
FL_02	600.6	348.9
FL_03	937.2	758.9
FL_04	461.1	397.8
FL_05	175.4	214.1
FL_06	288.2	223.4
FL_07	352.3	251.3
FL_08	95.7	108.6
FL_09	758.8	501.6
FL_10	67.5	86

Gravel Pit Contribution Area
3,138.29 Total Acres

Lakewood Contribution Area
24.56 Total Acres

Flett Direct Flow Contribution Area
3,990.81 Total Acres

Flett Ponds Direct Flow Area
Total Impervious Surface (3,095.8 Acres)
Total Pervious Surface (4,033.3 Acres)
Gravel Pit Detention Basins
Lakewood Contibution Area

N

0 0.25 0.5 1 1.5 Miles

Tacoma

Receiving Waterbodies

2.1 Overview

Within the City of Tacoma limits there are two major receiving waterbodies located in the Flett Creek Watershed: Snake Lake and Wapato Lake. There are also several high probability and known wetlands. Stormwater discharges from the Flett Creek Watershed ultimately reach Flett Creek which is located just outside the City limits. Stormwater mitigation requirements are based upon protection of these receiving waterbodies.

Flett Creek is approximately 3.0 miles long and is located in the City of Lakewood. The historic headwaters of the creek were located at least partially in Tacoma but were ditched and/or piped long ago. The topography of this area is very flat, 0-1% grade, and the movement of water through the Flett Wetland from the Flett Creek Holding Basin to Flett Creek is difficult without the pumped discharge from the Flett Holding Basin. The lower portion of the creek in the City of Lakewood provides for salmonid spawning. Flett Creek flows into Chambers Creek, which is also a salmonid bearing stream which discharges to the Narrows Passage. There is one fish hatchery on Chambers Creek. The United States Geologic Survey (USGS) monitors flow conditions of Flett Creek at Station 1209110. Flow data is available at http://waterdata.usgs.gov.

Flett Creek is part of the Chambers Creek Watershed. The Chambers Creek Watershed contains several receiving waterbodies which should be protected from stormwater runoff including Lake Steilacoom, and 4 major creeks: Leach Creek, Flett Creek, Clover Creek and Chambers Creek (see Figure 2-1). Clover Creek discharges into Lake Steilacoom. Chambers Creek flows from Lake Steilacoom northward to its confluences with Flett and Leach Creeks. Chambers Creek then turns westward rapidly falling through steep wooded ravines to a short estuary and ultimately discharges into the Puget Sound.

2.2 Water Quality Standards

The Washington State Department of Ecology maintains a list of the Water Quality Assessment which lists the water quality status for waterbodies in the state. The water quality assessment list divides waterbody impairment into five categories.

- Category 1 – Meets tested standards for clean water
- Category 2 – Waters of concern
- Category 3 – Insufficient Data
- Category 4 - Polluted waters that do not require a Total Maximum Daily Load Plan (TMDL)
    - Category 4a – has a TMDL
    - Category 4b – has a pollution control program
    - Category 4c – is impaired by a non-pollutant
- Category 5 – Requires a TMDL or other water quality project.

The waterbodies and associated parameters that are listed for the Chambers Creek Watershed are listed in Table 2-1.

Table 2-1: Water Quality Standards

Name	Parameter	Medium	Category
Leach Creek	Mercury	Water	5
Leach Creek	Copper	Water	5
Leach Creek	Bacteria	Water	5
Leach Creek	Lead	Water	2
Leach Creek	Dissolved Oxygen	Water	2
Leach Creek	Ammonia-N	Water	1
Chambers Creek (near Puget Sound)	Bacteria	Water	5
Chambers Creek (near Puget Sound)	Dissolved Oxygen	Water	5
Chambers Creek (near Puget Sound)	Temperature	Water	2
Chambers Creek (near Puget Sound)	Ammonia	Water	1
Chambers Creek (near Puget Sound)	PCBs	Tissue	1
Chambers Creek (near Lake Steilacoom)	Copper	Water	5
Chambers Creek (near Lake Steilacoom)	Temperature	Water	2
Chambers Creek (near Lake Steilacoom)	Copper	Water	5/2
Chambers Creek (near Lake Steilacoom)	pH	Water	2
Puget Sound South	Temperature	Water	1
Wapato Lake	Bacteria	Water	5
Wapato Lake	Total Phosphorus	Water	4a

See http://www.ecy.wa.gov/programs/wq/303d/index.html for additional information.

2.3 ESA-Listed Fish Species Critical Habitat

Chambers Creek is a fish bearing creek and there is one fish hatchery located on the creek. Washington Department of Fish and Wildlife (WDFW) list the following fish populations for the Chambers/ Clover Creek watershed:

Table 2-2: WRIA #12 Natural Fish Population

Population Name	Species	Federal Status
South Sound Tributaries Winter Steelhead	Steelhead	Threatened
Chambers Creek Coho	Coho	Candidate
Chambers Creek Summer Chum	Chum	Not Warranted
Chambers Creek Winter Chum	Chum	Not Warranted
West South Sound Coastal Cutthroat	Cutthroat	Not Warranted

(available online at: https://fortress.wa.gov/dfw/score/score/maps/map_details.jsp?geocode=wria&geoarea=WRIA12_Chambers_Clover)

For Flett Creek, three populations of fish were presumed present or documented as present including: (additional information is available on-line at http://apps.wdfw.wa.gov/salmonscape/map.html):

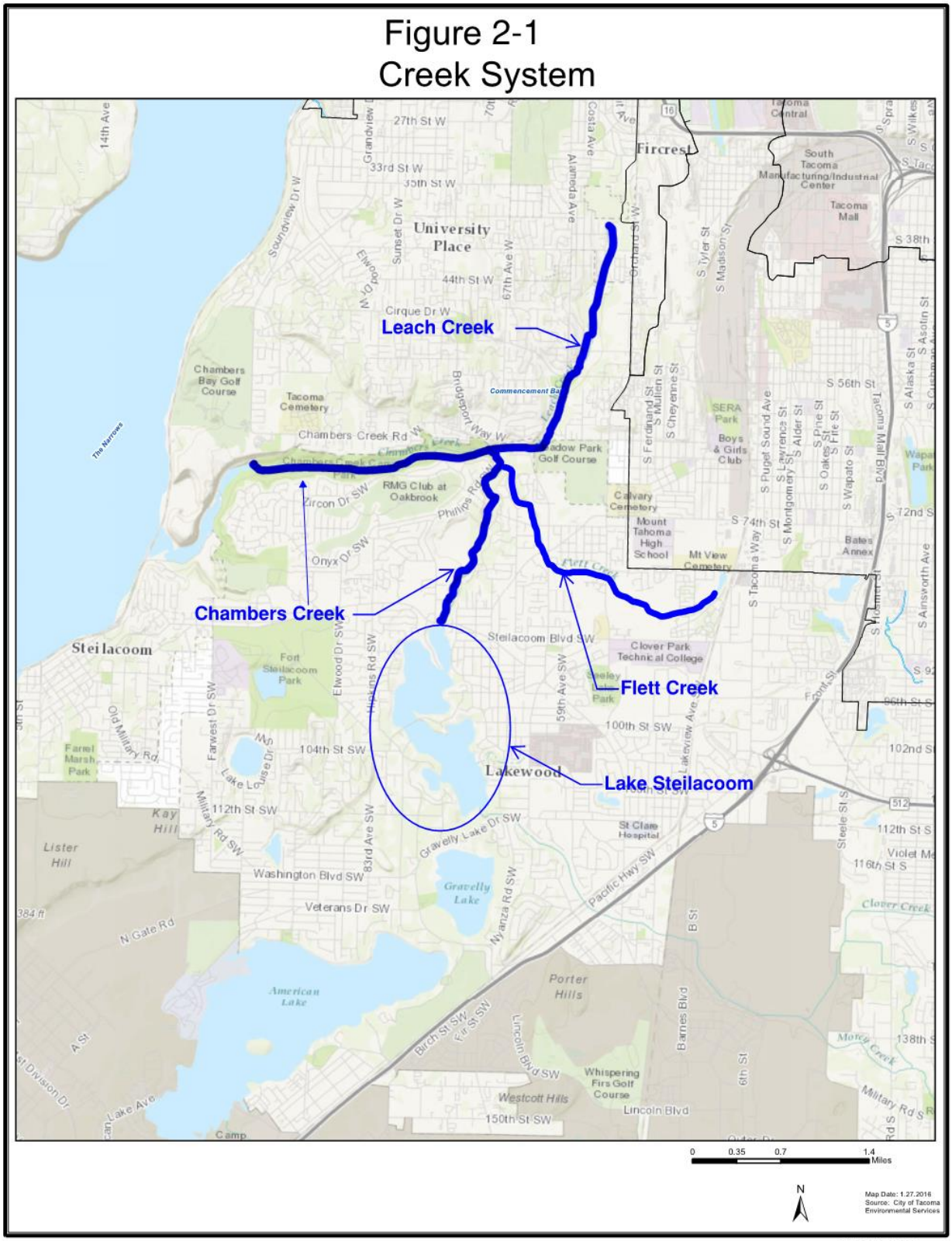
- Coho, documented spawning downstream of Custer Rd W and Bridgeport Way W and presumed presence downstream from 45th Ave SW to Custer Rd W,
- Summer/Fall/Winter Chum, presence downstream of 59th Ave W,
- Winter Steelhead, presumed presence downstream from 45th Ave SW to 59th Ave W, and presence downstream of 59th Ave W,
- Fall Chinook, presumed presence downstream of Custer Rd W and Bridgeport Way W,

For Chambers Creek downstream of the confluence of Leach and Flett Creeks, three populations of fish were presumed presence or documented presence including (available on-line at http://apps.wdfw.wa.gov/salmonscape/map.html):

- Coho, documented spawning
- Fall Chinook, potential presence
- Summer/Fall/Winter Chum presence
- Winter Steelhead presence
- Kokanee presence

Neither Flett Creek nor Chambers Creek are considered Critical Habitat for Puget Sound Chinook or Puget Sound Steelhead. Salmonid spawning habitat can be found from Chambers Creek up to Bridgeport Way (the lower portion of Leach Creek) (Grette 2011).

Figure 2-1
Creek System



Gravel Pit Regional Stormwater Flow Control Facility

3.1 Expansion of the Gravel Pit Holding Basin

The City is expanding the holding capacity of the existing Gravel Pit Holding Basin. The expansion will be enrolled in the Payment In-Lieu-of Construction Program and will allow the City to accelerate environmental improvements in the Flett Creek Watershed and to Flett Creek. New development and redevelopment projects within the Flett Creek Watershed will have the option of participating in the Payment In-Lieu-Of Construction Program by paying a system development charge instead of constructing individual site-specific flow control facilities.

3.1.1 Life Cycle Costs

The project to expand the Gravel Pit is funded in-part through a $3 million grant from the Washington State Department of Ecology (Ecology). To increase the storage capacity of the Gravel Pit between elevations 265 and 279, the City removed approximately 96,000 cubic yards (CY) of material from the bottom of the facility in 2016 (see Figures 3-1 and 3-2). Total capital costs for this project are listed in Table 3-1. Capitalized annual costs (the PW of a project with an infinite life) and life cycle costs for 20 years are also provided in Table 3-1.

Table 3-1: Life Cycle Costs for Regional Facility

Capital Cost[1]	$2,867,804.99
Operation and Maintenance "B"[2]	$2,867,804.99
Year of "B"	15
EUAC[3] "B"	$257,196.70
Capitalized Annual Costs[4]	$9,313,196.70
Present Worth, Operation and Maintenance Costs	$1,592,492

1. June 2016 Project contract costs
2. EUAC – Total Equivalent Annual Cost
3. Capitalized Annual Costs – the present worth of a project with an infinite life = initial capital costs + (annual + EUAC)/(i), where i- interest = 4%

Figure 3-1 Existing Conditions – June 2016

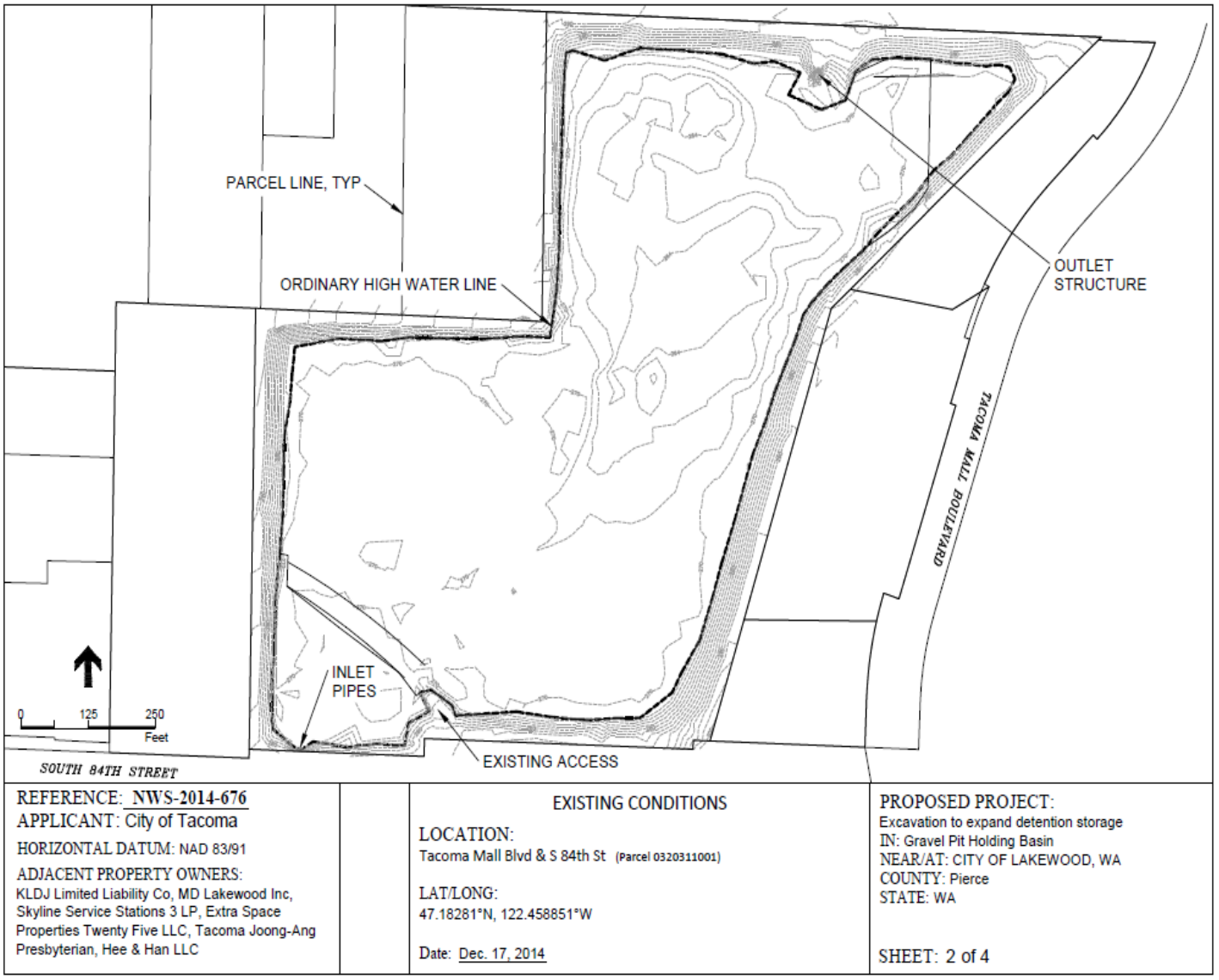
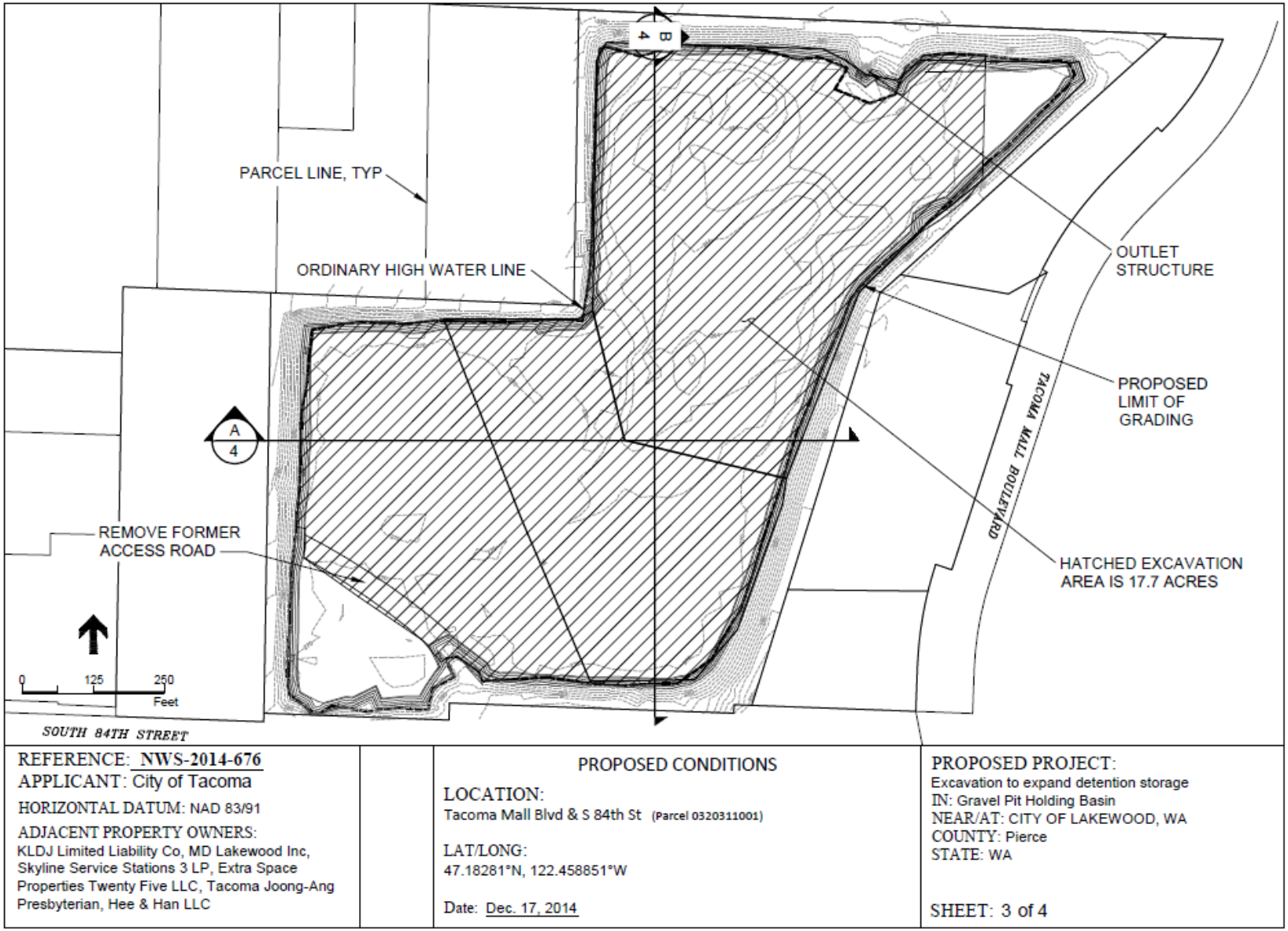


Figure 3-2 Proposed Conditions – June 2016



3.1.2 WWHM Evaluation of Existing and Proposed Conditions

The contributing area is 3,138.29 acres and 41 percent of this area is impervious surface. The existing outlet control structure is on the north end of the facility. The structure has one four foot square orifice with a bottom elevation of 265 feet. The size of the orifice is controlled with a slide gate, which is set at 70% open (an equivalent circular orifice of 45.315 inches). The overflow is a flat weir, 11 feet wide, at elevation 279 feet. No modifications are proposed to the outlet structure. However, SCADA information for the water levels are being monitored to determine if more detention is feasible within the facility, by closing the orifice that is controlled by a slide gate.

The excavation provides an additional 58 acre feet of live storage within the facility reducing flows by 7-15 percent. The percent reductions were calculated using WWHM modeling to compare forested conditions to the existing conditions (pervious and impervious cover) and existing pond volume, and existing conditions with the proposed expansion (see Table 3-2).

Table 3-2: WWHM Model Results, Forested to Existing Conditions- Current and Proposed

Return Period	Forested Flow (cfs)	Existing Conditions Flow (cfs)	Proposed Flow (cfs)	Flow Reduction percent
2 year	67.91679	152.196051	141.042243	7%
5 year	109.058078	198.226339	179.177035	10%
10 year	137.453.014	232.244372	206.813066	11%
25 year	173.836745	279.399165	244.503609	12%
50 year	201.018131	317.674554	274.652242	14%
100 year	228.11003	358.756042	306.632275	15%

3.3 Contributing Basin Calculations

Ecology's "DRAFT Stormwater Control Transfer Program" – *Procedure 2: Pond Sizing Method for Determining Mitigation Credits in Cases Where There is a Pre-Existing Pond that will be expanded* was used to determine the appropriate drainage area that will be fully mitigated to meet the flow control standards. Based upon those calculations, it was determined that the drainage area is 68.82 acres using 85% impervious at full build-out. This corresponds to 58.5 acres impervious and 10.32 acres lawn/landscaped area..

The following are excerpts from Ecology's "Draft Stormwater Control Transfer Program":

> Procedure 2: Pond Sizing Method for Determining Mitigation Credits in Cases Where There is a Pre-Existing Pond that will be expanded.
>
> Step 1: Determine a theoretical drainage basin which could be fully controlled (i.e., meet the default flow control standard assuming the appropriate historical condition is forested) by the existing pond. The analysis involves changing the discharge design – orifice heights and diameters – but using the as-built pond dimensions.
>
> Step 2: Determine a theoretical drainage basin which could be fully mitigated by the proposed, larger pond and a new discharge structure. Subtract the area for Step 1 from Step 2. This is the initial estimate of the mitigation credit represented by the expanded pond.

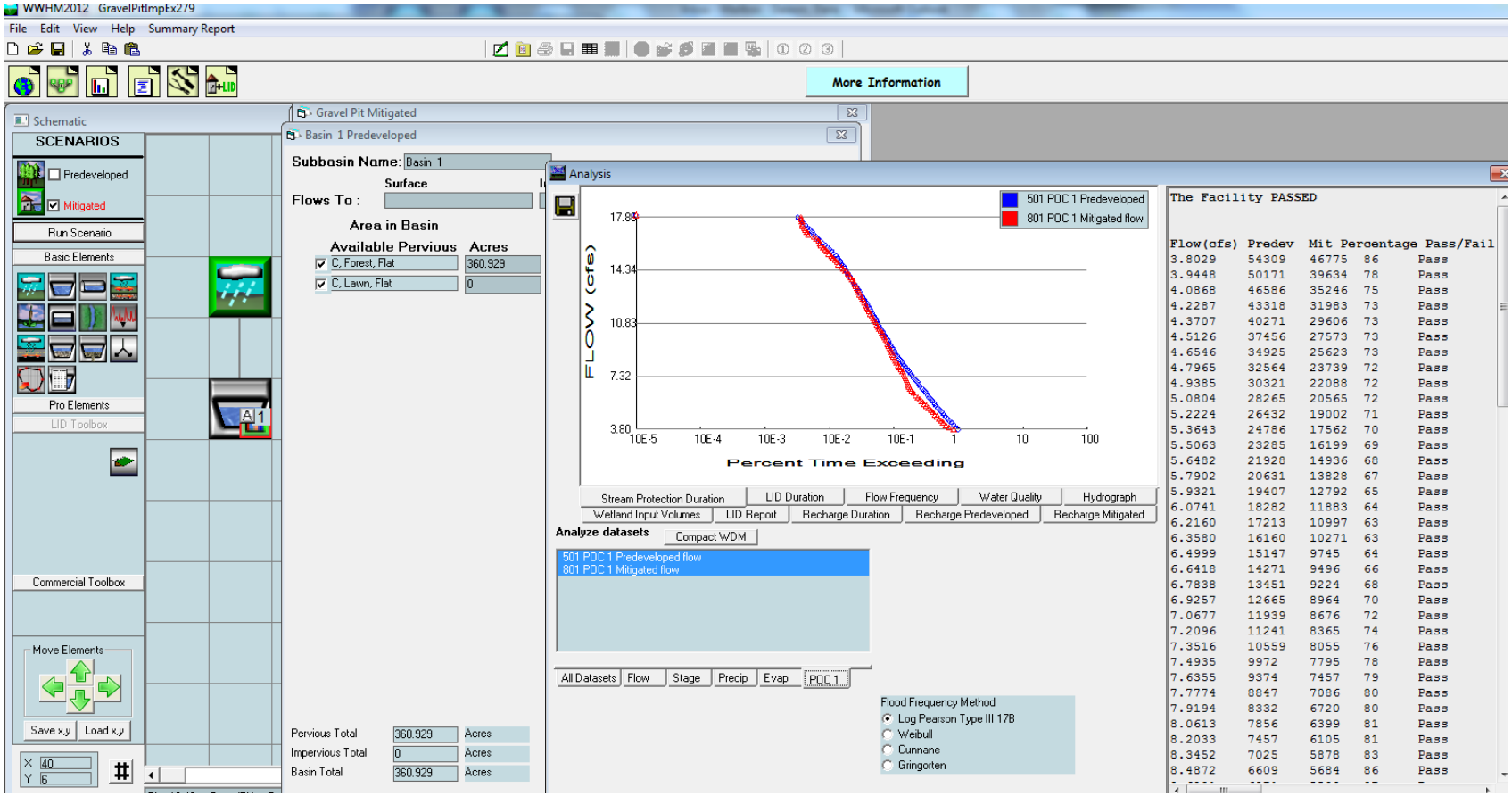
Step 3: Enter the characteristics (impervious areas, lawn/landscape areas) of the actual (entire) area draining to the expanded pond into the appropriate fields for the basin icon, and route the basin into the pond designed in Step 2. Note that the expanded pond is not mitigating for all of the area that is draining to it. Check to see if the discharge structure overflow (the top of the standpipe) is adequate to pass all of the predicted flows. If the discharge structure passes all flows without engaging the emergency overflow, it is finished. The initial estimate of credit in Step 2 is also the final estimate. If the discharge structure will not pass all flows, enlarge the overflow structure diameter, keeping the orifices at the same diameters and heights (or if using a vertical rectangular notch, the same width), until the discharge structure does pass all flows. Using that discharge structure, re-run the model to determine the acreage that can be fully controlled by the expanded pond with the revised standpipe. Subtract the area for Step 3 (in the case where the standpipe was enlarged) from the area for Step 1. This is the final estimate of the capacity credit.

Table 3-3 below shows the structure information used in WWHM to determine the capacity available for this program. The following pages contain WWHM printouts showing the calculations.

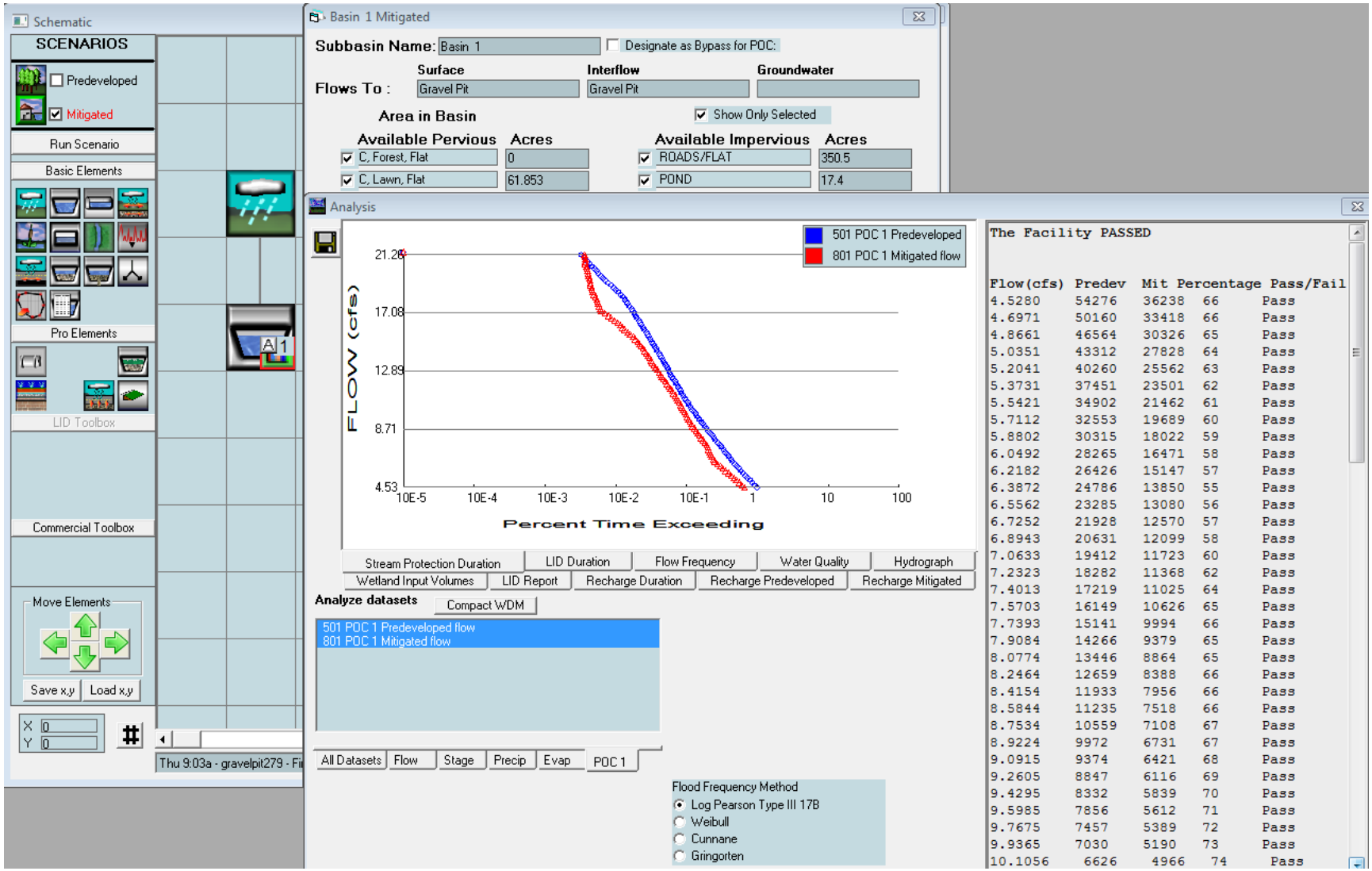
Table 3-3 – WHMM Outlet Structure

Outlet Structure Information from WWHM:		
Riser Structure		
Height: 14 feet Diameter: 48 inches		
Rectangular, Notched		
Height: 4 feet Width: 0.4 feet		
Orifices	**Diameter, Inches**	**Height, Feet**
1	3	0
2	6	5
3	6	8.9

Gravel Pit Step 1: Existing pond – Theoretical Basin for new discharged structure, with infiltration



Gravel Pit Step 2: Proposed pond – Theoretical Basin for new discharged structure, with infiltration



Subtracting Step 1 from Step 2 provides the area available for the payment in-lieu-of construction program.

Table 3-4: Net Capacity Credit Available for Payment In-Lieu-Of Construction Program

	Step 1 Acreage	Step 2 Acreage	Net Capacity Credit Available for Program (acres)
Roads	292	350.5	58.5
Lawn	51.53	61.853	10.32
Total	360.93	429.753	**68.82**

3.3 Payment In-Lieu-Of Construction System Development Charge Determination

New and redevelopment projects within Flett Creek Watershed will be allowed to pay a system development charge instead of constructing individual site-specific flow control facilities. Table 3-5 below provides the system development charge and available capacity to be included in the program.

Table 3-5: System Development Charge and Net Capacity Credit Available

System Development Charge ($/sf)	$0.97
Net Capacity Credit Available (acres)	68.82
Total Impervious Surface Area Available (acres)	58.5
Total Lawn/Landscaped Area Available (acres)	10.32

The system development charge is $0.97 per square foot of contributing surface area. A maintenance surcharge will not be assessed for the Gravel Pit Regional Stormwater Facility. The system development charge is based upon an assumption that the drainage area will be fully built out to 85% impervious surface coverage. At 85% impervious surface coverage, the mitigation area available is a total of 68.82 acres of which 58.5 acres is considered impervious surface and 10.32 acres is considered lawn/landscaped.

The capital cost in Table 3-1 was used to calculate the system development charge.

3.4 Participation in the Payment In-Lieu-Of Construction Program

Tacoma Municipal Code 12.08.870 establishes the Payment In-Lieu-Of Construction Program which allows for property owners to pay a systems development charge in-lieu-of providing individual site-specific best management practices on the applicant's project site.

New development and redevelopment projects located in the Flett Creek Watershed may pay a system development charge in-lieu-of providing individual site-specific stormwater flow control best management practices in order to meet Minimum Requirement #7. Public and private projects are eligible for participation in the program. This is a voluntary program.

Projects must meet all Minimum Requirements applicable to the project even if the system development charge will be used to mitigate for MR #7. A Stormwater Site Plan must be submitted for review and approval – the project proponent may state that they are utilizing the Gravel Pit Regional Stormwater Facility to meet the intent of MR #7.

Projects required to provide flow control in order to meet Minimum Requirement #8 wetland protection may not participate in this program.

Projects shall complete a program application - the "Application for system development charge In-Lieu of Onsite Stormwater Mitigation" and include this as part of a complete application for construction permits. Public projects proposing to utilize this program shall complete an application and submit it at the 90% design phase. The City of Tacoma will review this application as part of the construction permit review process. The applicant will be notified if the project is acceptable for inclusion in the Payment In-Lieu-Of Construction Program.

Property owners shall also enter into a Voluntary Payment Agreement with the City. The Voluntary Payment Agreement will be supplied by the City and shall be recorded to title of the associated property.

Examples of projects that will not be accepted into the program include:

- Projects requesting an Exception to a Minimum Requirement
- Projects that are requesting to reserve capacity for potential future mitigation needs
- Projects that have submitted program applications when 85% of the capacity has been reserved for preceding projects
- Retroactive projects

Projects that are accepted into the Program shall record covenants with the Pierce County Auditor and submit a copy of the recorded agreement to the City.