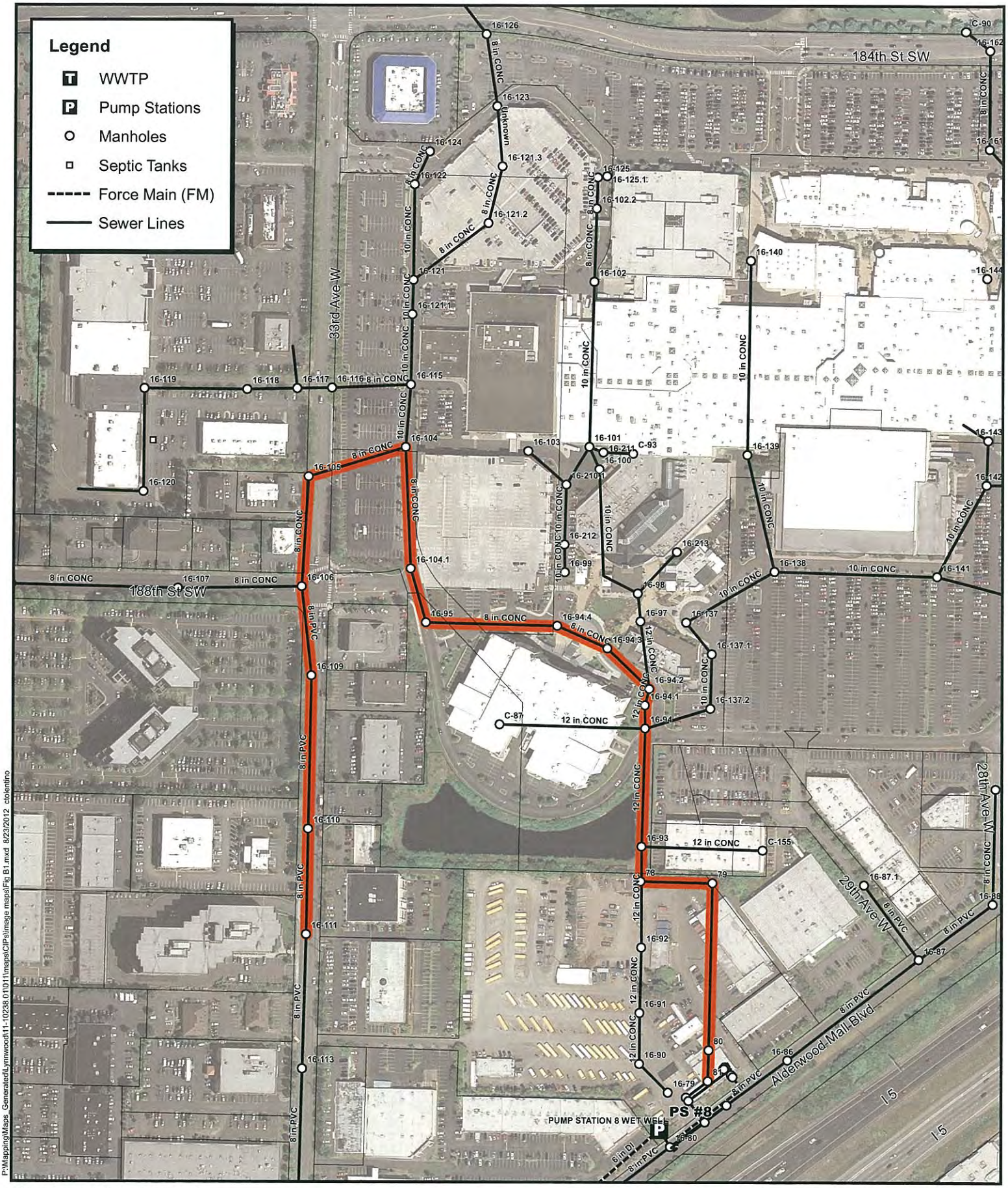


This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

NORTH

0 150 300 Feet

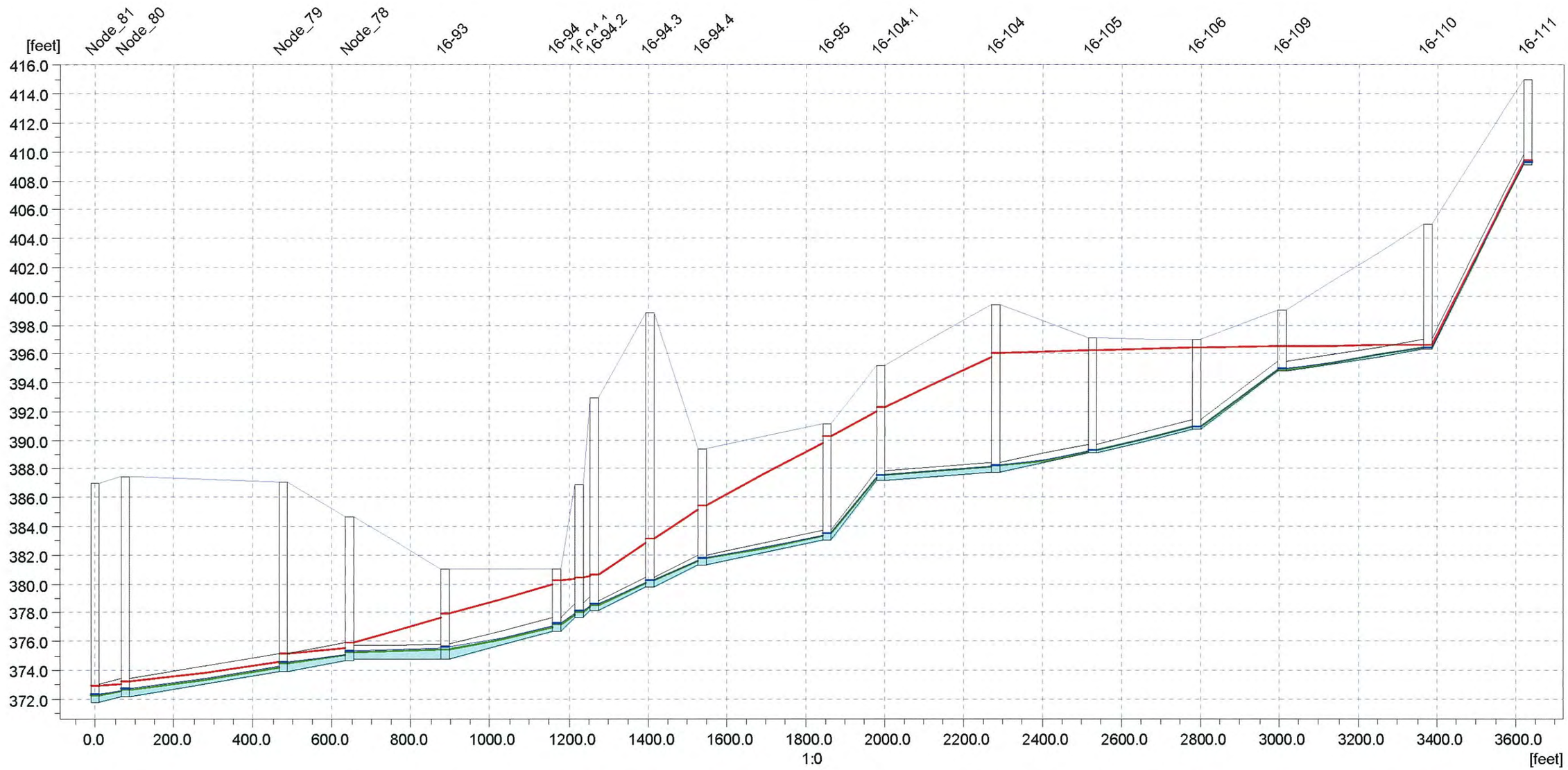
LYNNWOOD WASHINGTON

CIP B1
PROFILE NODE 81 TO 16-111

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure
B1

P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP\slimage maps\Fig B1.mxd 8/23/2012 ctolentino



Ground Lev.	387.00	387.50		387.09		384.69		381.00		381.00	393.00		398.80	389.35		391.14	395.17		399.35		397.06		397.00	399.00		405.00	
Invert lev.	371.77	372.17		373.87		374.67		374.80		376.68	378.14		379.78	381.35		383.04	387.17		387.76		389.06		390.76	394.74		396.30	
Length			399.04		170.29		241.70		283.80			139.91			132.81			316.29		134.66		292.02		243.97		264.89	
Diameter			1.25		1.25		1.00		1.00			0.67			0.67			0.67		0.67		0.67		0.67		0.67	
Slope o/oo			4.26		4.70		0.12		6.62			11.72			11.82			5.34		30.67		2.02		5.32		6.42	

Ground Lev.	387.00	387.50		387.09		384.69		381.00		381.00	393.00		398.80	389.35		391.14	395.17		399.35		397.06		397.00	399.00		405.00	
Invert lev.	371.77	372.17		373.87		374.67		374.80		376.68	378.14		379.78	381.35		383.04	387.17		387.76		389.06		390.76	394.74		396.30	
Length			399.04		170.29		241.70		283.80			139.91			132.81			316.29		134.66		292.02		243.97		264.89	
Diameter			1.25		1.25		1.00		1.00			0.67			0.67			0.67		0.67		0.67		0.67		0.67	
Slope o/oo			4.26		4.70		0.12		6.62			11.72			11.82			5.34		30.67		2.02		5.32		6.42	

P:\Mapping\Maps_Generated\Lynnwood\11-10238.01\011\maps\CIP\plotfiles\Fig x-x CIP A A1 Profile 11x17.mxd 8/23/2012 ctolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

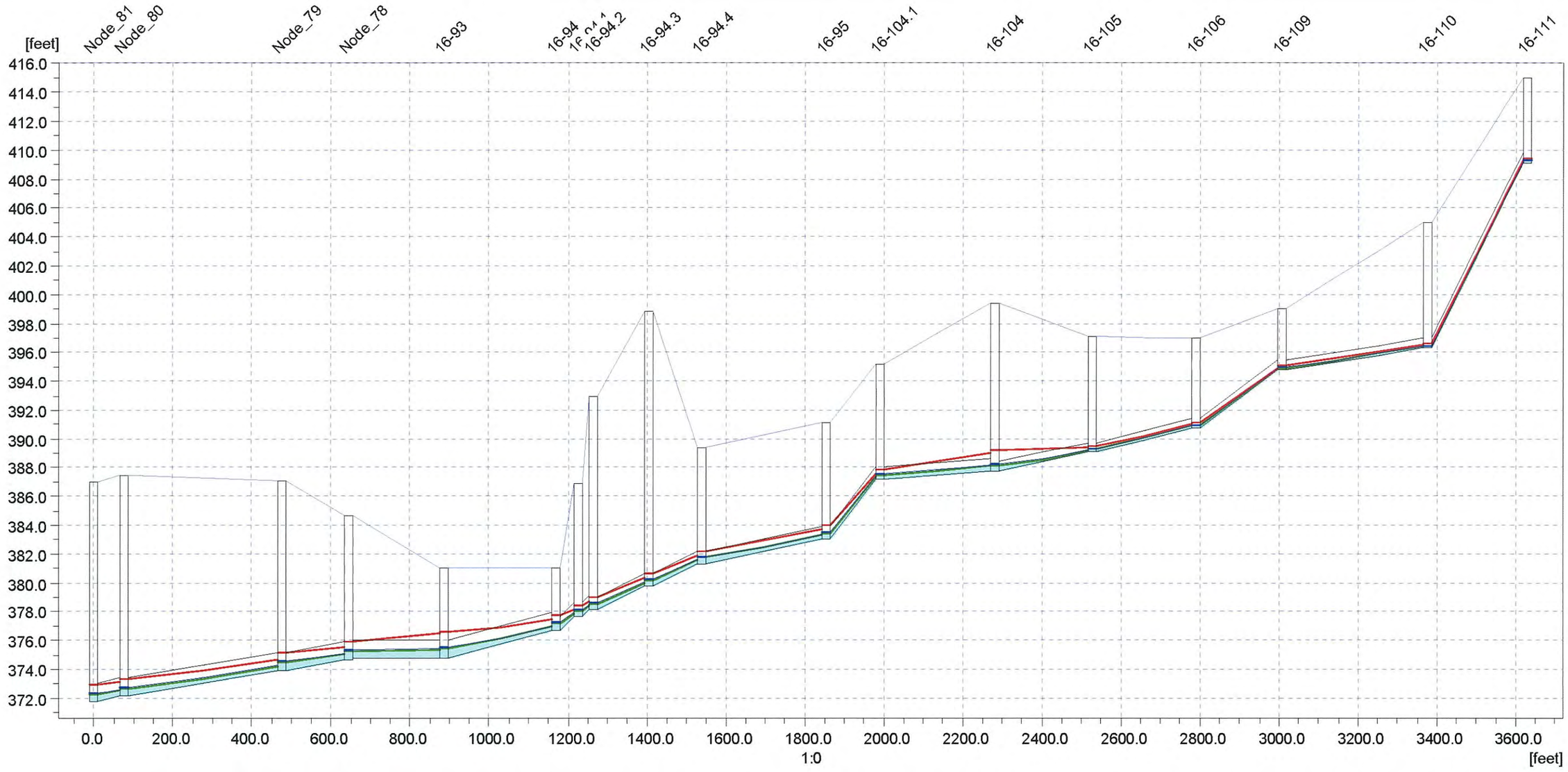
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP B1
PROFILE NODE 81 TO 16-111

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
x-x



Ground Lev.	387.00	387.50		387.09		384.69		381.00		381.00	393.00	398.80	389.35		391.14	395.17		399.35		397.06		397.00	399.00		405.00	
Invert lev.	371.77	372.17		373.87		374.67		374.80		376.68	378.14	379.78	381.35		383.04	387.17		387.76		389.06		390.76	394.74		396.30	
Length			399.04		170.29		241.70		283.80			139.91	132.81	316.29			134.66		292.02		243.97		264.89		215.41		368.13		252.98
Diameter			1.25		1.25		1.25		1.25			0.83	0.83	0.83			0.83		0.83		0.67		0.67		0.67		0.67		0.67
Slope o/oo			4.26		4.70		0.12		6.62			11.72	11.82	5.34			30.67		2.02		5.32		6.42		18.48		4.24		50.79

P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP\profiles\Fig x-x CIP B1 A1 Profile 11x17.mxd 8/23/2012 ctelentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

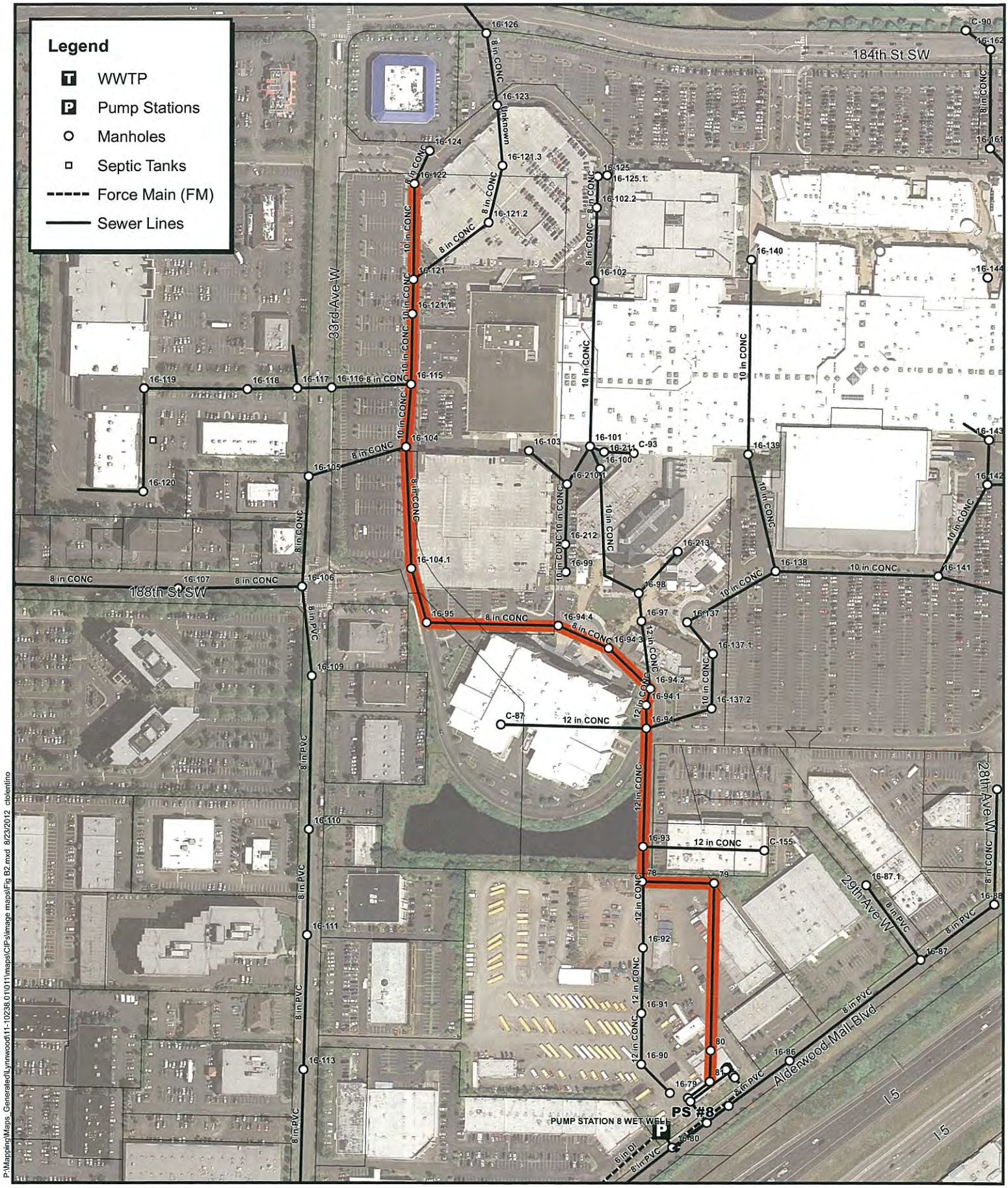
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP B1 IMPROVEMENTS PROFILE NODE 81 TO 16-111

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
x-x



P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP-slimage maps\Fig B2.mxd 8/23/2012 ctolentino

This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

NORTH

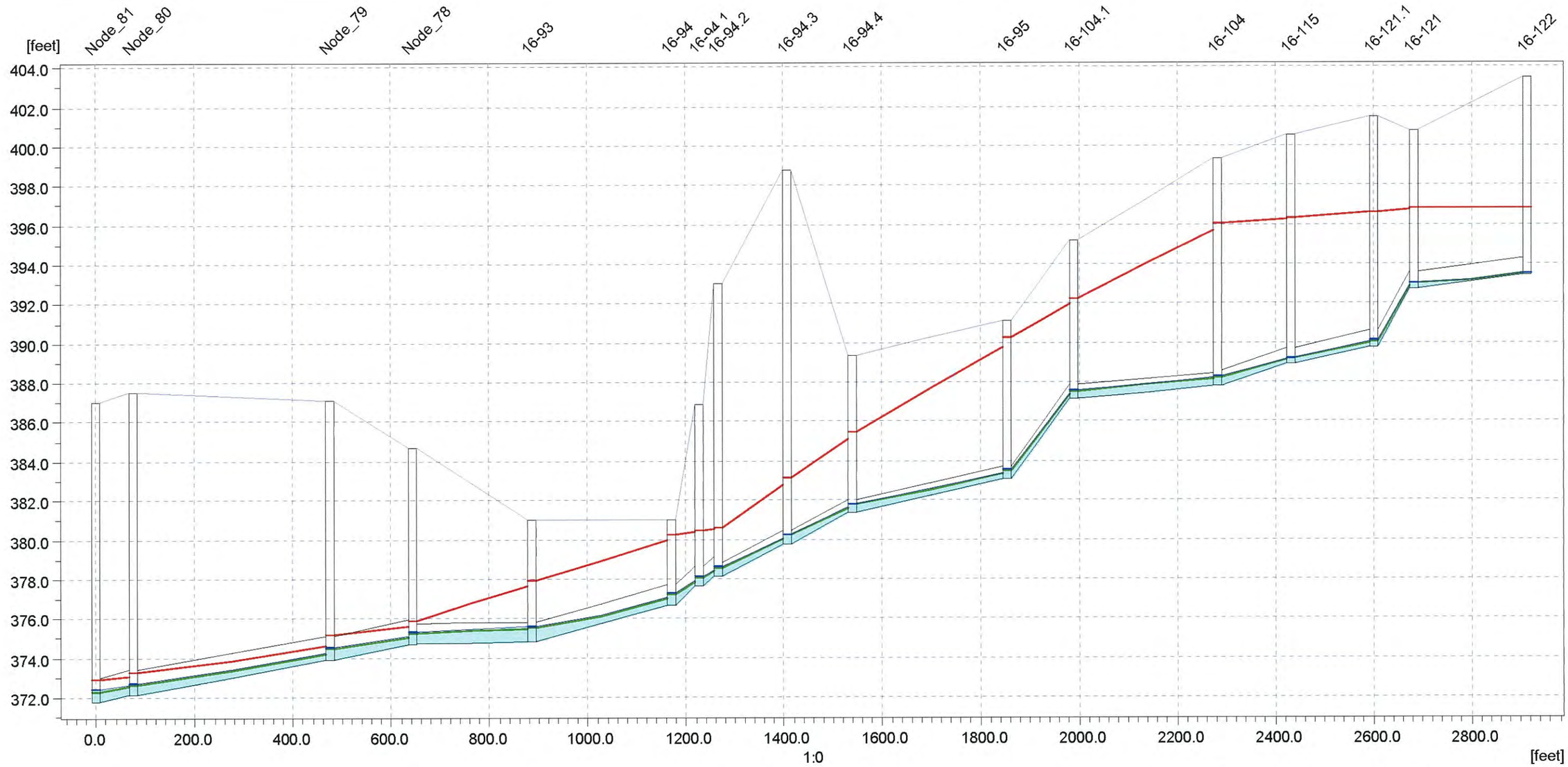
0 150 300 Feet

LYNNWOOD WASHINGTON

CIP B2
PROFILE NODE 81 TO 16-122

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure
B2



Ground Lev.	387.00	387.50		387.09		384.69		381.00		381.00	386.86		398.80	389.35		391.14	395.17		399.35	400.58	401.48	400.79	
Invert lev.	371.77	372.17		373.87		374.67		374.80		376.68	377.66		379.78	381.35		383.04	387.17		387.76	388.89	389.78	392.72	
Length			399.04		170.29		241.70		283.80			139.91	132.81		316.29	134.66		292.02	150.67	168.78			229.08
Diameter	1.25		1.25		1.25		1.00		1.00			0.67	0.67		0.67	0.67		0.67	0.83	0.83	0.83		0.83
Slope o/oo	5.33		4.26		4.70		0.12		6.62			11.72	11.82		5.34	30.67		2.02	7.50	5.27			3.26

P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP\profiles\Fig xx CIP B2 Profile 11x17.mxd 8/23/2012 ctolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

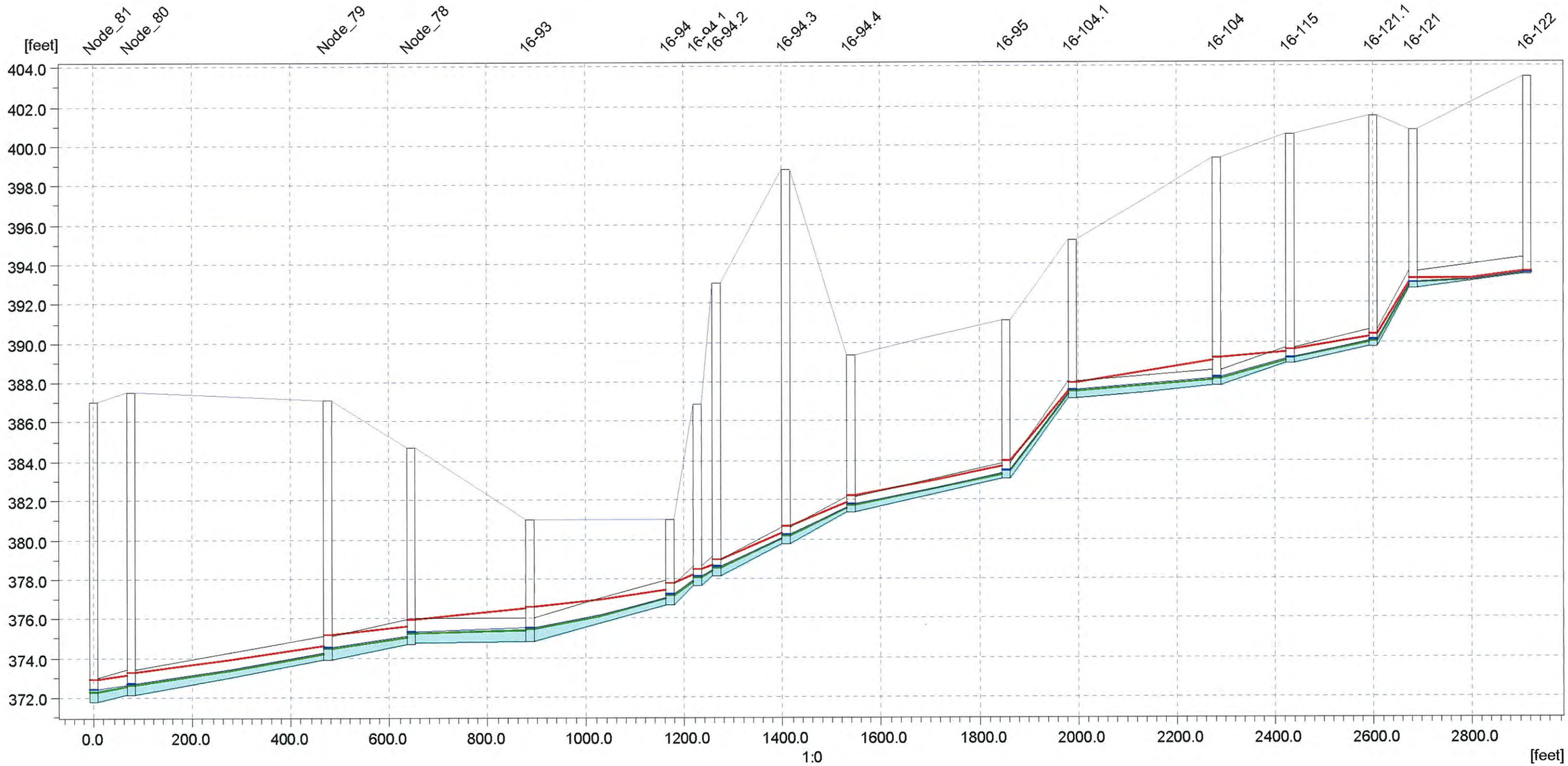
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP B2
PROFILE NODE 81 TO 16-122

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X



Ground Lev.	387.00	387.50		387.09		384.69		381.00		381.00	386.86		398.80	389.35		391.14	395.17		399.35	400.58		401.48	400.79	
Invert lev.	371.77	372.17		373.87		374.67		374.80		376.68	377.66		379.78	381.35		383.04	387.17		387.76	388.89		389.78	392.72	
Length			399.04		170.29		241.70		283.80			139.91	132.81		316.29		134.66	292.02		150.67	168.78			229.08
Diameter	1.25		1.25		1.25		1.25		1.25			0.83	0.83		0.83		0.83	0.83		0.83	0.83		0.83	0.83
Slope o/oo	5.33		4.26		4.70		0.12		6.62			11.72	11.82		5.34		30.67	2.02		7.50	5.27			3.26

P:\Mapping\Maps_Generated\Lynnwood\11-10238.01\011\maps\CIP\sl\profiles\Fig x-x CIP B2 A1 Profile 11x17.mxd 8/23/2012 ctclentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

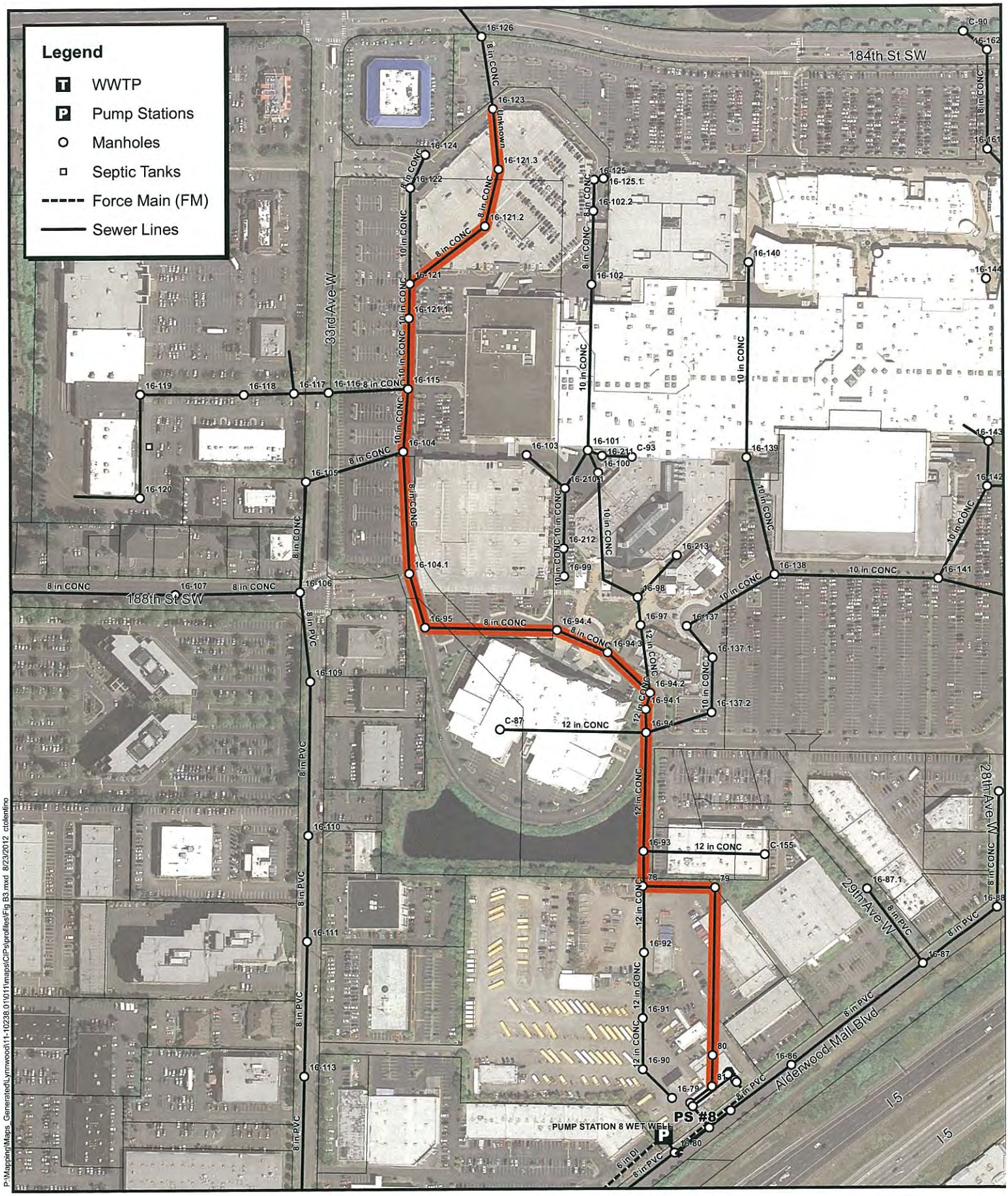
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP B2 IMPROVEMENTS PROFILE NODE 81 TO 16-122

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
x-x



P:\Mapping\Maps_Generated\Lynnwood\111-10238.010\011\maps\CIP\profiles\Fig B3.mxd 8/23/2012 ctolentino

This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

NORTH

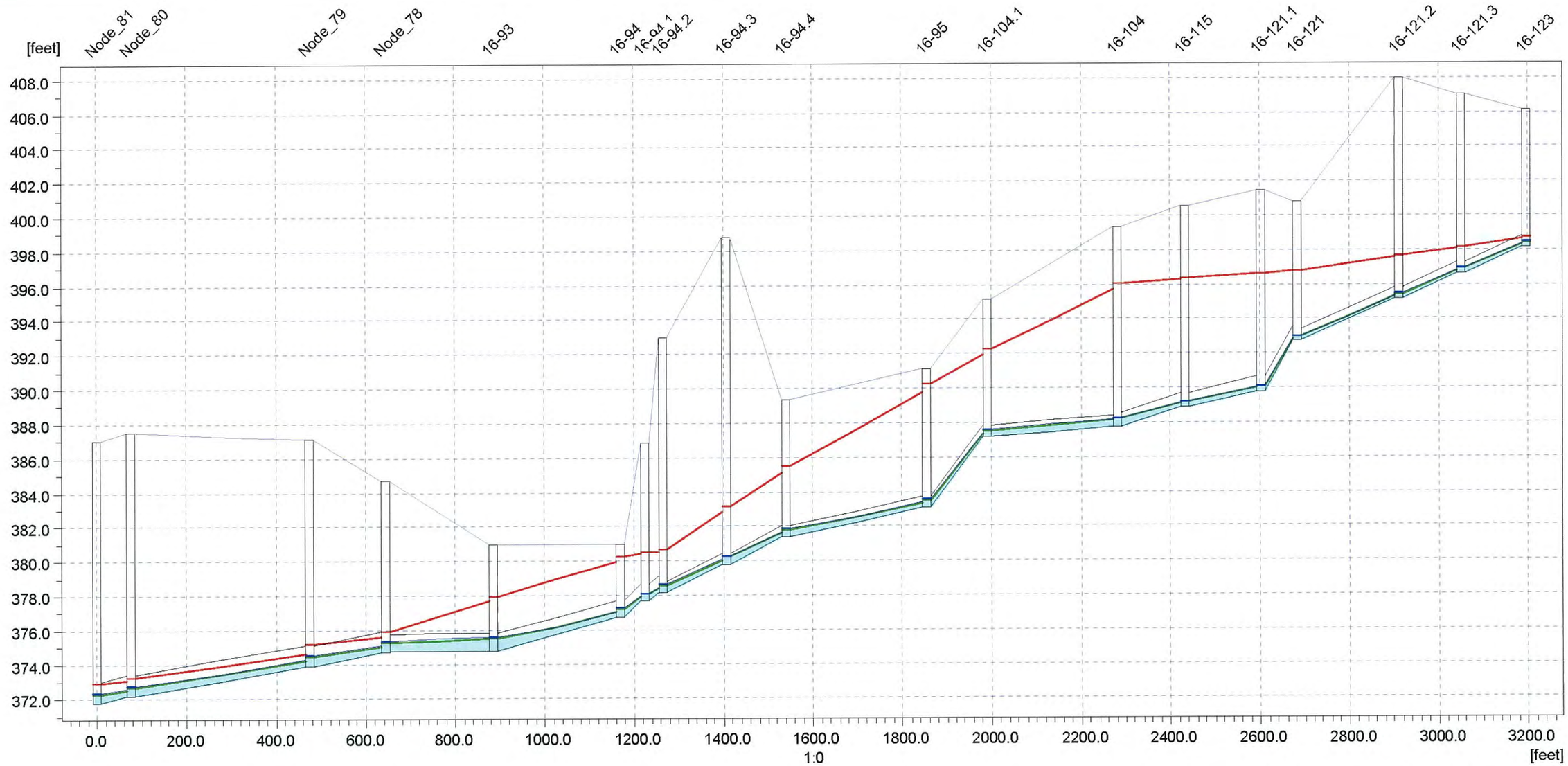
0 150 300 Feet

LYNNWOOD WASHINGTON

CIP B3
PROFILE NODE 81 TO 16-123

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure
B3



Ground Lev.	387.00	387.50		387.09		384.69		381.00		381.00	386.86		398.80	389.35		391.14	395.17		399.35	400.58	401.48	400.79		408.00	407.00
Invert lev.	371.77	372.17		373.87		374.67		374.80		376.68	377.66		379.78	381.35		383.04	387.17		387.76	388.89	389.78	392.72		395.13	396.62
Length			399.04		170.29		241.70		283.80			139.91	132.81		316.29		134.66	292.02		150.67	168.78			226.33	139.86	144.70
Diameter	1.25		1.25		1.25		1.00		1.00			0.67	0.67		0.67		0.67	0.67		0.83	0.83	0.83		0.67	0.67	0.67
Slope o/oo	5.33		4.26		4.70		0.12		6.62			11.72	11.82		5.34		30.67	2.02		7.50	5.27			10.64	10.65	10.57

P:\Mapping\Maps Generated\Lynnwood\11-10238.010\11\maps\CIP\Projects\Fig x-x CIP B3 Profile 11x17.mxd 8/23/2012 ctolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

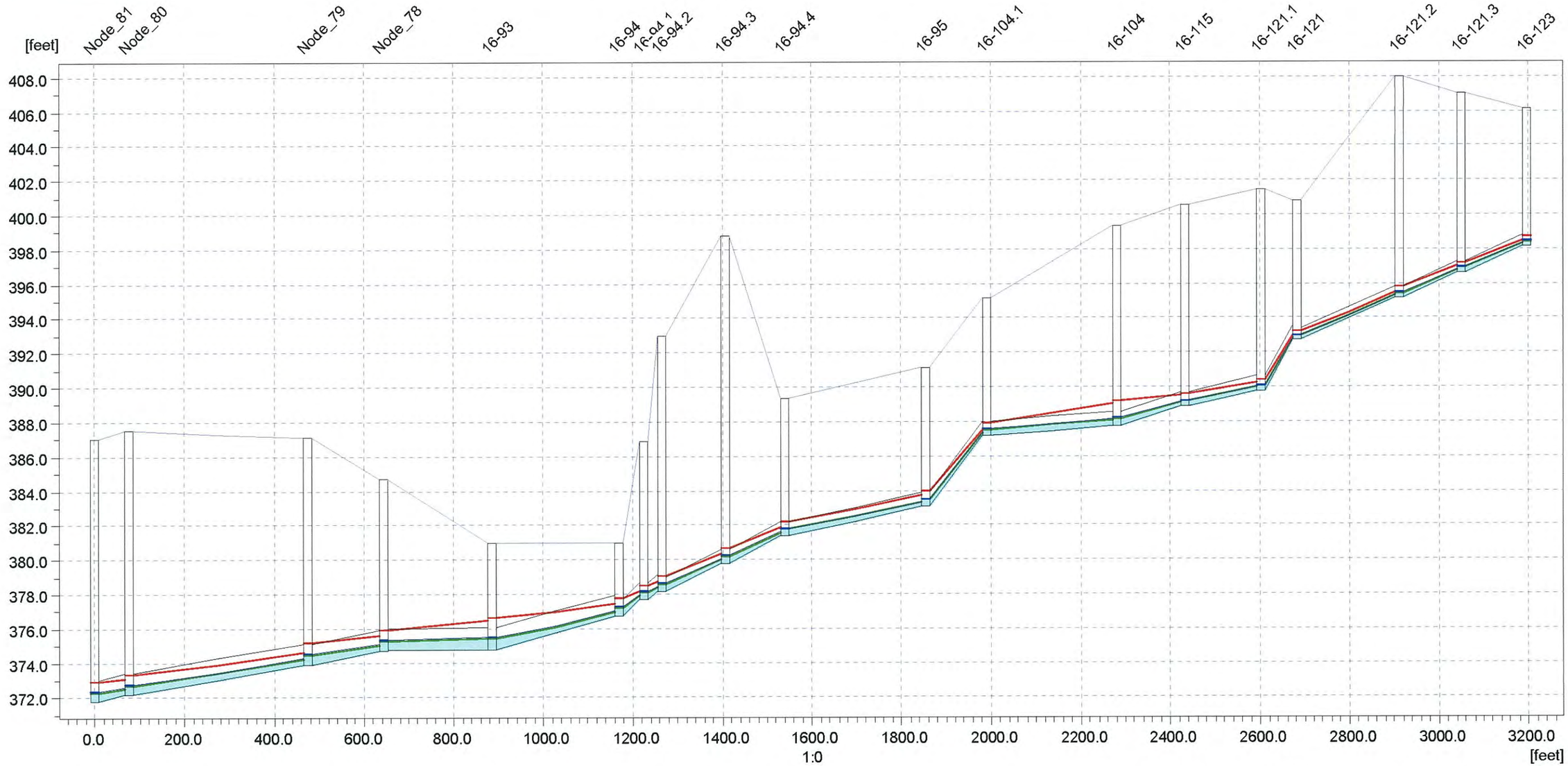
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP B3
PROFILE NODE 81 TO 16-123

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
x-x



Ground Lev.	387.00	387.50			387.09		384.69		381.00		381.00	386.86		398.80	389.35		391.14	395.17		399.35	400.58	401.48	400.79		408.00	407.00
Invert lev.	371.77	372.17			373.87		374.67		374.80		376.68	377.66		379.78	381.35		383.04	387.17		387.76	388.89	389.78	392.72		395.13	396.62
Length			399.04			170.29		241.70		283.80			139.91		132.81	316.29		134.66	292.02		150.67	168.78			226.33	139.86	144.70
Diameter	1.25		1.25			1.25		1.25		1.25			0.83		0.83	0.83		0.83	0.83		0.83	0.83	0.83		0.67	0.67	0.67
Slope o/oo	5.33		4.26			4.70		0.12		6.62			11.72		11.82	5.34		30.67	2.02		7.50	5.27			10.64	10.65	10.57

P:\Mapping\Maps Generated\Lynnwood\111-10238.010\11\maps\CIP\profiles\Fig x-x CIP B3 A1 Profile 11x17.mxd 8/23/2012 ctolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP B3 IMPROVEMENTS PROFILE NODE 81 TO 16-123

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure

X-X

P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP\image maps\Fig G-1B.mxd 8/22/2012 ctolentino

This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

NORTH

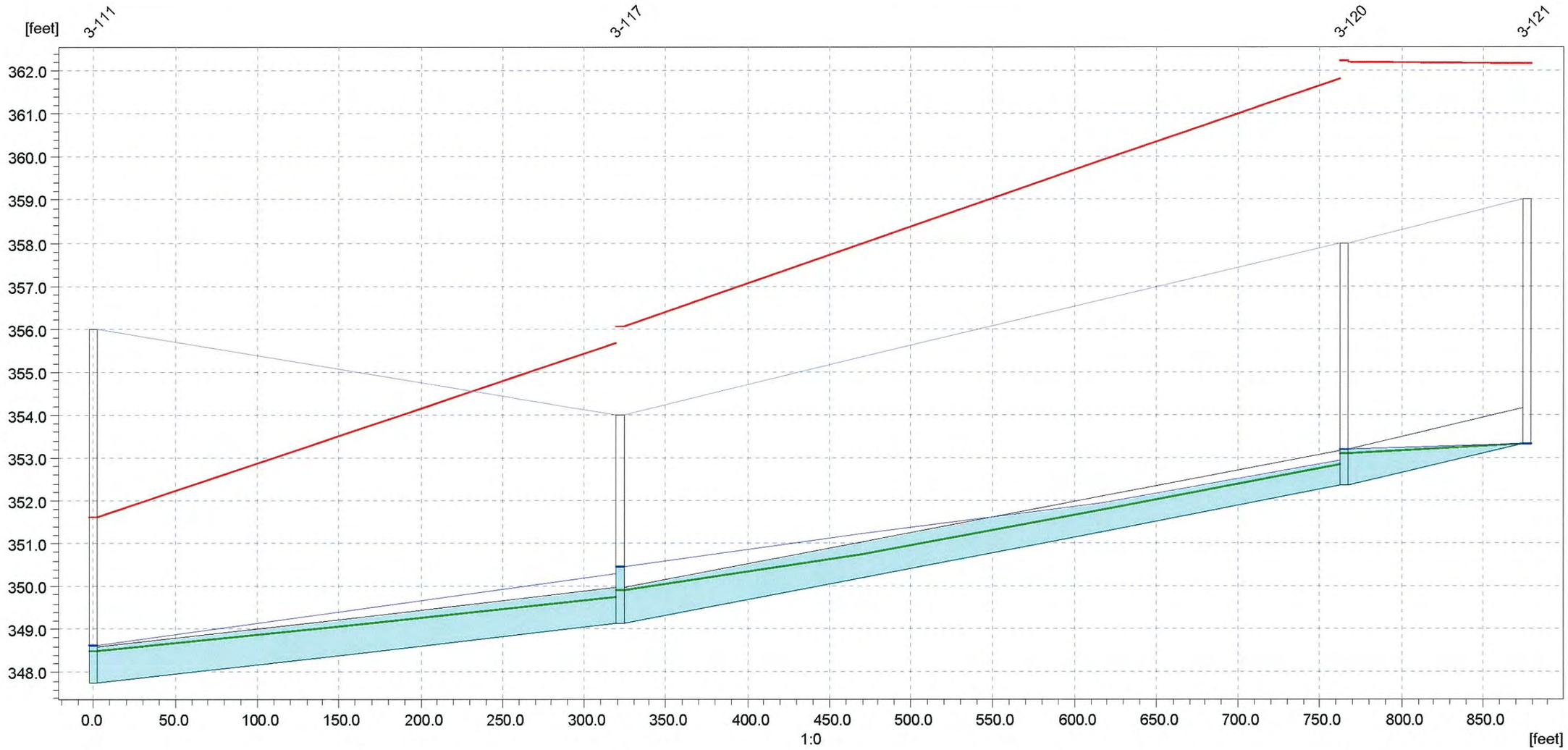
0 175 350 Feet

LYNNWOOD WASHINGTON

CIP G-1B
PROFILE LS 16 TO 4-185

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure
G-1B



Ground Lev.	356.00			354.00		358.00	
Invert lev.	347.75			349.14		352.34	
Length		321.89			442.97		111.76
Diameter		0.83			0.83		0.83
Slope o/oo		4.33			7.22		8.77

P:\Mapping\Maps_Generated\Lynnwood\11-10238.01\011\maps\CIP\Psprofiles\Fig x-x CIP G-1B Profile 11x17.mxd 8/22/2012 delentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

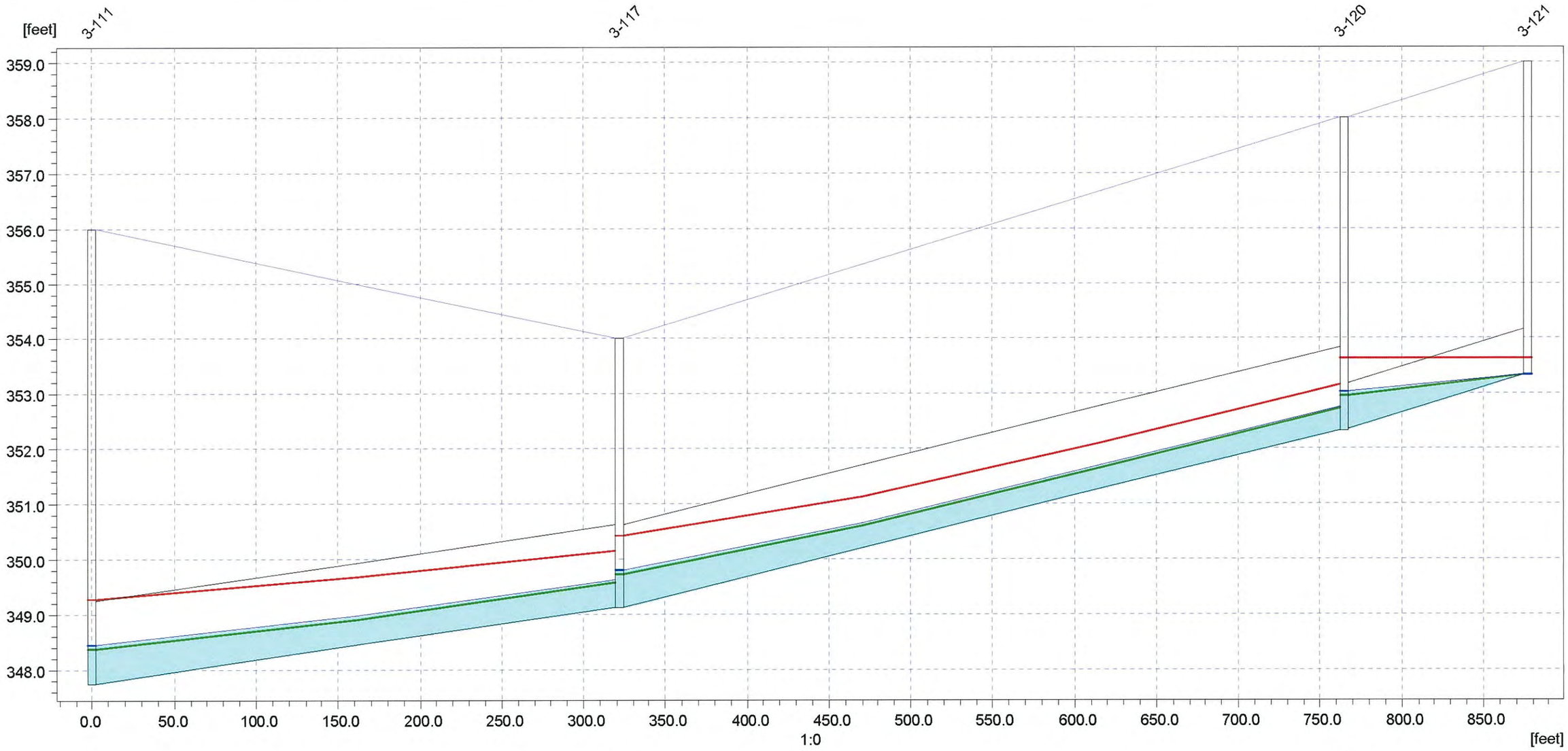
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP G-1B
PROFILE 3-111 TO 3-121

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X



Ground Lev.	356.00		354.00			358.00	
Invert lev.	347.75		349.14			352.34	
Length		321.89			442.97		111.76
Diameter		1.50			1.50		0.83
Slope o/oo		4.33			7.22		8.77

P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP\profiles\Fig x-x CIP G-1B A1 Profile 11x17.mxd 8/22/2012 ctolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

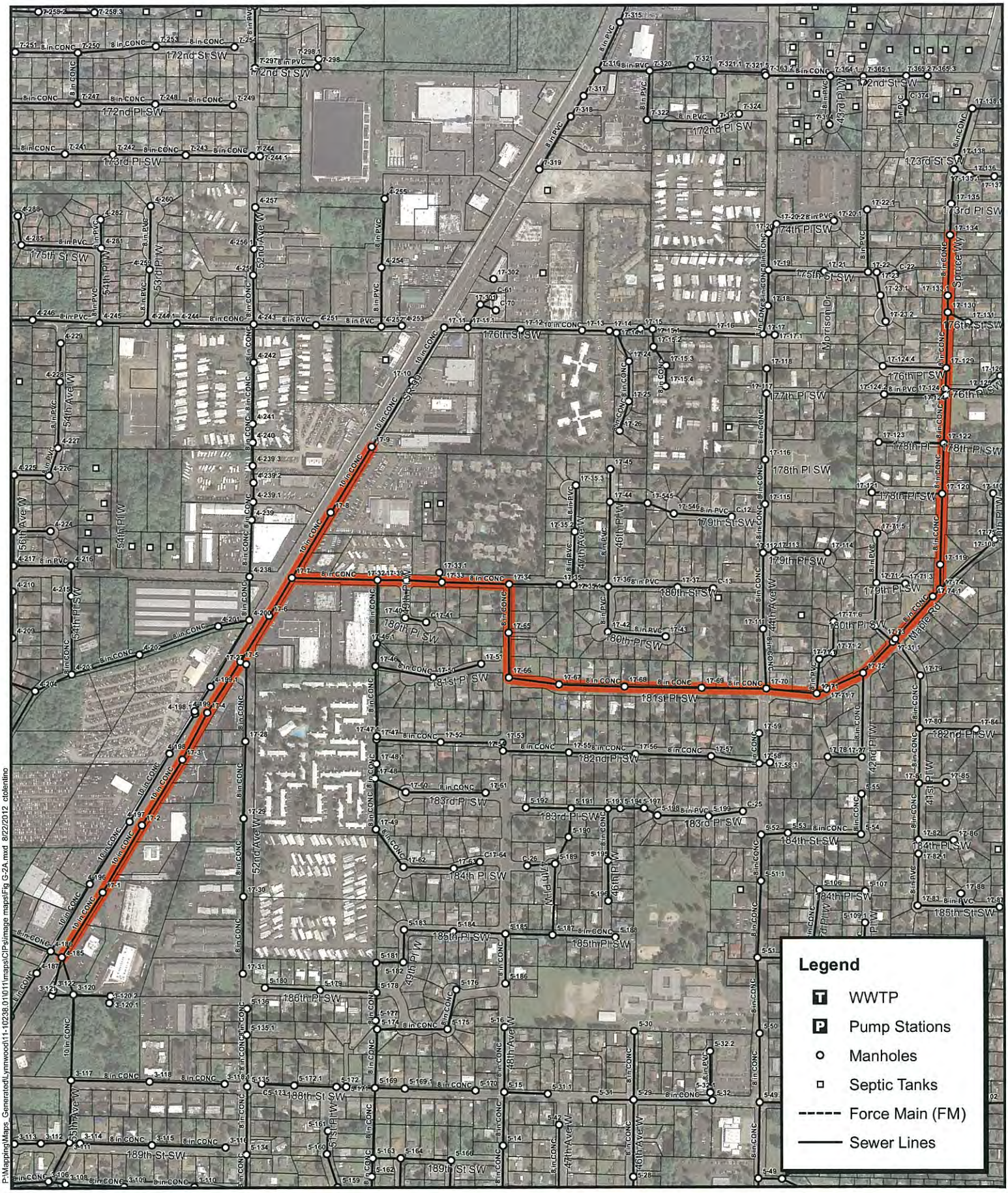
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP G-1B IMPROVEMENTS PROFILE A1 3-111 to 3-121

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
x-x



P:\Mapping\Maps_Generated\Lynnwood\11-10238.01\01\maps\CIP\image maps\Fig G-2A.mxd 8/22/2012 ctolentino

BHC CONSULTANTS

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

NORTH

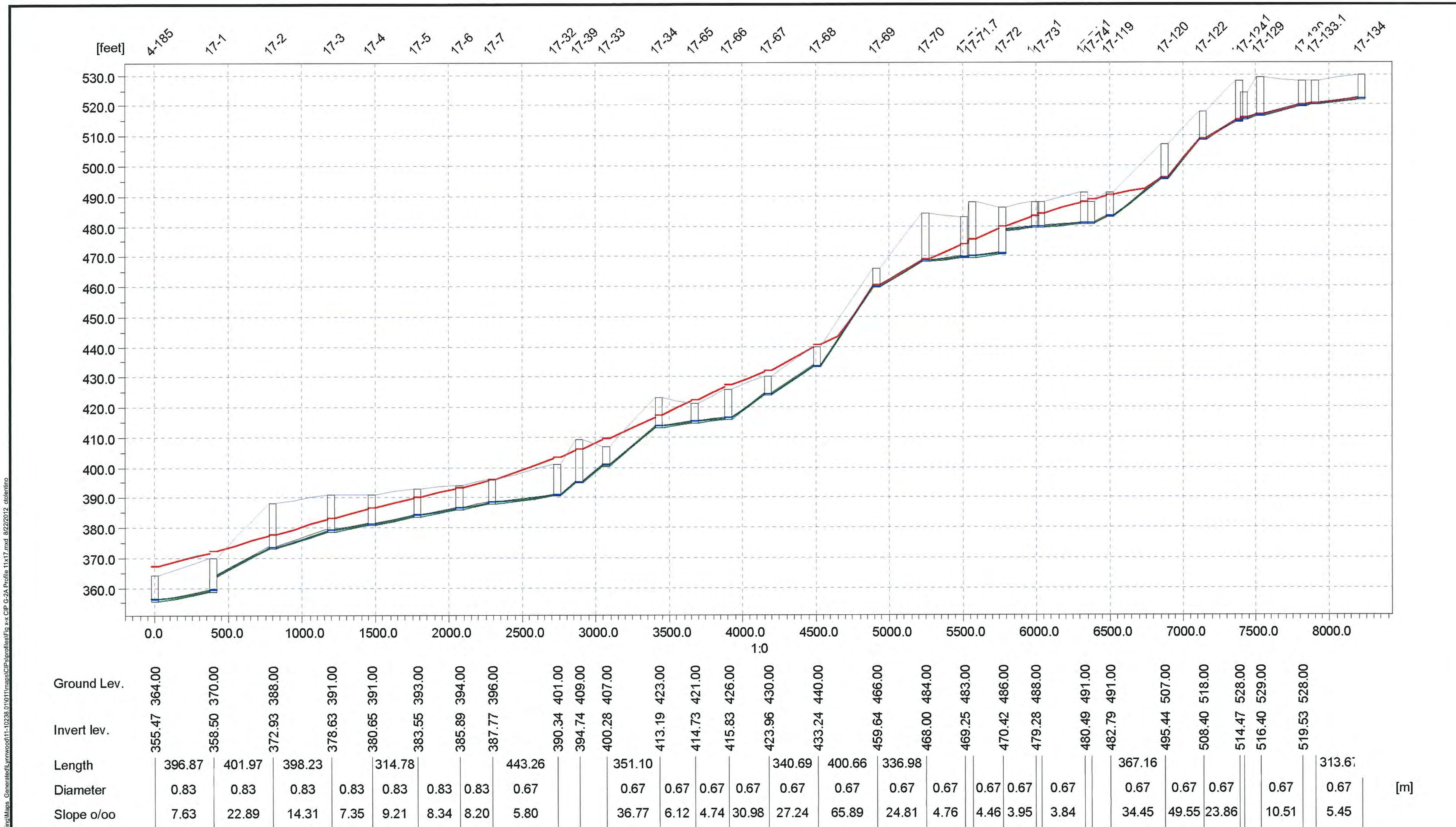
0 325 650 Feet

LYNNWOOD WASHINGTON

CIP G-2A
PROFILE 4-185 TO 17-134

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure
G-2A



BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

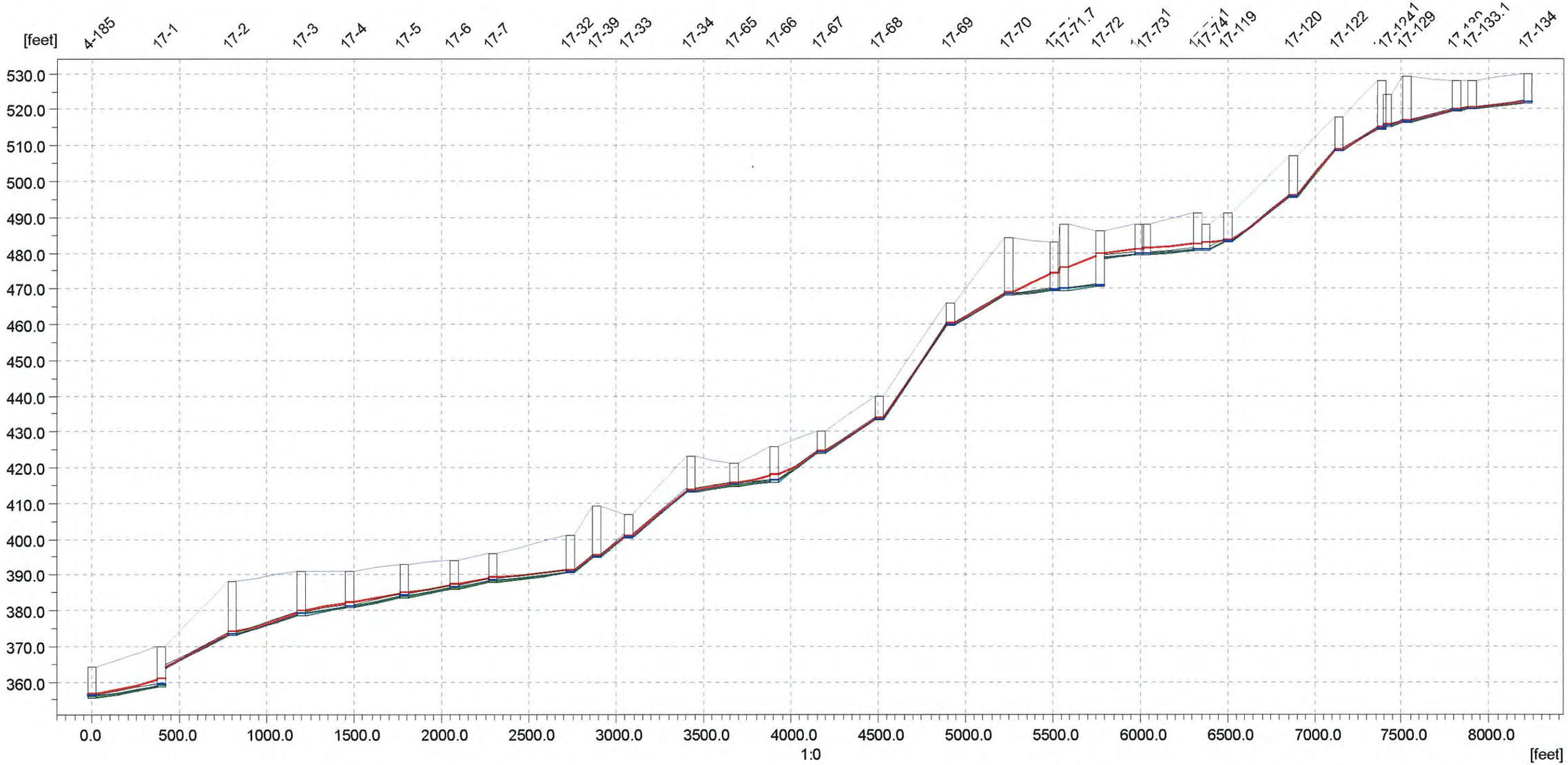
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP G-2A
PROFILE 4-185 TO 17-134

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
x-x



	4-185	17-1	17-2	17-3	17-4	17-5	17-6	17-7	17-32	17-39	17-33	17-34	17-65	17-66	17-67	17-68	17-69	17-70	17-71.7	17-72	17-73.1	17-74.1	17-119	17-120	17-122	17-124.1	17-129	17-130	17-133.1	17-134
Ground Lev.	364.00	370.00	388.00	391.00	391.00	393.00	394.00	396.00	401.00	409.00	407.00	423.00	421.00	426.00	430.00	440.00	466.00	484.00	483.00	486.00	488.00	491.00	491.00	507.00	518.00	528.00	529.00	528.00		
Invert lev.	355.47	358.50	372.93	378.63	380.65	383.55	385.89	387.77	390.34	394.74	400.28	413.19	414.73	415.83	423.96	433.24	459.64	468.00	469.25	470.42	479.28	480.49	482.79	495.44	508.40	514.47	516.40	519.53		
Length	396.87	401.97	398.23	1.00	314.78	1.00	1.00	443.26			351.10	1.00	0.83	0.83	340.69	400.66	336.98	0.67	0.68	0.83	0.83		367.16	0.67	0.67	0.67	0.67	313.67		
Diameter	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	0.83	0.83	0.83	0.67	0.67	0.67	0.68	0.83	0.83		0.67	0.67	0.67	0.67	0.67	0.67		
Slope o/oo	7.63	22.89	14.31	7.35	9.21	8.34	8.20	5.80			36.77	6.12	4.74	30.98	27.24	65.89	24.81	4.76	4.46	3.95	3.84		34.45	49.55	23.86	10.51	5.45			

P:\Mapping\Maps_Generated\Lynnwood\11-10238.010\11\maps\CIP\profiles\Fig x.x CIP G-2A A1 Profile 11x17.mxd 8/22/2012 ctelentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP G-2A IMPROVEMENTS PROFILE A1 4-185 to 17-134

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X

This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

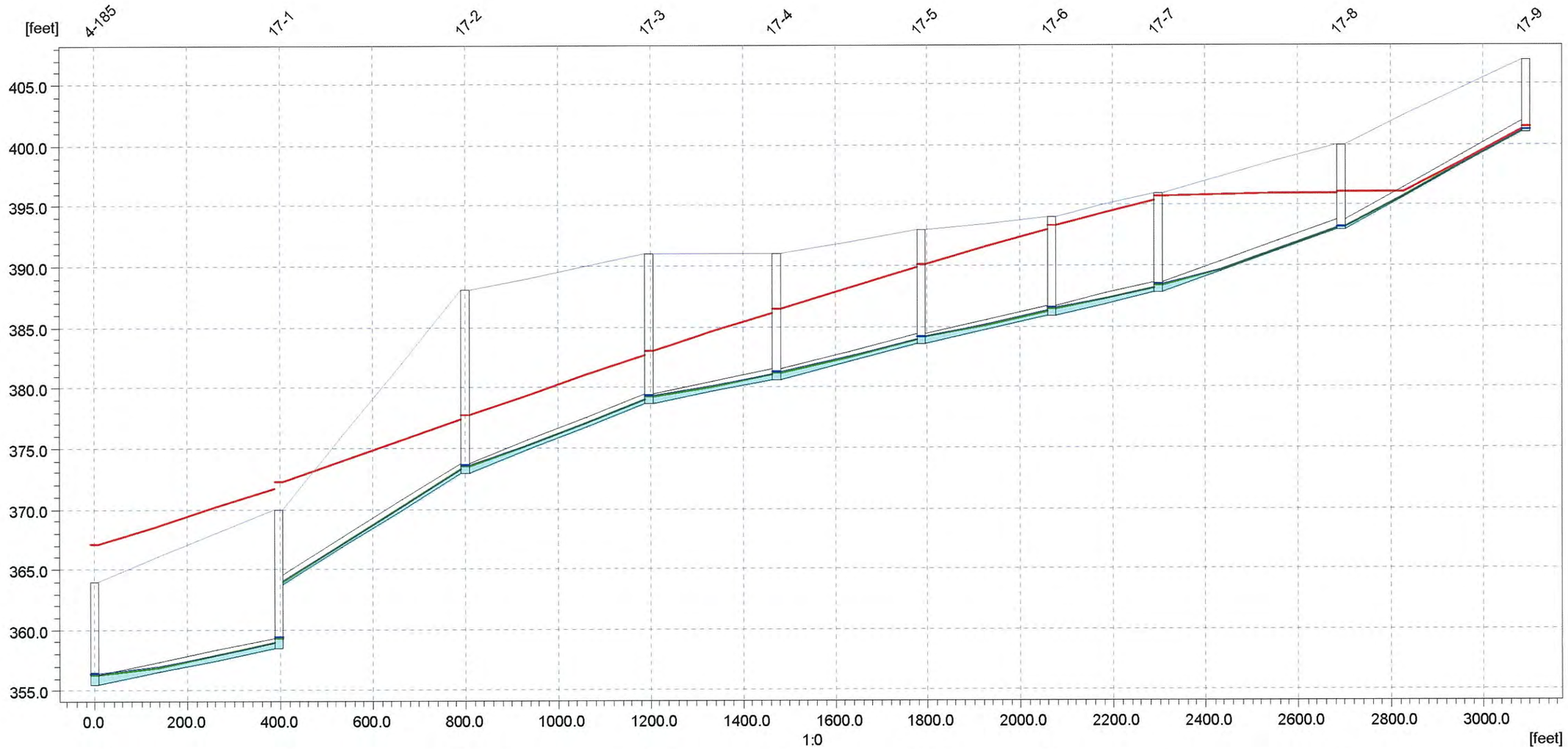
BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

CIP G-2B
PROFILE 4-185 TO 17-9

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure
G-2B



Ground Lev.	364.00		370.00		388.00		391.00		391.00		393.00		394.00		396.00		400.00
Invert lev.	355.47		358.50		372.93		378.63		380.65		383.55		385.89		387.77		392.94
Length		396.87		401.97		398.23		274.92		314.78		280.74		229.40		394.73		400.54
Diameter		0.83		0.83		0.83		0.83		0.83		0.83		0.83		0.83		0.83
Slope o/oo		7.63		22.89		14.31		7.35		9.21		8.34		8.20		13.10		20.22

P:\Mapping\Maps Generated\Lynnwood\11-10238.01\01\1\maps\CIP's\profiles\Fig x-x CIP G-2B Profile 11x17.mxd 8/22/2012 cbolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

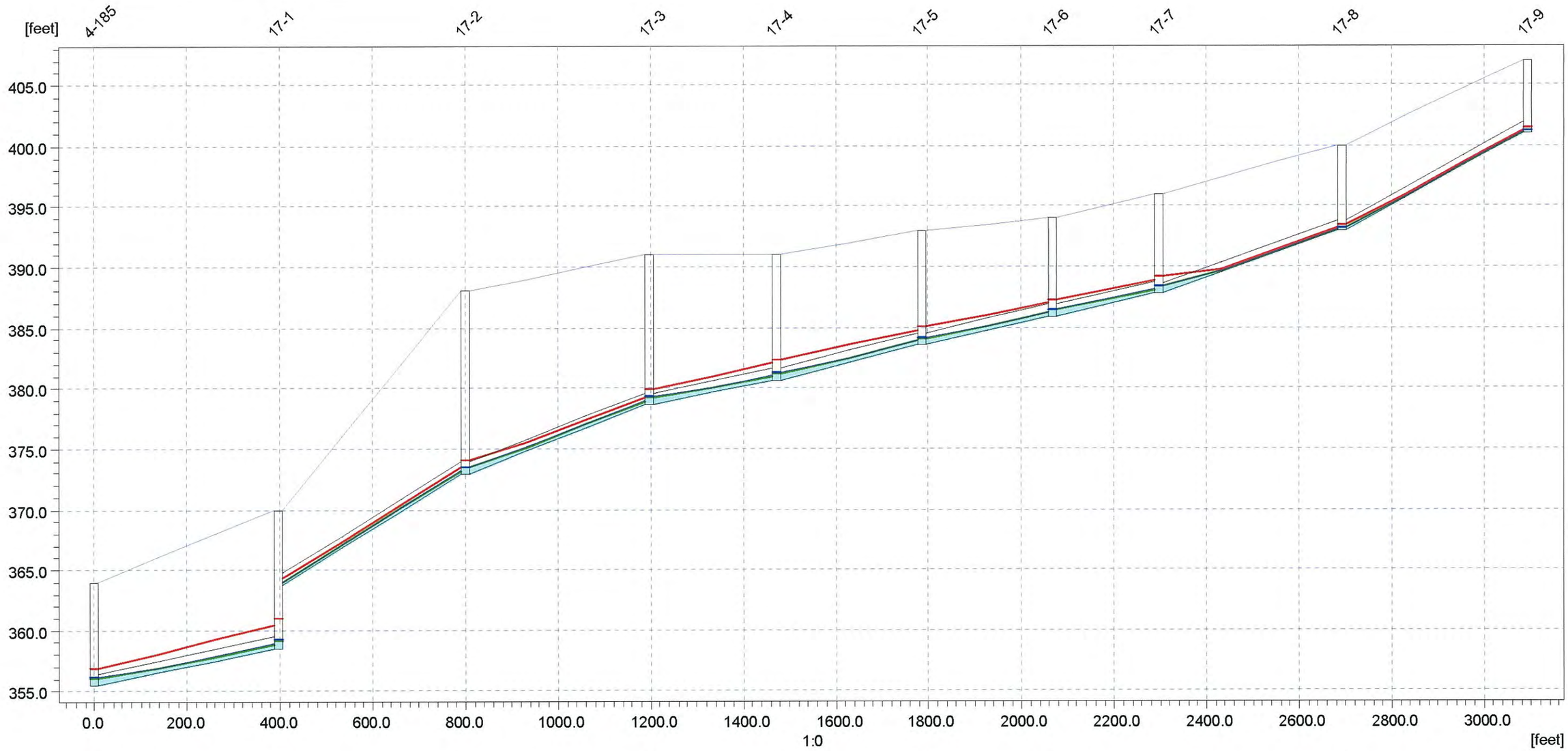
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP G-2B
PROFILE 4-185 TO 17-9

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X



Ground Lev.	364.00		370.00		388.00		391.00		391.00		393.00		394.00		396.00		400.00	
Invert lev.	355.47		358.50		372.93		378.63		380.65		383.55		385.89		387.77		392.94	
Length		396.87		401.97		398.23		274.92		314.78		280.74		229.40		394.73		400.54
Diameter		1.00		1.00		1.00		1.00		1.00		1.00		1.00		0.83		0.83
Slope o/oo		7.63		22.89		14.31		7.35		9.21		8.34		8.20		13.10		20.22

P:\Mapping\Maps_Generated\Lynnwood\11-10238.011011\maps\CIP\ProfilesFig xx CIP G-2B A1 Profile 11x17.mxd 8/22/2012 ctolentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

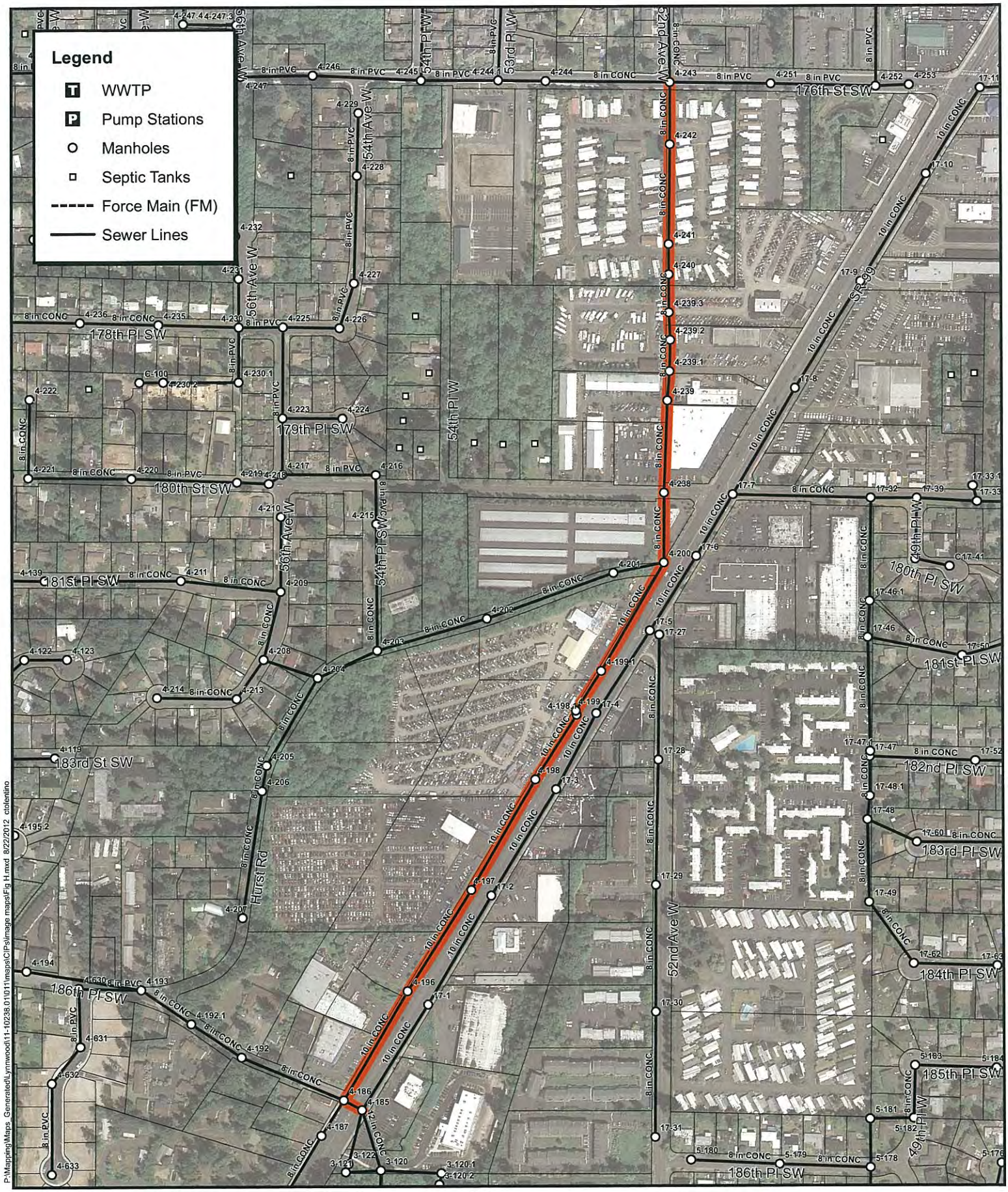
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP G-2B IMPROVEMENTS PROFILE A1 4-185 to 17-9

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X



This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

NORTH

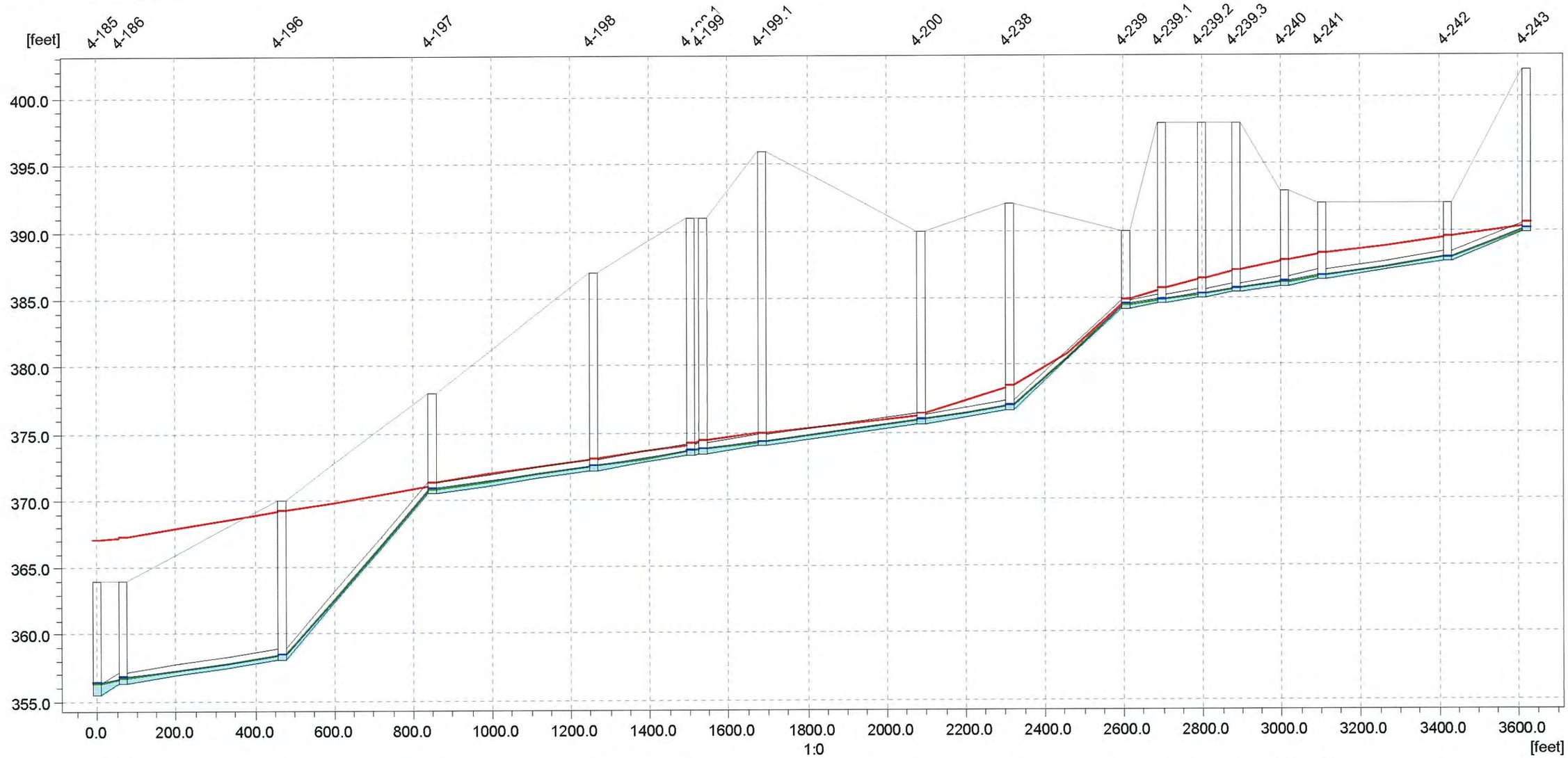
0 200 400 Feet

LYNNWOOD WASHINGTON

CIP H
PROFILE 4-185 TO 4-243

City of Lynnwood
2012 Wastewater
Comprehensive Plan Update
August 2012

Figure **H**



Ground Lev.	364.00	364.00		370.00		378.00		387.00		391.00	396.00		390.00		392.00		390.00	398.00	398.00	398.00	393.00	392.00		392.00	
Invert lev.	355.47	356.30		358.10		370.50		372.20		373.30	374.00		375.60		376.64		384.17	384.57	384.99	385.36	385.87	386.36		387.74	
Length			402.28		381.95		407.93		245.23		150.83	400.28		223.69		294.99								317.58	198.16
Diameter			0.83		0.83		0.83		0.83		0.83	0.83		0.67		0.67		0.67	0.67	0.67	0.67	0.67		0.67	0.67
Slope o/oo			4.47		32.46		4.17		4.49		3.98	4.00		4.65		25.53		4.28	4.20	4.25	4.20	5.06		4.35	10.60

P:\Mapping\Maps_Generated\Lynnwood\11-10238.01\011\maps\CIP\plotfiles\Fig x-x CIP H Profile 11x17.mxd 8/22/2012 ctelentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

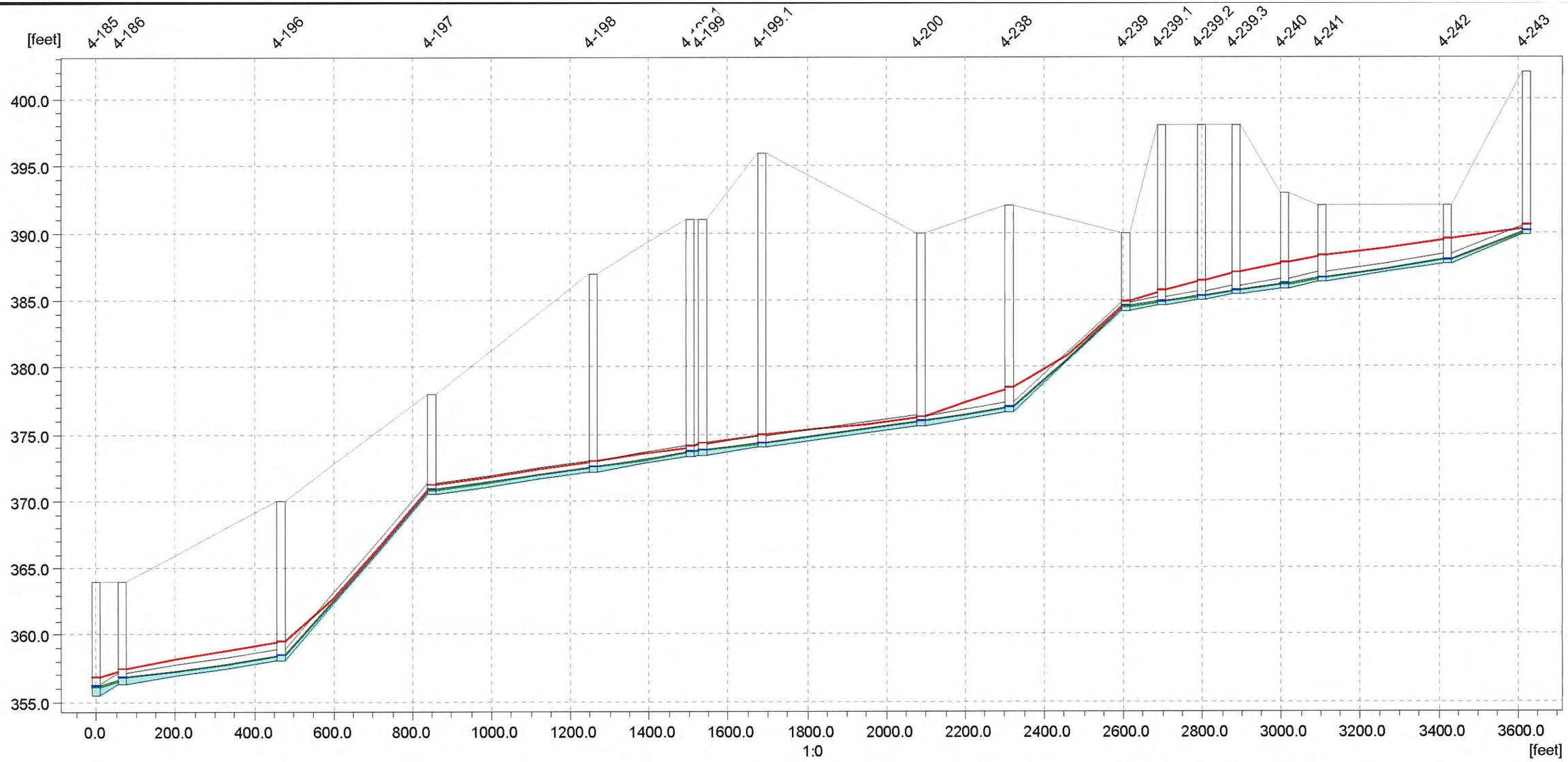
Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP H
PROFILE 4-185 TO 4-243

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X



Ground Lev.	364.00	364.00		370.00		378.00		387.00	391.00	396.00		390.00	392.00		390.00	398.00	398.00	398.00	393.00	392.00		392.00	
Invert lev.	355.47	356.30		358.10		370.50		372.20	373.30	374.00		375.60	376.64		384.17	384.57	384.99	385.36	385.87	386.36		387.74	
Length			402.28		381.95		407.93		245.23		150.83	400.28		223.69		294.99						317.58	198.16
Diameter			0.83		0.83		0.83		0.83		0.83	0.83		0.67		0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Slope o/oo			4.47		32.46		4.17		4.49		3.98	4.00		4.65		25.53	4.28	4.20	4.25	4.20	5.06	4.35	10.60

P:\Mapping\Maps_Generated\Lynnwood\11-10238.01\011\maps\CIP\profiles\Fig x-x CIP H A1 Profile 11x17.mxd 8/22/2012 clelentino

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Sewer System: City of Lynnwood March 2011
GIS Base Data: Snohomish County
This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

LYNNWOOD WASHINGTON

CIP H IMPROVEMENTS
PROFILE A1 4-185 to 4-243

City of Lynnwood
2012 Wastewater Comprehensive Plan Update
August 2012

Figure
X-X

Appendix B

Base 2010 Improvements at 3.03 factor
Base 2032 Improvements at 3.03 factor

Base 8 2010 3.03 PF Imp B1 - LS Improvements and Piping Improvements
Year 2010, 3.03 Peaking Factor

Profile: LS 16 and Upstream

CIP G-1A: LS#16 to 4-185	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
4-185_to_3-120	355.47	352.34	201.16	0.8333	10	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$64,974.68	$77,969.62	$101,360.50
3-120_to_3-117	352.34	349.14	442.97	0.8333	10	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$143,079.31	$171,695.17	$223,203.72
3-117_to_3-111	349.14	347.75	321.89	0.8333	10	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$103,970.47	$124,764.56	$162,193.93
3-111_to_3-106	347.75	347.09	228	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$73,644.00	$88,372.80	$114,884.64
3-106_to_3-106.1	347.09	346.81	72.33	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$23,362.59	$28,035.11	$36,445.64
3-106.1_to_3-100	346.81	345.67	174.05	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$56,218.15	$67,461.78	$87,700.31
3-100_to_3-98	345.67	345.07	272.22	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$87,927.06	$105,512.47	$137,166.21
3-98_to_3-95	345.07	344.82	122.97	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$39,719.31	$47,663.17	$61,962.12
3-95_to_3-94	344.82	338.09	289.64	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$93,553.72	$112,264.46	$145,943.80
3-94_to_3-93	338.09	338.01	95.41	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$30,817.43	$36,980.92	$48,075.19
3-93_to_3-92	338.01	336	305.91	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$98,808.93	$118,570.72	$154,141.93
3-92_to_3-89	336.34	336	169.03	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$54,596.69	$65,516.03	$85,170.84
3-89_to_3-88	335.95	336	73.61	1	12	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$23,776.03	$28,531.24	$37,090.61
3-88 to LS #16	335.85	329	212.45	1	12	Concrete (Smooth)	upsize to 18"	same as 2032			$323.00	$68,621.35	$82,345.62	$107,049.31
									LF	2981.64	Totals	$963,069.72	$1,155,683.66	$1,502,388.76

CIP G-2A: 4-185 to 17-134	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
17-119_to_17-74	482.79	480.86	127.33	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$17,189.55	$20,627.46	$26,815.70
17-74_to_17-74.1	480.7	480.49	54.91	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$7,412.85	$8,895.42	$11,564.05
17-74.1_to_17-73	480.49	479.36	293.97	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$39,685.95	$47,623.14	$61,910.08
17-73_to_17-31.1	479.36	479.28	20.67	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$2,790.45	$3,348.54	$4,353.10
17-31.1_to_17-72	479.28	478.4	222.63	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$30,055.05	$36,066.06	$46,885.88
17-72_to_17-71.7	470.42	469.5	207	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$27,945.00	$33,534.00	$43,594.20
17-68_to_17-67	433.24	423.96	340.69	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$45,993.15	$55,191.78	$71,749.31
17-67_to_17-66	423.96	415.83	262.44	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$35,429.40	$42,515.28	$55,269.86
17-66_to_17-65	415.83	414.73	232.28	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$31,357.80	$37,629.36	$48,918.17
17-65_to_17-34	414.73	413.19	251.82	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$33,995.70	$40,794.84	$53,033.29
17-34_to_17-33	413.19	400.28	351.1	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$47,398.50	$56,878.20	$73,941.66
17-33_to_17-39	400.28	394.74	186.07	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$25,119.45	$30,143.34	$39,186.34
17-39_to_17-32	394.74	390.34	147.86	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$19,961.10	$23,953.32	$31,139.32
17-32_to_17-7	390.34	387.77	443.26	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$59,840.10	$71,808.12	$93,350.56
17-7_to_17-6	387.77	385.89	229.4	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$55,056.00	$66,067.20	$85,887.36
17-6_to_17-5	385.89	383.55	280.74	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$67,377.60	$80,853.12	$105,109.06
17-5_to_17-4	383.55	380.65	314.78	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$75,547.20	$90,656.64	$117,853.63
17-4_to_17-3	380.65	378.63	274.92	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$65,980.80	$79,176.96	$102,930.05
17-3_to_17-2	378.63	372.93	398.23	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$95,575.20	$114,690.24	$149,097.31
17-2_to_17-1	372.93	363.73	401.97	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$96,472.80	$115,767.36	$150,497.57
17-1_to_4-185	358.5	355.47	396.87	0.8333	10	Concrete (Normal)	upsize to 12"	same as 2032			$240.00	$95,248.80	$114,298.56	$148,588.13
									LF	5438.94	Totals	$975,432.45	$1,170,518.94	$1,521,674.62

Profile: LS 8 and Upstream

CIP B-1: Node 81 to 16-111	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-94.2_to_16-94.1	378.14	378	40.65	1	12	Concrete (Normal)	upsize to 15"				$525.00	$21,341.25	$25,609.50	$33,292.35
16-94.1_to 16-94	377.66	377	55.66	1	12	Concrete (Normal)	upsize to 15"				$525.00	$29,221.50	$35,065.80	$45,585.54
16-94_to_16-93	376.68	375	283.8	1	12	Concrete (Normal)	upsize to 15"	same as 2032			$525.00	$148,995.00	$178,794.00	$232,432.20
16-93_to_Node _78	374.8	374.77	241.7	1	12	Concrete (Normal)	upsize to 15"	same as 2032			$525.00	$126,892.50	$152,271.00	$197,952.30
									LF	621.81	Totals	$199,557.75	$239,469.30	$311,310.09

Profile: LS 10 and Upstream

CIP C-1: Station 10 to 16-38	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-5_to_16-4	337	328.96	438.68	1	12	Concrete (Normal)	upsize to 18"	upsize to 15" in 2010			$323.00	$141,693.64	$170,032.37	$221,042.08
16-4_to_16-3	328.96	324.86	174.90	1	12	Plastic	upsize to 18"	upsize to 15" in 2010			$323.00	$56,492.70	$67,791.24	$88,128.61
16-3_to_16-1	324.86	322.44	219.82	1	12	Concrete (Normal)	upsize to 18"	upsize to 15" in 2010			$323.00	$71,001.86	$85,202.23	$110,762.90
16-1_to_3-1	322.24	322.19	12.66	1	12	Concrete (Normal)	upsize to 18"	upsize to 15" in 2010			$323.00	$4,089.18	$4,907.02	$6,379.12
									LF	846.06	Totals	$4,089.18	$4,907.02	$6,379.12

CIP L: 3-75 to 4-172	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
4-63_to_4-61	396	391.5	189.6	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$25,596.00	$30,715.20	$39,929.76
4-61_to_4-47.1	391.5	386	311.51	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$42,053.85	$50,464.62	$65,604.01
4-47.1_to_4-45	386	384.3	424.84	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$57,353.40	$68,824.08	$89,471.30
4-45_to_4-31	384.3	381.25	414.15	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$55,910.25	$67,092.30	$87,219.99
4-31_to_4-23	381.25	380.07	180.22	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$24,329.70	$29,195.64	$37,954.33
4-23_to_4-8	380.07	378.17	278.78	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$37,635.30	$45,162.36	$58,711.07
4-8_to_4-1	378.17	377.64	86.10	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$11,623.50	$13,948.20	$18,132.66
									LF	1885.20	Totals	$73,588.50	$88,306.20	$114,798.06

Profile: LS 12 and Upstream

CIP I: 11-8 to 1-91	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
1-89_to_1-88	388.48	387.32	112.68	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$15,211.80	$18,254.16	$23,730.41
1-88_to_1-87	387.32	386.68	169.22	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$22,844.70	$27,413.64	$35,637.73
1-87_to_1-86	386.68	385.68	187.61	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$25,327.35	$30,392.82	$39,510.67
1-86_to_1-86.1	385.68	385.23	182.71	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$24,665.85	$29,599.02	$38,478.73
1-86.1_to_1-72	385.13	384.68	148.50	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$20,047.50	$24,057.00	$31,274.10
1-72_to_1-71	384.68	383.28	350.74	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$47,349.90	$56,819.88	$73,865.84
1-71_to_1-70	383.28	382	319.26	0.6667	8	Concrete (Normal)	upsize to 10"				$135.00	$43,100.10	$51,720.12	$67,236.16
1-70_to_1-69	382	381.71	163.76	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$22,107.60	$26,529.12	$34,487.86
1-69_to_1-68	381.71	380.26	353.12	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$47,671.20	$57,205.44	$74,367.07
1-68_to_1-67	380.26	379.06	291.99	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$39,418.65	$47,302.38	$61,493.09
1-67_to_1-66	379.06	372.46	232.80	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$31,428.00	$37,713.60	$49,027.68
1-66_to_1-65	372.46	370	161.86	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$21,851.10	$26,221.32	$34,087.72
1-65_to_1-64	370	366.17	248.18	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$33,504.30	$40,205.16	$52,266.71
1-64_to_1-44	366.17	365.3	80.37	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$10,849.95	$13,019.94	$16,925.92
1-44_to_1-32	365.3	364.5	102.02	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$13,772.70	$16,527.24	$21,485.41
1-32_to_1-31	364.5	364	63.67	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$8,595.45	$10,314.54	$13,408.90
1-31_to_1-30	364	358	256.31	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$34,601.85	$41,522.22	$53,978.89
1-30_to_1-29	358	353	344.61	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$46,522.35	$55,826.82	$72,574.87
1-29_to_1-28.1	353	352.55	127.39	0.6667	8	Concrete (Normal)	upsize to 10"	same as 2032			$135.00	$17,197.65	$20,637.18	$26,828.33
1-28.1_to_1-28	352.45	351.6	212.56	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$40,173.84	$48,208.61	$62,671.19
1-28_to_1-27.1	351.5	349.27	223.18	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$42,181.02	$50,617.22	$65,802.39
1-27.1_to_1-27	349.17	348.50	112.26	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$21,217.14	$25,460.57	$33,098.74
1-27_to_1-26	348	343.8	331.47	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$62,647.83	$75,177.40	$97,730.61
1-26_to_1-25.1	343.8	342.35	153.10	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$28,935.90	$34,723.08	$45,140.00
1-25.1_to_1-25	342.25	340.55	172.43	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$32,589.27	$39,107.12	$50,839.26
1-25_to_1-24	340.5	335	327.96	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$61,984.44	$74,381.33	$96,695.73
1-24_to_1-23	335	327.5	332.14	0.6667	8	Concrete (Normal)	upsize to 12"	upsize to 10" in 2010			$189.00	$62,774.46	$75,329.35	$97,928.16
									LF	5761.90	Totals	$840,515.40	$1,008,618.48	$1,311,204.02

Profile: WWTP and Upstream

CIP J: 7-90 to 7-117	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
7-106_to_7-104.2	349.36	349.13	151.27	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$48,860.21	$58,632.25	$76,221.93
7-107_to_7-106	350.1	349.36	71.87	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$23,214.01	$27,856.81	$36,213.86
7-104.2_to_7-104.1	349.13	349.02	74.99	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$24,221.77	$29,066.12	$37,785.96
7-104.1_to_7-104	349.02	348.82	80.5	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$26,001.50	$31,201.80	$40,562.34
7-104_to_7-103	348.82	348.73	46.66	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$15,071.18	$18,085.42	$23,511.04
7-103_to_7-102	348.73	348.06	335.56	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$108,385.88	$130,063.06	$169,081.97
7-102_to_7-101.1	348.06	347.66	208.61	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$67,381.03	$80,857.24	$105,114.41
7-101.1_to_7-101	347.66	347.38	138.75	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$44,816.25	$53,779.50	$69,913.35
7-101_to_7-122	347.38	346.35	71.47	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$23,084.81	$27,701.77	$36,012.30
7-122_to_7-100	346.35	346	24.10	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$7,784.30	$9,341.16	$12,143.51
7-100_to_7-99.1	346	345.85	83.95	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$27,115.85	$32,539.02	$42,300.73
7-99.1_to_7-99	345.85	345.4	319.19	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$103,098.37	$123,718.04	$160,833.46
7-99_to_7-98	345.4	344.98	162.20	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$52,390.60	$62,868.72	$81,729.34
7-98_to_7-96	344.98	344.73	158.99	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$51,353.77	$61,624.52	$80,111.88
7-96_to_7-95	344.73	344.42	176.72	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$57,080.56	$68,496.67	$89,045.67
7-95_to_7-92	344.42	343.7	117.97	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$38,104.31	$45,725.17	$59,442.72
7-92_to_7-91	343.7	343	191.27	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$61,780.21	$74,136.25	$96,377.13
7-91_to_7-90	343	339.5	174.19	1.25	15	Concrete (Normal)	upsize to 18"	same as 2032			$323.00	$56,263.37	$67,516.04	$87,770.86
									LF	2588.26	Totals	$836,007.98	$1,003,209.58	$1,304,172.45

CIP K-2: 8-6 to 7-1	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
6-1_to_8-19	260	249.94	386.56	2	24	Concrete (Normal)	upsize to 30"	upsize to 27" in 2010			$490.00	$189,414.40	$227,297.28	$295,486.46
8-19_to_8-18	249.94	242.5	344.17	2	24	Concrete (Normal)	upsize to 30"	upsize to 27" in 2010			$490.00	$168,643.30	$202,371.96	$263,083.55
8-18_to_8-17.5	242.5	240.4	130.64	2	24	Concrete (Normal)	upsize to 33"	upsize to 27" in 2010			$547.00	$71,460.08	$85,752.10	$111,477.72
8-17.5_to_8-17	240.4	236	273.44	2	24	Concrete (Normal)	upsize to 33"	upsize to 27" in 2010			$547.00	$149,571.68	$179,486.02	$233,331.82
8-17_to_8-16	236	234.1	472.56	2	24	Concrete (Normal)	upsize to 33"	upsize to 33" in 2010			$547.00	$258,490.32	$310,188.38	$403,244.90
8-16_to_8-15	234.1	233.27	209.41	2	24	Concrete (Normal)	upsize to 33"	upsize to 33" in 2010			$547.00	$114,547.27	$137,456.72	$178,693.74
8-15_to_8-14	233.27	231.79	366.61	2	24	Concrete (Normal)	upsize to 33"	upsize to 33" in 2010			$547.00	$200,535.67	$240,642.80	$312,835.65
8-14_to_8-13	231.79	228	410.96	2	24	Concrete (Normal)	upsize to 33"	upsize to 33" in 2010			$547.00	$224,795.12	$269,754.14	$350,680.39
8-13_to_8-12	228	213.21	382	2	24	Concrete (Normal)	upsize to 30"	upsize to 27" in 2010			$490.00	$186,988.90	$224,386.68	$291,702.68
8-12_to_8-11	213.21	206.21	151	2	24	Concrete (Normal)	upsize to 30"	upsize to 27" in 2010			$490.00	$74,195.80	$89,034.96	$115,745.45
8-11_to_8-10	206.21	204.00	207	2	24	Concrete (Normal)	upsize to 30"	upsize to 27" in 2010			$490.00	$101,366.30	$121,639.56	$158,131.43
8-10_to_8-9.5	204	201.05	85	2	24	Concrete (Normal)	upsize to 30"	upsize to 27" in 2010			$490.00	$41,620.60	$49,944.72	$64,928.14
									LF	3419.19	Totals	$1,781,629.44	$2,137,955.33	$2,779,341.93

CIP K-1: 6-1 to 6-17	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
6-13_to_6-12	375.87	375.4	254.88	2	24	Concrete (Normal)	upsize to 27"	same as 2032			$452.00	$115,205.76	$138,246.91	$179,720.99
6-12_to_6-11	375.35	374.78	303.69	2	24	Concrete (Normal)	upsize to 27"	same as 2032			$452.00	$137,267.88	$164,721.46	$214,137.89
6-11_to_6-10	374.68	372.11	254.83	2	24	Concrete (Normal)	upsize to 27"	same as 2032			$452.00	$115,183.16	$138,219.79	$179,685.73
6-10_to_6-9	372	365.5	261.06	2	24	Concrete (Normal)	upsize to 27"	same as 2032			$452.00	$117,999.12	$141,598.94	$184,078.63
									LF	1074.46	Totals	$485,655.92	$582,787.10	$757,623.24

Base 6 2032 3.03 B1 Improvs - LS Improvements and Piping Improvements
Year 2032, 3.03 Peaking Factor

Profile: LS 16 and Upstream

G-2A: 4-185 to 17-134	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
17-119_to_17-74	482.79	480.86	127.33	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-74_to_17-74.1	480.7	480.49	54.91	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-74.1_to_17-73	480.49	479.36	293.97	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-73_to_17-31.1	479.36	479.28	20.67	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-31.1_to_17-72	479.28	478.4	222.63	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-72_to_17-71.7	470.42	469.5	207	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-68_to_17-67	433.24	423.96	340.69	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-67_to_17-66	423.96	415.83	262.44	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-66_to_17-65	415.83	414.73	232.28	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-65_to_17-34	414.73	413.19	251.82	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-34_to_17-33	413.19	400.28	351.1	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-33_to_17-39	400.28	394.74	186.07	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-39_to_17-32	394.74	390.34	147.86	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-32_to_17-7	390.34	387.77	443.26	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010		$0.00	$0.00	$0.00
17-7_to_17-6	387.77	385.89	229.4	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
17-6_to_17-5	385.89	383.55	280.74	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
17-5_to_17-4	383.55	380.65	314.78	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
17-4_to_17-3	380.65	378.63	274.92	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
17-3_to_17-2	378.63	372.93	398.23	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
17-2_to_17-1	372.93	363.73	401.97	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
17-1_to_4-185	358.5	355.47	396.87	0.8333	10.00	Concrete (Normal)	upsize to 12"	install in 2010		$0.00	$0.00	$0.00
									Totals	$0.00	$0.00	$0.00

G-1A: LS 16 to 4-185	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
4-185_to_3-120	355.47	352.34	201.16	0.8333	10.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-120_to_3-117	352.34	349.14	442.97	0.8333	10.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-117_to_3-111	349.14	347.75	321.89	0.8333	10.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-111_to_3-106	347.75	347.09	228	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-106_to_3-106.1	347.09	346.81	72.33	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-106.1_to_3-100	346.81	345.67	174.05	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-100_to_3-98	345.67	345.07	272.22	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-98_to_3-95	345.07	344.82	122.97	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-95_to_3-94	344.82	338.09	289.64	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-94_to_3-93	338.09	338.01	95.41	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-93_to_3-92	338.01	336.34	305.91	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-92_to_3-89	336.34	335.95	169.03	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3-89_to_3-88	335.95	335.85	73.61	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
3--88 to LS#16	335.85	329	212.45	1	12.00	Concrete (Smooth)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
									Totals	$0.00	$0.00	$0.00

Profile: LS 8 and upstream

CIP A: Node_81 to 16-170	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-94_to_16-93	376.68	374.8	283.8	1	12.00	Concrete (Normal)	upsize to 15"	install in 2010		$0.00	$0.00	$0.00
16-93_to_Node_78	374.8	374.77	241.7	1	12.00	Concrete (Normal)	upsize to 15"	install in 2010		$0.00	$0.00	$0.00
									Totals	$0.00	$0.00	$0.00

CIP B1: Node_81 to 16-111	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-104_to_16-104.1	387.76	387.17	292.02	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$39,422.70	$47,307.24	$61,499.41
16-104.1_to_16-95	387.17	383.04	134.66	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$18,179.10	$21,814.92	$28,359.40
16-95_to_16-94.4	383.04	381.35	316.29	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$42,699.15	$51,238.98	$66,610.67
16-94.4_to_16-94.3	381.35	379.78	132.81	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$17,929.35	$21,515.22	$27,969.79
16-94.3_to_16-94.2	379.78	378.14	139.91	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$18,887.85	$22,665.42	$29,465.05
									LF	1015.69	Totals	$137,118.15	$164,541.78	$213,904.31

Profile: LS 10 and upstream

CIP C-1: Station 10 to 16-38	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-38_to_16.37.1	401.53	401.13	182.15	1	12.00	Concrete (Normal)	upsize to 18"				$323.00	$58,834.45	$70,601.34	$91,781.74
16-37.1_to_16-37	401.13	401.03	48.03	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$25,215.75	$30,258.90	$39,336.57
16-37_to_16-14	401.03	397.84	155.31	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$81,537.75	$97,845.30	$127,198.89
16-14_to_16-13	397.84	392.7	250	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$131,250.00	$157,500.00	$204,750.00
16-13_to_16-12	392.7	386.76	298.11	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$156,507.75	$187,809.30	$244,152.09
16-12_to_16-11	386.66	380.97	288.42	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$151,420.50	$181,704.60	$236,215.98
16-11_to_16-10	380.87	372.85	401.17	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$210,614.25	$252,737.10	$328,558.23
16-10_to_16-49	372.85	367.63	258.6	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$135,765.00	$162,918.00	$211,793.40
16-49_to_16-9	367.63	364.82	139.65	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$73,316.25	$87,979.50	$114,373.35
16-9_to_16-8	364.82	359.9	398.51	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$209,217.75	$251,061.30	$326,379.69
16-8_to_16-7	356.8	348.88	401.4	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$210,735.00	$252,882.00	$328,746.60
16-7_to_16-6	348.78	340.86	399.8	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$209,895.00	$251,874.00	$327,436.20
16-6_to_16-6.1	340.76	337.78	188.38	1	12.00	Concrete (Normal)	upsize to 15"				$525.00	$98,899.50	$118,679.40	$154,283.22
16-6.1_to_16-5	337.78	337	49.24	1	12.00	Concrete (Normal)	upsize to 18"				$323.00	$15,904.52	$19,085.42	$24,811.05
16-5_to_16-4	337	328.96	438.68	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010				$0.00	$0.00	$0.00
16-4_to_16-3	328.96	324.86	174.9	1	12.00	Plastic	upsize to 18"	install in 2010				$0.00	$0.00	$0.00
16-3_to_16-1	324.86	322.44	219.82	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010				$0.00	$0.00	$0.00
16-1_to_3-1	322.24	322.19	12.66	1	12.00	Concrete (Normal)	upsize to 18"	install in 2010				$0.00	$0.00	$0.00
									LF	3458.77	Totals	$1,769,113.47	$2,122,936.16	$2,759,817.01

CIP C-2C: Node 16-37 to 16-78	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-76_to_16-75.1	409.83	406.09	214.23	0.6667	8.00	Concrete (Normal)	upsize to 12"				$189.00	$40,489.47	$48,587.36	$63,163.57
16-75.1_to_16-75	406.09	405.73	23.51	0.6667	8.00	Plastic	upsize to 12"				$189.00	$4,443.39	$5,332.07	$6,931.69
16-75_to_16-48	405.73	402.94	179.39	0.6667	8.00	Plastic	upsize to 12"				$189.00	$33,904.71	$40,685.65	$52,891.35
16-48_to_16-47	402.94	402.69	62.42	0.6667	8.00	Concrete (Normal)	upsize to 12"				$189.00	$11,797.38	$14,156.86	$18,403.91
16-47_to_16-38.1	402.69	401.81	256.02	0.6667	8.00	Concrete (Normal)	upsize to 12"				$189.00	$48,387.78	$58,065.34	$75,484.94
16-38.1_to_16-38	401.81	401.53	41.59	0.6667	8.00	Concrete (Normal)	upsize to 12"				$189.00	$7,860.51	$9,432.61	$12,262.40
									LF	777.16	Totals	$146,883.24	$176,259.89	$229,137.85

CIP C-2B: Node 16-37 to 16-65	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-63_to_16-62	426.57	424.22	233.13	0.6667	8.00	Plastic	upsize to 10"				$135.00	$31,472.55	$37,767.06	$49,097.18
16-62_to_16-58	424.22	423.94	127.71	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$17,240.85	$20,689.02	$26,895.73
16-58_to_16-53	423.94	419.84	275.75	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$37,226.25	$44,671.50	$58,072.95
16-53_to_16-52	419.84	414.94	360.85	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$48,714.75	$58,457.70	$75,995.01
16-52_to_16-51	414.94	411.67	264.75	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$35,741.25	$42,889.50	$55,756.35
16-51_to_16-48	411.67	402.94	342.77	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$46,273.95	$55,528.74	$72,187.36
									LF	1604.96	Totals	$216,669.60	$260,003.52	$338,004.58

CIP E-3: Station 10 to 5-10	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
5-9_to_5-8	386	379.5	257.8	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$61,872.00	$74,246.40	$96,520.32
5-8_to_5-7	379.33	377.5	400.17	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$96,040.80	$115,248.96	$149,823.65
5-7_to_5-6	377.33	376.72	120.36	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$28,886.40	$34,663.68	$45,062.78
5-6_to_5-5	376.22	364	431.38	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$103,531.20	$124,237.44	$161,508.67
5-5_to_5-4	364	356	398.95	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$95,748.00	$114,897.60	$149,366.88
5-4_to_5-3	356	351.08	359.03	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$86,167.20	$103,400.64	$134,420.83
5-3_to_5-2.1	351.08	350.5	41.94	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$10,065.60	$12,078.72	$15,702.34
5-2.1_to_5-2	350.5	342	168.82	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$40,516.80	$48,620.16	$63,206.21
5-2_to_5-1	342	339.98	200.94	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$48,225.60	$57,870.72	$75,231.94
5-1_to_3-3	339.98	332.8	108.41	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$26,018.40	$31,222.08	$40,588.70
3-3_to_3-2.1	332.8	322.56	154.08	0.8333	10.00	Concrete (Normal)	Upsize to 12"				$240.00	$36,979.20	$44,375.04	$57,687.55
3-2.1_to_3-2	322.56	321.99	474.68	1.75	21.00	Concrete (Normal)	Upsize to 27"				$452.00	$214,555.36	$257,466.43	$334,706.36
3-2_to_3-1	321.99	321.55	403.46	1.75	21.00	Concrete (Normal)	upsize to 27"				$452.00	$182,363.92	$218,836.70	$284,487.72
									LF	3520.02	Totals	$1,030,970.48	$1,237,164.58	$1,608,313.95

CIP D-4: 5-9 to 5-60	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
5-39_to_5-38	406.31	403.5	81.31	0.6667	8.00	Plastic	upsize to 10"				$135.00	$10,976.85	$13,172.22	$17,123.89
5-38_to_5-66	403.5	400	328.66	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$44,369.10	$53,242.92	$69,215.80
5-66_to_5-23	400	398.5	324.89	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$43,860.15	$52,632.18	$68,421.83
5-23_to_5-22	398.5	396.5	343.02	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$46,307.70	$55,569.24	$72,240.01
5-22_to_5-9	396.5	389	341.82	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$46,145.70	$55,374.84	$71,987.29
									LF	1419.7	Totals	$191,659.50	$229,991.40	$298,988.82

CIP E-2: 5-7 to 16-28	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
16-23_to_16-22	394.54	393.88	37.41	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$5,050.35	$6,060.42	$7,878.55
16-22_to_5-41	393.88	392.17	54.14	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$7,308.90	$8,770.68	$11,401.88
5-41_to_5-21	392.17	390.57	402.28	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$54,307.80	$65,169.36	$84,720.17
5-21_to_5-20	390.57	388.92	419.07	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$56,574.45	$67,889.34	$88,256.14
5-20_to_5-19	388.92	387.28	407.1	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$54,958.50	$65,950.20	$85,735.26
5-19_to_5-7	387.28	377.33	85.4	0.6667	8.00	Concrete (Normal)	upsize to 10"				$135.00	$11,529.00	$13,834.80	$17,985.24
											Totals	$189,729.00	$227,674.80	$295,977.24

Cip F-1: Station 10 to 3-6	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
3-4_to_3-2.1	322.88	322.56	266.71	1.5	18.00	Concrete (Normal)	upsize to 20"				$335	$89,347.85	$107,217.42	$139,382.65
									LF	266.71	Totals	$89,347.85	$107,217.42	$139,382.65

CIP L: 3-75 to 4-172	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
4-147_to_4-140	415.34	413.83	280.07	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$37,809.45	$45,371.34	$58,982.74
4-140_to_4-137	413.83	413.54	74.27	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$10,026.45	$12,031.74	$15,641.26
4-137_to_4-136.1	413.54	413.02	130.35	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$17,597.25	$21,116.70	$27,451.71
4-136.1_to_4-136	413.02	412.27	189.68	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$25,606.80	$30,728.16	$39,946.61
4-136_to_4-115	412.27	411.56	179.76	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$24,267.60	$29,121.12	$37,857.46
4-115_to_4-114	411.56	409.89	416.76	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$56,262.60	$67,515.12	$87,769.66
4-114_to_4-111	409.89	408.79	277.03	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$37,399.05	$44,878.86	$58,342.52
4-111_to_4-82	408.79	407.36	367.17	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$49,567.95	$59,481.54	$77,326.00
4-82_to_4-79.1	407.36	404.57	354.45	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$47,850.75	$57,420.90	$74,647.17
4-79.1_to_4-79	404.57	404	73.08	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$9,865.80	$11,838.96	$15,390.65
4-79_to_4-72	404	402	310.86	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$41,966.10	$50,359.32	$65,467.12
4-72_to_4-69	402	400	325.18	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$43,899.30	$52,679.16	$68,482.91
4-69_to_4-63	400	396	313.67	0.67	8.00	Concrete (Normal)	upsize to 10"				$135.00	$42,345.45	$50,814.54	$66,058.90
4-63_to_4-61	396	391.5	189.6	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-61_to_4-47.1	391.5	386	311.51	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-47.1_to_4-45	386	384.3	424.84	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-45_to_4-31	384.3	381.25	414.15	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-31_to_4-23	381.25	380.07	180.22	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-23_to_4-8	380.07	378.17	278.78	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-8_to_4-1	378.17	377.64	86.1	0.67	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
4-1_to_3-78.1	377.47	376.19	185.34	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$44,481.60	$53,377.92	$69,391.30
3-78.1_to_3-84	376.19	376	21.48	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$5,155.20	$6,186.24	$8,042.11
3-84_to_3-83.1	376	374.33	175.14	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$42,033.60	$50,440.32	$65,572.42
3-83.1_to_3-83	374.23	372	220.4	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$52,896.00	$63,475.20	$82,517.76
3-83_to_3-82	372	370.48	208.67	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$50,080.80	$60,096.96	$78,126.05
3-82_to_3-81	370.48	368	289.16	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$69,398.40	$83,278.08	$108,261.50
3-81_to_3-80	368	367	50.44	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$12,105.60	$14,526.72	$18,884.74
3-80_to_3-79	367	362	257.19	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$61,725.60	$74,070.72	$96,291.94
3-79_to_3-75	362	333.69	343.69	0.8333	10.00	Concrete (Normal)	upsize to 12"				$240.00	$82,485.60	$98,982.72	$128,677.54
									LF	5043.84	Totals	$864,826.95	$1,037,792.34	$1,349,130.04

Profile: LS 12 and upstream

CIP I: 11-8 to 1-91	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes			Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
1-70_to_1-69	382	381.71	163.76	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-69_to_1-68	381.71	380.26	353.12	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-68_to_1-67	380.26	379.06	291.99	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-67_to_1-66	379.06	372.46	232.8	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-66_to_1-65	372.46	370	161.86	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-65_to_1-64	370	366.17	248.18	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-64_to_1-44	366.17	365.3	80.37	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-44_to_1-32	365.3	364.5	102.02	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-32_to_1-31	364.5	364	63.67	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-31_to_1-30	364	358	256.31	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-30_to_1-29	358	353	344.61	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
1-29_to_1-28.1	353	352.55	127.39	0.6667	8.00	Concrete (Normal)	upsize to 10"	install in 2010				$0.00	$0.00	$0.00
													$0.00	$0.00
1-28.1_to_1-28	352.45	351.6	212.56	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-28_to_1-27.1	351.5	349.27	223.18	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-27.1_to_1-27	349.17	348.5	112.26	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-27_to_1-26	348	343.8	331.47	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-26_to_1-25.1	343.8	342.35	153.1	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-25.1_to_1-25	342.25	340.55	172.43	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-25_to_1-24	340.5	335	327.96	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-24_to_1-23	335	327.5	332.14	0.6667	8.00	Concrete (Normal)	upsize to 12"	install in 2010				$0.00	$0.00	$0.00
1-23_to_11-8	327.5	324.5	322.25	0.8333	10.00	Concrete (Normal)	upsize to 12"				$189.00	$60,905.25	$73,086.30	$95,012.19
									LF	322.25	Totals	$60,905.25	$73,086.30	$95,012.19

Profile: WWTP upstream

CIP J: 7-90 to 7-117	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
7-106_to_7-104.2	349.36	349.13	151.27	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-104.2_to_7-104.1	349.13	349.02	74.99	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-104.1_to_7-104	349.02	348.82	80.5	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-104_to_7-103	348.82	348.73	46.66	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-103_to_7-102	348.73	348.06	335.56	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-102_to_7-101.1	348.06	347.66	208.61	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-101.1_to_7-101	347.66	347.38	138.75	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-101_to_7-122	347.38	346.35	71.47	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-122_to_7-100	346.35	346	24.1	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-100_to_7-99.1	346	345.85	83.95	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-99.1_to_7-99	345.85	345.4	319.19	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-99_to_7-98	345.4	344.98	162.2	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-98_to_7-96	344.98	344.73	158.99	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-96_to_7-95	344.73	344.42	176.72	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-95_to_7-92	344.42	343.7	117.97	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-92_to_7-91	343.7	343	191.27	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
7-91_to_7-90	343	339.5	174.19	1.25	15.00	Concrete (Normal)	upsize to 18"	install in 2010		$0.00	$0.00	$0.00
									Totals	$0.00	$0.00	$0.00

CIP K-2: 8-6 to 7-1	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
7-1_to_6-1	265	260.5	197.4	1.5	18.00	Concrete (Normal)	upsize to 21"		$335.00	$66,129.00	$79,354.80	$103,161.24
6-1_to_8-19	260	249.94	386.56	2	24.00	Concrete (Normal)	upsize to 30"	install in 2010		$0.00	$0.00	$0.00
8-19_to_8-18	249.94	242.5	344.17	2	24.00	Concrete (Normal)	upsize to 30"	install in 2010		$0.00	$0.00	$0.00
8-18_to_8-17.5	242.5	240.4	130.64	2	24.00	Concrete (Normal)	upsize to 33"	install in 2010		$0.00	$0.00	$0.00
8-17.5_to_8-17	240.4	236	273.44	2	24.00	Concrete (Normal)	upsize to 33"	install in 2010		$0.00	$0.00	$0.00
8-17_to_8-16	236	234.1	472.56	2	24.00	Concrete (Normal)	upsize to 33"	install in 2010		$0.00	$0.00	$0.00
8-16_to_8-15	234.1	233.27	209.41	2	24.00	Concrete (Normal)	upsize to 33"	install in 2010		$0.00	$0.00	$0.00
8-15_to_8-14	233.27	231.79	366.61	2	24.00	Concrete (Normal)	upsize to 33"	install in 2010		$0.00	$0.00	$0.00
8-14_to_8-13	231.79	228	410.96	2	24.00	Concrete (Normal)	upsize to 33"	install in 2010		$0.00	$0.00	$0.00
8-13_to_8-12	228	213.21	381.61	2	24.00	Concrete (Normal)	upsize to 30"	install in 2010		$0.00	$0.00	$0.00
8-12_to_8-11	213.21	206.21	151.42	2	24.00	Concrete (Normal)	upsize to 30"	install in 2010		$0.00	$0.00	$0.00
8-11_to_8-10	206.21	204	206.87	2	24.00	Concrete (Normal)	upsize to 30"	install in 2010		$0.00	$0.00	$0.00
8-10_to_8-9.5	204	201.05	84.94	2	24.00	Concrete (Normal)	upsize to 30"	install in 2010		$0.00	$0.00	$0.00
								LF 197.4	Totals	$66,129.00	$79,354.80	$103,161.24

CIP K-1: 6-1 to 6-17	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
6-16_to_6-15	409.97	406.78	276.74	2	24.00	Concrete (Normal)	upsize to 27"		$452.00	$125,086.48	$150,103.78	$195,134.91
6-15_to_6-14	406.78	389.59	373.94	2	24.00	Concrete (Normal)	upsize to 27"		$452.00	$169,020.88	$202,825.06	$263,672.57
6-14_to_6-13	389.49	375.97	289.3	2	24.00	Concrete (Normal)	upsize to 27"		$452.00	$130,763.60	$156,916.32	$203,991.22
6-13_to_6-12	375.87	375.4	254.88	2	24.00	Concrete (Normal)	upsize to 27"	install in 2010		$0.00	$0.00	$0.00
6-12_to_6-11	375.35	374.78	303.69	2	24.00	Concrete (Normal)	upsize to 27"	install in 2010		$0.00	$0.00	$0.00
6-11_to_6-10	374.68	372.11	254.83	2	24.00	Concrete (Normal)	upsize to 27"	install in 2010		$0.00	$0.00	$0.00
6-10_to_6-9	372	365.5	261.06	2	24.00	Concrete (Normal)	upsize to 27"	install in 2010		$0.00	$0.00	$0.00
6-9_to_6-8	365.5	356.93	335.65	2	24.00	Concrete (Normal)	upsize to 27"		$452.00	$151,713.80	$182,056.56	$236,673.53
6-8_to_6-7	356.93	339.71	94.76	2	24.00	Concrete (Normal)	upsize to 27"		$452.00	$42,831.52	$51,397.82	$66,817.17
								LF 1370.39	Totals	$125,086.48	$150,103.78	$195,134.91

CIP K-3: 6-16 to 6-161	uplevel	downlevel	length	size (ft)	size (in)	material	Improvs	Notes	Const unit cost	Subtotal Cost	Subtotal w/Contingency (20%)	Project Costs (Costs w/ Contingency * 30%)
6-158_to_6-157	414.9	414.81	188.54	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$107,467.80	$128,961.36	$167,649.77
6-157_to_6-156	414.71	414.49	486.33	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$277,208.10	$332,649.72	$432,444.64
6-156_to_6-155	414.41	414.31	138.16	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$78,751.20	$94,501.44	$122,851.87
6-155_to_6-154	414.25	414.17	290.29	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$165,465.30	$198,558.36	$258,125.87
6-154_to_6-153	414.11	413.95	326.37	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$186,030.90	$223,237.08	$290,208.20
6-153_to_6-152	413.85	413.64	217.37	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$123,900.90	$148,681.08	$193,285.40
6-152_to_6-151	413.54	413.39	473.51	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$269,900.70	$323,880.84	$421,045.09
6-151_to_6-150	413.29	413.01	394.61	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$224,927.70	$269,913.24	$350,887.21
6-150_to_6-149	413.01	412.94	135.45	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$77,206.50	$92,647.80	$120,442.14
6-149_to_6-16	412.94	412.42	25.7	3	36.00	Concrete (Normal)	upsize to 39"		$570.00	$14,649.00	$17,578.80	$22,852.44
								LF 2676.33	Totals	$1,525,508.10	$1,830,609.72	$2,379,792.64

Appendix C

NPDES Permit

Permit No. WA-002403-1
Issuance Date: June 30, 2008
Effective Date: July 1, 2008
Expiration Date: June 30, 2013

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT No. **WA-002403-1**

State of Washington
DEPARTMENT OF ECOLOGY
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1342 et seq.

CITY OF LYNNWOOD
19100 – 44th Avenue West
Lynnwood, Washington 98036

Plant Location: 17000 76th Avenue West Edmonds, WA 98026	Receiving Water: Browns Bay – Puget Sound
Waterbody I.D. No.: 1224819475188 WA-PS-0240	Discharge Location: Latitude: 47° 50' 52" N Longitude: 122° 20' 33" W
Plant Type: Activated Sludge	

is authorized to discharge in accordance with the Special and General Conditions that follow.

Kevin C. Fitzpatrick
Water Quality Section Manager
Northwest Regional Office
Washington State Department of Ecology

TABLE OF CONTENTS

GENERAL CONDITIONS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S3	Discharge Monitoring Report	Monthly	September 1, 2008
S3.E	Noncompliance Notification	As necessary	
S3.E	Shellfish Protection	As necessary	
S4.B	Plans for Maintaining Adequate Capacity	As necessary	
S4.D	Notification of New or Altered Sources	As necessary	
S4.E	Infiltration and Inflow Evaluation	Once per permit cycle	December 31, 2012
S5.D	Electrical Power Failure	As needed	
S5.G	Operations and Maintenance Manual Update	As needed	
S6.A.5	Annual Pretreatment Report	Annually	June 30, 2009
S8	Application for Permit Renewal	1/permit cycle	December 31, 2012
S9	Spill Plan	1/permit cycle	July 31, 2009
S10	Acute Toxicity Effluent Test Results With Permit Renewal Application	2/permit cycle January 2012 July 2012	December 31, 2012
S11	Chronic Toxicity Effluent Test Results With Permit Renewal Application	2/permit cycle March 2012 October 2012	December 31, 2012
S12.A	Sediment Baseline Sampling and Analysis Plan	1/permit cycle	July 1, 2009
S12.B	Sediment Chemistry Analyses	1/permit cycle	Within 6 months of sampling and no later than July 1, 2011
S13.	Outfall Evaluation	1/permit cycle	December 31, 2012
G1	Notice of Change in Authorization	As necessary	
G4	Reporting Planned Changes	As necessary	
G5	Engineering Report for Construction or Modification Activities	As necessary	
G20	Reporting Anticipated Noncompliance	As necessary	
G21	Reporting Other Information	As necessary	

SPECIAL CONDITIONS

In this permit, the word "must" denotes an action that is mandatory and is equivalent to the word "shall" used in previous permits.

S1. DISCHARGE LIMITATIONS

A. Effluent Limitations

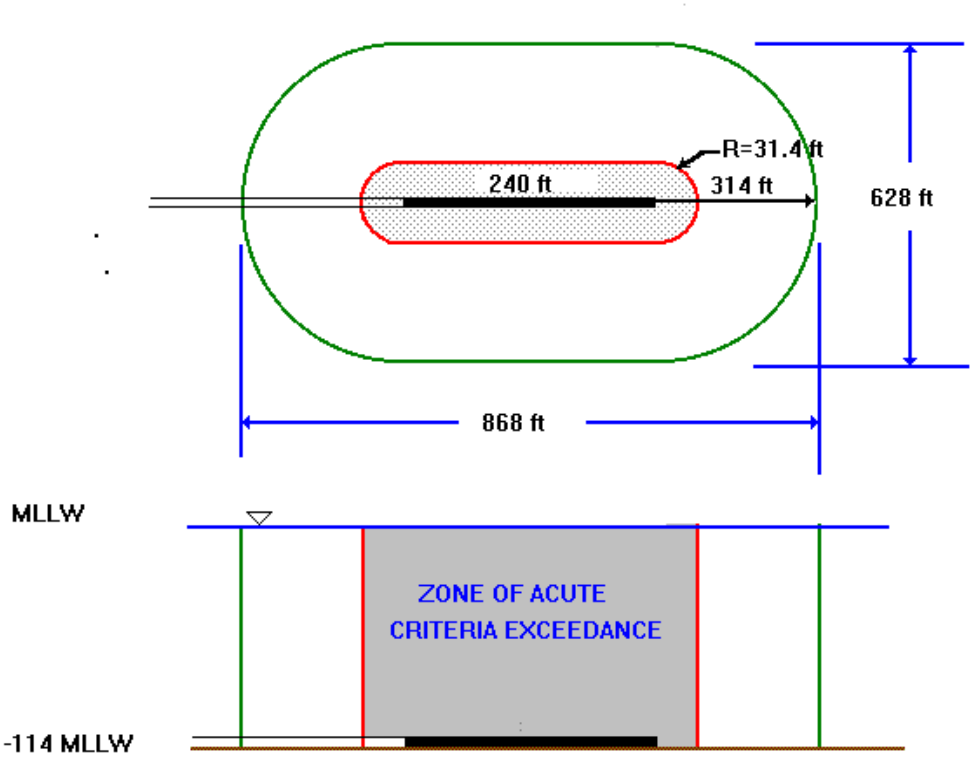
All discharges and activities authorized by this permit must comply with the terms and conditions of this permit. The discharge of any of the following pollutants more frequently than, or at a level in excess of, that identified and authorized by this permit constitutes a violation of the terms and conditions of this permit.

Beginning on the effective date of this permit and lasting through the expiration date, the Permittee may discharge municipal wastewater at the permitted location subject to compliance with the following limitations:

EFFLUENT LIMITATIONSa: OUTFALL # 001		
Parameter	**Average Monthly**	**Average Weekly**
Carbonaceous Biochemical Oxygen Demand (5-day)	25 mg/L, 1,543 lbs/day 85% removal of influent BOD	40 mg/L, 2,469 lbs/day
Total Suspended Solids	30 mg/L, 1,851 lbs/day 85% removal of influent TSS	45 mg/L, 2,777 lbs/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL
Parameter	**Average Monthly**	**Daily Maximum[d]**
Total Residual Chlorine[b]	318 µg/L	834 µg/L
Parameter	**Daily Minimum**	**Daily Maximum**
pH[c]	Daily minimum is equal to or greater than 6.0.	The daily maximum is less than or equal to 9.0.
[a] The average monthly and weekly effluent limitations equal the arithmetic mean of the samples taken. The average monthly and weekly limitations for fecal coliform are equal to the geometric mean of the samples taken.		
[b] This effluent limit applies whenever chlorine is used in the facility. If no chlorine is used during the monitoring period, enter "no discharge of chlorine" on the DMR for the period.		
[c] Indicates the range of permitted values. The Permittee must report the instantaneous maximum and minimum pH monthly. Do not average pH values.		
[d] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day.		

B. Mixing Zone Descriptions

The following paragraph defines the maximum boundaries or flow-volume restriction of the mixing zones. The horizontal dimensions and boundaries of the mixing zone are as depicted in the following diagram.



Chronic Mixing Zone

WAC 173-201A-400(7)(b)(i) specifies mixing zones must not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports as measured during mean lower low water (MLLW). Given a MLLW water depth of 114 feet (34.7 meters) for the Permittee's outfall, the horizontal distance therefore is 314 feet (95.7 meters). The mixing zone is a circle with radius of 314feet (95.7 meters) measured from the center of each discharge port. The mixing zone extends from the seabed to the top of the water surface. Chronic aquatic life criteria and human health criteria must be met at the edge of the chronic zone.

Acute Mixing Zone

WAC 173-201A-400(8)(b) specifies that in estuarine waters a zone where acute criteria may be exceeded must not extend beyond 10% of the distance established for the maximum or chronic zone as measured independently from the discharge ports. The acute mixing zone is a circle with radius of 31.4 feet (9.6 meters) measured from the center of each discharge port. The mixing zone extends from the seabed to the top of the water surface. Acute aquatic life criteria must be met at the edge of the acute zone.

Category	Acute	Chronic
Aquatic Life	64	186
Human Health - Carcinogen		186
Human Health - Non-carcinogen		186

S2. MONITORING REQUIREMENTS

A. Monitoring Schedule

The Permittee must monitor in accordance with the following schedule:

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type
Wastewater Influent	$CBOD_5$	mg/L	Influent[c]	5/week	24-hr. composite[a]
"	BOD_5[g]	mg/L	Influent[c]	5/week	24-hr. composite[a]
"	TSS	mg/L	Influent[c]	5/week	24-hr. composite[a]
Wastewater Effluent	Flow	MGD	Effluent[i]	Continuous[a]	Continuous[a]
"	$CBOD_5$	mg/L	Effluent[i]	5/week[j]	24-hr. composite[d]
"	$CBOD_5$	lbs/day	Effluent[i]	5/week[j]	Calculated
"	$CBOD_5$	% removal	Effluent[i]	1/month[l]	Calculated
"	TSS	mg/L	Effluent[i]	5/week	24-hr. composite[d]
"	TSS	lbs/day	Effluent[i]	5/week	Calculated[k]
"	TSS	% removal	Effluent[i]	1/month[l]	Calculated[e]
"	pH	Standard Units	Effluent[i]	Continuous[h]	Measurement
"	Temperature[b]	°C	Final Effluent[i]	Daily[b]	Continuous[a]
"	Chlorine	µg/L	Effluent[i]	Daily	Grab[f]
"	Fecal Coliform	Org./100 mL	Effluent[i]	Daily	Grab[f]
Pretreatment	As specified in Section S6.				
Acute Toxicity Testing	As specified in Section S10.				
Chronic Toxicity Testing	As specified in Section S11.				
Sediment	As specified in Section S12.				
Application B.6	Total Ammonia	mg/L N	Final Effluent[i]	3/year	24-hr. composite[d]
"	Total Residual Chlorine	µg/L	Final Effluent[i]	3/year	Grab[f]
"	Dissolved Oxygen	mg/L	Final Effluent[i]	3/year	24-hr. composite[d] or Grab
"	Total Kjeldahl Nitrogen	mg/L N	Final Effluent[i]	3/year	24-hr. composite[d] or Grab
"	Nitrate plus Nitrite N	mg/L N	Final Effluent[i]	3/year	24-hr. composite[d] or Grab
"	Oil and Grease	mg/L	Final Effluent[i]	3/year	Grab

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type
"	Phosphorus (Total)	mg/L P	Final Effluent	3/year	24-hr. composite[d]
"	Total Dissolved Solids	mg/L	Final Effluent	3/year	24-hr. composite[d]
"	Total Hardness	mg/L	Final Effluent	3/year	24-hr. composite[d]
EPA Priority Pollutants	Metals, cyanide and phenols. 1M-15M	µg/L	Final Effluent	once per quarter	24-hr. composite[d]
"	Volatile Organic Compounds. 1V – 31V	µg/L	Final Effluent	once per quarter	Grab[f]
"	Acid-extractable compounds. 1A – 11A	µg/L	Final Effluent	once per quarter	24-hr. composite[d]
"	Base-neutral compounds 1B – 46B	µg/L	Final Effluent	Once per quarter	24-hr. composite[d]

[a] Continuous means uninterrupted except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. The Permittee must sample every 30 minutes when continuous monitoring is not possible.

[b] When sampling temperature with a grab, sampling must occur when the effluent is at or near its daily maximum temperature which will usually be in the late afternoon. If temperature is measured continuously, a daily maximum must be determined and reported from half-hour measurements in a 24-hour period.

[c] Influent means the raw sewage flow and must be sampled at the headworks of the treatment plant excluding any sidestream returns from inside the plant.

[d] 24-hour composite means a series of individual samples collected over a 24-hour period into a single container, and analyzed as one sample.

[e] Percent (%) removal of BOD and TSS must be calculated with the following algorithm (concentrations in mg/L): (Average Monthly Influent Concentration - Average Monthly Effluent Concentration)/Average Monthly Influent Concentration

[f] "Grab" means an individual sample collected over a fifteen (15) minute, or less, period.

[g] Effluent samples for BOD_5 analysis may be taken before or after the disinfection process. If taken after, the sample must be dechlorinated and reseeded.

[h] "Continuous" means without interruption throughout the operating and discharging hours of the Permittee's facility, except for infrequent shutdowns for maintenance.

[i] "Final Effluent" means wastewater which is exiting, or has exited, the last treatment process or operation. Typically, this is after or at the exit from the chlorine contact chamber or other disinfection process.

[j] "3/week" means three (3) times during each calendar week and may or may not be on a rotational basis throughout the days of the week, except weekends and holidays.

[k] "Calculation" means figured concurrently with the respective sample, using the following formula: Concentration (in mg/L) X Flow (in MGD) X Conversion Factor (8.34) = lbs/day.

[l] "Monthly" means once every calendar month, based on monthly average concentrations.

B. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit must be representative of the volume and nature of the monitored parameters. The Permittee must conduct representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions that may affect effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136.

C. Flow Measurement

The Permittee must select and use appropriate flow measurement devices and methods consistent with accepted scientific practices. The Permittee must install, calibrate, and maintain the flow devices. This work is necessary to ensure the accuracy of the measurements is consistent with the accepted industry standard and the manufacturer's recommendation for that type of device. The Permittee must maintain calibration records for at least three years.

D. Laboratory Accreditation

The Permittee must ensure that all monitoring data required by Ecology is prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. Conductivity and pH must be accredited if the laboratory must otherwise be registered or accredited. Ecology exempts crops, soils, and hazardous waste data from this requirement pending accreditation of laboratories for analysis of these media.

S3. REPORTING AND RECORDING REQUIREMENTS

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins on the effective date of the permit. The Permittee must submit monitoring results each month. The Permittee must summarize, report, and submit monitoring data obtained during each monitoring period on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology. The Permittee must ensure that DMR forms are postmarked or received by Ecology no later than the 15th day of the month following the completed monitoring period, unless otherwise specified in this permit. The Permittee must submit priority pollutant

analysis data no later than forty-five (45) days following the monitoring period. Unless otherwise specified, the Permittee must submit all toxicity test data within sixty (60) days after the sample date. The Permittee must send report(s) to:

Department of Ecology, Water Quality
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

All laboratory reports providing data for organic and metal parameters must include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), lab quantitation limit (QL), reporting units, and concentration detected. Analytical results from samples sent to a contract laboratory must include information on the chain of custody, the analytical method, QA/QC results, and documentation of accreditation for the parameter.

The Permittee must submit DMR forms monthly whether or not the facility was discharging. If there was no discharge during a given monitoring period, the Permittee must submit the form as required with the words "no discharge" entered in place of the monitoring results.

B. Records Retention

The Permittee must retain records of all monitoring information for a minimum of three (3) years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. During the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology, the Permittee must extend this period of retention.

C. Recording of Results

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.
2. The individual who performed the sampling or measurement.
3. The dates the analyses were performed.
4. The individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Notice of Noncompliance Reporting

The Permittee must take the following action upon violation of any permit condition: Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem and, if applicable, immediately repeat sampling and analysis. The results of any repeat sampling must be submitted to Ecology within thirty (30) days of sampling.

1. Immediate Noncompliance Notification

Any failure of the disinfection system, any collection system overflows which may reach surface waters, or any plant bypass discharging to a shellfish area must be reported **immediately** to the Department of Ecology and the Department of Health, Shellfish Program.

The Department of Ecology's Northwest Regional Office 24-hour number is 425-649-7000. The Department of Health's Shellfish number is 360-236-3330 (business hours) or 360-786-4183 (24 hours).

2. Twenty-four-hour Noncompliance Notification

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at 425-649-7000, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

a. Any noncompliance that may endanger health or the environment, unless previously reported under subpart 1, above.

b. Any unanticipated bypass that exceeds any effluent limitation in the permit (See Part S4.B., “Bypass Procedures”).

c. Any upset that exceeds any effluent limitation in the permit (See G.15, “Upset”).

d. Any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Section S1.A of this permit.

e. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit.

3. Report Within Five Days

The Permittee must also provide a written submission within five days of the time that the Permittee becomes aware of any event required to be reported under subparts 1 or 2, above. The written submission must contain:

a. A description of the noncompliance and its cause.

b. The period of noncompliance, including exact dates and times.

c. The estimated time noncompliance is expected to continue if it has not been corrected.

d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

e. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

4. Waiver of Written Reports

Ecology may waive the written report required in subpart 3, above, on a case-by-case basis upon request if a timely oral report has been received.

5. Report Submittal

Reports must be submitted to the address in S3. ("REPORTING AND RECORDING REQUIREMENTS").

F. Other Noncompliance Reporting

The Permittee must report all instances of noncompliance, not required to be reported immediately or within 24 hours, at the time that monitoring reports for S3.A ("Reporting") are submitted. The reports must contain the information listed in paragraph E.3, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

The spill of oil or hazardous materials **must** be reported in accordance with the instructions obtained at the following website: http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm.or by calling the Northwest Regional Office at 425-649-7000.

G. Maintaining a Copy of This Permit

The Permittee must keep a copy of this permit at the facility and make it available upon request to Department of Ecology inspectors.

S4. FACILITY LOADING

A. Design Criteria

The flows or waste loads for the permitted facility must not exceed the following design criteria:

Average flow for the maximum month:	7.4 MGD
BOD_5 loading for the maximum month:	15,120 lb/day
TSS loading for the maximum month:	15,120 lb/day

B. Plans for Maintaining Adequate Capacity

The Permittee must submit a plan and a schedule for continuing to maintain capacity to Ecology when:

1. The actual flow or waste load reaches 85 percent of any one of the design criteria in S4.A for three consecutive months; or

2. The projected increase would reach design capacity within five years, whichever occurs first.

   The plan and schedule for continuing to maintain capacity must be sufficient to achieve the effluent limitations and other conditions of this permit. This plan must identify any of the following actions or any other actions necessary to meet the objective of maintaining capacity.

   a. Analysis of the present design, including the introduction of any process modifications that would establish the ability of the existing facility to achieve the effluent limits and other requirements of this permit at specific levels in excess of the existing design criteria specified in paragraph A, above.

   b. Reduction or elimination of excessive infiltration and inflow of uncontaminated ground and surface water into the sewer system.

   c. Limitation on future sewer extensions or connections or additional waste loads.

   d. Modification or expansion of facilities necessary to accommodate increased flow or waste load.

   e. Reduction of industrial or commercial flows or waste loads to allow for increasing sanitary flow or waste load.

3. Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to any construction.

4. If the Permittee intends to apply for state or federal funding for the design or construction of a facility project, the plan must also meet the requirements of a "Facility Plan" as described in 40 CFR 35.2030. The plan must specify any contracts, ordinances, methods for financing, or other arrangements necessary to achieve this objective.

C. Duty to Mitigate

The Permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

D. Notification of New or Altered Sources

1. The Permittee must submit written notice to Ecology whenever any new discharge or a substantial change in volume or character of an existing discharge into the POTW is proposed which:

   a. Would interfere with the operation of, or exceed the design capacity of, any portion of the POTW;

   b. Is not part of an approved general sewer plan or approved plans and specifications; or

   c. Would be subject to pretreatment standards under 40 CFR Part 403 and Section 307(b) of the Clean Water Act.

2. This notice must include an evaluation of the POTW's ability to adequately transport and treat the added flow and/or waste load, the quality and volume of effluent to be discharged to the POTW, and the anticipated impact on the Permittee's effluent [40 CFR 122.42(b)].

E. Infiltration and Inflow Evaluation

1. The Permittee must conduct an infiltration and inflow evaluation. Refer to the U.S. EPA publication, *I/I Analysis and Project Certification*, available as Publication No. 97-03 at:

   Publications Office
   Department of Ecology
   P.O. Box 47600
   Olympia, WA 98504-7600
   or at
   http://www.ecy.wa.gov/programs/wq/permits/guidance.html.

   The Permittee may use plant monitoring records to assess measurable infiltration and inflow.

2. The Permittee must prepare a report which summarizes any measurable infiltration and inflow. If infiltration and inflow have increased by more than 15 percent from that found in the previous report based on equivalent rainfall, the report must contain a plan and a schedule for:

   a. Locating the sources of infiltration and inflow; and

   b. Correcting the problem.

3. For any infiltration or inflow identified in segments of the collection system which are under or adjacent to surface water, the Permittee must evaluate these segments for the existence of exfiltration.

4. The Permittee must test the portion of the collection system that operates at greater than atmospheric pressure for exfiltration.

5. The Permittee must submit the results of any leak testing once per permit cycle.

The Permittee must submit a report summarizing the results of the evaluation by December 31, 2012 with the application for permit renewal.

S5. OPERATION AND MAINTENANCE

The Permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes keeping a daily operation logbook (paper or electronic), adequate laboratory controls, and appropriate quality assurance procedures. This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Certified Operator

This permitted facility must be operated by an operator certified by the state of Washington for at least a Class III plant. This operator must be in responsible charge of the day-to-day operation of the wastewater treatment plant. An operator certified for at least a Class II plant must be in charge during all regularly scheduled shifts.

B. O & M Program

1. The Permittee must institute an adequate operation and maintenance program for the entire sewage system.

2. The Permittee must keep maintenance records on all major electrical and mechanical components of the treatment plant, as well as the sewage system and pumping stations. Such records must clearly specify the frequency and type of maintenance recommended by the manufacturer and must show the frequency and type of maintenance performed.

3. The Permittee must make maintenance records available for inspection at all times.

C. Short-term Reduction

If a Permittee contemplates a reduction in the level of treatment that would cause a violation of permit discharge limitations on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee must:

1. Give written notification to Ecology, if possible, thirty (30) days prior to such activities.

2. The notice must detail the reasons for, length of time of, and the potential effects of the reduced level of treatment.

3. This notification does not relieve the Permittee of its obligations under this permit.

D. Electrical Power Failure

The Permittee must ensure that adequate safeguards prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during electrical power failure at the treatment plant and/or sewage lift stations. Adequate safeguards include, but are not limited to: alternate power sources, standby generator(s), or retention of inadequately treated wastes.

The Permittee must maintain Reliability Class II (EPA 430/9-74-001) at the wastewater treatment plant; Reliability Class II requires a backup power source sufficient to operate all vital components and critical lighting and ventilation during peak wastewater flow conditions. Vital components used to support the secondary processes (i.e., mechanical aerators or aeration basin air compressors) need not be operable to full levels of treatment, but must be sufficient to maintain the biota.

The Permittee must supply emergency power to portions of the secondary process. A report must be submitted by December 31, 2010, confirming that the project is complete and the treatment plant is in compliance with Section S5.D of the permit.

E. Prevent Connection of Inflow

The Permittee must strictly enforce its sewer ordinances and not allow the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system.

F. Bypass Procedures

Bypass is the intentional diversion of waste streams from any portion of a treatment facility. This permit prohibits bypass. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, or 3) is applicable.

1. Bypass is for essential maintenance without the potential to cause violation of permit limits or conditions.

This permit authorizes a bypass if it allows for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by Ecology prior to the bypass. The Permittee must submit prior notice, if possible, at least ten (10) days before the date of the bypass.

2. Bypass is unavoidable, unanticipated, and results in noncompliance with the conditions of this permit.

   This permit authorizes such a bypass only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. No feasible alternatives to the bypass exist, such as:

      i. The use of auxiliary treatment facilities.

      ii. Retention of untreated wastes.

      iii. Stopping production.

      iv. Maintenance during normal periods of equipment downtime, but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass.

      v. Transport of untreated wastes to another treatment facility.

   c. The Permittee has properly notified Ecology of the bypass as required in Condition S3.E of this permit.

3. If bypass is anticipated and has the potential to result in noncompliance of this permit.

   a. The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

      i. A description of the bypass and its cause.

      ii. An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.

      iii. A cost-effectiveness analysis of alternatives including comparative resource damage assessment.

iv. The minimum and maximum duration of bypass under each alternative.

v. A recommendation as to the preferred alternative for conducting the bypass.

vi. The projected date of bypass initiation.

vii. A statement of compliance with SEPA.

viii. A request for modification of water quality standards as provided for in WAC 173-201A-410, if an exceedance of any water quality standard is anticipated.

ix. Details of the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

b. For probable construction bypasses, the Permittee must notify Ecology of the need to bypass as early in the planning process as possible. The Permittee must consider the analysis required above during preparation of the engineering report or facilities plan and plans and specifications and must include these to the extent practical. In cases where the Permittee determines the probable need to bypass early, the Permittee must continue to analyze conditions up to and including the construction period in an effort to minimize or eliminate the bypass.

c. Ecology will consider the following prior to issuing an administrative order for this type of bypass:

i. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

ii. If feasible alternatives to bypass exist, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

iii. If the Permittee planned and scheduled the bypass to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. The public will be given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Ecology will approve a request to bypass by issuing an administrative order under RCW 90.48.120.

G. Operations and Maintenance Manual

The Permittee must keep the approved Operations and Maintenance Manual available at the treatment plant and all operators must follow the instructions and procedures of this manual.

The Operation and Maintenance Manual shall be updated as needed. Updated portions of the Operation and Maintenance Manual shall be submitted to Ecology for review and approval.

S6. PRETREATMENT

A. General Requirements

1. The Permittee must implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the Permittee's approved pretreatment program submittal entitled "Industrial Pretreatment Program" and dated August 28,1984; any approved revisions thereto; and the General Pretreatment Regulations (40 CFR Part 403). At a minimum, the Permittee must undertake the following pretreatment implementation activities:

   a. Enforce categorical pretreatment standards under Section 307(b) and (c) of the Federal Clean Water Act (hereinafter, the Act), prohibited discharge standards as set forth in 40 CFR 403.5, local limitations specified in Section 14.60.318, of Ordinance City of Lynnwood Municipal Code, or state standards, which ever are most stringent or apply at the time of issuance or modification of a local industrial waste discharge permit. Locally derived limitations are defined as pretreatment standards under Section 307(d) of the Act and are not limited to categorical industrial facilities.

   b. Issue industrial waste discharge permits to all significant industrial users [SIUs, as defined in 40 CFR 403.3(t)(i)(ii)] contributing to the treatment system, including those from other jurisdictions. Industrial waste discharge permits must contain as a minimum, all the requirements of 40 CFR 403.8 (f)(l)(iii). The Permittee must coordinate the permitting process with Ecology regarding any industrial facility which may possess a state waste discharge permit issued by Ecology. Once issued, an industrial waste discharge permit takes precedence over a state-issued waste discharge permit.

   c. Maintain and update, as necessary, records identifying the nature, character, and volume of pollutants contributed by industrial users to the POTW. The Permittee must maintain records for at least a three-year period.

   d. Perform inspections, surveillance, and monitoring activities on industrial users to determine or confirm compliance with pretreatment standards and requirements. The Permittee must conduct a thorough inspection of SIUs annually. The Permittee must conduct regular local monitoring of SIU

wastewaters commensurate with the character and volume of the wastewater but not less than once per year. The Permittee must collect and analyze samples in accordance with 40 CFR Part 403.12(b)(5)(ii)-(v) and 40 CFR Part 136.

e. Enforce and obtain remedies for noncompliance by any industrial users with applicable pretreatment standards and requirements. Once violations have been identified, the Permittee must take timely and appropriate enforcement action to address the noncompliance. The Permittee's action must follow its enforcement response procedures and any amendments, thereof.

f. Publish, at least annually in the largest daily newspaper in the Permittee's service area, a list of all non-domestic users which, at any time in the previous 12 months, were in significant noncompliance as defined in 40 CFR 403.8(f)(2)(vii).

g. If the Permittee elects to conduct sampling of an SIU's discharge in lieu of requiring user self-monitoring, it must satisfy all requirements of 40 CFR part 403.12. This includes monitoring and record keeping requirements of sections 403.12(g) and (o). For SIU's subject to categorical standards (CIUs), the Permittee may either complete baseline and initial compliance reports for the CIU (when required by 403.12(b) and (d)) or require these of the CIU. The Permittee must ensure SIUs are provided the results of sampling in a timely manner, inform SIUs of their right to sample, their obligations to report any sampling they do, to respond to non-compliance, and to submit other notifications. These include a slug load report (403.12(f)), notice of changed discharge (403.12(j)), and hazardous waste notifications (403.12(p)). If sampling for the SIU, the Permittee must not sample less than once in every six month period unless the Permittee's approved program includes procedures for reduction of monitoring for Middle-Tier or Non-Significant Categorical Users per 403.12(e)(2) and (3) and those procedures have been followed.

h. Develop and maintain a data management system designed to track the status of the Permittee's industrial user inventory, industrial user discharge characteristics, and compliance status.

i. Maintain adequate staff, funds, and equipment to implement its pretreatment program.

j. Establish, where necessary, contracts or legally binding agreements with contributing jurisdictions to ensure compliance with applicable pretreatment requirements by commercial or industrial users within these jurisdictions. These contracts or agreements must identify the agency responsible for the various implementation and enforcement activities to be performed in the contributing jurisdiction. In addition, the Permittee must develop a Memorandum of Understanding (or Inter-local Agreement) that outlines the specific roles, responsibilities, and pretreatment activities of each jurisdiction.

2. The Permittee must implement the Accidental Spill Prevention Program described in the approved Industrial Pretreatment Program dated August 28, 1984.

3. The Permittee must evaluate, at least once every two years, whether each Significant Industrial User needs a plan to control slug discharges. For purposes of this subsection, a slug discharge is any discharge of a nonroutine, episodic nature, including but not limited to an accidental spill or noncustomary batch discharge. The Permittee must make the results of this evaluation available to Ecology upon request. If the Permittee decides that a slug control plan is needed, the plan must contain, at a minimum, the following elements:

   a. Description of discharge practices, including nonroutine batch discharges.

   b. Description of stored chemicals.

   c. Procedures for immediately notifying the Permittee of slug discharges, including any discharge that would violate a prohibition under 40 CFR 403.5(b), with procedures for follow-up written notification within five days.

   d. If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment necessary for emergency response.

4. Whenever Ecology determines that any waste source contributes pollutants to the Permittee's treatment works in violation of Subsection (b), (c), or (d) of Section 307 of the Act, and the Permittee has not taken adequate corrective action, Ecology will notify the Permittee of this determination. If the Permittee fails to take appropriate enforcement action within 30 days of this notification, Ecology may take appropriate enforcement action against the source or the Permittee.

5. Pretreatment Report

   The Permittee must provide to Ecology an annual report that briefly describes its program activities during the previous calendar year. This report must be submitted no later than June 30, of each year to:

   Department of Ecology, Water Quality
   Northwest Regional Office
   3190 – 160th Avenue SE
   Bellevue, WA 98008-5452

   The report must include the following information:

   a. An updated nondomestic inventory.

b. Results of wastewater sampling at the treatment plant as specified in S.6.B. The Permittee must calculate removal rates for each pollutant and evaluate the adequacy of the existing local limitations in Section 2.4 of Ordinance #2247-97 in prevention of treatment plant interference, pass through of pollutants that could affect receiving water quality, and sludge contamination.

c. Status of program implementation, including:

i. Any substantial modifications to the pretreatment program as originally approved by Ecology, including staffing and funding levels.

ii. Any interference, upset, or permit violations experienced at the POTW that are directly attributable to wastes from industrial users.

iii. Listing of industrial users inspected and/or monitored, and a summary of the results.

iv. Listing of industrial users scheduled for inspection and/or monitoring for the next year, and expected frequencies.

v. Listing of industrial users notified of promulgated pretreatment standards and/or local standards as required in 40 CFR 403.8(f)(2)(iii). The list must indicate which industrial users are on compliance schedules and the final date of compliance for each.

vi. Listing of industrial users issued industrial waste discharge permits.

vii. Planned changes in the pretreatment program implementation plan. (See subsection A.6. below.)

d. Status of compliance activities, including:

i. Listing of industrial users that failed to submit baseline monitoring reports or any other reports required under 40 CFR 403.12 and in Chapter 6 of the Permittee's pretreatment program, dated August 28, 1984.

ii. Listing of industrial users that were at any time during the reporting period not complying with federal, state, or local pretreatment standards or with applicable compliance schedules for achieving those standards, and the duration of such noncompliance.

iii. Summary of enforcement activities and other corrective actions taken or planned against non-complying industrial users. The Permittee must supply to Ecology a copy of the public notice of facilities that were in significant noncompliance.

6. The Permittee must request and obtain approval from Ecology before making any significant changes to the approved local pretreatment program. The Permittee must follow the procedure in 40CFR 403.18(b) and (c).

B. Monitoring Requirements

The Permittee must monitor its influent, effluent, and sludge for the priority pollutants identified in Tables II and III of Appendix D of 40 CFR Part 122 as amended, any compounds identified as a result of Condition S6.B.4, and any other pollutants expected from nondomestic sources using U.S. EPA-approved procedures for collection, preservation, storage, and analysis. The Permittee must test influent, effluent, and sludge samples for the priority pollutant metals (Table III, 40 CFR 122, Appendix D) on a quarterly basis throughout the term of this permit. The Permittee must test influent, effluent, and sludge samples for the organic priority pollutants (Table II, 40 CFR 122, Appendix D) on an annual basis.

1. The Permittee must sample POTW influent and effluent on a day when industrial discharges are occurring at normal to maximum levels. The Permittee must obtain 24-hour composite samples for the analysis of acid and base/neutral extractable compounds and metals. The Permittee must collect samples for the analysis of volatile organic compounds and samples must be collected using grab sampling techniques at equal intervals for a total of four grab samples per day.

   The laboratory may run a single analysis for volatile pollutants (Method 624) for each monitoring day by compositing equal volumes of each grab sample directly in the GC purge and trap apparatus in the laboratory, with no less than 1 ml of each grab included in the composite.

   Unless otherwise indicated, all reported test data for metals must represent the total amount of the constituent present in all phases, whether solid, suspended, or dissolved, elemental or combined including all oxidation states.

   The Permittee must handle, prepare, and analyze all wastewater samples taken for GC/MS analysis in accordance with the U.S. EPA Methods 624 and 625 (October 26, 1984).

2. The Permittee must take cyanide, phenols, and oils as grab samples. Oils must be hexane soluble or equivalent, and should be measured in the influent and effluent only.

3. In addition to quantifying pH, oil and grease, and all priority pollutants, the Permittee must make a reasonable attempt to identify all other substances and quantify all pollutants shown to be present by gas chromatograph/mass spectrometer (GC/MS) analysis per 40 CFR 136, Appendix A, Methods 624 and 625. The Permittee should attempt to make determinations of pollutants for each fraction, which produces identifiable spectra on total ion plots (reconstructed gas chromatograms). The Permittee should attempt to make determinations from all peaks with responses 5% or greater than the nearest internal standard. The 5% value is based on internal standard concentrations of 30 μg/l, and must be adjusted downward if higher internal standard concentrations are used or adjusted upward if lower internal standard concentrations are used. The Permittee may express results

for non-substituted aliphatic compounds as total hydrocarbon content. The Permittee must use a laboratory whose computer data processing programs are capable of comparing sample mass spectra to a computerized library of mass spectra, with visual confirmation by an experienced analyst. For all detected substances which are determined to be pollutants, the Permittee must conduct additional sampling and appropriate testing to determine concentration and variability, and to evaluate trends.

C. Reporting of Monitoring Results

The Permittee must include a summary of monitoring results in the Annual Pretreatment Report.

D. Local Limit Development

As sufficient data become available, the Permittee must, in consultation with Ecology, reevaluate their local limits in order to prevent pass-through or interference. If Ecology determines that any pollutant present causes pass-through or interference, or exceeds established sludge standards, the Permittee must establish new local limits or revise existing local limits as required by 40 CFR 403.5. Ecology may also require the Permittee to revise or establish local limits for any pollutant discharged from the POTW that has a reasonable potential to exceed the water quality standards, sediment standards, or established effluent limits, or causes whole effluent toxicity. Ecology makes this determination in the form of an Administrative Order.

Ecology may modify this permit to incorporate additional requirements relating to the establishment and enforcement of local limits for pollutants of concern. Any permit modification is subject to formal due process procedures under state and federal law and regulation.

S7. RESIDUAL SOLIDS

Residual solids include screenings, grit, scum, primary sludge, waste activated sludge, and other solid waste. The Permittee must store and handle all residual solids in a manner that prevents their entry into state ground or surface waters. The Permittee must not discharge leachate from residual solids to state surface or ground waters.

S8. APPLICATION FOR PERMIT RENEWAL

The Permittee must submit an application for renewal of this permit by December 31, 2012.

S9. SPILL PLAN

A. By July 31, 2009, the Permittee must submit to Ecology a Spill Control Plan for the prevention, containment, and control of spills or unplanned releases.

B. The Permittee must review the plan at least annually and update as needed. The Permittee must send changes to the plan to Ecology.

C. The updated Spill Control Plan must include the following:

1. A description of operator training to implement the plan.

2. A description of the reporting system which will be used to alert responsible managers and legal authorities in the event of a spill.

3. A description of preventive measures and facilities (including an overall facility plot showing drainage patterns) which prevent, contain, or treat spills of these materials.

4. A list of all oil and petroleum products, and other materials, which when spilled or otherwise released into the environment, are designated dangerous waste (DW) or extremely hazardous waste (EHW) by the procedures set forth in WAC 173-303-070, and other materials which may become pollutants or cause pollution upon reaching state's waters.

5. Plans and manuals required by 40 CFR Part 112, contingency plans required by Chapter 173-303 WAC, or other plans required by other agencies which meet the intent of this section may be submitted.

D. The Permittee must follow the plan and any supplements throughout the term of the permit.

S10. ACUTE TOXICITY

A. Testing When There Is No Permit Limit for Acute Toxicity

The Permittee must:

- Conduct acute toxicity testing on final effluent during January 2012 and July 2012 (once in the last summer and once in the last winter prior to submission of the application for permit renewal).
- Submit the results to Ecology with the permit renewal application.
- Conduct acute toxicity testing on a series of at least five concentrations of effluent, including 100% effluent, and a control.

Use each of the following species and protocols for each acute toxicity test:

Saltwater Chronic Test	Species	Method
Fathead minnow	*Pimephales promelas*	(96-hour static-renewal test, method; EPA-821-R-02-012)
Daphinid	*Ceriodaphnia dubia, daphnia pulex,or Daphnia magna*	(48-hour static test, method; EPA-821-R-02-012)

B. Sampling and Reporting Requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data in electronic format for entry into Ecology's database, then the Permittee must send the data to Ecology along with the test report, bench sheets, and reference toxicant results.

2. The Permittee must collect 24-hour composite effluent samples or grab samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.

3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.

4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Subsection C and the Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.

5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in Subsection A or pristine natural water of sufficient quality for good control performance.

6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent prior to chlorination.

7. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the acute critical effluent concentration (ACEC). The ACEC equals 1.56% effluent.

8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing must comply with the acute statistical power standard of 29% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

9. Reports of individual characterization or compliance test results must be submitted to Ecology within sixty (60) days after each sample date.

10. The Acute Toxicity Summary Report must be submitted to Ecology by December 31, 2012.

S11. CHRONIC TOXICITY

A. Testing When There Is No Permit Limit for Chronic Toxicity

The Permittee must:

- Conduct chronic toxicity testing on final effluent during March 2012 and October 2012 (once in the last summer and once in the last winter prior to submission of the application for permit renewal).

- Submit the results to Ecology with the permit renewal application.

- Conduct chronic toxicity testing on a series of at least five concentrations of effluent and a control. This series of dilutions must include the acute critical effluent concentration (ACEC). The ACEC equals 1.56% effluent.

- Compare the ACEC to the control using hypothesis testing at the 0.05 level of significance as described in Appendix H, EPA/600/4-89/001.

- Perform chronic toxicity tests with all of the following species and the most recent version of the following protocols.

Saltwater Chronic Test	Species	Method
Topsmelt survival and growth	*Atherinops affinis*	EPA/600/R-95/136
Mysid shrimp survival and growth	*Mysidopsis bahia/ Americamysis bahia*	EPA-821-R-02-014

B. Sampling and Reporting Requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data in electronic format for entry into Ecology's database, then the Permittee must send the data to Ecology along with the test report, bench sheets, and reference toxicant results.

2. The Permittee must collect 24-hour composite effluent samples or grab samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.

3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.

4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Subsection C and the Department of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.

5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in Subsection C or pristine natural water of sufficient quality for good control performance.

6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent prior to chlorination.

7. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the CCEC and the ACEC. The CCEC and the ACEC may either substitute for the effluent concentrations that are closest to them in the dilution series or be extra effluent concentrations. The CCEC equals 57% effluent. The ACEC equals 1.54% effluent.

8. All whole effluent toxicity tests that involve hypothesis testing must comply with the chronic statistical power standard of 39% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

9. Reports of individual characterization or compliance test results must be submitted to Ecology within sixty (60) days after each sample date.

10. The Chronic Toxicity Summary Report must be submitted to Ecology by December 31, 2012.

S12. SEDIMENT MONITORING (MARINE)

A. Sediment Sampling and Analysis Plan

The Permittee must submit to Ecology for review and approval a Sediment Sampling and Analysis Plan for sediment monitoring no later than July 1, 2009. The purpose of the plan is to characterize the nature and extent of chemical contamination and/or biological toxicity in the vicinity of the Permittee's discharge location(s). The Permittee must follow the guidance provided in the *Sediment Source Control Standards User Manual, Appendix B: Sediment Sampling and Analysis Plan* (Ecology 2003).

B. Sediment Data Report

Following Ecology approval of the Sediment Sampling and Analysis Plan, the Permittee must collect sediments. The Permittee must submit to Ecology a Sediment Data Report containing the results of the sediment sampling and analysis no later than 12 months after the Ecology approval of Sediment Sampling and Analysis Plan or within 3 years after permit effective date (no later than July 1, 2011). The Sediment Data Report must conform to the approved Sediment Sampling and Analysis Plan.

The Sediment Data Report must also include electronic copies of the sediment chemical and/or biological data formatted according to Ecology's Environmental Information Management (EIM) System template.

S13. OUTFALL EVALUATION

The Permittee must inspect, once during the permit cycle, the submerged portion of the outfall line and diffuser to document its integrity and continued function. If conditions allow for a photographic verification, the Permittee must include such verification in the report. The Permittee must submit the inspection report to Ecology by December 31, 2012.

GENERAL CONDITIONS

G1.SIGNATORY REQUIREMENTS

A. All applications, reports, or information submitted to Ecology must be signed and certified.

1. In the case of corporations, by a responsible corporate officer.

   For the purpose of this section, a responsible corporate officer means:

   (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or

   (ii) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. In the case of a partnership, by a general partner.

3. In the case of sole proprietorship, by the proprietor.

4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

Applications for permits for domestic wastewater facilities that are either owned or operated by, or under contract to, a public entity shall be submitted by the public entity.

B. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2, above, is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2, above, must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section must make the following certification:

> "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.

B. To have access to and copy, at reasonable times and at reasonable cost, any records required to be kept under the terms and conditions of this permit.

C. To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor, at reasonable times, any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 40 CFR 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.

2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.

3. A material change in quantity or type of waste disposal.

4. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination.

5. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit.

6. Nonpayment of fees assessed pursuant to RCW 90.48.465.

7. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.

6. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. When cause exists for termination for reasons listed in A1 through A7 of this section, and Ecology determines that modification or revocation and reissuance is appropriate.

2. When Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, but no later than sixty (60) days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in:
1) the permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b);
2) a significant change in the nature or an increase in quantity of pollutants discharged; or
3) a significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications must be submitted to Ecology for approval in accordance with chapter 173-240 WAC. Engineering reports, plans, and specifications must be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities must be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit must be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee must notify the succeeding owner or controller of the existence of this permit by letter, a copy of which must be forwarded to Ecology.

A. Transfers by Modification

Except as provided in paragraph (B) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies Ecology at least thirty (30) days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.

3. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G8. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, must control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology upon request, copies of records required to be kept by this permit.

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G12. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G13. PAYMENT OF FEES

The Permittee must submit payment of fees associated with this permit as assessed by Ecology.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit is deemed guilty of a crime, and upon conviction thereof must be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit will incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation is a separate and distinct offense, and in case of a continuing violation, every day's continuance is deemed to be a separate and distinct violation.

G15. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
1) an upset occurred and that the Permittee can identify the cause(s) of the upset;
2) the permitted facility was being properly operated at the time of the upset;
3) the Permittee submitted notice of the upset as required in Condition S3.E; and
4) the Permittee complied with any remedial measures required under S4.C of this permit.

In any enforcement action the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit must, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two (2) years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment must be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G20. REPORTING ANTICIPATED NONCOMPLIANCE

The Permittee must give advance notice to Ecology by submission of a new application or supplement thereto at least one hundred eighty (180) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, must be scheduled during noncritical water quality periods and carried out in a manner approved by Ecology.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, such facts or information must be submitted promptly.

G22. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than fourteen (14) days following each schedule date.

G23. CONTRACT REVIEW

The Permittee must submit to Ecology any proposed contract for the operation of any wastewater treatment facility covered by this permit. The review is to ensure consistency with chapters 90.46 and 90.48 RCW. In the event that Ecology does not comment within a thirty (30)-day period, the Permittee may assume consistency and proceed with the contract.

Appendix D

NPDES Fact Sheet

FACT SHEET FOR NPDES PERMIT WA-002403-1

CITY OF LYNNWOOD

June 30, 2008

PURPOSE of this Fact Sheet

This fact sheet explains and documents the decisions Ecology made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for the City of Lynnwood Wastewater Treatment Plant. This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit *and accompanying fact sheet* for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before we issue the final permit. Copies of the fact sheet and draft permit for the City of Lynnwood Wastewater Treatment Plant NPDES permit WA-002403-1, were available for public review and comment from **May 23 and May 30, 2008,** until **June 23 and June 30, 2008**, respectively. For more details on preparing and filing comments about these documents, please see *Appendix A—Public Involvement.*

The City of Lynnwood Wastewater Treatment Plant reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, and discharges or receiving water.

After the public comment period closed, Ecology summarized substantive comments and provided responses to them. Ecology included the summary and responses to comments in this fact sheet as *Appendix F—Response to Comments.*

SUMMARY

The City of Lynnwood operates an activated sludge wastewater treatment plant that discharges to Browns Bay-Puget Sound. The previous permit for this facility was issued on February 20, 2003.

The proposed permit contains the same effluent limits for Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids, Fecal Coliform Bacteria, and pH as the permit issued in 2003.

TABLE OF CONTENTS

I. INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the State of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to municipal NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC),
- Technical criteria for discharges from municipal wastewater treatment facilities (chapter 173-221 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC).

These rules require any treatment facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also define the basis for limits on each discharge and for other requirements imposed by the permit.

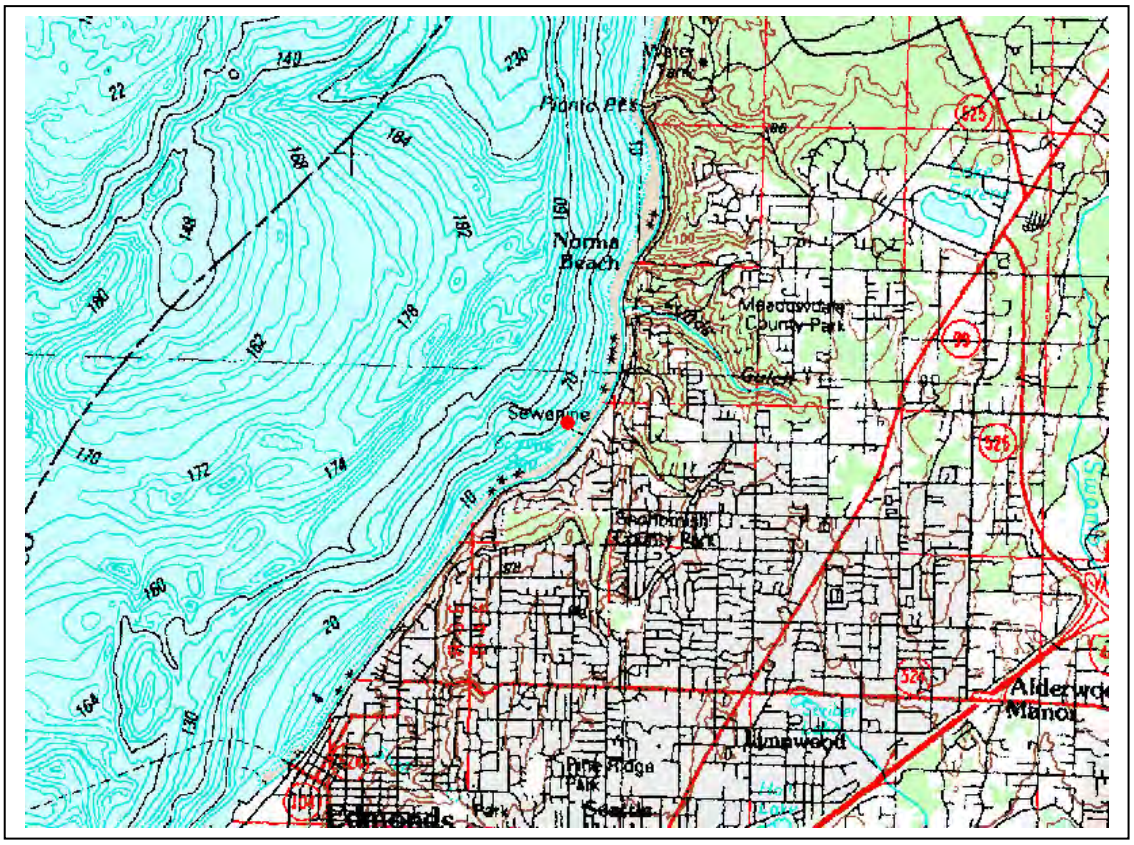
Under the NPDES permit program, Ecology must prepare a draft permit and accompanying fact sheet, and make it available for public review. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments on the draft permit, during a period of thirty days (WAC 173-220-050). (See *Appendix A—Public Involvement* for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit. Ecology will summarize the responses to comments and any changes to the permit in Appendix F.

II. BACKGROUND INFORMATION

Table 1. General Facility Information

Applicant:	City of Lynnwood 19100 – 44th Avenue West Lynnwood, WA 98036
Facility Name and Address:	Lynnwood Wastewater Treatment Plant 17000 – 76th Avenue West Edmonds, WA 98026
Type of Treatment:	Activated Sludge
Discharge Location:	Browns Bay - Puget Sound Latitude: 47º 50' 52" N Longitude: 122º 20' 33" W
Waterbody ID Number:	1224819475188

Figure 1. Facility Location Map ~ Lynnwood Wastewater Treatment Plant



A. Facility Description

History

The City of Lynnwood (City) operates a wastewater treatment facility located on Browns Bay. The treatment facility was originally constructed to provide primary treatment. The Department of Ecology (Ecology) later ordered the City to provide secondary treatment. The City converted its wastewater treatment to an activated sludge secondary treatment plant with chlorine disinfection and incineration of sewage sludge in 1990, increasing the plant's capacity to a maximum month flow of 7.4 MGD. Additional improvements to the wastewater treatment plant were completed in 1998.

The 1998 improvements included replacing the existing corrugated metal outfall pipe with a new HDPE pipe, installing a self-cleaning bar screen, retrofitting the sludge handling system, and installing new clarifier pumps and piping. In addition, the City renovated the odor control system, adding additional capacity for controlling treatment plant emissions and increased the incinerator capacity. With these improvements Ecology issued the current City of Lynnwood NPDES operating permit, which increased the BOD and total suspended solids capacities 17 percent over previous permitted levels. The hydraulic capacity remained at 7.4 MGD, but the capacity for BOD and TSS increased to 15,120 pounds per day. The permit was renewed effective March 1, 2003, and expired June 30, 2007.

Collection System Status

The collection system for the City of Lynnwood is comprised of approximately 100 miles of pipe varying in size from 6-inch collectors to 36-inch interceptors. The City owns and operates six sanitary lift stations. The system is divided into five major drainage basins. They include Lift Station No. 10 Basin, Lift Station No. 12 Basin, Browns Bay Trunk Basin, Western Gravity Basin, and the Edmonds Service Area Basin. Smaller basins associated with the system include Lift Station No. 4 Basin, Lift Station No. 8 Basin, and Lift Station No. 14 Basin.

The Lift Station No. 10 Basin is the City's largest and includes the City Center area of the City. It receives flow from all of the Scriber Creek Drainage Basin and a portion of the Swamp Creek Drainage Basin. Other areas contributing flows to Lift Station No. 10 include the areas associated with three minor lift stations: Lift Station No. 4, Lift Station No. 8, and Lift Station No. 14. Lift Station Nos. 4 and 8 serve portions of the Swamp Creek drainage basin (Alderwood Mall Area). Flows from Lift Station No. 10 are pumped through a 24-inch force main and discharged into a 36-inch interceptor near the intersection of 204th Street and 68th Avenue West, on to the wastewater treatment plant.

Lift Station No.14 collects flows from the relatively small basin associated with the Embassy Suite Complex, south of Interstate 5 and west of 44th Avenue West. Lift Station No. 12 is located southwest of the City's services, an area of approximately 880 acres. Lift Station No. 12 pumps flows through an 18-inch force main to the interceptor line along 76th Avenue West, where it combines with the flows from Lift Station No. 10.

The Browns Bay Trunk Basin, located north of the City, drains primarily east to west to Olympic View Drive in a series of 12-inch and 15-inch pipelines. Flow continues south along Olympic View Drive to the 76th Avenue West Interceptor and flows north to the WWTP. Another small Lift Station No. 7 services a small area in the northwest corner of the basin, pumping flows to the Olympic View Drive system. Sewage from the remainder of the system, including areas in Edmonds serviced by the City of Lynnwood, drains to the 36-inch interceptor line along 76th Avenue West and flows north to the wastewater treatment plant.

Treatment Processes

The City of Lynnwood Wastewater Treatment Plant liquid stream treatment process includes influent screening, grit removal, primary settling, the main lift station, biological treatment in aeration basin, secondary settling, and disinfection with gaseous chlorine. Primary sludge and waste activated sludge thicken in separate gravity thickeners. Operators use a centrifuge to mix and dewater thickened primary sludge and thickened waste activated sludge. Dewatered sludge is burned in a fluidized bed incinerator. A WWTP process schematic and WWTP layout are included in Appendix E.

The facility's primary source of wastewater is domestic sewage from residential and light commercial activities in the City of Lynnwood and a portion of the City of Edmonds.

The City of Lynnwood received approval of its pretreatment program on August 28, 1984. The City does not have any categorical industrial discharges or other significant industrial users (SIU). They do have a large quantity of small industrial and commercial facilities that have the potential to impact the wastewater collection and treatment systems. The facilities are surveyed and inspected regularly.

Discharge Outfall

The treated and disinfected effluent flows into Browns Bay through an outfall pipe and diffuser. The existing outfall pipe is 36-inch diameter High Density Polyethylene (HDPE) pipe. The outfall pipe includes a total of 850 lineal feet (LF); 750 LF offshore, and 100 LF onshore. The onshore portion leaves the chlorine contact tank and proceeds in a westerly direction for approximately 90 LF. It encounters the east manhole, passes under the Burlington Northern Railroad tracks, and encounters the west manhole prior to beach and continues offshore.

The offshore portion terminates at an elevation approximately -98 mean lower low water (MLLW) datum. From this point, 240 LF of 36-inch diameter diffuser section continues to an elevation of approximately -114 MLLW datum. The diffuser has 82 ports.

Residual Solids

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary and secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit is removed in a grit chamber and collector, then pumped to a dewatering screw conveyor,

and discharged into a sealed dumpster. A private contractor disposes of the dewatered grit. Scum removed from the primary clarifier is routed to the scum collection basin along with primary sludge from the gravity sludge thickener. Scum flows from the scum collection basin to the sludge blending tank. Secondary clarifier scum flows back to the headworks. Blended scum, primary sludge, and secondary sludge are dewatered in a centrifuge and incinerated in a fluidized bed incinerator. Ash from the incinerator is thickened and dewatered in a vacuum filter for final disposal to a landfill by a private contractor.

B. Permit Status

Ecology issued the previous permit for this facility on February 20, 2003. The previous permit placed effluent limits on 5-day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), pH, Chlorine and Fecal Coliform Bacteria.

The City of Lynnwood Wastewater Treatment Plant submitted an application for permit renewal on December 21, 2006. Ecology accepted it as complete on January 26, 2007.

The permit was extended on June 18, 2007.

C. Summary of Compliance with Previous Permit Issued

Ecology staff last conducted a sampling compliance inspection on November 27, 2007. The facility appeared to be in very good condition and operating well.

During the history of the NPDES permit issued on February 20, 2003, the Lynnwood Wastewater Treatment Plant has had one effluent Total Suspended Solids violation. Ecology did not consider it a serious violation and the city took the appropriate steps to address the violation. In addition, the facility had two Influent Flow warnings during the last permit cycle. Ecology warned the facility since it exceeded 85% of the rated design capacity. Table 1 below shows a summary of compliance during the permit cycle. Ecology's assessment of compliance is based on our review of the facility's Discharge Monitoring Reports (DMRs) and on inspections conducted by Ecology**.**

Table 2. Compliance Summary

Count of Violation from January 1, 2002 to March 13, 2008					
Monitoring Point	**Parameter**		**Unit**	**Number of Warnings**	**Number of Violations**
Influent	Flow	Monthly Average	MGD	1[a]	
Influent	Flow	Monthly Average	MGD	1[a]	
Effluent	TSS	Weekly Average	LBS/DAY		1[a]

[a] Warnings for flow, influent BOD, and influent TSS when reported value is greater than 85% of design.

D. Wastewater Characterization

The concentration of pollutants in the discharge was reported in the NPDES application and in Discharge Monitoring Reports. Appendix D provides the data reported on DMR's between Mar.-03 and Dec.-07. The facility's primary source of wastewater is domestic sewage from residential and light commercial activities in the City of Lynnwood and a portion of the City of Edmonds. As a result, the potential for toxic pollutants in the effluent is assumed very low. The effluent is characterized as follows:

Table 3. NPDES Application Data Summary

Parameter	Maximum Daily Value		Average Daily Value		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.5	Standard Units			
pH (Maximum)	7.1	Standard Units			
Flow Rate	12.9	mgd	4.49	mgd	365
Temperature (Winter)	19.6	°C	15.6	°C	181
Temperature (Summer)	23.0	°C	20.7	°C	184

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		
Conventional and Nonconventional Compounds							
$CBOD_5$	40	mg/L	12	mg/L	156	SM 5210	25/40
Fecal Coliform	2400	MPN	82	MPN	156	SM 9221E	200/400
Total Suspended Solids (TSS)	58	mg/L	16	mg/L	156	SM 2540D	30/45

NPDES Application B6.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		
Conventional and Nonconventional Compounds							
Chlorine (Total Residual, TRC)	790	µg/L	135	µg/L	365	MS 4500-Cl G	318/834
Dissolved Oxygen	9.9	mg/L	8.5	mg/L	365	SM 4500-0 G	--
Oil and Grease	1.0	mg/L	< 1	mg/L	4	EPA 1664	--

NPDES Permit Application D. Pollution Present in Detectable Levels.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		
Metals (Total Recoverable), Cyanide, Phenols, and Hardness							
Arsenic	.002	µg/L	.001	µg/L	4	EPA 200.9	.001
Chromium	.001	µg/L	<.001	µg/L	4	EPA 200.7	.001
Copper	.014	µg/L	.005	µg/L	4	EPA 200.7	.001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		
Lead	.001	µg/L	<.001	µg/L	4	EPA 239.2	.001
Selenium	.001	µg/L	<.001	µg/L	4	EPA 270.2	.001
Zinc	.053	µg/L	.045	µg/L	4	EPA 200.7	.001
Chloroform	2.3	µg/L	2	µg/L	3	EPA 624	1

Low level mercury test was completed by Lynnwood as a part of Ecology's request to complete low level mercury testing the results are as follows:

Sample Date	Mercury Conc. (ng/l)	Mercury Conc. Avg. (ng/l)
1/17/2007	9.39	12
7/11/2007	14.7	

III. PROPOSED PERMIT LIMITS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).

- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36).

- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application. Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, or do not have a reasonable potential to cause a water quality violation.

Nor does Ecology usually develop limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. If significant changes occur in any constituent of the effluent discharge, Lynnwood Wastewater Treatment Plant is required to notify Ecology (40 CFR 122.42(a)). Lynnwood Wastewater treatment Plant may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

A. Design Criteria

Under WAC 173-220-150 (1)(g), flows and waste loadings must not exceed approved design criteria. Ecology-approved design criteria for this facility's treatment plant were obtained from the City of Lynnwood Wastewater Treatment Engineering Report prepared by HDR Engineering, Inc. and approved by Ecology on April 19, 2005.

Table 4. Design Criteria for Lynnwood WWTP

Parameter	Design Quantity
Monthly average flow (maximum month)	7.4 MGD
BOD_5 influent loading	15,120 lb./day
TSS influent loading	15,120 lb./day

B. Technology-based Effluent Limits

Federal and state regulations define technology-based effluent limits for municipal wastewater treatment plants. These effluent limits are given in 40 CFR Part 133 (federal) and in chapter 173-221 WAC (state). These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment (AKART) for municipal wastewater.

Chapter 173-221 WAC lists the following technology-based limits for pH, fecal coliform, BOD_5, and TSS:

Table 5. Technology-based Limits.

Parameter	Limit
pH	Shall be within the range of 6.0 to 9.0 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
$CBOD_5$ (concentration)	Average Monthly Limit is the most stringent of the following: - 25 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 40 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
Chlorine	Average Monthly Limit = 0.5 mg/L (500 µg/L) Average Weekly Limit = 0.75 mg/L (750 µg/L)

The technology-based monthly average limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after fifteen minutes of contact time. See also Metcalf and Eddy, *Wastewater Engineering, Treatment, Disposal and Reuse*, Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/L chlorine limit on a monthly average basis. According to WAC 173-221-030(11)(b), the corresponding weekly average is 0.75 mg/L.

The existing permit has a water quality-based chlorine limit of 318 µg/L, monthly average and 834 µg/L daily maximum. Since the facility has demonstrated the ability to achieve this limit, the new permit will use this limit unless a more stringent limit is necessary for water quality protection.

The $CBOD_5$ limits shown above are used in place of BOD_5 limits according to WAC 173-221-050 (6).

The technology-based mass limits are based on WAC 173-220-130(3) (b) and 173-221-030 (11) (b).

Monthly effluent mass loadings for TSS (lbs/day) = maximum monthly design flow (7.4 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 1,851 lbs./day.

Monthly effluent mass loadings for CBOD (lbs/day) = maximum monthly design flow (7.4 MGD) x Concentration limit (25 mg/L) x 8.34 (conversion factor) = mass limit 1,543 lbs./day.

The weekly average effluent mass loading for both $CBOD_5$ (lb/day) = 7.4 MGD x 40mg/L x 8.34 (conversion factor) =2,469 lbs/day

The weekly average effluent mass loading for both TSS (lb/day) = 7.4 MGD x 45mg/L x 8.34 (conversion factor) = 2,777 lbs/day

C. Surface Water Quality-based Effluent Limits

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA 1992). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (WAC 173-201A) limit concentrations of toxic, radioactive, or deleterious material. Levels are set below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh and marine surface waters in the state of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

This facility must meet Tier I requirements.

- Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Ecology's analysis described in this section of the fact sheet demonstrates that the conditions of the proposed permit continue to protect the existing and designated uses of the receiving water.

Table 6. Demonstration of 'No Measurable Change' at edge of chronic mixing zone.

Parameter	Definition of 'Measurable Change' From Ambient Conditions*	Estimated Change at Edge of Chronic Mixing Zone
Temperature	Increase of 0.3°C or greater	0.00°C
Dissolved oxygen	Decrease of 0.2 mg/L or greater	
Bacteria level (fecal coliform)	Increase of 2 cfu/100 mL or greater	2 cfu/100 mL
pH	Change of 0.1 units or greater	Marine waters have high buffering capacity. No increase expected.
Turbidity	Increase of 0.5 NTU or greater	No increase expected.
Toxic or radioactive substances	Any detectable increase	No increase expected.

* As defined by Ecology, 2005: *Supplementary Guidance, Implementing the Tier II Antidegradation Rules*, page 6. Concentrations at Chronic Mixing Zone.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the diluting wastewater does not interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control and treatment (AKART). Mixing zones typically require compliance with water quality criteria within 200 to 300 feet from the point of discharge, and use no more than 25% of the available width of the water body for dilution. We use modeling to estimate the amount of mixing within the mixing zone. Through modeling we determine the potential for violating the water quality standards at the edge of the mixing zone and derive any necessary effluent limits. Steady-state models are the most frequently used tools

for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's *Permit Writer's Manual*). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent is 10% and the receiving water is 90% of the total volume of water at the boundary of the mixing zone. We use dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life **acute** criterion is based on the assumption that organisms are not exposed to that concentration for more than one hour and more often than one exposure in three years. Each aquatic life **chronic** criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

This permit authorizes a small acute mixing zone, surrounded by a chronic mixing zone around the point of discharge (WAC 173-201A-400). The water quality standards impose certain conditions before allowing the discharger a mixing zone:

1. **Ecology must specify both the allowed size and location in a permit.**

   The proposed permit specifies the size and location of the allowed mixing zone.

2. **The facility must fully apply "all known, available, and reasonable methods of prevention, control and treatment" (AKART) to its discharge.**

   Ecology has determined that the treatment provided at Lynnwood WWTP meets the requirements of AKART (see "Technology-based Limits").

3. Ecology must consider critical discharge conditions.

Surface water quality-based limits are derived for the waterbody's critical condition (the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or designated waterbody uses). The critical discharge condition is often pollutant-specific or waterbody-specific.

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents, and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology uses the water depth at mean lower low water (MLLW) for marine waters. Ecology's *Permit Writer's Manual* describes additional guidance on criteria/design conditions for determining dilution factors. The manual can be obtained from Ecology's website at: http://www.ecy.wa.gov/biblio/92109.html.

4. Supporting information must clearly indicate the mixing zone would not:

- Have a reasonable potential to cause the loss of sensitive or important habitat,
- Substantially interfere with the existing or characteristic uses,
- Result in damage to the ecosystem, or
- Adversely affect public health.

Ecology established Washington State water quality criteria for toxic chemicals using EPA criteria. EPA developed the criteria using toxicity tests with numerous organisms, and set the criteria to generally protect 95% of the species tested and to fully protect all commercially and recreationally important species.

EPA sets acute criteria for toxic chemicals assuming organisms are exposed to the pollutant at the criteria concentration for one hour. They set chronic standards assuming organisms are exposed to the pollutant at the criteria concentration for four days. Dilution modeling under critical conditions generally shows that both acute and chronic criteria concentrations are reached within minutes of being discharged.

The discharge plume does not impact drifting and non-strong swimming organisms because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could maintain a position within the plume, but they can also

avoid the discharge by swimming away. Mixing zones generally do not affect benthic organisms (bottom dwellers) because the buoyant plume rises in the water column. Ecology has additionally determined that the effluent will not exceed 33 degrees C for more than two seconds after discharge; and that the temperature of the water will not create lethal conditions or blockages to fish migration.

Ecology evaluates the cumulative toxicity of an effluent by testing the discharge with whole effluent toxicity (WET) testing.
Ecology reviewed the above information, the specific information on the characteristics of the discharge, the receiving water characteristics, and the discharge location. Based on this review, we conclude that the discharge does not have a reasonable potential to cause the loss of sensitive or important habitat, substantially interfere with existing or characteristics uses, result in damage to the ecosystem, or adversely affect public health.

5. The discharge/receiving water mixture must not exceed water quality criteria outside the boundary of a mixing zone.

Ecology conducted a reasonable potential analysis, using procedures established by the EPA and by Ecology, for each pollutant. We concluded the discharge/receiving water mixture will not violate water quality criteria outside the boundary of the mixing zone.

6. The size of the mixing zone and the concentrations of the pollutants must be minimized.

At any given time, the effluent plume uses only a portion of the acute and chronic mixing zone, which minimizes the volume of water involved in mixing. Because tidal currents change direction, the plume orientation within the mixing zone changes. The plume rises through the water column as it mixes, therefore, much of the receiving water volume at lower depths in the mixing zone is not mixed with discharge. Similarly, because the discharge may stop rising at some depth due to density stratification, waters above that depth will not mix with the discharge. Ecology determined it is impractical to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises and moves with the current.

Ecology minimizes the size of mixing zones by requiring dischargers to install diffusers when they are appropriate to the discharge and the specific receiving waterbody. When a diffuser is installed the discharge is more completely mixed with the receiving water in a shorter time. Ecology also minimizes the size of the mixing zone (in the form of the dilution factor) using design criteria with a low probability of occurrence. For example, Ecology uses the expected 95^{th} percentile pollutant concentration, the 90^{th} percentile background concentration, and the centerline dilution factor.

Because of the above reasons, Ecology has effectively minimized the size of the mixing zone authorized in the proposed permit.

7. Maximum size of mixing zone.

The authorized mixing zone does not exceed the maximum size restriction.

8. Acute Mixing Zone.

- **The discharge/receiving water mixture must comply with acute criteria as near to the point of discharge as practicably attainable.**
  We determined the acute criteria will be met at 10% of the distance of the chronic mixing zone at the MLLW.

- **The pollutant concentration, duration, and frequency of exposure to the discharge will not create a barrier to migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.**
  As described above, the toxicity of any pollutant depends upon the exposure, the pollutant concentration, and the time the organism is exposed to that concentration. Authorizing a limited acute mixing zone for this discharge assures that it will not create a barrier to migration. The effluent from this discharge will rise as it enters the receiving water, assuring that the rising effluent will not cause translocation of indigenous organisms near the point of discharge (below the rising effluent).

- **Comply with size restrictions.**
  The mixing zone authorized for this discharge complies with the size restrictions published in chapter 173-201A WAC.

9. Overlap of Mixing Zones.

This mixing zone does not overlap another mixing zone.

D. Description of the Receiving Water

Lynnwood WWTP discharges to Browns-Bay Puget Sound. Other nearby point source outfalls include the Picnic Point Wastewaster Treatment Plant, which discharges into Possession Sound in the central Puget Sound and Edmonds Wastewater Treatment Plant which also discharges into Possession Sound in the central; Puget Sound's significant nearby non-point sources of pollutants include stormwater runoff from the primarily residential area.

The ambient background data used for this permit used Ecology's ambient marine monitoring data of monitoring station PSS010 (available at http://www.ecy.wa.gov/programs/eap/mar_wat/mwm_intr.html):

Table 7. Ambient Background Data.

Parameter	Value Used
Temperature (highest annual 1-DADMax)	12.9^{o} C (95th Percentile)
pH Maximum/Minimum	7.6
Dissolved Oxygen	6.8 mg/L
Salinity	30 psu

E. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). Criteria applicable to this facility's discharge are summarized below in Table 8.

Table 8. Aquatic Life Uses & Associated Criteria

Extraordinary Quality	
Temperature Criteria – Highest 1D MAX	13°C (55.4°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	7.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.2 units.

- To protect **shellfish harvesting**, fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, and not have more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL.

- The **recreational uses** are primary contact recreation and secondary contact recreation.

The recreational uses for this receiving water are identified below.

Table 9. Recreational Uses.

Recreational Use	**Criteria**
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL.

- The **miscellaneous marine water uses** are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

F. Evaluation of Surface Water Quality-based Effluent Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants—their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

With technology-based controls (AKART), predicted pollutant concentrations in the discharge exceed water quality criteria. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones by chapter 173-201A WAC.

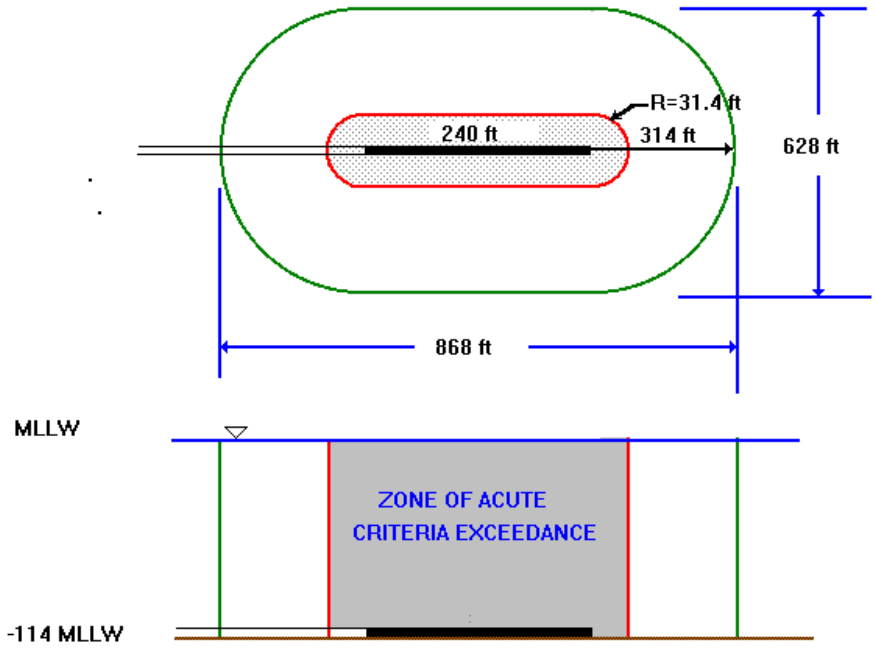
Chronic Mixing Zone

WAC 173-201A-400(7)(b) specifies that mixing zones must not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports as measured during MLLW.

The horizontal distance of the chronic mixing zone is 298 feet. The mixing zone extends from the seabed to the top of the water surface.

Acute Mixing Zone

WAC 173-201A-400(8)(b) specifies that in estuarine waters a zone where acute criteria may be exceeded must not extend beyond 10% of the distance established for the chronic zone. The acute mixing zone for Outfall 001 extends 31.4 feet in any direction from any discharge port.



The diffuser is 240 feet long. The diameter is 36 inches. The diffuser has a total of 80 ports. The ports are 4 feet apart. The depth is -122 feet. The MLLW depth and the diffuser is -114 feet.

Ecology determined the dilution factors that occur within these zones at the critical condition using Plumes Model. The dilution factors are listed in Table 10.

Table 10. Dilution Factors (DF)

Criteria	Acute	Chronic
Aquatic Life	64	186
Human Health, Carcinogen		186
Human Health, Non-carcinogen		186

Ecology determined the impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, nutrients, and other toxics as described below, using the dilution factors in the above table. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

BOD_5—with technology-based limits, this discharge results in a small amount of BOD loading relative to the large amount of dilution in the receiving water at critical conditions. Technology-based limits will ensure that dissolved oxygen criteria are met in the receiving water.

Temperature—the state temperature standards include multiple criteria, each with different durations of exposure and points of application. Ecology evaluates each criterion independently to determine reasonable potential and permit limits.

A conservative screening analysis can be performed with just effluent temperature data and the dilution factor to show that a reasonable potential clearly does not exist. No reasonable potential exists to exceed the temperature criterion where:

$$(\text{Criterion} + 0.3) > \text{Criterion} + (T_{effluent95} - \text{Criterion})$$
$$13+0.3 > 13 + [(18.6-13)/186]$$
$$13.3 > 13.03$$

This screening analysis must be performed with both the annual maximum and any supplementary spawning criterion.

- Temperature Chronic Effects

a) Annual summer maximum and supplementary spawning criteria.

The annual maximum temperature criteria (13°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures. Marine water criteria are expressed as the highest one-day annual maximum temperature (1-DMax).

b) Incremental warming criteria.

Some waters are naturally incapable of meeting their assigned threshold temperature criteria. At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

- Temperature Acute Effects

  a) Instantaneous lethality to passing fish.

  The upper 99th percentile daily maximum effluent temperature must not exceed 33°C, unless a dilution analysis indicates ambient temperatures will not exceed 33°C two seconds after discharge. The upper 99th percentile daily maximum effluent temperature prior to discharge is less than 33°C. Therefore, there is no instantaneous lethality for passing fish.

pH—Compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards of surface waters because of the high buffering capacity of marine water.

Fecal Coliform—Ecology modeled the numbers of fecal coliform by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 186.

Under critical conditions modeling predicts no violation of the water quality criterion for fecal coliform. Therefore, the proposed permit includes the technology-based effluent limitation for fecal coliform bacteria.

Toxic Pollutants—Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants are present in the discharge: chlorine, arsenic, chromium, copper, selenium and zinc. Ecology conducted a reasonable potential analysis (See Appendix C) to determine whether effluent limits for these pollutants would be required in this permit, using procedures given in EPA, 1991.

No valid ambient background data was available for list pollutants. Ecology found no reasonable potential to exceed the water quality criteria using zero for background. The proposed permit requires background concentrations near the point of discharge. This information may result in a permit modification or additional limits in the next permit cycle.

Ammonia's toxicity depends on that portion which is available in the unionized form. The amount of unionized ammonia depends on the temperature, pH, and salinity of the receiving marine water. Ecology did not evaluate ammonia toxicity as there was no available data in the NPDES Application for ammonia in the effluent. Lynnwood WWTP will monitor the final effluent for ammonia three times per year.

G. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

- *Acute toxicity tests measure mortality as the significant response* to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.

- *Chronic toxicity tests measure various sublethal toxic responses*, such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure survival.

Ecology-accredited WET testing laboratories use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff know how to calculate an NOEC, LC_{50}, $EC_{50,}$ IC_{25}, etc. Ecology gives all accredited labs the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* (http://www.ecy.wa.gov/biblio/9580.html) which is referenced in the permit. Ecology recommends that each regulated facility send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

Ecology-accredited WET testing laboratories use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff knows about WET testing and how to calculate an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. Ecology gives all accredited labs the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* (http://www.ecy.wa.gov/biblio/9580.html), which is referenced in the permit. Ecology recommends that Lynnwood WWTF send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water chronic toxicity. The proposed permit will not impose a chronic WET limit. Lynnwood WWTP must retest the effluent before submitting an application for permit renewal.

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization.

- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. Lynnwood WWTP may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing after the process or material changes have been made.

H. Human Health

Washington’s water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the effluent contains chloroform which is of concern for human health, based on data or information indicating regulated chemicals occurs in the discharge.

Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d). We followed the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and Ecology's *Permit Writer's Manual* to make a reasonable potential determination. Our evaluation showed that the discharge has no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed.

I. Sediment Quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards, Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400).

Ecology determined that this discharge has potential to cause a violation of the sediment quality standards because of the size of the facility. Ecology recommends baseline sediment testing for all facilities greater than 1 MGD. The proposed permit includes a condition requiring Lynnwood Wastewater Treatment Plant to demonstrate either:

- The point of discharge is not an area of deposition; or
- Toxics do not accumulate in the sediments even though the point of discharge is a depositional area.

J. Ground Water Quality Limits

The ground water quality standards (chapter 173-200 WAC) protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100). The Lynnwood Wastewater Treatment Plant has no discharge to ground and therefore no permit limitations are required to protect the ground water.

K. Comparison of Effluent Limits with the Previous Permit Issued on February 20, 2003.

Table 11. Comparison of Effluent Limits.

	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
Parameter		**Average Monthly**	**Average Weekly**	**Average Monthly**	**Average Weekly**
Carbonaceous Biochemical Oxygen Demand (5-day)	Technology	25 mg/L, 1543 lbs/day	40 mg/L, 2469 lbs/day	25 mg/L, 1543 lbs/day	40 mg/L, 2469 lbs/day
Total Suspended Solids	Technology	30 mg/L, 1851 lbs/day	45 mg/L, 2777 lbs/day	30 mg/L, 1851 lbs/day	45mg/L, 2777 lbs/day
Fecal Coliform Bacteria	Technology	200/100 mL	400/100 mL	200 mL	400/100 mL
pH	Technology	Shall not be outside the range of 6.0to 9.0		Shall not be outside the range of 6.0 to 9.0	
	Basis of Limit	**Previous Effluent Limits: Outfall # 001**		**Proposed Effluent Limits: Outfall # 001**	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Total Residual Chlorine	Water Quality	318 µg/L	834 µg/L	318 µg/L	834 µg/L

There are no changes to the permit limits from the permit issued on February 20, 2003.

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the discharge complies with the permit's effluent limits.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for activated sludge treatment plant.

A. Lab Accreditation

Ecology requires that all monitoring data (with the exception of certain parameters) must be prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* Ecology accredited the laboratory at this facility for CBOD, BOD, TSS, DO, pH, fecal coliform and residual chlorine.

V. OTHER PERMIT CONDITIONS

A. Reporting and Record Keeping

Ecology based permit condition S3 on our authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Prevention of Facility Overloading

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

C. Operation and Maintenance (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

Inflow and Infiltration (I&I) Study

Significant portions of the collection system are over thirty years old, were constructed using techniques such as concrete pipes with oakum packing and/or have numerous manholes which were not installed using modern materials. Leaks are anticipated to be present in

significant quantities or in sensitive locations. Due to the age and construction methods employed during installation of the collection system, leaks are expected to be present. The permit will require the collection system to be characterized for the presence of leaks:

- How much of the annual average and peak daily flow under worst conditions (inflow or infiltration) can be attributed to leaks?
- Where are the (individual) leaks?
- How large is each leak or how much inflow or infiltration does a run of sewer contribute?
- Are the force mains and/or inverted siphons experiencing exfiltration?

Three good references to aid in these tasks are: 1) American Society of Civil Engineers and Water Environment Federation Manual of Practice FD-6. *Existing Sewer Evaluation and Rehabilitation;* 2) U.S. Environmental Protection Agency. *Handbook for Sewer System Infrastructure Analysis and Rehabilitation.* EPA/625/6-91/030. 1991; and 3) Washington State Department of Transportation. *Standard Specifications for Road, Bridge, and Municipal Construction*. 2002.

Following characterization of the leaks, Ecology may require corrective actions by issuing an administrative order following review of the assessment.

D. Pretreatment

To provide more direct and effective control of pollutants, Ecology has delegated permitting, monitoring, and enforcement authority to the City of Lynnwood for industrial users discharging to their treatment system. Ecology oversees the delegated Industrial Pretreatment Program to assure compliance with federal pretreatment regulations (40 CFR Part 403) and categorical standards and state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC).

E. Residual Solids Handling

To prevent water quality problems, the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under chapter 70.95J RCW, chapter 173-308 WAC "Biosolids Management," and chapter 173-350 WAC "Solid Waste Handling Standards." The disposal of other solid waste is under the jurisdiction of the Snohomish County Health Department.

F. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

The proposed permit requires this facility to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

G. Outfall Evaluation

The proposed permit requires Lynnwood Wastewater Treatment Facility to conduct an outfall inspection and submits a report detailing the findings of that inspection (Condition S14). The report may include photos and / or video on DVD of the inspection. The inspection must evaluate the physical condition of the discharge pipe and diffusers, and evaluate the extent of sediment accumulations in the vicinity of the outfall.

H. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual municipal NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary, to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground waters, based on new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit meets all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of five (5) years.

VII. REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

2006. Permit Writer's Manual. Publication No. 92-109 (http://www.ecy.wa.gov/biblio/92109.html)

Laws and Regulations (http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/wastewater/index.html)

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

VIII. APPENDICES

APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to the Lynnwood Wastewater Treatment Facility limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application (PNOA) on February 1, 2007, and February 8, 2007, in *The Everett Herald* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology placed a Public Notice of Draft (PNOD) on May 23, 2008, and May 30, 2008, in *The Everett Herald* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The Notice –

- Tells where copies of the draft permit and fact sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website.).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Tells how to request a public hearing of comments about the proposed NPDES Permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at http://www.ecy.wa.gov/biblio/0307023.html.

You may obtain further information from Ecology by telephone, 425-649-7201, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008

The primary author of this permit and fact sheet is Bernard Jones, P.E.

APPENDIX B—GLOSSARY

Acute Toxicity—The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART—An acronym for "all known, available, and reasonable methods of prevention, control and treatment."

Ambient Water Quality—The existing environmental condition of the water in a receiving water body.

Ammonia—Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation—The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass—The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity—The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity—Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous Monitoring—Uninterrupted, unless otherwise noted in the permit.

Critical Condition—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor (DF)—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample—A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)—The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Minor Facility—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone—An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/state permits issued under both state and federal laws.

pH—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)—A calculated value five times the MDL (method detection level).

Responsible Corporate Officer—A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)—Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to receiving waters may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

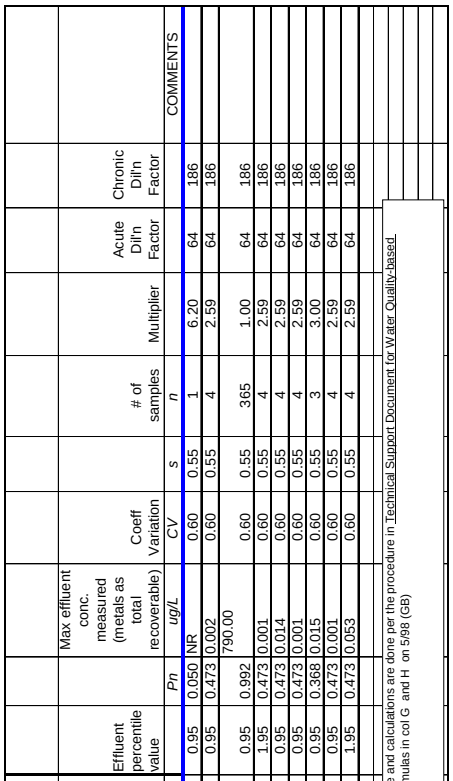
Upset—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit—A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving waters.

APPENDIX C—TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on Ecology's homepage at http://www.ecy.wa.gov.

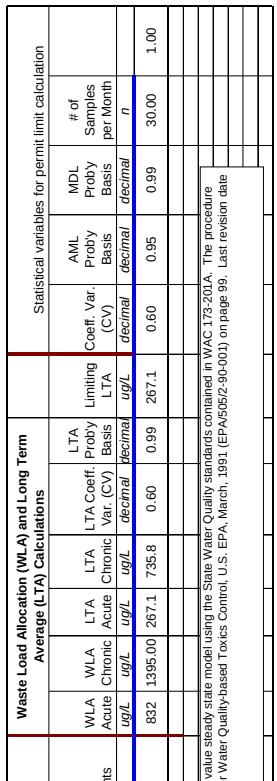
Reasonable Potential to Exceed WQS



Parameter	Metal Criteria Translator as decimal Acute	Metal Criteria Translator as decimal Chronic	Ambient Concentration (metals as dissolved)	State Water Quality Standard Acute	State Water Quality Standard Chronic	Max concentration at edge of... Acute Mixing Zone	Max concentration at edge of... Chronic Mixing Zone	LIMIT REQ'D ?	Effluent percentile value	Max effluent conc. measured (metals as total recoverable)	Coeff Variation	# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	COMMENTS
			ug/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*		*Pn*	*ug/L*	*CV*	*n*				
AMMONIA								NO	0.95	0.050	0.60	1	6.20	64	186	
ARSENIC (dissolved)	1.00			69	36	0.0001	0.0000	NO	0.95	0.473	0.002	4	2.59	64	186	
CHLORINE (Total Residual)				13	7.50	12.3438	4.2473	NO	0.95	0.992	790.00					
CHROMIUM(HEX)	0.993	0.993		1100	50	0.0000	0.0000	NO	1.95	0.473	0.001	4	2.59	64	186	
COPPER	0.83	0.83		4.80	3.10	0.0005	0.0002	NO	0.95	0.473	0.014	4	2.59	64	186	
LEAD	0.951	0.95		210.00	8.10	0.0000	0.0000	NO	0.95	0.473	0.001	4	2.59	64	186	
MERCURY	0.85			1.80	0.0250	0.0006	0.0002	NO	0.95	0.368	0.015	3	3.00	64	186	
SELENIUM				290	71	0.0000	0.0000	NO	0.95	0.473	0.001	4	2.59	64	186	
ZINC	0.946	0.946		90.00	81.00	0.0020	0.0007	NO	1.95	0.473	0.053	4	2.59	64	186	

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

WQ-based Limit



Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.

Permit Limit Calculation Summary

PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator or Acute	Metal Criteria Translator or Chronic	Ambient Concentration	Water Quality Standard Acute	Water Quality Standard Chronic	Average Monthly Limit (AML)	Maximum Daily Limit (MDL)	Comments
		→			*ug/L*	*ug/L*	*ug/L*	ug/L	ug/L	
CHLORINE (Total Residual)	64	186				13	7.50	**317.8**	**832.0**	

This spreadsheet calculates water quality based permit limits based on the two value steady state model using the State Water Quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 99. Last revision date 9/98. Written by G. Shervey

Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations

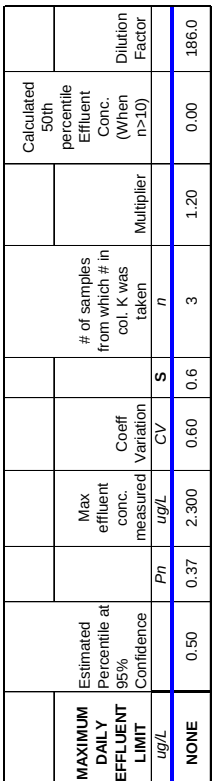
	WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	LTA Coeff. Var. (CV)	LTA Prob'y Basis	Limiting LTA
	ug/L	*ug/L*	*ug/L*	*ug/L*	*decimal*	*decimal*	*ug/L*
	832	1395.00	267.1	735.8	0.60	0.99	267.1

Statistical variables for permit limit calculation

	Coeff. Var. (CV)	AML Prob'y Basis	MDL Prob'y Basis	# of Samples per Month
	decimal	*decimal*	*decimal*	*n*
	0.60	0.95	0.99	30.00

Dilution Factor: 1.00

Human Health



Parameter	Ambient Concentration (Geometric Mean)	Water Quality Criteria for Protection of Human Health	Max concentration at edge of chronic mixing zone.	LIMIT REQ'D?	Expected Number of Compliance Samples per Month	AVERAGE MONTHLY EFFLUENT LIMIT	MAXIMUM DAILY EFFLUENT LIMIT	Estimated Percentile at 95% Confidence	Max effluent conc. measured	Coeff Variation	# of samples from which # in col. K was taken	Multiplier	Calculated 50th percentile Effluent Conc. (When n>10)	Dilution Factor
	ug/L	*ug/L*	*ug/L*			*ug/L*	*ug/L*		*Pn*	*CV*	*n*			
CHLOROFORM	0.00	0.30	0.01	**NO**	**2**	**NONE**	**NONE**	0.50	0.37	0.60	3	1.20	0.00	186.0

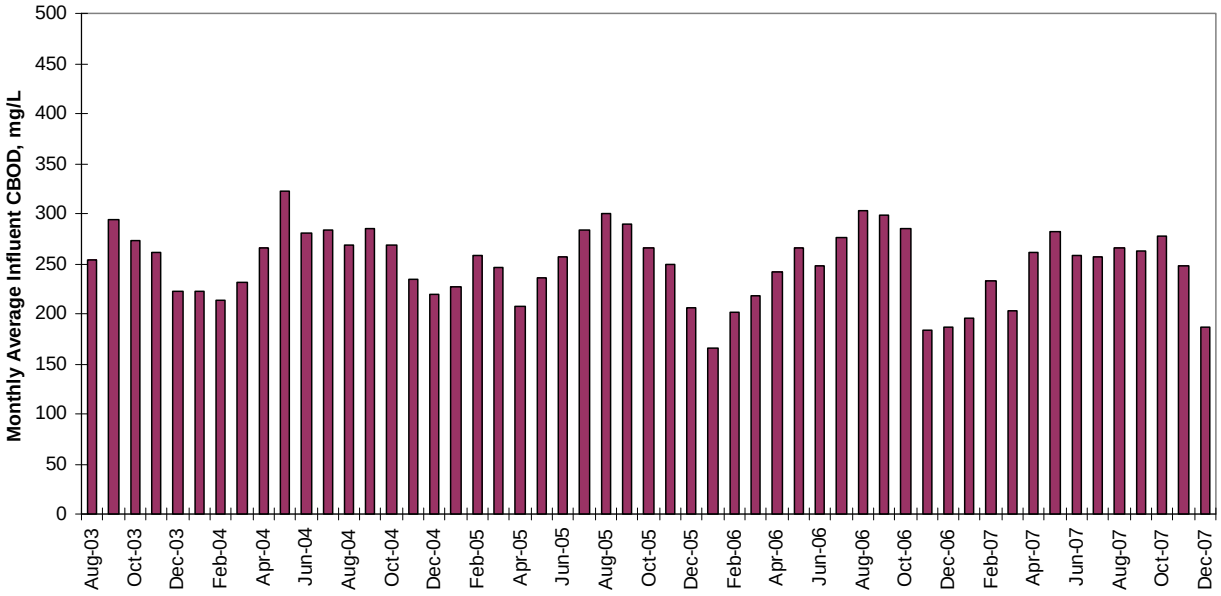
APPENDIX D—DMR DATA

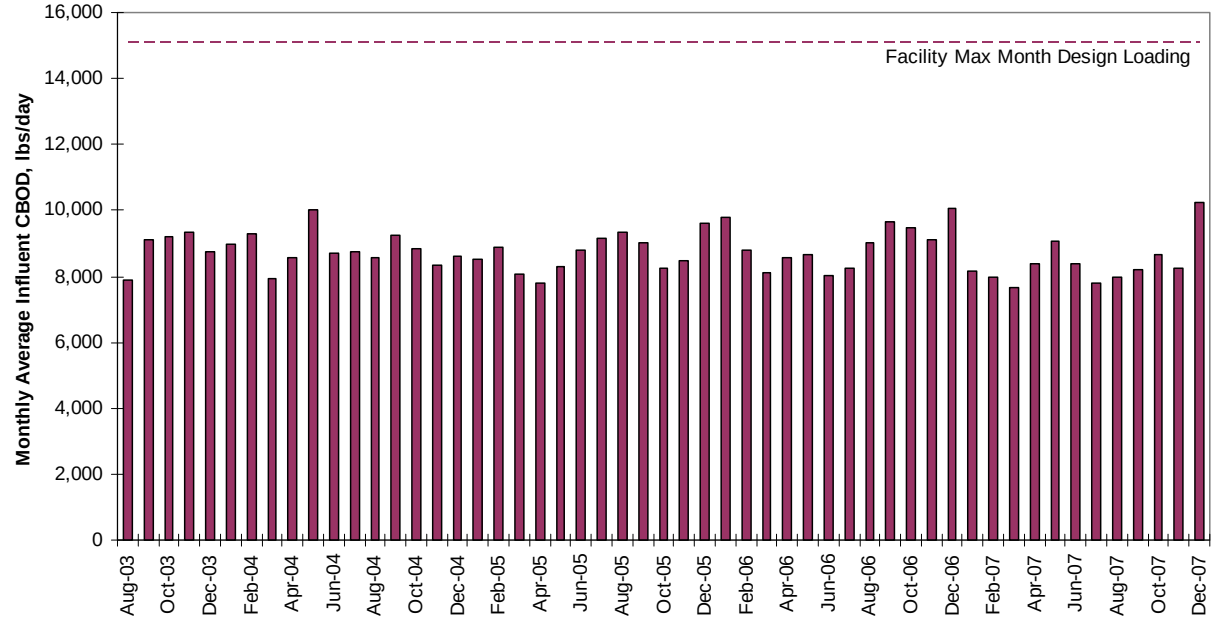
	Influent													
	Flow, MGD	Flow, MGD	BOD, mg/L	BOD, mg/L	BOD, ppd	BOD, ppd	CBOD, mg/L	CBOD, mg/L	CBOD, ppd	CBOD, ppd	TSS, mg/L	TSS, mg/L	TSS, ppd	TSS, ppd
Date	Ave	Max	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave
1-Mar-03	4.81	7.96	226	280	8,504	9389	215	260	8107	9389	184	208	6979	7986
1-Apr-03	4.20	4.64	246	280	8,805	9714	232	270	8252	9165	213	277	7588	9402
1-May-03	3.81	4.37	268	320	8,685	9958	251	280	8216	9294	233	273	7578	8796
1-Jun-03	3.65	4.22	272	320	8,294	9661	249	280	7604	8453	259	278	7921	8532
1-Jul-03	3.61	4.29	276	330	8,329	9715	259	320	7692	8570	262	292	7918	8787
1-Aug-03	3.66	4.29	253	300	7,897	9107	239	270	7478	8229	254	280	7941	8802
1-Sep-03	3.70	4.07	294	400	9,096	12076	280	380	8569	11473	259	283	8071	8791
1-Oct-03	4.20	12.00	273	330	9,207	10541	268	370	8933	12251	237	307	7919	9806
1-Nov-03	4.77	11.50	261	290	9,350	10495	239	290	9227	12468	208	238	8075	11989
1-Dec-03	4.69	6.05	223	250	8,735	9624	222	250	8695	9624	189	220	7355	8277
1-Jan-04	5.43	10.94	223	260	8,956	10257	210	240	8382	9651	172	206	6853	7545
1-Feb-04	4.97	7.08	214	260	9,290	10680	201	240	8753	10118	178	214	7805	9790
1-Mar-04	4.11	4.67	232	270	7,942	9028	217	260	7326	8782	201	241	6870	7361
1-Apr-04	3.78	4.29	265	300	8,586	9858	252	310	8066	9201	226	261	7237	8576
1-May-04	3.74	4.10	323	420	10,034	13065	313	410	9797	12754	253	298	7934	9718
1-Jun-04	3.70	4.29	281	320	8,700	9875	269	320	8182	9341	241	264	7466	8346
1-Jul-04	3.64	4.05	284	360	8,730	11529	276	350	8501	11209	269	317	8326	10152
1-Aug-04	3.83	4.33	269	300	8,547	9390	249	280	7863	904	276	299	8751	9912
1-Sep-04	3.87	4.29	285	340	9,257	11314	238	260	7699	8652	258	287	8370	9550
1-Oct-04	3.97	4.56	268	300	8,852	10734	243	280	8026	10018	248	301	8152	9553
1-Nov-04	4.14	5.53	235	270	8,342	10889	220	250	7597	8478	218	273	7755	12386
1-Dec-04	4.85	7.84	219	260	8,590	10088	206	260	8173	9801	195	233	7782	9794
1-Jan-05	4.37	5.63	227	260	8,505	10191	214	240	8029	9408	196	222	7357	8968
1-Feb-05	4.07	5.06	258	360	8,865	12700	243	300	8354	10583	213	346	7333	12206
1-Mar-05	3.97	6.09	247	290	8,085	9481	236	280	7698	9154	217	264	7083	8367
1-Apr-05	4.60	7.12	208	240	7,780	10300	190	210	7122	9758	188	222	7021	9019
1-May-05	4.22	5.99	236	270	8,290	13488	220	260	7617	11990	223	249	7743	11640
1-Jun-05	4.15	4.74	257	280	8,788	9390	232	270	7923	8760	229	249	7839	8416
1-Jul-05	3.87	4.29	283	430	9,155	14309	256	300	8270	10734	267	416	8629	13843
1-Aug-05	3.75	4.14	300	340	9,354	10917	260	320	8088	10275	274	323	8519	9967
1-Sep-05	3.75	4.03	289	360	9,028	11499	247	320	7700	10222	264	316	8246	10094
1-Oct-05	3.78	4.35	266	370	8,227	11911	210	250	6544	8715	237	285	7365	9175
1-Nov-05	4.17	5.46	249	290	8,468	10876	222	260	7591	9265	203	235	6939	8701
1-Dec-05	5.15	8.05	206	260	9,619	12756	208	250	8433	11030	188	239	7706	10059
1-Jan-06	7.32	12.87	165	230	9,784	16120	146	220	9167	15112	135	171	8544	14709
1-Feb-06	5.62	9.94	201	240	8,813	12930	188	220	8162	12170	164	195	7080	9203
1-Mar-06	4.45	5.45	218	290	8,098	11029	207	260	7507	9888	184	203	6689	7887
1-Apr-06	4.50	11.43	242	270	8,586	10083	219	250	7659	8920	200	226	6980	7973
1-May-06	3.88	4.46	265	340	8,671	10492	231	260	7591	9671	223	286	7273	8825
1-Jun-06	3.83	4.71	248	300	8,026	9820	235	280	7652	9428	225	246	7292	8210
1-Jul-06	3.58	3.93	276	340	8,252	10634	254	310	7587	9695	235	252	7039	7713
1-Aug-06	3.62	4.25	303	340	9,029	9811	289	350	8736	10713	244	266	7392	7839
1-Sep-06	3.84	7.02	298	430	9,646	14165	256	300	8290	12096	243	316	7844	10410
1-Oct-06	3.88	6.33	285	340	9,485	16894	259	320	8614	15310	233	294	7715	12934
1-Nov-06	5.67	8.51	183	260	9,123	11559	168	210	8196	10917	168	255	8233	10596
1-Dec-06	6.75	14.66	186	280	10,049	15897	181	260	9618	14674	156	188	8372	14674
1-Jan-07	5.09	8.38	195	250	8,140	11881	192	240	8047	11182	168	195	7049	10483
1-Feb-07	4.06	4.78	233	260	7,989	9693	228	260	7783	9320	205	227	6992	7829
1-Mar-07	4.51	5.22	203	240	7,644	8967	195	230	7364	8709	183	203	6919	8059
1-Apr-07	3.85	4.45	261	300	8,400	11134	251	300	8079	11134	214	237	6887	7758
1-May-07	3.81	4.32	282	340	9,087	10885	277	330	8930	11236	248	274	8008	9059
1-Jun-07	3.91	6.16	258	300	8,372	9908	244	280	7908	9277	258	300	8347	9858
1-Jul-07	3.66	4.06	256	290	7,809	9215	243	300	7395	9107	258	319	7871	9711
1-Aug-07	3.57	3.95	266	300	7,972	9683	253	290	7601	9360	256	290	7649	8876
1-Sep-07	3.64	4.21	263	310	8,217	10600	244	280	7614	9574	282	328	8764	10156
1-Oct-07	3.73	4.17	277	450	8,678	12685	240	400	7525	11276	258	338	8090	10627
1-Nov-07	3.87	4.74	248	310	8,244	10471	228	290	7586	9795	242	286	8019	9422
1-Dec-07	6.01	19.27	186	230	10,238	21948	192	290	9407	21948	176	224	8874	25727
AVE:	4.27	6.23	250	306	8,711	11229					222	264	7696	9877
MIN:	3.57	3.93	165	230	7,644	8967					135	171	6689	7361
MAX:	7.32	19.27	323	450	10,238	21948					282	416	8874	25727
LIMIT:	6.29				12,835								12835	
DESIGN:	7.40				15,100								15100	

	Effluent															
	CBOD, mg/L	CBOD, mg/L	CBOD, ppd	CBOD, ppd	CBOD, % Removal	TSS, mg/L	TSS, mg/L	TSS, ppd	TSS, ppd	TSS, % Removal	PH	PH	Fecal Coliform, #/100 ml	Fecal Coliform, #/100 ml	Chlorine, ug/L	Chlorine, ug/L
Date	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Ave	Mnthly Ave	Wkly Ave	Mnthly Ave	Wkly Ave	Ave	Min	Max	GEM	GM7	Mnthly Ave	Mnthly Max
1-Mar-03	8	8	303	334	96	12	13	461	555	93.4	6.4	6.9	21	33	110	530
1-Apr-03	12	17	430	557	95	17	22	609	735	91.9	6.5	7.0	11	26	236	770
1-May-03	10	15	336	486	96	16	24	521	761	93.2	6.8	7.0	13	19	200	800
1-Jun-03	12	13	364	409	95	18	20	558	614	92.9	6.8	7.0	154	358	145	630
1-Jul-03	9	12	262	338	97	13	19	404	550	94.8	6.9	7.2	54	249	105	600
1-Aug-03	9	11	268	330	96	14	17	434	537	94.5	6.9	7.2	29	52	67	610
1-Sep-03	10	11	321	352	96	13	17	406	542	95	6.8	7.1	51	179	125	630
1-Oct-03	11	11	363	388	96	17	18	572	695	92.5	6.3	7.1	13	20	132	700
1-Nov-03	7	9	297	438	97	14	17	584	907	93	6.2	7.0	26	38	150	790
1-Dec-03	9	11	367	432	96	15	19	584	832	92.1	6.2	6.8	43	79	93	460
1-Jan-04	8	12	341	515	96	14	20	572	862	91.7	6.3	7.0	23	38	186	800
1-Feb-04	12	15	517	642	94	15	19	669	815	91.4	6.6	7.0	76	113	166	630
1-Mar-04	7	7	228	261	97	11	14	378	447	94.5	6.6	6.8	70	347	81	500
1-Apr-04	12	21	374	642	96	18	26	582	817	92	6.6	7.1	46	73	136	550
1-May-04	13	15	414	472	96	24	25	742	813	90.5	6.4	6.9	37	195	101	440
1-Jun-04	14	16	440	486	95	21	28	666	849	90.9	6.4	7.0	38	134	163	680
1-Jul-04	9	12	287	368	97	12	14	377	439	95.5	6.8	7.2	52	151	177	760
1-Aug-04	11	15	346	488	96	14	19	448	617	94.8	6.8	7.2	64	208	186	700
1-Sep-04	13	15	406	490	95	19	22	623	707	92.6	6.7	7.0	85	347	69	610
1-Oct-04	10	12	339	397	96	14	15	460	496	94.3	6.7	7.0	162	376	178	720
1-Nov-04	10	12	344	432	96	17	26	622	909	92	6.6	6.9	47	115	178	700
1-Dec-04	8	11	336	429	96	14	21	564	832	92.7	6.5	6.9	22	48	94	620
1-Jan-05	9	12	359	437	96	14	17	547	652	92.6	6.6	6.9	106	243	149	800
1-Feb-05	8	8	267	320	97	12	16	430	532	94	6.6	6.9	34	80	173	790
1-Mar-05	7	9	242	314	97	12	12	389	452	94.5	6.7	7.0	38	114	149	600
1-Apr-05	9	12	356	453	95	14	19	530	732	92.6	6.6	7.0	89	285	219	800
1-May-05	10	18	388	789	95	19	39	727	1733	91.4	6.7	7.0	78	140	190	810
1-Jun-05	13	16	431	536	95	20	23	688	760	91.2	6.2	7.0	75	130	150	610
1-Jul-05	9	11	295	342	96	17	18	537	581	93.6	6.8	6.9	94	275	94	790
1-Aug-05	12	14	364	429	95	17	19	540	571	93.6	6.7	6.9	39	190	200	780
1-Sep-05	13	15	409	455	95	17	18	522	561	93.6	6.8	7.0	85	171	136	580
1-Oct-05	11	12	350	371	95	17	19	534	613	92.7	6.8	7.0	93	112	78	770
1-Nov-05	11	12	366	413	95	16	18	561	615	91.8	6.8	6.9	63	141	165	770
1-Dec-05	10	14	473	927	95	14	21	667	1409	91.6	6.5	6.9	37	165	171	740
1-Jan-06	14	18	920	1576	90	19	26	1259	2253	85.3	6.5	6.8	91	222	74	660
1-Feb-06	14	16	608	779	93	16	18	702	826	90.7	6.5	7.0	11	21	173	680
1-Mar-06	12	13	423	482	94	14	16	520	580	92.2	6.6	6.8	67	246	90	580
1-Apr-06	9	11	300	402	96	11	14	389	483	94.4	6.7	6.9	54	92	177	600
1-May-06	7	8	234	266	97	11	14	354	453	95.2	6.6	6.9	68	376	120	670
1-Jun-06	10	11	314	346	96	15	16	488	526	93.2	6.6	7.0	197	297	172	640
1-Jul-06	11	14	318	388	96	19	28	558	806	92	6.8	7.1	91	309	124	790
1-Aug-06	13	15	392	467	96	18	28	545	720	93	6.6	7.0	57	259	133	760
1-Sep-06	15	19	490	685	94	21	24	683	870	91.3	6.8	7.0	188	359	104	720
1-Oct-06	14	20	515	912	95	20	30	697	1337	91.4	6.8	7.1	57	184	112	560
1-Nov-06	8	9	390	457	95	12	13	600	645	92.8	6.6	7.0	81	142	233	710
1-Dec-06	10	15	746	1330	93	18	27	1335	2478	86.4	6.4	6.9	27	172	191	640
1-Jan-07	10	15	449	792	95	18	29	851	1630	89	6.6	6.8	32	51	212	790
1-Feb-07	8	9	256	292	97	15	16	512	538	92.6	6.7	6.8	54	111	60	420
1-Mar-07	8	8	287	312	96	15	19	579	675	91.4	6.5	6.9	29	165	137	650
1-Apr-07	10	10	321	331	96	16	18	526	597	92.3	6.6	6.9	79	128	71	350
1-May-07	10	10	312	356	97	12	14	400	464	95	6.7	7.1	60	373	202	780
1-Jun-07	8	12	264	405	97	14	16	431	524	94.7	6.8	7.1	31	141	68	300
1-Jul-07	7	9	211	265	97	13	15	384	474	95.1	6.7	7.1	72	295	101	700
1-Aug-07	10	10	292	312	96	13	14	393	423	94.8	6.7	7.0	67	278	135	560
1-Sep-07	10	10	307	330	96	11	11	341	368	96.1	6.7	7.0	82	190	106	720
1-Oct-07	11	12	334	388	96	13	16	411	523	94.9	6.7	7.0	61	249	126	680
1-Nov-07	12	14	392	479	95	15	19	513	633	93.6	6.6	7.2	147	251	179	820
1-Dec-07	12	18	924	2142	93	17	29	1342	3137	89.9	6.4	6.8	11	53	166	700
AVE:	10	13	379	517	95	15	20	575	802	93	6.6	7.0	63	176	142	665
MIN:	7	7	211	261	90	11	11	341	368	85	6.2	6.8	11	19	60	300
MAX:	15	21	924	2142	97	24	39	1342	3137	96	6.9	7.2	197	376	236	820
LIMIT:	25	40	1543	2469	85	30	45	1851	2777	85	6.0	9.0	200	400	318	834
DESIGN:																

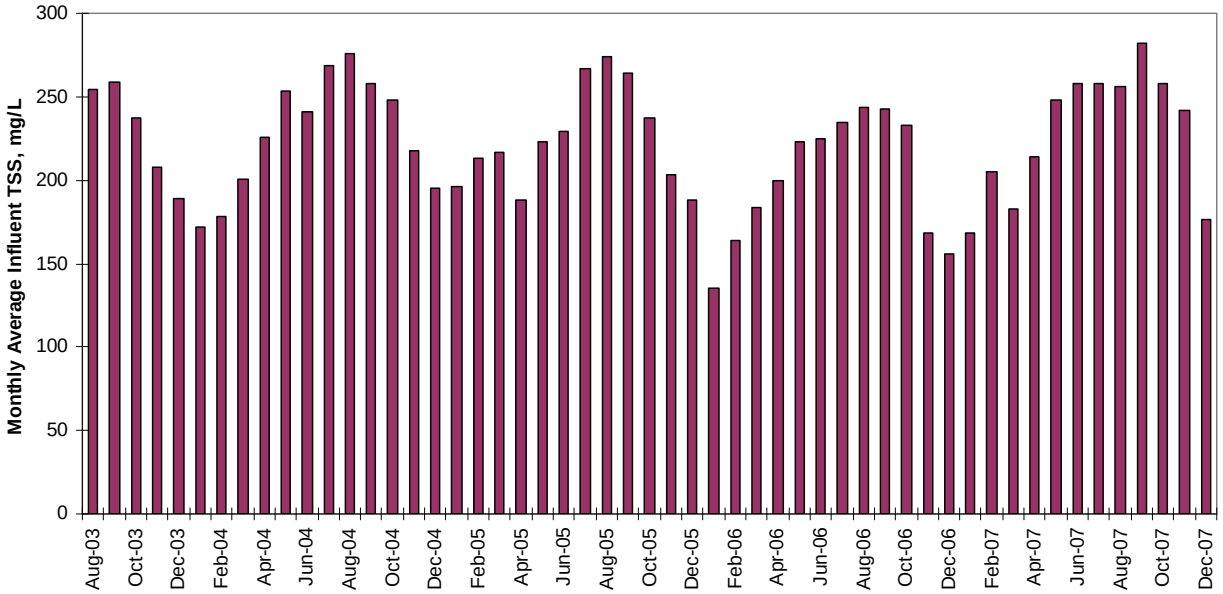
exceeds permit limits

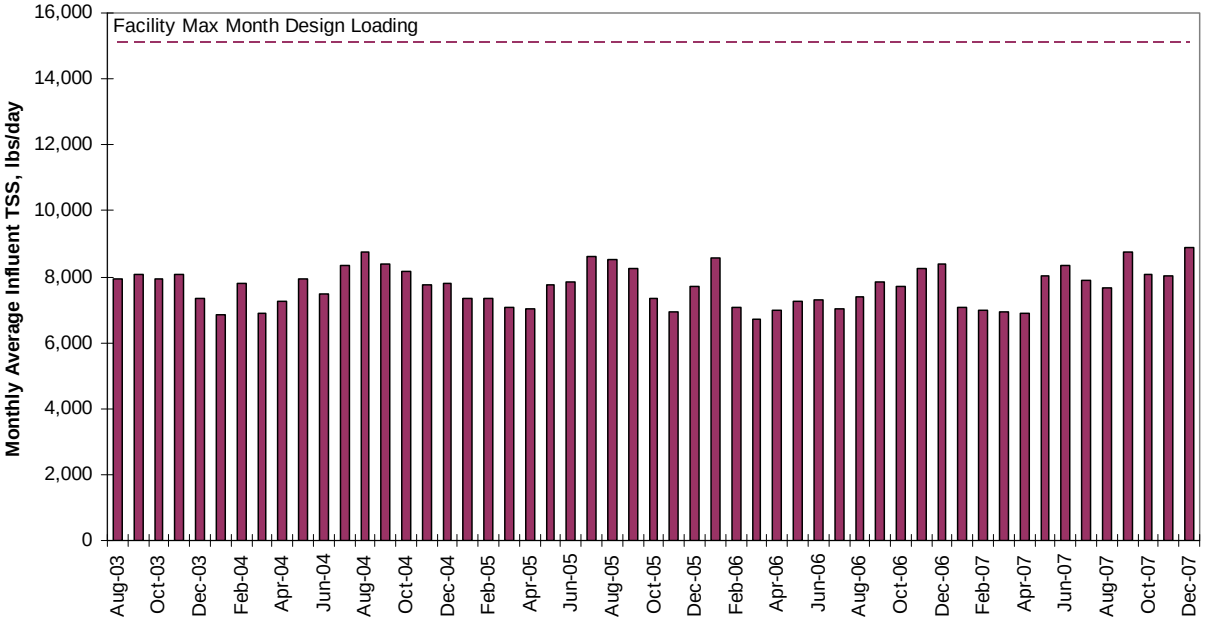
APPENDIX D—DMR DATA (continued)



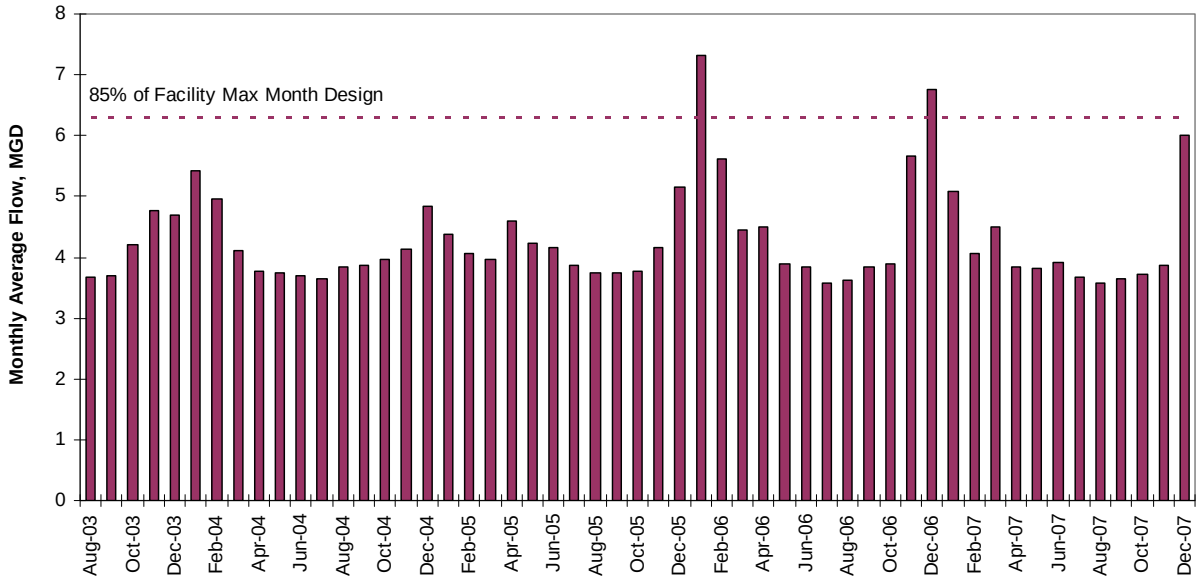


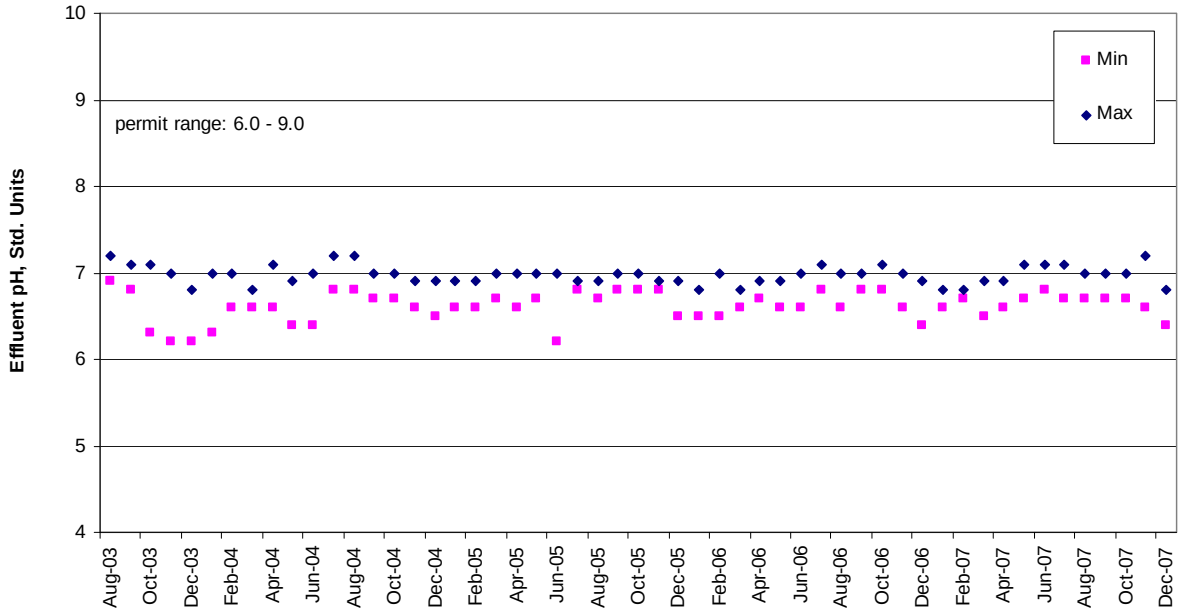
APPENDIX D—DMR DATA (continued)

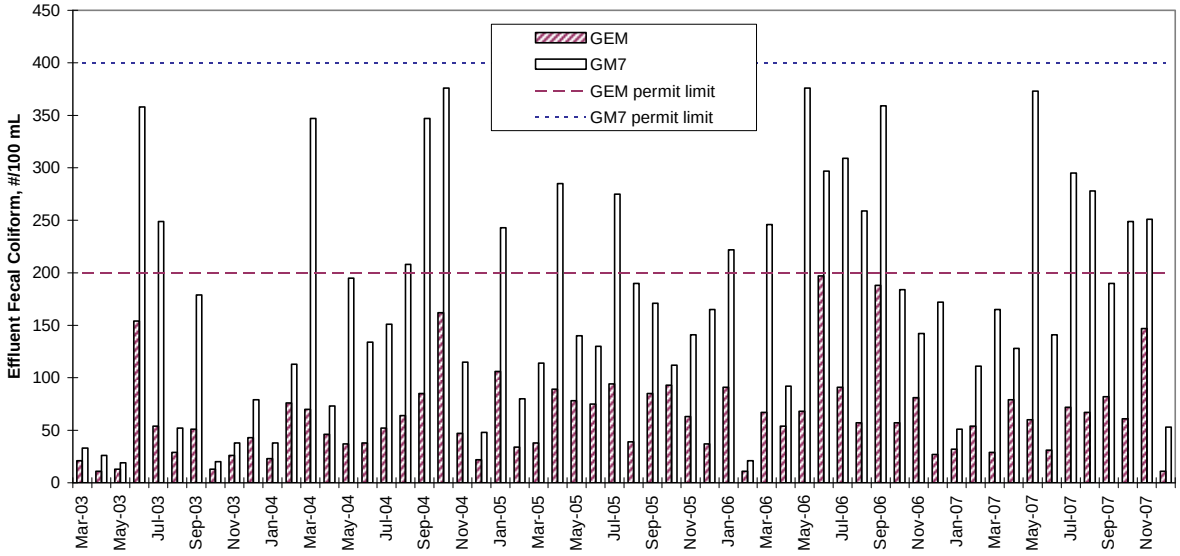


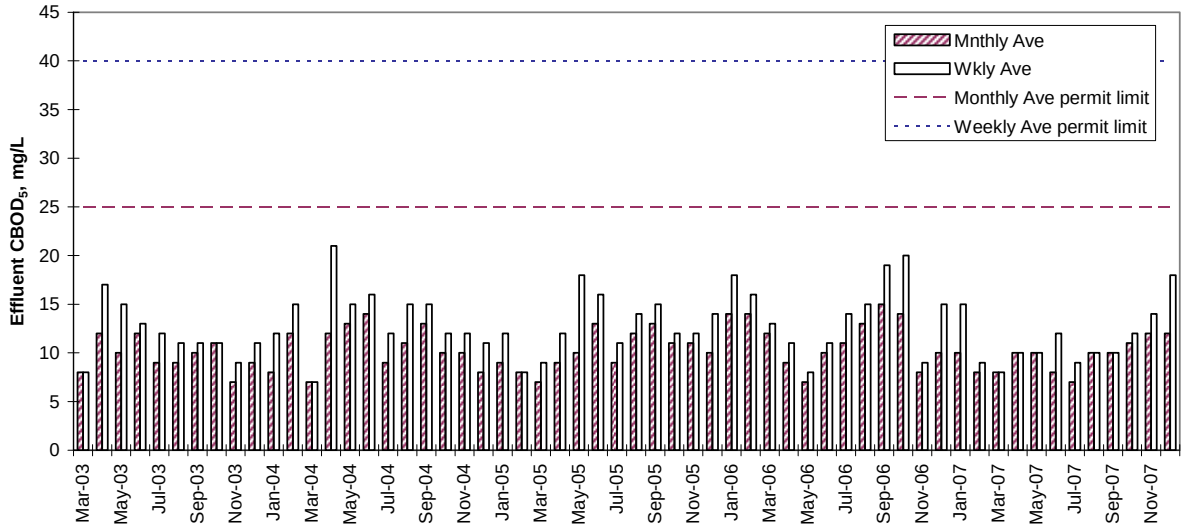


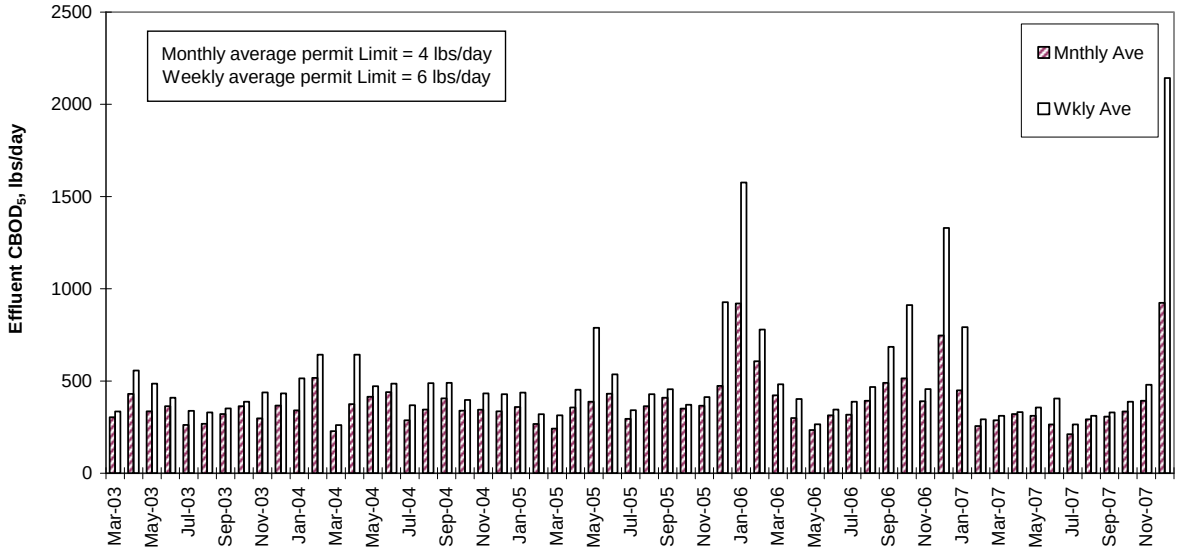
APPENDIX D—DMR DATA (continued)

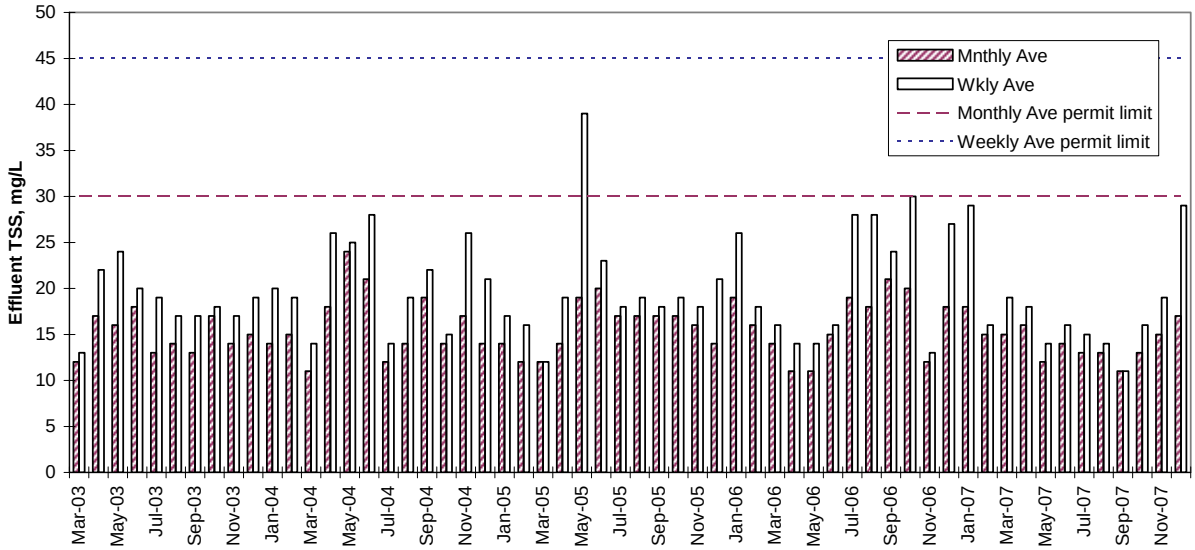


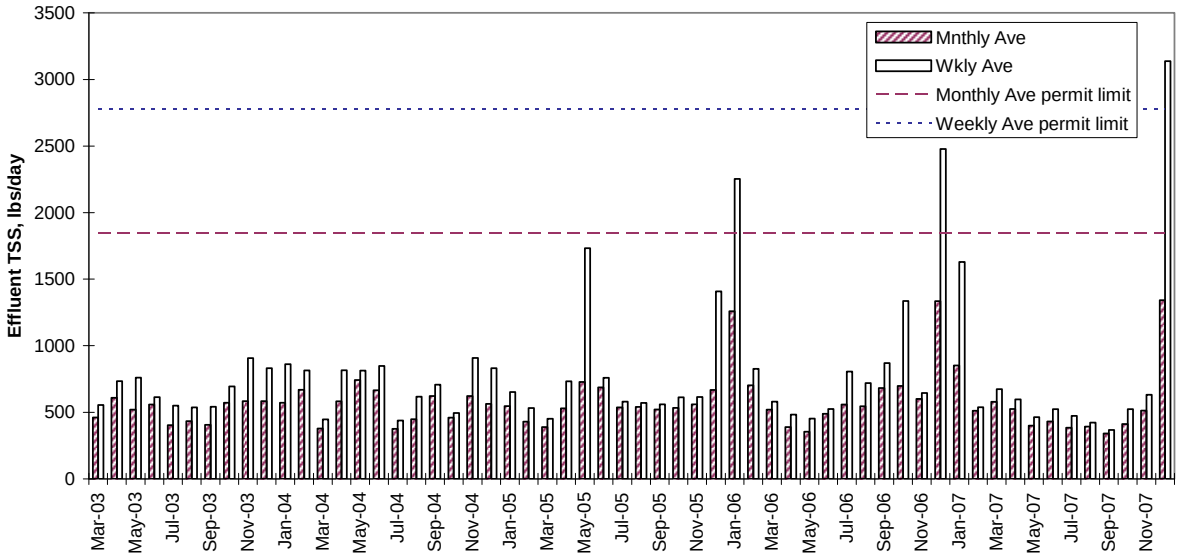



GEM
GM7
GEM permit limit
GM7 permit limit
Effluent Fecal Coliform, #/100 mL
450
400
350
300
250
200
150
100
50
0
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07

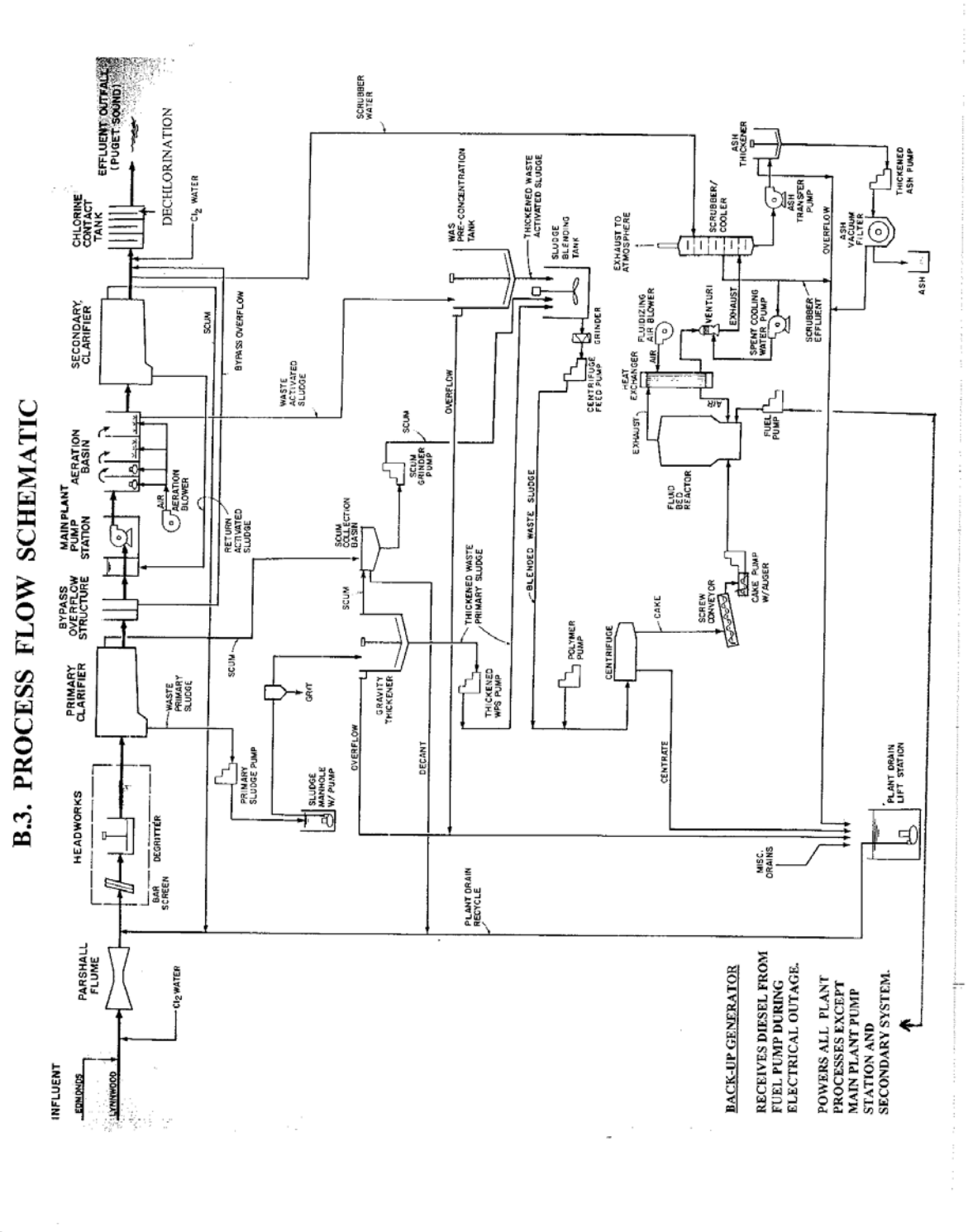

Effluent CBOD5, mg/L
Mnthly Ave
Wkly Ave
Monthly Ave permit limit
Weekly Ave permit limit
0
5
10
15
20
25
30
35
40
45
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07


Effluent CBOD5, lbs/day
Monthly average permit Limit = 4 lbs/day
Weekly average permit Limit = 6 lbs/day
Mnthly Ave
Wkly Ave
0
500
1000
1500
2000
2500
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07

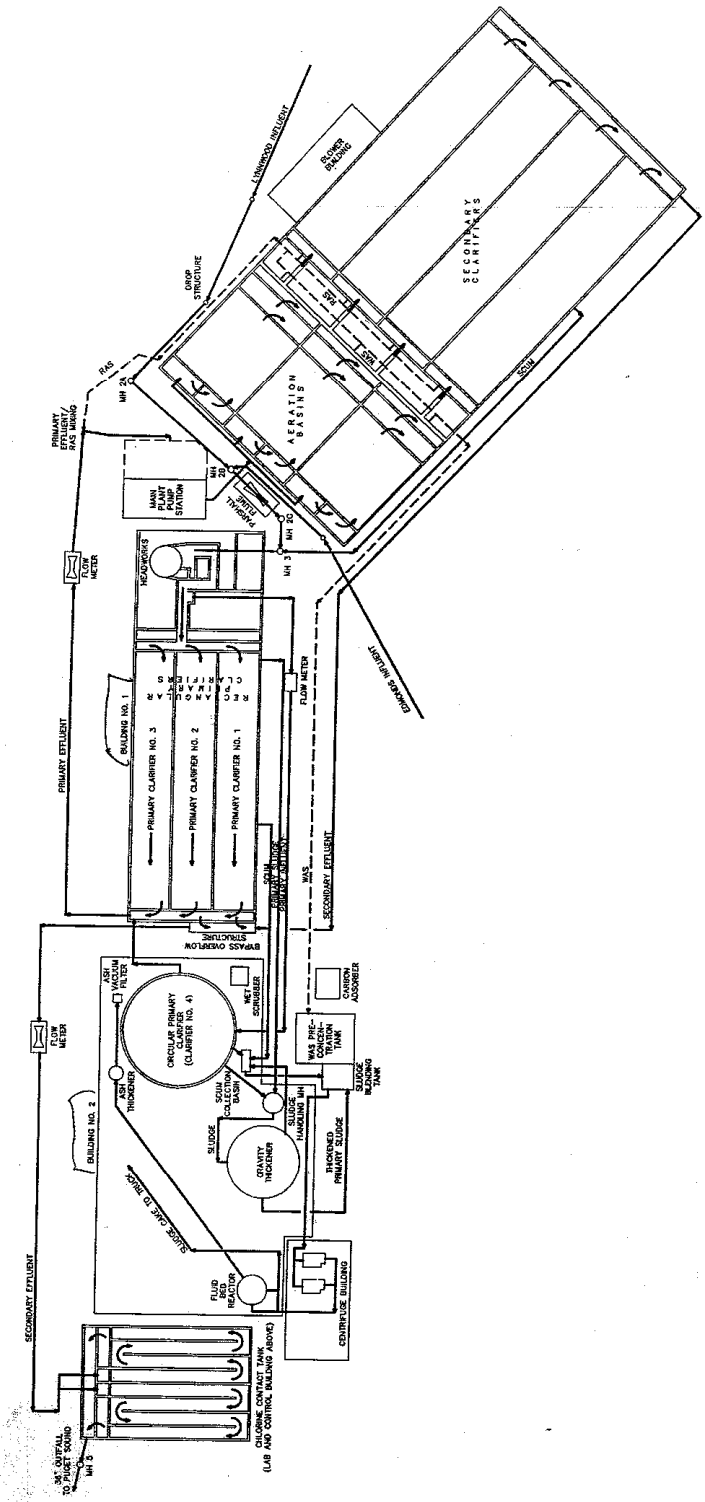

Effluent TSS, mg/L
Mnthly Ave
Wkly Ave
Monthly Ave permit limit
Weekly Ave permit limit


Effluent TSS, lbs/day
Mnthly Ave
Wkly Ave
Monthly Ave permit limit
Weekly Ave permit limit

APPENDIX E—SITE MAPS



B.2.a. Major Pipes and Structures Through Treatment Plant



APPENDIX F—RESPONSE TO COMMENTS

From: Toy, Mark C (DOH)
Sent: Thursday, June 26, 2008 1:44 PM
To: Thompson, Cheryl (ECY)
Subject: RE: Announcement of Availability of Draft Wastewater Permit for the City of Lynnwood Wastewater Treatment Plant

These are my comments/requests for clarification:

In the Fact Sheet:
1. On page 7, in the 'Discharge Outfall' section, the outfall is described as having a diffuser with 82 ports from -98 to -114 feet MLLW. On page 20, in the 'Acute Mixing Zone' section, the diffuser is described at a depth of -122 feet (no reference elevation) with a total of 80 ports. Please check and revise for consistency.

Ecology's response:

Inconsistency noted. The reference to the outfall on page 20 is revised to read: The diffuser has a total of 82 ports from -98 to -114 MLLW. The ports are 4 feet apart. This information is incorporated into the fact sheet by means of this Response to Comments.

Appendix E

Wastewater Treatment Plant Monitoring Report

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

April, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCINERA-
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		TION
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%			%								BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	lbs used	Res ppb	lbs Disch	# /100 ml	WEEKLY AVERAGE	Low Temp.
1	4.13	7.3	226	7,784	193	6,648	214	7,371	16	16.7	16.2	6.9	6.8	8.3	6	96.9	207	9	95.8	310	215	20	0.7	50		1472
2	4.90	7.1							18	16.2	16.1	6.9	6.8	8.4							240	30	1.2	23		1472
3	4.19	7.3							16	16.2	16.6	6.9	6.8	8.5							205	10	0.3	170	72	1485
4	4.27	7.1	274	9,758	255	9,081	222	7,906	17	16.5	16.4	6.8	6.7	8.0	9	96.5	321	10	95.5	356	215	30	1.1	23		1485
5	4.28	7.1	240	8,567	199	7,103	196	6,996	15	16.8	16.1	6.8	6.7	7.6	6	97.0	214	5	97.4	178	215	40	1.4	4		1498
6	4.09	7.2	248	8,459	234	7,982	232	7,914	16	16.9	16.5	6.9	6.8	7.7	6	97.4	205	8	96.6	273	190	50	1.7	70		1503
7	4.44	7.2	206	7,628	162	5,999	206	7,628	17	15.8	15.9	6.9	6.8	8.3	5	96.9	185	8	96.1	296	205	410	15.2	7		1400
8	4.44	7.1	224	8,295	184	6,813	220	8,147	19	16.1	16.3	6.9	6.9	7.9	6	96.7	222	10	95.5	370	215	250	9.3	34		1407
9	4.13	7.3							22	16.1	15.8	6.9	6.8	7.9							190	240	8.3	80		1698
10	4.61	7.3							17	15.9	16.0	7.0	6.8	8.2							235	10	0.4	80	27	1398
11	4.26	7.2	281	9,983	264	9,379	241	8,562	22	16.4	16.2	6.9	6.9	8.2	12	95.5	426	11	95.4	391	200	30	1.1	13		1411
12	3.99	7.3	268	8,918	239	7,953	231	7,687	18	16.5	16.6	6.9	6.8	7.8	9	96.2	299	10	95.7	333	190	20	0.7	500		1418
13	3.90	7.2	268	8,717	256	8,327	221	7,188	17	17.0	16.9	6.9	6.8	7.7	9	96.5	293	10	95.5	325	200	10	0.3	170		1446
14	3.88	7.2	259	8,381	237	7,669	271	8,769	20	17.0	17.0	6.9	6.8	7.8	8	96.6	259	10	96.3	324	200	30	1.0	70		1462
15	3.87	7.2	262	8,456	244	7,875	228	7,359	22	17.2	17.4	6.9	6.9	8.2	7	97.1	226	8	96.5	258	200	10	0.3	1,600		1421
16	3.58	7.1							24	17.2	17.4	6.9	6.8	7.8							200	20	0.6	22		1420
17	3.89	7.2							28	17.4	16.7	6.9	6.9	8.2							215	20	0.6	50	105	1416
18	3.92	7.2	291	9,514	278	9,089	240	7,846	26	17.6	17.7	6.9	6.8	8.0	10	96.4	327	11	95.4	360	220	0	0.0	170		1444
19	3.71	7.2	317	9,808	323	9,994	285	8,818	21	17.6	17.2	6.9	6.8	7.8	9	97.2	278	12	95.8	371	210	10	0.3	23		1452
20	4.28	7.0	308	10,994	260	9,281	260	9,281	21	17.3	17.1	6.9	6.8	7.6	6	97.7	214	11	95.8	393	270	10	0.4	30		1436
21	4.34	7.1	238	8,615	211	7,637	214	7,746	19	17.1	16.5	6.8	6.8	7.7	6	97.2	217	8	96.3	290	280	55	2.0	23		1442
22	4.25	7.2	247	8,755	215	7,621	219	7,762	18	17.0	16.8	6.9	6.8	7.8	6	97.2	213	8	96.3	284	280	40	1.4	8		1440
23	3.95	7.2							22	17.1	17.2	6.9	6.8	7.7							280	30	1.0	4		1438
24	3.89	7.2							28	17.2	17.2	6.9	6.8	8.1							235	10	0.3	500	33	1442
25	4.18	6.9	338	11,783	318	11,086	237	8,262	26	17.6	17.4	6.8	6.8	8.4	12	96.2	418	13	94.5	453	250	10	0.3	2,400		1447
26	4.33	7.2	277	10,003	269	9,714	218	7,872	23	17.6	17.4	6.8	6.7	7.5	10	96.3	361	12	94.5	433	260	20	0.7	30		1443
27	4.27	7.1	220	7,835	222	7,906	197	7,016	17	17.4	17.1	6.8	6.7	7.1	7	96.8	249	10	94.9	356	245	30	1.1	13		1432
28	4.11	7.2	241	8,261	227	7,781	212	7,267	18	16.7	17.0	6.9	6.8	7.6	6	97.4	206	9	95.8	308	255	20	0.7	4		1415
29	4.05	7.1	236	7,971	213	7,195	222	7,498	19	17.6	17.4	6.9	6.8	7.6	5	97.7	169	8	96.4	270	245	10	0.3	15		1442
30	4.03	7.3							20	17.4	17.8	6.9	6.8	7.8							250	20	0.7	8		1426
May 1																								2	19	
TOT.	124	215	5469	188486	5003	172,133	4786	164,896	602	507	504	207	204	237	160	2,033.4	7889	201	2,011.9	9911	6,810	1495	53.4	6,196	256	43511
MAX.	4.90	7.3	338	11783	323	11,086	285	9,281	28.0	17.6	17.8	7.0	6.9	8.5	12	97.7	426	13	97.4	453	280	410	15.2	2,400	105	1698
MIN.	3.58	6.9	206	7628	162	5,999	196	6,996	15.0	15.8	15.8	6.8	6.7	7.1	5	95.5	169	5	94.5	178	190	0	0.0	2	19	1398
Max. Weekly Average															9		301	10		364					GM 105	
AVG.	4.14	7.2	260	8976	238	8,197	228	7,852	20.1	16.9	16.8	6.9	6.8	7.9	8	96.8	262	10	95.8	330	227	50	1.8	GM 42		1450
						PLANT EFFLUENT				WEEKLY		6.0 - 9.0			40		2,469	45		2,777	DAILY	834				
						LIMITATIONS				MONTHLY		6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

May, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCINERA-
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		TION
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%	lbs		%	lbs	lbs	Res	lbs	#	WEEKLY	BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	/100 ml	AVERAGE	Low Temp.
1	4.01	7.1							18	17.1	17.2	6.9	6.8	8.8							240	20	0.7	2		1366
2	4.40	7.1	299	10,972	266	9,761	228	8,367	18	17.2	17.4	6.9	6.8	8.1	8	97.0	294	10	95.6	367	260	30	1.1	13		1370
3	3.96	7.2	266	8,785	236	7,794	211	6,969	16	17.5	17.4	6.9	6.8	7.5	6	97.5	198	9	95.7	297	260	10	0.3	170		1464
4	4.16	7.3	258	8,951	188	6,523	231	8,014	17	17.5	17.2	6.9	6.8	7.6	4	97.9	139	8	96.5	278	255	0	0.0	170		1536
5	3.91	7.2	244	7,957	198	6,457	225	7,337	13	17.2	17.6	6.8	6.8	8.0	4	98.0	130	8	96.4	261	210	30	1.0	240		1528
6	3.92	6.9	240	7,846	196	6,408	224	7,323	14	18.2	18.3	6.9	6.8	8.6	3	98.5	98	7	96.9	229	195	10	0.3	70		1491
7	3.94	7.2							22	18.1	17.7	6.9	6.8	8.2							195	30	1.0	4		1421
8	3.89	7.2							21	17.1	17.4	6.9	6.9	8.7							240	20	0.6	2	34	
9	4.05	7.0	299	10,099	286	9,660	259	8,748	22	17.2	17.5	7.0	6.8	8.7	8	97.2	270	11	95.8	372	215	30	1.0	4		INCINER-
10	3.63	7.2	307	9,294	300	9,082	211	6,388	25	17.1	16.8	7.0	6.8	7.6	9	97.0	272	12	94.3	363	200	0	0.0	2		ATOR
11	3.62	7.1	286	8,635	280	8,453	222	6,702	23	17.1	17.3	6.9	6.8	8.1	8	97.1	242	10	95.5	302	205	20	0.6	2		SHUTDOWN
12	3.60	7.1	280	8,407	241	7,236	257	7,716	22	16.8	17.3	6.9	6.8	8.0	6	97.5	180	7	97.3	210	195	15	0.5	2		FOR
13	3.45	7.1	256	7,366	185	5,323	283	8,143	18	17.3	17.6	7.0	6.9	8.0	5	97.3	144	11	96.1	317	190	20	0.6	2		ANNUAL
14	3.45	7.2							32	17.3	18.5	7.0	6.9	7.9							185	40	1.2	13		REPAIR
15	3.72	7.1							30	17.9	17.8	7.0	6.8	8.8							185	30	0.9	0	3	AND
16	3.70	7.3	306	9,443	283	8,733	251	7,745	43	17.6	17.7	7.0	6.9	8.3	15	94.7	463	32	87.3	987	185	20	0.6	2		MAINTEN-
17	3.61	7.2	363	10,929	316	9,514	294	8,852	30	17.8	17.9	7.0	6.9	8.4	11	96.5	331	19	93.5	572	165	40	1.2	7		ANCE
18	3.19	7.1	342	9,099	280	7,449	278	7,396	29	17.7	18.0	7.0	6.9	7.9	7	97.5	186	17	93.9	452	165	40	1.1	13		May 8-19
19	3.72	7.1	247	7,663	212	6,577	257	7,973	21	17.8	17.6	7.0	6.9	8.2	6	97.2	186	14	94.6	434	175	30	0.9	8		
20	3.47	7.1	245	7,090	241	6,974	224	6,483	20	17.8	18.5	7.0	6.9	8.3	7	97.1	203	10	95.5	289	160	20	0.6	30		1335
21	3.39	7.2							26	18.2	18.4	7.0	6.9	8.9							155	20	0.6	7		1463
22	3.70	7.1							26	19.1	19.1	7.0	6.9	7.7							155	20	0.6	500	15	1513
23	3.75	7.3	367	11,478	338	10,571	245	7,662	24	19.3	18.9	7.0	6.9	7.8	9	97.3	281	15	93.9	469	185	10	0.3	1,600		1517
24	3.57	7.1	297	8,843	272	8,098	244	7,265	26	19.6	19.6	6.9	6.8	7.4	10	96.3	298	15	93.9	447	170	20	0.6	50		1481
25	3.54	7.2	274	8,089	256	7,558	233	6,879	24	19.1	19.4	6.9	6.9	7.5	8	96.9	236	13	94.4	384	145	40	1.2	500		1471
26	3.73	7.2	264	8,213	226	7,030	264	8,213	22	19.1	19.0	6.9	6.8	7.1	6	97.3	187	14	94.7	436	190	25	0.8	50		1477
27	3.64	7.3	262	7,954	248	7,529	224	6,800	18	19.2	18.9	6.9	6.8	7.4	5	98.0	152	10	95.5	304	190	30	0.9	17		1525
28	4.06	6.9							20	19.1	18.5	6.8	6.7	7.4							205	20	0.7	30		1533
29	4.05	7.0							19	19.1	18.1	6.8	6.8	7.8							205	50	1.7	2,400	158	1533
30	3.86	7.1	268	8,628	244	7,855	201	6,471	23	18.8	18.7	6.9	6.8	8.0	7	97.1	225	15	92.5	483	195	20	0.6	50		1531
31	4.04	7.0	286	9,636	273	9,198	225	7,581	23	19.2	19.2	6.9	6.8	7.9	7	97.4	236	15	93.3	505	205	10	0.3	900		1519
TOT.	117	221	6256	195376	5565	173,785	5291	165,027	705	559	561	214.9	212	249	159	2,138.3	7036	282	2,083	12479	6,080	720	22.5	6,860	210	28074
MAX.	4.40	7.3	367	11478	338	10,571	294	8,852	43.0	19.6	19.6	7.0	6.9	8.9	15	98.5	463	32	97.3	987	260	50	1.7	2,400	158	1536
MIN.	3.19	6.9	240	7090	185	5,323	201	6,388	13.0	16.8	16.8	6.8	6.7	7.1	3	94.7	98	7	87.3	210	145	0	0.0	0	3	1335
Max. Weekly Average															9		274	18		547					GM 158	
AVG.	3.77	7.1	284	8881	253	7,899	241	7,501	22.7	18.0	18.1	6.9	6.8	8.0	7	97.2	225	13	94.7	398	196	23	0.7	GM 23		1478
						PLANT EFFLUENT				WEEKLY		6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS				MONTHLY		6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

June, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCIN.
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		BED
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%	lbs		%	lbs	lbs	Res	lbs	#	WKLY	Low
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	/100 ml	AVG	Temp
MAY 30/31																		7 / 7						50 / 900		
1	4.16	7.2	244	8,465	222	7,702	210	7,286	15	19.2	19.2	6.8	6.8	7.4	6	97.3	208	12	94.3	416	200	30	1.0	30		1540
2	4.08	7.2	218	7,418	199	6,771	194	6,601	20	19.0	19.6	6.8	6.8	7.4	5	97.5	170	14	92.8	476	215	20	0.7	30		1530
3	4.14	7.2	248	8,563	228	7,872	242	8,356	13	18.8	19.2	6.8	6.7	7.5	4	98.2	138	8	96.7	276	210	20	0.7	30		1518
4	4.26	7.2							20	18.8	18.9	6.9	6.7	7.4							205	20	0.7	30		1520
5	4.24	7.3							15	19.2	19.0	6.8	6.8	7.7							205	40	1.4	300	73	1479
6	4.42	7.4	236	8,700	218	8,036	202	7,446	14	19.0	18.8	6.8	6.8	7.6	7	96.8	258	13	93.6	479	215	30	1.1	300		1540
7	3.84	7.3	239	7,654	206	6,597	194	6,213	13	18.6	18.8	6.9	6.8	7.6	6	97.1	192	10	94.8	320	200	100	3.2	17		1495
8	4.17	7.2	221	7,686	134	4,660	215	7,477	15	19.0	19.2	6.9	6.9	7.6	4	97.0	139	10	95.3	348	200	30	1.0	30		1503
9	4.51	7.2	193	7,259	128	4,815	255	9,591	19	19.4	19.6	6.8	6.8	7.5	5	96.1	188	7	97.3	263	215	15	0.6	500		1529
10	4.32	7.3	175	6,305	143	5,152	191	6,882	12	18.9	18.4	6.8	6.6	7.5	4	97.2	144	8	95.8	288	180	220	7.9	17		1530
11	4.42	7.3							17	18.9	19.4	6.8	6.8	7.6							235	40	1.5	300		1549
12	3.89	7.2							23	19.5	19.7	6.8	6.7	7.6							195	10	0.3	1,600	130	1549
13	4.13	7.3	237	8,163	128	4,409	187	6,441	25	19.4	19.2	6.9	6.8	7.6	7	94.5	241	17	90.9	586	220	30	1.0	900		1525
14	3.77	7.4	246	7,735	220	6,917	215	6,760	20	19.5	19.1	6.9	6.8	7.4	9	95.9	283	17	92.1	535	205	30	0.9	220		1508
15	4.15	7.1	199	6,888	154	5,330	212	7,338	23	19.2	19.3	6.9	6.8	7.5	7	95.5	242	15	92.9	519	230	30	1.0	300		1488
16	4.15	7.2	208	7,199	196	6,784	240	8,307	21	18.8	19.0	6.8	6.7	7.6	8	95.9	277	15	93.8	519	265	25	0.9	130		1484
17	3.91	7.2	209	6,815	194	6,326	209	6,815	18	19.2	19.0	6.8	6.8	7.5	6	96.9	196	12	94.3	391	250	30	1.0	170		1488
18	3.66	7.2							24	19.4	19.5	6.8	6.8	8.0							235	50	1.5	300		1485
19	3.97	7.2							19	19.7	19.6	6.8	6.8	7.8							270	30	1.0	50	213	1459
20	3.81	7.4	280	8,897	205	6,514	235	7,467	28	18.8	18.7	6.8	6.8	8.1	7	96.6	222	19	91.9	604	230	560	17.8	17		1457
21	3.72	7.4	271	8,408	204	6,329	246	7,632	27	19.5	19.4	6.8	6.8	7.6	8	96.1	248	20	91.9	620	225	10	0.3	500		1481
22	3.68	7.1	256	7,857	211	6,476	253	7,765	26	19.8	20.1	6.8	6.7	7.6	7	96.7	215	16	93.7	491	255	70	2.1	170		1477
23	3.67	7.0	236	7,223	213	6,519	247	7,560	26	20.1	20.3	6.8	6.7	7.5	7	96.7	214	15	93.9	459	270	10	0.3	110		1459
24	3.58	6.9	232	6,927	193	5,762	226	6,748	26	19.9	20.2	6.8	6.7	7.5	5	97.4	149	14	93.8	418	270	20	0.6	30		1464
25	3.58	7.0							22	19.6	19.5	6.9	6.8	7.7							270	20	0.6	30		1459
26	3.56	7.3							27	19.9	19.9	6.9	6.8	7.8							275	60	1.8	23	61	1462
27	3.63	7.3	303	9,173	265	8,023	260	7,871	25	19.6	19.4	6.9	6.8	7.9	8	97.0	242	17	93.5	515	255	10	0.3	17		1429
28	3.69	7.3	290	8,925	274	8,432	254	7,817	25	19.9	19.8	7.0	6.8	7.5	8	97.1	246	19	92.5	585	285	40	1.2	23		1440
29	3.63	7.3	257	7,780	229	6,933	238	7,205	28	19.9	19.5	7.0	6.9	7.4	9	96.1	272	21	91.2	636	265	120	3.6	13		1449
30	3.73	7.4	279	8,679	227	7,062	220	6,844	23	19.8	20.0	7.1	7.0	7.6	7	96.9	218	17	92.3	529	275	90	2.8	8		1447
JULY 1	3.82		285		250		244								6	97.6	191	14	94.3	446				8		
2 / 3																								13 / 13	13	
TOT.	122	217	5562	172720	4641	143,422	5189	162,422	629	580	581	206	204	228	150	2,224.1	6652	330	2,153.4	14633	7,025	1810	59.1	6,203	477	44743
MAX.	4.51	7.4	303	9173	274	8,432	260	9,591	28.0	20.1	20.3	7.1	7.0	8.1	9	98.2	283	21	97.3	636	285	560	17.8	1,600	213	1549
MIN.	3.56	6.9	175	6305	128	4,409	187	6,213	12.0	18.6	18.4	6.8	6.6	7.4	4	94.5	138	7	90.9	263	180	10	0.3	8	61	1429
Max. Weekly Average															8		248	18		542					GM 213	
AVG.	3.94	7.2	242	7851	202	6,519	226	7,383	21.0	19.3	19.4	6.9	6.8	7.6	7	96.7	213	14	93.6	466	234	60	2.0	GM 69		1491
						PLANT EFFLUENT				WEEKLY		6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS				MONTHLY		6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

July, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																	INCIN-
															CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		ERATOR
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%	lbs		%	lbs	lbs	Res	lbs	#	WKLY	BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	/100 ml	AVG.	Low Temp.
1	3.82	7.4	285	9,080	250	7,965	244	7,774	25	19.9	19.5	7.0	6.9	7.4	6	97.6	191	14	94.3	446	295	230	7.3	8		1430
2	3.57	7.4							18	19.7	19.8	7.0	7.0	7.9							230	470	14.0	13		1430
3	3.65	7.3							17	20.1	20.1	7.0	7.0	7.7							240	20	0.6	13	13	1431
4	3.37	7.4	254	7,139	240	6,745	205	5,762	21	20.2	19.9	7.0	70.0	7.8	9	96.3	253	15	92.7	422	225	50	1.4	11		1436
5	3.76	7.4	288	9,031	262	8,216	222	6,962	21	20.0	19.7	7.0	70.0	8.0	9	96.6	282	14	93.7	439	245	20	0.6	23		1416
6	3.63	7.2	297	8,991	273	8,265	241	7,296	21	20.0	20.3	7.0	6.9	7.6	9	96.7	272	16	93.4	484	200	40	1.2	30		1426
7	3.70	7.3	242	7,468	221	6,820	232	7,159	20	20.2	20.4	7.0	6.9	7.3	8	96.4	247	12	94.8	370	205	30	0.9	8		1419
8	3.69	7.2	228	7,017	201	6,186	312	9,602	18	20.5	20.9	7.0	6.9	7.8	5	97.5	154	8	97.4	246	210	70	2.2	13		1440
9	4.01	7.4							16	20.8	20.9	7.0	6.9	7.5							210	60	2.0	50		1424
10	3.53	7.2							27	20.6	20.8	7.0	7.0	7.5							205	10	0.3	2,400	37	1429
11	3.63	7.4	238	7,205	228	6,903	229	6,933	30	20.9	20.8	7.0	6.8	8.1	9	96.1	272	16	93.0	484	210	150	4.5	170		1463
12	3.61	7.3	228	6,864	224	6,744	246	7,406	24	20.5	20.3	7.0	6.9	8.6	9	96.0	271	13	94.7	391	220	50	1.5	80		1449
13	3.46	7.2	261	7,532	243	7,012	222	6,406	24	20.6	20.7	7.0	6.9	7.4	7	97.1	202	13	94.1	375	200	30	0.9	23		1447
14	3.57	7.4	214	6,372	194	5,776	203	6,044	27	20.7	21.0	7.0	6.9	7.4	8	95.9	238	12	94.1	357	230	10	0.3	170		1419
15	3.49	7.3	222	6,462	207	6,025	207	6,025	24	20.6	20.9	7.0	7.0	7.5	5	97.6	146	9	95.7	262	230	20	0.6	110		1456
16	3.47	7.3							20	20.7	21.0	7.0	7.0	7.5							245	130	3.8	170		1416
17	3.63	7.3							20	20.7	20.8	7.0	6.9	7.7							245	150	4.5	30	84	1423
18	3.69	7.4	286	8,802	264	8,124	245	7,540	23	20.8	20.9	7.0	7.0	7.6	6	97.7	185	12	95.1	369	250	140	4.3	80		1420
19	3.59	7.0	268	8,024	233	6,976	311	9,312	21	20.7	20.9	6.9	6.9	7.4	7	97.0	210	13	95.8	389	250	280	8.4	80		1408
20	3.46	7.4	234	6,752	189	5,454	228	6,579	26	20.7	20.9	7.0	6.9	7.4	6	96.8	173	12	94.7	346	215	700	20.2	30		1407
21	3.51	7.0	256	7,494	209	6,118	229	6,704	27	20.7	21.6	7.0	7.0	7.5	6	97.1	176	10	95.6	293	225	15	0.4	240		1439
22	3.47	7.2	235	6,801	184	5,325	238	6,888	23	21.1	21.4	7.0	7.0	7.5	5	97.3	145	11	95.4	318	230	80	2.3	170		1399
23	3.33	7.3							22	21.0	21.3	7.0	7.0	7.7							215	20	0.6	130		1405
24	3.13	7.4							26	21.3	21.3	7.0	6.9	7.2							205	30	0.8	300	117	1420
25	3.63	7.3	293	8,870	250	7,569	233	7,054	26	21.5	21.6	7.0	6.9	7.5	7	97.2	212	12	94.8	363	225	20	0.6	23		1398
26	3.66	7.0	290	8,852	263	8,028	240	7,326	24	21.6	21.7	6.9	6.9	7.2	8	97.0	244	14	94.2	427	215	30	0.9	50		1423
27	3.68	7.1	255	7,826	207	6,353	225	6,906	21	20.9	21.0	7.0	6.9	7.4	8	96.1	246	11	95.1	338	215	700	21.5	50		1385
28	3.47	7.3	2,787	80,655	244	7,061	239	6,917	22	21.4	21.6	7.0	6.9	7.4	8	96.7	232	10	95.8	289	215	5	0.1	2,400		1478
29	3.92	7.3	269	8,794	208	6,800	246	8,042	19	21.5	21.5	7.0	6.9	7.5	6	97.1	196	11	95.5	360	230	30	1.0	50		1450
30	2.78	7.3							23	21.3	21.6	7.0	6.9	7.5							205	20	0.5	170		1398
31	3.42	7.3							18	21.4	21.3	7.0	7.0	7.8							230	20	0.6	80	99	1392
TOT.	110	226	7930	236031	4794	144,465	4997	150,634	694	643	646	217	341	235	151	2,033.7	6616	258	1,990.0	11305	6,970	3630	108.8	7,175	350	44176
MAX.	4.01	7.4	2787	80655	273	8,265	312	9,602	30.0	21.6	21.7	7.0	70.0	8.6	9	97.7	282	16	97.4	484	295	700	21.5	2,400	117	1478
MIN.	2.78	7.0	214	6372	184	5,325	203	5,762	16.0	19.7	19.5	6.9	6.8	7.2	5	95.9	145	8	92.7	246	200	5	0.1	8	13	1385
Max. Weekly Average															8		242	13		392					GM 117	
AVG.	3.56	7.3	378	11240	228	6,879	238	7,173	22.4	20.7	20.9	7.0	11.0	7.6	7	96.8	216	12	94.8	370	225	117	3.5	GM 56		1425
						PLANT EFFLUENT				WEEKLY		6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS				MONTHLY		6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

AUGUST, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																INCIN-
															CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		ERATOR
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%	lbs		%	lbs	lbs	Res	lbs	#	WEEKLY	BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	/100 ml	AVG	Low Temp
1	3.56	7.3	316	9,382	225	6,680	262	7,779	26	21.7	21.3	7.1	7.0	7.8	8	96.4	238	14	94.7	416	220	10	0.3	130		1394
2	3.40	7.3	300	8,507	221	6,267	264	7,486	26	21.5	21.5	7.0	7.0	7.5	9	95.9	255	14	94.7	397	220	30	0.9	80		1397
3	3.34	7.3	284	7,911	219	6,100	263	7,326	27	21.4	21.2	7.0	7.0	7.6	9	95.9	251	15	94.3	418	250	30	0.8	30		1385
4	3.15	7.2	225	5,911	159	4,177	250	6,568	33	21.6	21.6	7.0	7.0	7.6	8	95.0	210	16	93.6	420	95	25	0.7	30		1410
5	3.60	7.3	278	8,347	170	5,104	200	6,005	37	21.5	21.8	7.0	7.0	7.4	9	94.7	270	15	92.5	450	240	20	0.6	90		1405
6	3.44	7.4							21	21.0	21.0	7.0	6.9	7.6							220	80	2.3	50		1431
7	3.32	7.3							29	21.3	21.3	7.0	6.9	7.5							210	10	0.3	300	74	1406
8	3.39	7.3	296	8,369	249	7,040	262	7,407	29	21.8	21.5	7.0	7.0	7.6	10	96.0	283	18	93.1	509	220	20	0.6	30		1401
9	3.71	7.2	320	9,901	286	8,849	306	9,468	39	21.6	21.7	7.0	6.9	7.4	9	96.9	278	16	94.8	495	235	20	0.6	30		1416
10	3.36	7.4	270	7,566	226	6,333	316	8,855	24	21.2	21.4	7.0	6.9	7.4	10	95.6	280	16	94.9	448	210	10	0.3	30		1430
11	3.42	7.3	251	7,159	218	6,218	245	6,988	23	21.5	22.7	7.0	6.9	7.5	8	96.3	228	13	94.7	371	225	15	0.4	23		1404
12	3.47	7.3	236	6,830	174	5,036	238	6,888	31	21.6	22.2	7.0	7.0	7.4	7	96.0	203	10	95.8	289	230	20	0.6	23		1426
13	3.10	7.3							14	21.6	22.6	7.0	7.0	7.5							210	20	0.5	50		1424
14	3.73	7.4							15	21.5	22.2	7.1	7.0	7.7							225	90	2.8	240	40	1383
15	3.45	7.3	288	8,287	237	6,819	271	7,797	61	21.9	22.0	7.1	6.9	6.8	37	84.4	1,065	20	92.6	575	245	200	5.8	2,400		1418
16	3.58	7.3	276	8,241	235	7,016	283	8,450	45	21.8	22.0	7.0	7.0	7.5	10	95.7	299	12	95.8	358	215	170	5.1	300		1369
17	3.31	7.2	254	7,012	218	6,018	268	7,398	20	21.8	21.8	7.0	7.0	7.6	6	97.2	166	11	95.9	304	220	150	4.1	900		1388
18	3.42	7.3	291	8,300	243	6,931	183	5,220	27	21.8	22.0	7.0	6.9	7.9	6	97.5	171	12	93.4	342	210	335	9.6	80		1357
19	3.39	7.4	233	6,588	211	5,966	254	7,181	21	21.0	22.5	7.0	7.0	8.1	9	95.7	254	14	94.5	396	225	100	2.8	130		1407
20	3.37	7.3							28	21.6	21.6	7.1	7.0	8.5							225	20	0.6	80		1407
21	3.56	7.4							25	21.9	21.9	7.0	7.0	8.3							225	10	0.3	50	222	1407
22	3.38	7.2	262	7,386	192	5,412	249	7,019	35	22.1	21.5	7.1	7.0	7.7	14	92.7	395	20	92.0	564	210	540	15.2	23		1393
23	3.37	7.3	265	7,448	202	5,677	273	7,673	39	21.9	22.0	7.0	6.9	7.6	15	92.6	422	20	92.7	562	220	10	0.3	40		1400
24	3.42	7.3	285	8,129	240	6,845	254	7,245	32	22.0	22.1	7.0	6.9	7.4	16	93.3	456	15	94.1	428	225	50	1.4	30		1430
25	3.25	7.3	265	7,183	235	6,370	304	8,240	31	21.7	22.2	7.0	6.9	7.4	13	94.5	352	16	94.7	434	210	10	0.3	50		1413
26	3.56	7.3	238	7,066	183	5,433	247	7,334	37	21.3	21.4	7.0	6.9	7.6	13	92.9	386	18	92.7	534	225	20	0.6	110		1409
27	3.23	7.3							26	21.6	21.0	7.0	6.9	7.9							225	120	3.2	70		1419
28	3.61	7.3							25	21.5	22.0	7.0	7.0	7.8							215	30	0.9	22	42	1389
29	3.56	7.2	280	8,313	229	6,799	283	8,402	24	21.8	21.6	7.0	7.0	7.6	10	95.6	297	16	94.3	475	240	20	0.6	50		1416
30	3.45	7.2	276	7,941	211	6,071	262	7,539	21	21.7	21.5	7.0	6.9	7.4	9	95.7	259	15	94.3	432	225	30	0.9	22		1416
31	3.75	7.3	213	6,662	184	5,755	200	6,255	23	21.5	21.5	7.0	6.9	7.7	8	95.7	250	12	94.0	375	225	350	10.9	13		1435
Sept. 1 & 2			231/212		207/182		239/222								9/10	95.7/94.5	269/289	13/14	94.6/93.7	388/404						
TOT.	107	226	6202	178437	4967	142,917	5937	170,522	894	670	675	218	216	236	253	2,182.3	9784	348	2,164.1	13458	6,795	2565	74.1	5,506	378	43585
MAX.	3.75	7.4	320	9901	286	8,849	316	9,468	61.0	22.1	22.7	7.1	7.0	8.5	37	97.5	1,065	20	95.9	575	250	540	15.2	2,400	222	1435
MIN.	3.10	7.2	213	5911	159	4,177	183	5,220	14.0	21.0	21.0	7.0	6.9	6.8	6	84.4	166	10	92.0	289	95	10	0.3	13	40	1357
Max. Weekly Average															14		402	18		504					GM 222	
AVG.	3.44	7.3	270	7758	216	6,214	258	7,414	28.8	21.6	21.8	7.0	7.0	7.6	11	94.9	316	15	94.1	434	219	83	2.4	GM 65		1406
						PLANT EFFLUENT			WEEKLY			6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS			MONTHLY			6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

September, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCINER-ATION
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%				%							BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	# /100 ml	WEEKLY AVERAGE	Low Temp.
August 29-31																								50/22/13		
1	3.58	7.4	231	6,897	207	6,180	239	7,136	23	21.6	21.4	7.0	6.9	7.9	9	95.7	269	13	94.6	388	215	235	7.0	11		1422
2	3.46	7.3	212	6,118	182	5,252	222	6,406	28	21.2	21.4	7.0	6.9	7.6	10	94.5	289	14	93.7	404	195	60	1.7	70		1431
3	3.34	7.3							27	21.3	21.4	7.0	7.0	7.4							200	360	10.0	50		1431
4	3.42	7.3							28	20.9	21.0	7.0	7.0	7.9							210	120	3.4	11	25	1435
5	3.38	7.2	283	7,978	239	6,737	228	6,427	29	21.8	21.7	7.0	7.0	7.8	13	94.6	366	18	92.1	507	225	20	0.6	1,600		1440
6	3.77	7.3	307	9,653	250	7,860	245	7,703	30	21.8	21.1	7.0	6.9	7.8	13	94.8	409	22	91.0	692	250	0	0.0	140		1431
7	3.53	7.2	274	8,067	263	7,743	270	7,949	24	21.7	21.3	7.0	6.9	7.5	12	95.4	353	17	93.7	500	205	440	13.0	13		1415
8	3.43	7.3	223	6,379	202	5,778	243	6,951	28	21.5	21.5	7.0	6.9	7.2	8	96.0	229	11	95.5	315	185	45	1.3	9		1423
9	3.75	7.3	195	6,099	167	5,223	214	6,693	19	21.3	21.3	7.0	6.9	7.5	7	95.8	219	13	93.9	407	210	30	0.9	23		1425
10	3.37	7.4							22	21.4	21.3	7.0	6.9	7.3							215	20	0.6	50		1428
11	3.57	7.4							20	21.4	21.2	7.0	7.0	7.8							215	30	0.9	50	55	1414
12	3.64	7.3	280	8,500	257	7,802	250	7,589	19	21.6	21.3	7.0	7.0	8.1	8	96.9	243	14	94.4	425	210	90	2.7	30		1380
13	3.43	7.3	282	8,067	279	7,981	264	7,552	15	21.5	21.2	7.0	6.9	7.4	8	97.1	229	14	94.7	400	210	60	1.7	30		1391
14	3.34	7.2	277	7,716	257	7,159	250	6,964	13	21.6	21.5	7.0	6.9	7.4	8	96.9	223	13	94.8	362	200	90	2.5	23		1415
15	3.43	7.3	262	7,495	246	7,037	289	8,267	26	21.3	20.9	6.9	6.8	7.3	7	97.2	200	14	95.2	400	205	80	2.3	11		1410
16	3.72	7.3	250	7,756	203	6,298	281	8,718	28	21.4	21.1	7.0	6.8	7.4	6	97.0	186	13	95.4	403	220	30	0.9	13		1403
17	3.84	7.3							21	21.6	21.3	7.0	6.9	7.2							210	10	0.3	130		1318
18	4.03	7.3							19	21.6	20.9	7.0	6.9	7.6							210	30	1.0	2,400	51	1428
19	4.06	7.2	250	8,465	212	7,178	245	8,296	22	21.7	20.5	7.0	6.8	7.6	8	96.2	271	15	93.9	508	220	40	1.4	60		1377
20	4.07	7.2	241	8,180	207	7,026	241	8,180	18	21.3	20.4	7.0	6.9	7.4	6	97.1	204	13	94.6	441	195	220	7.5	22		1337
21	3.50	7.3	249	7,268	207	6,042	237	6,918	25	21.3	20.8	7.0	6.9	7.7	5	97.6	146	15	93.7	438	155	20	0.6	1,600		1390
22	3.62	7.4	248	7,487	237	7,155	226	6,823	29	20.9	20.9	6.8	6.8	7.5	8	96.6	242	14	93.8	423	235	10	0.3	30		1394
23	3.71	7.4	201	6,219	158	4,889	238	7,364	21	21.0	20.8	6.9	6.8	7.2	6	96.2	186	15	93.7	464	250	10	0.3	240		1412
24	3.49	7.3							21	21.1	21.1	6.9	6.8	7.6							235	30	0.9	130		1415
25	3.59	7.4							22	21.1	21.6	6.9	6.8	7.6							240	30	0.9	2,400	174	1415
26	3.86	7.2	258	8,306	216	6,954	255	8,209	40	21.6	21.3	6.8	6.7	7.7	9	95.8	290	17	93.3	547	335	30	1.0	300		1435
27	3.76	7.2	244	7,651	209	6,554	246	7,714	47	21.8	21.7	6.8	6.7	7.1	9	95.7	282	17	93.1	533	275	30	0.9	300		1421
28	3.55	7.3	218	6,454	204	6,040	230	6,810	25	21.7	21.2	6.8	6.7	7.0	10	95.1	296	18	92.2	533	340	380	11.3	2		1402
29	3.67	7.4	227	6,948	191	5,846	242	7,407	34	20.9	21.1	6.8	6.7	7.4	9	95.3	275	22	90.9	673	325	15	0.5	300		1401
30	3.51	7.3	181	5,298	162	4,742	211	6,177	27	21.1	21.2	6.8	6.8	7.4	8	95.1	234	18	91.5	527	380	40	1.2	1,600		1421
October 1-2																								300 / 370	192	
TOT.	108	219	5393	163002	4755	143,478	5366	162,254	750	642	635	208	206	225	187	2,112.6	7686	340	2,060	13974	6,975	2605	77.5	11,648	497	42260
MAX.	4.07	7.4	307	9653	279	7,981	289	8,718	47.0	21.8	21.7	7.0	7.0	8.1	13	97.6	409	22	95.5	692	380	440	13.0	2,400	192	1440
MIN.	3.34	7.2	181	5298	158	4,742	211	6,177	13.0	20.9	20.4	6.8	6.7	7.0	5	94.5	146	11	90.9	315	155	0	0.0	2	25	1318
Max. Weekly Average													-		11		315	18		563					GM 192	
AVG.	3.61	7.3	245	7409	216	6,522	244	7,375	25.0	21.4	21.2	6.9	6.9	7.5	9	96.0	256	15	93.6	468	233	87	2.6	GM 76		1409
						PLANT EFFLUENT			WEEKLY			6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS			MONTHLY			6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

October, 2010

NPDES PERMIT WA-002403-1

	PLANT INFLUENT								PLANT EFFLUENT																		INCINERATOR
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%			%								BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	lbs Disch	mg/l	Rem	lbs Disch	lbs used	Res ppb	lbs Disch	# /100 ml	WEEKLY AVERAGE	Low Temp.
1	3.49	7.4							28	20.9	21.6	6.8	6.7	7.9							325	30	0.9	300		1403
2	3.41	7.3							30	21.3	21.1	6.8	6.7	7.5							435	10	0.3	370		1420
3	3.81	7.2	269	8,548	233	7,404	239	7,594	25	21.5	21.0	6.8	6.6	6.9	10	95.7	318	14	94.1	445	325	330	10.5	< 2		1444
4	3.71	7.2	269	8,323	241	7,457	284	8,787	19	21.3	20.8	6.8	6.7	6.2	7	97.1	217	14	95.1	433	295	313	9.7	< 2		1393
5	3.44	7.2	262	7,517	188	5,394	184	5,279	24	20.8	20.9	7.0	6.7	6.5	8	95.7	230	14	92.4	402	245	30	0.9	2		1414
6	3.65	7.4	253	7,702	242	7,367	247	7,519	21	21.0	21.0	6.9	6.8	9.0	8	96.7	244	11	95.5	335	345	0	0.0	300		1418
7	3.60	7.4	196	5,885	160	4,804	209	6,275	23	20.8	20.9	6.9	6.9	9.0	7	95.6	210	11	94.7	330	360	10	0.3	23		1396
8	3.58	7.4							24	21.1	21.3	6.8	6.8	8.9							360	30	0.9	300		1400
9	3.93	7.2							23	21.4	20.9	6.9	6.7	9.0							375	10	0.3	2	12	1398
10	3.98	7.2	278	9,228	236	7,834	243	8,066	25	21.2	20.7	6.9	6.8	9.1	13	94.5	432	16	93.4	531	270	320	10.6	< 2		1386
11	3.76	7.3	232	7,275	214	6,711	225	7,056	30	21.0	20.8	6.9	6.8	8.8	12	94.4	376	18	92.0	564	310	0	0.0	500		1387
12	3.41	7.3	251	7,138	209	5,944	233	6,626	26	20.8	20.5	6.9	6.8	8.9	11	94.7	313	15	93.6	427	345	20	0.6	2		1386
13	3.57	7.4	238	7,086	219	6,520	244	7,265	20	20.4	20.6	6.8	6.7	9.0	6	97.3	179	17	93.0	506	560	35	1.0	80		1375
14	3.57	7.3	228	6,788	207	6,163	261	7,771	22	19.9	20.2	6.8	6.7	9.1	8	96.1	238	15	94.3	447	445	350	10.4	2		1405
15	3.67	7.3							22	19.9	19.5	6.8	6.7	9.1							460	20	0.6	2		1366
16	3.55	7.4							39	20.4	20.3	6.9	6.7	9.2							360	0	0.0	30	11	1365
17	3.74	7.4	278	8,671	242	7,548	248	7,736	39	20.2	19.5	6.9	6.8	9.2	14	94.2	437	27	89.1	842	365	10	0.3	< 2		1406
18	3.68	7.4	290	8,900	257	7,888	267	8,195	41	20.0	20.3	6.9	6.7	9.2	12	95.3	368	31	88.4	951	440	30	0.9	< 2		1414
19	3.82	7.4	315	10,036	274	8,729	246	7,837	42	20.0	19.7	7.0	6.8	9.1	17	93.8	542	31	87.4	988	340	30	1.0	2		1380
20	3.53	7.4	235	6,918	206	6,065	240	7,066	37	19.9	20.0	6.9	6.8	9.2	14	93.2	412	18	92.5	530	310	20	0.6	23		1393
21	3.30	7.4	278	7,651	249	6,853	236	6,495	34	19.9	20.2	6.9	6.8	9.1	12	95.2	330	22	90.7	605	300	20	0.6	170		1387
22	3.33	7.6							36	20.1	20.1	6.9	6.8	9.1							315	10	0.3	2,400		1398
23	4.17	7.4							25	20.1	20.2	6.9	6.8	9.4							430	10	0.3	2,400	41	1421
24	5.26	7.2	250	10,967	243	10,660	222	9,739	35	19.9	19.0	6.9	6.8	8.8	13	94.7	570	24	89.2	1,053	365	658	28.9	30		1402
25	3.54	7.3	240	7,086	216	6,377	225	6,643	27	19.8	19.3	6.9	6.8	9.0	11	94.9	325	19	91.6	561	315	20	0.6	23		1403
26	3.56	7.4	225	6,680	224	6,651	221	6,562	24	19.6	18.9	7.0	6.8	9.0	10	95.5	297	16	92.8	475	310	20	0.6	240		1410
27	3.50	7.4	226	6,597	181	5,283	238	6,947	23	19.6	19.4	6.9	6.8	9.1	8	95.6	234	16	93.3	467	315	30	0.9	80		1407
28	3.29	7.5	233	6,393	215	5,899	225	6,174	23	19.6	19.9	6.9	6.8	9.1	8	96.3	220	14	93.8	384	360	20	0.5	300		1425
29	3.45	7.4							22	19.8	19.6	6.8	6.8	9.2							360	20	0.6	1,600		1404
30	3.97	7.4							18	19.3	19.2	6.9	6.8	9.6							420	20	0.7	13	97	1418
31	3.74	7.3	226	7,049	209	6,519	202	6,301	15	19.7	19.3	6.8	6.7	9.2	8	96.2	250	11	94.6	343	365	20	0.6	2		1400
TOT.	114	228	5272	162439	4665	144,069	4939	151,931	842	631	627	213	210	271	217	2,002.7	9825	374	1,941.3	16934	11,125	2446	84.3	9,196	161	43424
MAX.	5.26	7.6	315	10967	274	10,660	284	9,739	42.0	21.5	21.6	7.0	6.9	9.6	17	97.3	570	31	95.5	1,053	560	658	28.9	2,400	97	1444
MIN.	3.29	7.2	196	5885	160	4,804	184	5,279	15.0	19.3	18.9	6.8	6.6	6.2	6	93.2	179	11	87.4	330	245	0	0.0	2	11	1365
Max. Weekly Average															14		418	26		783					GM = 97	
AVG.	3.68	7.3	251	7735	222	6,860	235	7,235	27.2	20.4	20.2	6.9	6.8	8.8	10	95.4	321	18	92.4	553	359	79	2.7	GM = 29		1401
						PLANT EFFLUENT				WEEKLY		6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS				MONTHLY		6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

November, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCINERATOR
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%			%								
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	lbs used	Res ppb	lbs Disch	# /100 ml	WEEKLY AVERAGE	BED Low Temp.
Oct. 31					209		202								8	96.2	250	11	94.6	343				2		
1	4.71	7.2	216	8,485	202	7,935	310	12,177	20	19.4	18.8	6.8	6.8	8.8	9	95.5	354	12	96.1	471	365	30	1.2	30		1400
2	3.94	7.3	236	7,755	196	6,440	225	7,393	17	19.4	19.1	6.8	6.7	9.2	6	96.9	197	11	95.1	361	370	60	2.0	240		1418
3	3.77	7.4	245	7,703	189	5,943	217	6,823	19	18.8	19.0	6.8	6.8	9.4	5	97.4	157	9	95.9	283	355	20	0.6	8		1428
4	3.74	7.4	221	6,893	199	6,207	192	5,989	17	19.2	19.6	6.9	6.9	9.3	5	97.5	156	9	95.3	281	345	20	0.6	4		1401
5	3.69	7.3							17	19.2	19.0	6.9	6.9	9.3							310	423	13.0	< 2		1370
6	4.48	7.3							22	19.5	19.1	7.0	6.9	9.3							275	430	16.1	2	8	1370
7	4.20	7.3	246	8,617	228	7,986	211	7,391	16	19.3	18.8	7.0	6.9	9.0	7	96.9	245	8	96.2	280	255	10	0.4	4		1447
8	3.81	7.3	247	7,849	231	7,340	226	7,181	16	19.1	18.7	7.0	7.0	9.1	6	97.4	191	7	96.9	222	225	60	1.9	2		1427
9	3.89	7.3	218	7,072	188	6,099	198	6,424	15	19.0	18.4	7.0	7.0	9.1	5	97.3	162	6	97.0	195	205	20	0.6	13		1411
10	3.67	7.5	260	7,958	190	5,815	232	7,101	14	18.3	18.6	7.0	7.0	9.1	5	97.4	153	6	97.4	184	195	20	0.6	30		1405
11	3.90	7.6	223	7,253	176	5,725	230	7,481	15	18.5	18.5	7.0	6.9	9.4	5	97.2	163	10	95.7	325	210	20	0.7	30		1439
12	3.66	7.6							17	18.7	18.8	7.0	7.0	9.5							195	60	1.8	23		1415
13	3.92	7.4							15	18.8	18.6	7.0	6.9	9.5							210	10	0.3	23	13	1417
14	4.11	7.3	250	8,569	237	8,124	214	7,335	17	19.1	18.7	7.0	7.0	9.3	8	96.6	274	11	94.9	377	215	30	1.0	8		1427
15	4.24	7.2	220	7,780	207	7,320	206	7,284	16	19.1	18.7	7.1	7.0	9.5	7	96.6	248	9	95.6	318	230	40	1.4	50		1433
16	3.53	7.3	218	6,418	201	5,917	209	6,153	18	18.7	18.3	7.0	7.0	9.2	7	96.5	206	13	93.8	383	185	20	0.6	50		1430
17	4.74	7.3	204	8,064	178	7,037	220	8,697	18	17.9	18.8	7.0	6.9	9.0	6	96.6	237	12	94.5	474	240	40	1.6	70		1415
18	3.67	7.5	204	6,244	180	5,509	215	6,581	12	18.0	17.8	7.0	6.9	9.1	5	97.2	153	8	96.3	245	185	30	0.9	30		1442
19	3.91	7.5							13	17.9	17.6	7.0	6.9	9.2							210	10	0.3	23		1432
20	4.13	7.4							15	17.3	17.1	7.0	7.0	9.3							215	10	0.3	300	43	1433
21	3.91	7.3	282	9,196	262	8,544	225	7,337	15	17.9	17.1	7.0	7.0	9.3	7	97.3	228	9	96.0	293	210	70	2.3	70		1432
22	3.71	7.3	284	8,787	260	8,045	251	7,766	17	17.4	16.1	7.1	7.0	9.3	6	97.7	186	11	95.6	340	210	40	1.2	30		1416
23	3.59	7.3	238	7,126	210	6,288	224	6,707	19	16.7	16.1	7.1	7.0	9.6	5	97.6	150	12	94.6	359	200	60	1.8	500		1417
24	3.66	7.4	234	7,143	189	5,769	355	10,836	20	15.7	16.3	7.0	7.0	9.9	5	97.4	153	10	97.2	305	200	60	1.8	300		1418
25	4.07	7.5	252	8,554	217	7,366	233	7,909	15	17.0	17.3	7.1	7.0	9.9	5	97.7	170	8	96.6	272	215	30	1.0	220		1427
26	3.97	7.6							15	17.7	17.1	7.0	7.0	9.6							210	10	0.3	50		1427
27	3.99	7.4							19	17.4	17.0	7.1	7.0	9.6							210	30	1.0	300	140	1427
28	4.25	7.3	259	9,180	240	8,507	201	7,124	19	16.7	16.6	7.1	6.9	10.0	7	97.1	248	10	95.0	354	230	40	1.4	< 2		1423
29	3.73	7.4							16	17.6	17.1	7.0	7.0	9.4				10		311	185	20	0.6	300		1453
30	4.44	7.4	202	7,480	180	6,665	192	7,110	19	17.4	16.7	7.0	6.9	9.1	7	96.1	259	12	93.8	444	220	50	1.9	130		1471
TOT.	119	221	4959	164127	4360	144,581	4786	158,800	503	547	539	209.8	208	280	128	2,038.0	6051	213	2,009.4	9611	7,085	1773	59.4	2,840	204	42671
MAX.	4.74	7.6	284	9196	262	8,544	355	12,177	22.0	19.5	19.6	7.1	7.0	10.0	9	97.7	354	13	97.4	474	370	430	16.1	500	140	1471
MIN.	3.53	7.2	202	6244	176	5,509	192	5,989	12.0	15.7	16.1	6.8	6.7	8.8	5	95.5	150	6	93.8	184	185	10	0.3	2	8	1370
Max. Weekly Average															7		224	11		359					GM 140	
AVG.	3.97	7.4	236	7816	208	6,885	228	7,562	16.8	18.2	18.0	7.0	6.9	9.3	6	97.0	204	10	95.7	322	236	59	2.0	GM 32		1422
						PLANT EFFLUENT			WEEKLY			6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS			MONTHLY			6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

William Franz, Public Works Director
Name and Title

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

December, 2010
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCINERA-
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		TION
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%			%								BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	lbs used	Res ppb	lbs Disch	# /100 ml	WEEKLY AVERAGE	Low Temp.
Nov. 28-30															7/ - / 7		10/ - / 12						< 2/ 300/ 130		
12 - 1	4.20	7.4	209	7,321	172	6,025	220	7,706	18	16.9	16.7	6.9	6.9	9.4	6	96.5	210	11	95.0	385	245	25	0.9	13		1451
2	3.98	7.5	204	6,771	180	5,975	182	6,041	18	17.4	16.4	7.0	6.9	9.6	6	96.7	199	9	95.1	299	230	20	0.7	4		1426
3	3.82	7.5	205	6,531	160	5,097	230	7,328	16	17.7	16.8	7.0	7.0	9.7	4	97.5	127	9	96.1	287	245	30	1.0	23		1440
4	4.03	7.4							18	17.1	16.4	7.0	7.0	9.7							245	20	0.7	13	20	1437
5	3.95	7.3	251	8,269	247	8,137	214	7,050	17	17.1	16.5	7.0	6.9	9.7	7	97.2	231	10	95.3	329	230	30	1.0	50		1439
6	3.73	7.2	243	7,559	240	7,466	218	6,782	15	17.1	16.9	7.0	6.9	9.5	6	97.5	187	9	95.9	280	220	50	1.6	17		1439
7	4.13	7.3	233	8,025	227	7,819	211	7,268	16	17.4	17.0	7.0	7.0	9.5	6	97.4	207	9	95.7	310	235	20	0.7	13		1440
8	5.45	7.3	174	7,909	144	6,545	166	7,545	19	17.0	15.7	6.9	6.9	9.2	6	95.8	273	10	94.0	455	240	55	2.5	50		1451
9	5.17	7.3	154	6,640	138	5,950	143	6,166	15	16.6	16.0	7.0	6.9	9.2	5	96.4	216	10	93.0	431	255	50	2.2	8		1474
10	4.50	7.6							19	16.6	16.0	6.9	6.9	9.6							235	10	0.4	30		1465
11	6.29	7.4							17	16.6	16.0	7.0	6.9	9.7							265	20	1.0	4	18	1462
12	12.75	7.2	141	14,993	138	14,674	114	12,122	20	15.7	14.8	6.9	6.8	10.0	13	90.6	1,382	22	80.7	2,339	330	350	37.2	900		1462
13	8.12	7.4	120	8,126	116	7,856	124	8,397	17	15.0	15.1	6.8	6.7	9.5	7	94.0	474	12	90.3	813	295	40	2.7	7		1444
14	8.66	7.4	130	9,389	114	8,234	116	8,378	14	14.6	14.8	6.8	6.7	7.5	5	95.6	361	12	89.7	867	275	340	24.6	8		1443
15	4.76	7.4	155	6,153	146	5,796	132	5,240	14	15.0	15.5	6.9	6.8	9.2	6	95.9	238	8	93.9	318	220	50	2.0	4		1464
16	5.55	7.3	190	8,795	163	7,545	159	7,360	14	16.1	15.6	6.8	6.8	9.6	4	97.5	185	8	95.0	370	225	20	0.9	2		1423
17	4.98	7.4							17	15.6	15.1	6.9	6.8	9.2							205	40	1.7	4		1416
18	5.03	7.2							10	15.7	14.9	7.0	6.9	9.5							215	10	0.4	50	13	1404
19	4.87	7.3	252	10,235	214	8,692	205	8,326	18	16.1	15.2	7.0	6.9	9.5	7	96.7	284	11	94.6	447	205	20	0.8	50		1404
20	4.56	7.2	226	8,595	192	7,302	197	7,492	18	16.1	15.0	7.0	6.9	9.3	7	96.4	266	10	94.9	380	200	20	0.8	30		1355
21	4.58	7.3	218	8,327	188	7,181	218	8,327	21	15.5	14.9	7.0	7.0	10.0	9	95.2	344	12	94.5	458	180	50	1.9	< 2		1371
22	4.41	7.3	194	7,135	174	6,400	156	5,738	17	16.0	15.9	7.0	6.9	9.0	9	94.8	331	10	93.6	368	170	45	1.7	2,400		1439
23	5.78	7.4	146	7,038	158	7,616	154	7,424	20	16.6	15.7	7.0	6.9	9.3	9	94.3	434	12	92.2	578	230	20	1.0	900		1504
24	5.95	7.3							16	16.1	15.6	6.9	6.8	9.2							210	10	0.5	50		1514
25	5.61	7.3							14	15.8	14.7	6.9	6.8	9.1							220	20	0.9	23	69	1496
26	5.63	7.3	194	9,109	186	8,733	163	7,654	15	15.3	14.6	7.0	6.9	9.5	7	96.2	329	10	93.9	470	220	20	0.9	17		1481
27	5.87	7.2	198	9,693	189	9,253	162	7,931	18	15.5	14.9	6.9	6.8	9.3	8	95.8	392	11	93.2	539	220	20	1.0	12		1472
28	5.56	7.3	164	7,605	152	7,048	150	6,956	15	15.6	14.9	7.0	6.8	8.9	6	96.1	278	10	93.3	464	210	30	1.4	30		1439
29	4.90	7.5	167	6,825	151	6,171	148	6,048	13	15.3	15.3	7.0	6.9	9.1	5	96.7	204	10	93.2	409	200	30	1.2	500		1489
30	4.73	7.4	180	7,101	178	7,022	138	5,444	14	15.9	14.8	7.0	6.9	9.3	6	96.6	237	14	89.9	552	205	10	0.4	80		1494
31	4.82	7.4							12	15.2	14.3	7.0	7.0	9.6							200	10	0.4	23		1445
Jan. 1																								300	56	
TOT.	166	228	4348	188145	3967	172,536	3920	168,721	505	500	482	216	213	290	154	2,207.3	9290	249	2,143.0	15021	7,080	1485	94.8	5,615	120	44883
MAX.	12.75	7.6	252	14993	247	14,674	230	12,122	21.0	17.7	17.0	7.0	7.0	10.0	13	97.5	1,382	22	96.1	2,339	330	350	37.2	2,400	69	1514
MIN.	3.73	7.2	120	6153	114	5,097	114	5,240	10.0	14.6	14.3	6.8	6.7	7.5	4	90.6	127	8	80.7	280	170	10	0.4	2	13	1355
Max. Weekly Average															8		528	12		741					GM 69	
AVG.	5.37	7.3	189	8180	172	7,502	170	7,336	16.3	16.1	15.5	7.0	6.9	9.4	7	96.0	321	11	93.2	528	228	48	3.1	GM 25		1448
						PLANT EFFLUENT			WEEKLY			6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS			MONTHLY			6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

Updated on April 11, 2011

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

January, 2011

NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																		INCINERA-TION
																CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%			%								BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	lbs used	Res ppb	lbs Disch	# /100 ml	WEEKLY AVERAGE	Low Temp.
1	4.16	7.3							15	15.1	14.7	7.0	6.9	9.6							195	10	0.3	300		1424
2	4.98	7.3	230	9,553	214	8,888	181	7,518	20	14.8	14.3	7.0	6.9	9.8	9	95.8	374	12	93.4	498	190	20	0.8	30		1442
3	4.33	7.3	237	8,559	208	7,511	185	6,681	16	15.2	14.6	7.0	6.9	9.0	6	97.1	217	9	95.1	325	180	20	0.7	30		1449
4	4.04	7.3	234	7,884	211	7,109	216	7,278	15	15.3	15.0	6.9	6.9	9.3	7	96.7	236	11	94.9	371	175	10	0.3	30		1441
5	4.48	7.3							12	15.2	15.0	7.0	6.9	9.7							190	40	1.5	4		1408
6	5.58	7.4	190	8,842	192	8,935	163	7,586	17	15.9	15.4	7.0	6.9	9.3	7	96.4	326	10	93.9	465	190	10	0.5	30		1408
7	3.78	7.4	208	6,557	190	5,990	197	6,210	18	15.9	15.3	7.0	6.9	8.8	7	96.3	221	7	96.4	221	200	10	0.3	80		1481
8	5.22	7.4							21	15.4	14.5	6.9	6.8	9.2							210	10	0.4	50	28	1408
9	4.75	7.3	215	8,517	205	8,121	159	6,299	22	14.8	14.2	7.0	6.9	9.8	9	95.6	357	14	91.2	555	210	10	0.4	13		1372
10	4.26	7.4	189	6,715	180	6,395	172	6,111	22	15.4	14.5	7.0	6.9	9.1	8	95.6	284	14	91.9	497	185	30	1.1	70		1492
11	4.33	7.3	190	6,861	210	7,584	165	5,959	20	14.8	14.5	7.0	6.9	9.4	8	96.2	289	12	92.7	433	185	20	0.7	23		1473
12	7.01	7.3	144	8,419	138	8,068	156	9,120	23	14.5	14.4	6.9	6.8	9.5	9	93.5	526	15	90.4	877	245	25	1.5	13		1473
13	6.55	7.3	157	8,576	130	7,102	102	5,572	24	14.6	14.4	6.8	6.7	8.9	8	93.8	437	13	87.3	710	240	190	10.4	13		1471
14	5.63	7.3							21	15.2	15.2	6.9	6.7	9.4							145	50	2.3	13		1488
15	6.17	7.3							21	16.0	15.0	6.8	6.8	9.2							190	10	0.5	300	28	1461
16	5.97	7.2	163	8,116	157	7,817	146	7,269	23	15.1	14.6	6.9	6.8	9.3	9	94.3	448	16	89.0	797	200	30	1.5	240		1457
17	6.04	7.3	175	8,815	165	8,312	150	7,556	20	15.2	14.4	6.9	6.8	9.3	9	94.5	453	15	90.0	756	225	10	0.5	130		1437
18	5.78	7.2	183	8,822	176	8,484	157	7,568	22	15.1	14.2	6.9	6.8	8.9	10	94.3	482	17	89.2	819	220	20	1.0	11		1437
19	5.15	7.4	167	7,173	170	7,302	160	6,872	23	14.4	14.1	6.9	6.8	9.5	10	94.1	430	15	90.6	644	210	45	1.9	11		1429
20	5.19	7.2	163	7,055	141	6,103	156	6,752	19	15.1	14.7	7.0	6.8	9.2	6	95.7	260	12	92.3	519	200	10	0.4	11		1456
21	6.28	7.3							20	15.5	14.6	6.9	6.8	9.5							235	320	16.8	7		1410
22	6.64	7.2							20	15.4	14.4	6.9	6.8	9.6							160	70	3.9	130	32	1498
23	5.04	7.3	199	8,365	182	7,650	159	6,683	16	15.4	14.7	6.9	6.9	9.1	10	94.5	420	13	91.8	546	205	10	0.4	13		1470
24	5.19	7.4	178	7,705	161	6,969	182	7,878	19	15.4	14.8	6.9	6.9	8.8	9	94.4	390	13	92.9	563	195	20	0.9	110		1467
25	4.67	7.3	180	7,011	169	6,582	177	6,894	18	15.3	14.8	6.9	6.8	9.1	8	95.3	312	14	92.1	545	185	20	0.8	23		1445
26	4.45	7.4	150	5,567	144	5,344	158	5,864	19	15.1	14.7	7.0	6.8	9.2	8	94.4	297	12	92.4	445	180	50	1.9	50		1439
27	4.41	7.3	193	7,098	166	6,105	214	7,871	20	15.3	14.6	6.9	6.8	9.7	7	95.8	257	13	93.9	478	170	10	0.4	13		1454
28	4.24	7.3							20	15.8	15.1	7.0	6.9	9.2							160	10	0.4	80		1436
29	4.32	7.3							21	16.1	16.0	6.9	6.9	9.3							185	20	0.7	170	43	1430
30	4.70	7.2	219	8,584	192	7,526	196	7,683	26	15.6	14.8	7.0	7.0	9.7	11	94.3	431	17	91.3	666	185	40	1.6	2,400		1427
31	3.98	7.3	212	7,037	197	6,539	227	7,535	24	15.2	14.8	7.0	6.9	9.3	10	94.9	332	14	93.8	465	190	30	1.0	8		1441
TOT.	157	227	4176	171831	3898	160,436	3778	154,758	617	473	456	215	212	289	185	2,094	11033	288	2,027	17176	6,035	1180	55.7	4,406	131	44824
MAX.	7.01	7.4	237	9553	214	8,935	227	9,120	26.0	16.1	16.0	7.0	7.0	9.8	11	97.1	526	17	96.4	877	245	320	16.8	2,400	43	1498
MIN.	3.78	7.2	144	5567	130	5,344	102	5,572	12.0	14.4	14.1	6.8	6.7	8.8	6	93.5	217	7	87.3	221	145	10	0.3	4	28	1372
Max. Weekly Average															9		415	15		707					GM 43	
AVG.	5.07	7.3	190	7810	177	7,293	172	7,034	19.9	15.3	14.7	6.9	6.8	9.3	8	95.2	354	13	92.1	554	195	38	1.8	GM 38		1446
						PLANT EFFLUENT LIMITATIONS			WEEKLY			6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
									MONTHLY			6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

February, 2011
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																INCINERATOR
															CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%	lbs		%	lbs	lbs	Res	lbs	#	WEEKLY	BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	/100 ml	AVERAGE	Low Temp.
Jan. 30 & 31			219/212		192/197		196/227								11/10		431/332	17/14		666/465				2400/8		
1	4.25	7.3	218	7,727	208	7,373	206	7,302	25	15.0	14.6	7.0	6.9	9.4	9	95.7	319	16	92.2	567	205	20	0.7	30		1440
2	3.90	7.4	180	5,855	182	5,920	215	6,993	21	14.9	15.7	7.0	6.8	9.4	7	96.2	228	15	93.0	488	160	30	1.0	2		1439
3	3.96	7.5	185	6,110	178	5,879	200	6,605	18	16.1	16.0	7.0	6.9	9.3	6	96.6	198	11	94.5	363	165	30	1.0	17		1357
4	3.95	7.4							18	16.2	16.0	7.0	6.9	9.8							165	40	1.3	30		1434
5	4.12	7.2							16	16.2	15.8	6.9	6.9	9.7							170	20	0.7	130	36	1451
6	4.23	7.2	216	7,620	214	7,550	194	6,844	14	16.0	15.2	7.0	7.0	9.6	7	96.7	247	12	93.8	423	165	40	1.4	50		1446
7	4.11	7.4	196	6,718	182	6,238	207	7,095	15	15.9	14.6	7.0	7.0	9.2	6	96.7	206	10	95.2	343	170	30	1.0	30		1446
8	4.22	7.3	202	7,109	190	6,687	187	6,581	16	15.4	14.8	7.0	6.9	9.4	6	96.8	211	10	94.7	352	195	30	1.1	22		1430
9	3.93	7.3	207	6,785	203	6,654	226	7,407	18	15.1	15.1	7.0	6.9	10.0	6	97.0	197	10	95.6	328	170	40	1.3	50		1445
10	3.80	7.4	205	6,497	192	6,085	208	6,592	17	15.2	15.5	7.0	6.9	9.8	5	97.4	158	10	95.2	317	150	10	0.3	23		1446
11	3.84	7.4							19	15.9	15.2	7.0	7.0	9.6							150	20	0.6	13		1460
12	4.26	7.3							16	16.1	15.5	7.1	7.0	9.8							175	10	0.4	300	39	1456
13	4.36	7.4	222	8,072	216	7,854	191	6,945	17	15.6	15.3	7.0	6.9	9.8	8	96.3	291	12	93.7	436	165	10	0.4	700		1471
14	6.57	7.3	183	10,027	173	9,479	177	9,699	19	15.8	14.8	6.9	6.9	9.0	6	96.5	329	13	92.7	712	225	40	2.2	30		1470
15	5.43	7.3	211	9,555	182	8,242	184	8,333	15	14.8	14.1	6.9	6.8	8.5	7	96.2	317	11	94.0	498	185	150	6.8	13		1466
16	4.86	7.2	150	6,080	154	6,242	164	6,647	15	14.8	14.9	6.9	6.8	8.8	6	96.1	243	11	93.3	446	215	30	1.2	110		1464
17	4.71	7.2	186	7,306	164	6,442	173	6,796	15	15.2	15.1	6.8	6.7	8.8	5	97.0	196	10	94.2	393	215	50	2.0	17		1462
18	4.45	7.3							14	14.9	14.5	6.8	6.8	9.7							205	20	0.7	2		1451
19	4.49	7.3							16	14.9	14.4	6.9	6.8	9.5							215	10	0.4	9	27	1449
20	4.18	7.2	226	7,879	220	7,669	184	6,414	15	14.4	14.4	6.9	6.9	9.9	7	96.8	244	12	93.5	418	185	170	5.9	4		1377
21	4.34	7.2	244	8,832	242	8,759	191	6,913	20	15.3	14.7	7.0	6.9	9.4	9	96.3	326	13	93.2	471	190	20	0.7	300		1410
22	4.33	7.1	236	8,522	222	8,017	212	7,656	16	15.5	14.7	6.9	6.9	9.3	7	96.8	253	11	94.8	397	195	10	0.4	50		1410
23	3.98	7.3	228	7,568	207	6,871	199	6,605	17	15.0	14.5	7.0	6.9	9.2	6	97.1	199	11	94.5	365	190	20	0.7	23		1448
24	4.11	7.3	198	6,787	180	6,170	192	6,581	17	14.8	14.3	6.9	6.8	9.8	5	97.2	171	11	94.3	377	100	10	0.3	30		1465
25	3.90	7.3							17	15.1	14.5	7.0	6.9	9.8							215	10	0.3	130		1471
26	4.16	7.2							21	14.4	14.1	7.0	6.9	9.9							145	30	1.0	300	55	1458
27	3.98	7.3	279	9,261	255	8,464	215	7,137	21	15.1	14.8	7.0	7.0	10.2	12	95.3	398	21	90.2	697	160	20	0.7	2,400		1476
28	4.03	7.3	218	7,327	206	6,924	230	7,730	25	15.4	14.3	7.0	6.9	9.0	11	94.7	370	11	95.2	370	180	100	3.4	30		1481
TOT.	120	204	4190	151638	3970	143,519	3955	142,877	493	429	417	195	193	266	141	1,929	7082	241	1,877.7	12105	5,025	1020	37.9	4,845	157	40479
MAX.	6.57	7.5	279	10027	255	9,479	230	9,699	25.0	16.2	16.0	7.1	7.0	10.2	12	97.4	398	21	95.6	712	225	170	6.8	2,400	55	1481
MIN.	3.80	7.1	150	5855	154	5,879	164	6,414	14.0	14.4	14.1	6.8	6.7	8.5	5	94.7	158	10	90.2	317	100	10	0.3	2	27	1357
Max. Weekly Average															9		302	15		510					GM = 55	
AVG.	4.30	7.3	210	7582	199	7,176	198	7,144	17.6	15.3	14.9	7.0	6.9	9.5	7	96.5	255	12	93.9	438	179	36	1.4	GM = 28		1446
						PLANT EFFLUENT			WEEKLY			6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS			MONTHLY			6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

City of Lynnwood
Snohomish County
POP. 37,000

CITY OF LYNNWOOD
WASTEWATER TREATMENT PLANT MONITORING REPORT

March, 2011
NPDES PERMIT WA-002403-1

		PLANT INFLUENT							PLANT EFFLUENT																	INCINERA-
															CBOD5			SUSPENDED SOLIDS			CHLORINE			MPN		TION
DATE	FLOW	PH	BOD5		CBOD5		SS		Turb	Temp C		p H		DO		%	lbs		%	lbs	lbs	Res	lbs	#	WEEKLY	BED
	MGD	D	mg/l	lbs	mg/l	lbs	mg/l	lbs	FAU	AM	PM	high	low	mg/l	mg/l	Rem	Disch	mg/l	Rem	Disch	used	ppb	Disch	/100 ml	AVERAGE	Low Temp.
2/27-28															12/11		398/370	21/11		697 / 370				2400/30		
1	4.13	7.2	154	5,304	143	4,926	224	7,716	18	15.1	14.9	6.9	6.8	10.1	8	94.4	276	12	94.6	413	170	20	0.7	900		1481
2	4.22	7.2	210	7,391	182	6,405	189	6,652	16	15.2	14.8	6.8	6.7	9.6	5	97.3	176	11	94.2	387	195	35	1.2	30		1449
3	4.09	7.1	202	6,890	187	6,379	193	6,583	17	15.2	15.2	6.8	6.7	9.8	7	96.3	239	7	96.4	239	215	370	12.6	8		1442
4	4.18	7.2							18	15.2	14.9	6.8	6.7	10.0							205	350	12.2	4		1502
5	4.27	7.2							19	14.7	14.9	7.0	6.7	10.0							225	60	2.1	30	57	1501
6	4.11	7.0	244	8,364	236	8,089	196	6,718	21	15.4	14.6	6.7	6.7	9.8	10	95.8	343	12	93.9	411	210	20	0.7	50		1506
7	3.96	7.2	241	7,959	230	7,596	229	7,563	20	15.5	14.4	6.8	6.7	9.1	10	95.7	330	12	94.8	396	195	20	0.7	130		1496
8	4.16	7.0	222	7,702	194	6,731	212	7,355	10	15.3	15.1	6.8	6.7	9.1	7	96.4	243	10	95.3	347	205	30	1.0	50		1496
9	6.06	7.1	137	6,924	116	5,863	170	8,592	18	15.3	15.2	7.0	6.6	9.1	6	94.8	303	11	93.5	556	240	30	1.5	13		1427
10	6.65	7.4	112	6,212	103	5,712	117	6,489	20	14.4	13.5	7.0	6.3	8.7	7	93.2	388	12	89.7	666	270	430	23.8	11		1494
11	5.28	7.4							17	13.8	14.1	6.9	6.6	9.5							220	290	12.8	2		1514
12	6.44	7.2							18	14.4	14.1	7.0	6.8	8.9							245	20	1.1	30	22	1497
13	10.03	7.3	131	10,958	128	10,707	124	10,373	23	14.5	13.5	7.0	6.9	9.0	12	90.6	1,004	15	87.9	1,255	315	40	3.3	300		1512
14	12.01	7.2	97	9,716	92	9,215	85	8,514	31	12.8	12.3	6.9	6.8	10.4	14	84.8	1,402	21	75.3	2,103	310	690	69.1	80		1529
15	10.91	7.3	87	7,916	82	7,461	78	7,097	24	13.0	13.2	6.9	6.8	10.2	12	85.4	1,092	19	75.6	1,729	340	30	2.7	300		1529
16	9.30	7.4	106	8,222	98	7,601	117	9,075	22	12.8	13.0	6.9	6.7	10.0	9	90.8	698	14	88.0	1,086	320	245	19.0	140		1512
17	6.74	7.4	46	2,586	38	2,136	128	7,195	24	13.6	13.3	6.9	6.8	9.2	13	65.8	731	18	85.9	1,012	250	10	0.6	23		1512
18	6.21	7.4							11	13.7	13.2	7.0	6.9	9.8							220	560	29.0	2		1468
19	6.12	7.4							14	14.1	14.0	7.0	6.9	9.7							215	20	1.0	17	50	1455
20	5.68	7.3	189	8,953	186	8,811	167	7,911	19	13.9	13.5	6.9	6.9	10.0	14	92.5	663	11	93.4	521	225	20	0.9	17		1431
21	5.35	7.3	204	9,102	194	8,656	178	7,942	14	14.8	14.2	6.9	6.8	9.0	7	96.4	312	8	95.5	357	210	150	6.7	13		1507
22	4.97	7.4	174	7,212	169	7,005	158	6,549	11	14.7	14.7	6.9	6.8	9.1	7	95.9	290	8	94.9	332	195	30	1.2	13		1504
23	4.75	7.6	173	6,853	164	6,497	180	7,131	13	14.4	15.0	7.0	6.9	9.5	7	95.7	277	8	95.6	317	220	15	0.6	8		1504
24	4.69	7.3	193	7,549	182	7,119	203	7,940	14	15.1	15.5	7.0	6.9	9.0	8	95.6	313	9	95.6	352	190	30	1.2	23		1509
25	4.45	7.5							13	15.4	15.6	7.0	6.9	9.6							180	20	0.7	50		1509
26	4.53	7.4							9	15.9	15.0	7.0	7.0	9.4							180	20	0.8	17	17	1499
27	4.61	7.2	232	8,920	225	8,651	191	7,343	14	15.6	14.9	7.0	6.9	9.4	8	96.4	308	12	93.7	461	190	10	0.4	240		1482
28	4.26	7.4	205	7,283	186	6,608	203	7,212	11	15.2	15.0	7.0	6.9	9.7	6	96.8	213	7	96.6	249	170	20	0.7	7		1423
29	4.22	7.4	221	7,778	204	7,180	200	7,039	8	15.6	15.4	7.0	7.0	9.3	5	97.5	176	5	97.5	176	170	40	1.4	50		1329
30	4.28	7.4	206	7,353	198	7,068	199	7,103	10	15.8	15.3	7.0	6.9	9.4	6	97.0	214	7	96.5	250	145	15	0.5	23		1329
31	4.43	7.4	190	7,020	161	5,948	210	7,759	10	16.0	16.4	7.0	7.0	9.6	5	96.9	185	6	97.1	222	145	10	0.4	80		1485
4/ 1-2																								130/240	65	
TOT.	175	226	3976	174168	3698	162,364	3951	173,852	507	456	449	215	211	295	193	2,141.8	12253	255	2,121.6	16190	6,785	3650	210.8	2,661	146	45833
MAX.	12.01	7.6	244	10958	236	10,707	229	10,373	31.0	16.0	16.4	7.0	7.0	10.4	14	97.5	1,402	21	97.5	2,103	340	690	69.1	900	57	1529
MIN.	3.96	7.0	46	2586	38	2,136	78	6,489	8.0	12.8	12.3	6.7	6.3	8.7	5	65.8	176	5	75.3	176	145	10	0.4	2	17	1329
Max. Weekly Average															12		985	17		1,437					GM 65	
AVG.	5.65	7.3	173	7573	161	7,059	172	7,559	16.4	14.7	14.5	6.9	6.8	9.5	8	93.1	442	11	92.2	602	219	118	6.8	GM 33		1478
						PLANT EFFLUENT				WEEKLY		6.0 - 9.0			40		2,469	45		2,777	DAILY	834			400	
						LIMITATIONS				MONTHLY		6.0 - 9.0			25	> 85%	1,543	30	> 85%	1,851		318	19.6	200		

William Franz, Public Works Director
Name and Title

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true, complete and accurate.

Signature

Appendix F

Descriptive Model of Treatment Process

Lynnwood WWTP								
Design / Plant	**Statup**	**Design**	**NPDES**	**Year**	**Year**	**Year**	**Typical**	**Range**
Component	**1991**	**2010**	**Permit (6-30-08)**	**2017**	**2025**	**2040**	**Design**	**Design**
Population	28,700	36,000		39,600	43,560	52,708		
Flow, mgd								
Average Annual	3.9	5.4						
Maximum Month	5.4	7.4	7.4					
Peak Day	9.8	13.6						
BOD_5, lbs/day								
Max month AVG	9458	12960	15120					
TSS, lbs/day								
Max month AVG	9458	12960	15120					
Effluent								
$CBOD_5$, lbs/day								
AVG month, 25 mg/L (NPDES)			1543					
or			< 15% inf. avg. conc.					
AVG week, 40 mg/L (NPDES)			2469					
TSS, lbs/day								
AVG month, 30 mg/L (NPDES)			1851					
or			< 15% inf. avg. conc.					
AVG week, 45 mg/L (NPDES)			2777					
Fecal Coliform Bacteria								
Monthly geometric mean			200 organisms/ 100mL					
Weekly geometric mean			400 organisms/ 100mL					
Chlorine, lbs/day								
AVG month (0.5 mg/L, NPDES)			30.9					
AVG week (0.75 mg/L, NPDES)			46.3					
Rectangular Primary Clarifiers								
Number, each	3	3					Table 5-21	Table 5-22
Straight Length, feet	105	105					80-130	50-300
width, feet	16	16					16-32	10 to 80
Side water depth, feet	8.5	8.5					14	10 to 16

Lynnwood WWTP

Design / Plant	Statup	Design	NPDES	Year	Year	Year	Typical	Range
Component	1991	2010	Permit (6-30-08)	2017	2025	2040	Design	Design
Settling Area each, sq feet	1680	1680						
Volume/unit, gal	106822	106822						
Weir length/unit	179	179						
sludge collector size								
length, feet	110	110						
width, feet	15.67	15.67						
screw conveyor size								
length, feet	16	16						
diameter, inches	18	18						
Hydraulic Loading/unit, mgd								
@ design avg flow	0.99	1.37						
@ design max month flow	1.37	1.87						
@ peak flow	2.48	3.45						
Surface loading rate/unit, gpd/sf:							Table 5-20	Table 5-20
@ design avg flow	588	814					1000	800-1200
@ design max month flow	814	1116						
@ peak flow	1478	2051					25000	2000-3000
@ peak hourly								
Detention Time/unit, hr								
@ design avg flow	2.59	1.87					2	1.5-2.5
@ design max month flow	1.87	1.37						
@ peak flow	1.03	0.74						
Weir loading rate/unit, gpd/lf								
@ design avg flow	5521	7644						
@ design max month flow	7644	10475						
@ peak flow	13872	19251						
BOD Removal, %								
@ design avg flow	37	34						
@ design max month flow	34	30						
@ peak flow	27	23						

Lynnwood WWTP

Design / Plant	Statup	Design	NPDES	Year	Year	Year	Typical	Range
Component	1991	2010	Permit (6-30-08)	2017	2025	2040	Design	Design
Circular Primary Clarifiers								
Number, each	1	1					Table 5-21	Table 5-22
diameter, feet	45	45					10 to 200	40-150
Side water depth, feet	12.5	12.5					14	10 to 16
Settling Area, sq feet	1590	1590						
Volume/unit, gal	148716	148716						
sludge collector size								
diameter, feet	45	45						
Weir length/unit, feet	134	134						
Hydraulic Loading/unit, mgd								
@ design avg flow	0.94	1.30						
@ design max month flow	1.30	1.78						
@ peak flow	2.35	3.26						
Surface loading rate, gpd/sf:								
@ design avg flow	588	814						
@ design max month flow	814	1116						
@ peak flow	1478	2051						
Detention Time, hr							1.5-2.5	
@ design avg flow	3.8	2.8						
@ design max month flow	2.8	2.0						
@ peak flow	1.5	1.1						
Weir loading rate, gpd/lf								
@ design avg flow	6,981	9,666						
@ design max month flow	9,666	13,246						
@ peak flow	17,543	24,345						
Aeration Basins								
Number, each	3	3						
Side water depth, feet	24	24						
Volume each, gal	309,000	309,000						
Number of cells per Basin	4	4						

Lynnwood WWTP

Design / Plant	Statup	Design	NPDES	Year	Year	Year	Typical	Range
Component	**1991**	**2010**	**Permit (6-30-08)**	**2017**	**2025**	**2040**	**Design**	**Design**
Volume of cells, gal								
Cell No. 1	19,500	19,500						
Cell No. 2	19,500	19,500						
Cell No. 3	212,500	212,500						
Cell No. 4	57,500	57,500						
Detention Time, hr								
@ design avg flow	5.7	4.1						
@ design max month flow	4.1	3.0						
@ peak flow	2.3	1.6						
MLSS Conc, mg/L								
@ design avg flow		3500					3000-5000	
@ design max month flow	3000	3500						
@ peak flow	3000	3500						
F/M ratio								
@ design avg flow								
@ design max month flow	0.43	0.50						
@ peak flow								
Solids retention time, days								
@ design avg flow		5.4						
@ design max month flow	4.5	3.7						
@ peak flow								
Secondary Clarifiers								
Number, each	4	4						
Length, feet	120	120						
Width, feet	24	24						
Side water depth, feet	14	14						
Area each, sq feet	2880	2880						
Volme/unit, gal	301615	301615						
Weir length / unit, feet	320	320						
Surface loading rate/unit, gpd/sf:							**Table 8-7**	**Table 8-7**

Lynnwood WWTP

Design / Plant	Statup	Design	NPDES	Year	Year	Year	Typical	Range
Component	1991	2010	Permit (6-30-08)	2017	2025	2040	Design	Design
@ design avg flow	339	469						
@ design max month flow	469	642					200-400	400-700
@ peak flow	851	1,181					600-800	1,000-1,600
Detention Time, hr								
@ design avg flow	7.4	5.4						
@ design max month flow	5.4	3.9					0.2-1.0	0.8-1.2
@ peak flow	3.0	2.1					1.4	1.6
Chlorine Contact Tank								
Length, feet	56	56						
Width, feet	42	42						
Side water depth, feet	20	20						
Volume, gallons	326,000	326,000						
Detention Time, min			15 minutes min					
@ design avg flow	120	87					60 minutes	
@ design max month flow	87	63						
@ peak flow	48	35					20 minutes	
Mechanical Bar Rake								
Number, each	1							
Grid Size	48" W X 62" L X 36" H							
Grid angle, degrees	45							
Bar Size	1/4"x 1-1/2" - 1" O.C.							
Conveyor size	48" W X 8' L							
Influent Flowmeter								
Number, each	1							
Type	PARSHALL FLUME							
Throat width, inches	36							
Slot width, inches	21							

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
Population	28,700	35,836	36,000		39,544	43,782	50,127			
Flow, mgd										
Average Annual	3.9	5.4	4.13		4.50	4.97	5.52			
Maximum Month	5.4	7.4	5.65	7.4	5.75	6.35	7.05			
Peak Day	9.8	13.6	12.8		13.62	15.04	16.70			
Peak Hour			17.64		19.24	21.25	23.6			
BOD_5, lbs/day										
Average Annual	6,831	9,457	7,970		9,385	10,366	11,509			
Maximum Month	9,458	12,960	8,976	15,120	14,383	15,886	17,639			
Peak Day	17,165	23,818	14,993		16,013	17,686	19,638			
TSS, lbs/day										
Average Annual	6,831	9,457	7,670		9,010	9,951	11,049			
Maximum Month	9,458	12,960	9,190	15,120	13,904	15,357	17,051			
Peak Day	17,165	23,818	13,412		14,325	15,821	17,567			
Rectangular Primary Clarifiers								Tables 5-21, 5-22		
Number, each	3	3	3		3	3	3			
Straight Length, feet	105	105	105		105	105	105	80 to 130	50 to 300	> 10
width, feet	16	16	16		16	16	16	16 to 32	10 to 80	< 24
Side water depth, feet	8.5	8.5	8.5		8.5	8.5	8.5	14	10 to 16	8-14
Settling Area each, sq feet	1,680	1,680	1,680		1,680	1,680	1,680			
Volume/unit, gal	106,822	106,822	106,822		106,822	106,822	106,822			
Weir length/unit	179	179	179		179	179	179			
sludge collector size										
length, feet	110	110	110		110	110	110			
width, feet	15.67	15.67	15.67		15.67	15.67	15.67			
screw conveyor size										
length, feet	16	16	16		16	16	16			
diameter, inches	18	18	18		18	18	18			
Hydraulic Loading/unit, mgd										
Average Annual	1.04	1.44	1.10		1.20	1.32	1.47			
Maximum Month	1.44	1.97	1.50		1.53	1.69	1.88			
Peak Day	2.61	3.62	3.39		3.62	4.00	4.44			
Peak Hour			4.69		5.12	5.65	6.28			
Surface loading rate/unit, gpd/sf:								Table 5-20		
Average Annual	618	855	653		713	787	874	1,000	800 to 1,200	800 to 1,200
Maximum Month	855	1,172	895		910	1,006	1,116			
Peak Day	1,552	2,154	2,019		2,156	2,382	2,645			
Peak Hour			2,794		3,048	3,366	3,737	2,500	2,000 to 3,000	2,000 to 3,000
Detention Time/unit, hr										
Average Annual	2.47	1.78	2.34		2.14	1.94	1.75	2	1.5-2.5	<2.5
Maximum Month	1.78	1.30	1.71		1.68	1.52	1.37			
Peak Day	0.98	0.71	0.76		0.71	0.64	0.58			
Weir loading rate/unit, gpd/lf										
Average Annual	5,797	8,026	6,133		6,690	7,389	8,204			
Maximum Month	8,026	10,999	8,398		8,544	9,437	10,478			
Peak Day	14,566	20,214	18,950		20,240	22,355	24,821	20,000	10000 to 40000	10000 to 40000

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
BOD Removal, %										
Average Annual	49	45	48		47	46	45			
Maximum Month	45	41	44		44	43	41			
Peak Day	36	31	32		31	29	27			
TSS Removal, %										
Average Annual	59	55	58		57	56	55			
Maximum Month	55	51	54		54	53	51			
Peak Day	46	41	42		41	39	37			
Mass of Sludge/unit, lb/d										
Average Annual	1,167	1,512	1,222		1,311	1,418	1,538			
Maximum Month	1,512	1,909	1,565		1,586	1,709	1,844			
Peak Day	2,310	2,820	2,716		2,822	2,982	3,153			
Circular Primary Clarifiers										
Number, each	1	1	1		1	1	1			
diameter, feet	45	45	45		45	45	45			
Side water depth, feet	12.5	12.5	12.5		12.5	12.5	12.5			
Settling Area, sq feet	1,590	1,590	1,590		1,590	1,590	1,590			
Volume/unit, gal	148,716	148,716	148,716		148,716	148,716	148,716			
Weir length/unit, feet	134	134	134		134	134	134			
Hydraulic Loading/unit, mgd										
Average Annual	1.03	1.36	1.04		1.13	1.25	1.39			
Maximum Month	1.43	1.96	1.49		1.52	1.68	1.86			
Peak Day	2.59	3.60	3.37		3.60	3.98	4.42			
Peak Hour			4.67		5.09	5.62	6.24			
Surface loading rate/unit, gpd/sf:								Table 5-20		
Average Annual	648	855	653		713	787	874	1,000	800 to 1,200	800 to 1,200
Maximum Month	898	1,230	939		956	1,056	1,172			
Peak Day	1,630	2,261	2,120		2,264	2,501	2,777			
Peak Hour			2,933		3,200	3,534	3,924	2,500	2,000 to 3,000	2,000 to 3,000
Detention Time/unit, hr										
Average Annual	3.5	2.6	3.4		3.1	2.9	2.6	2	1.5-2.5	<2.5
Maximum Month	2.5	1.8	2.4		2.3	2.1	1.9			
Peak Day	1.4	1.0	1.1		1.0	0.9	0.8			
Peak Hour			0.8		0.7	0.6	0.6			
Weir loading rate, gpd/lf										
Average Annual	7,697	10,150	7,756		8,460	9,344	10,375			
Maximum Month	10,657	14,604	11,151		11,345	12,531	13,913			
Peak Day	19,341	26,840	25,163		26,875	29,683	32,958			
Peak Hour			34,816		37,979	41,947	46,576	20000	10000 to 40000	10000 to 40000
BOD Removal, %										
Average Annual	52	49	52		51	50	49			
Maximum Month	49	45	48		48	47	46			
Peak Day	41	36	37		36	35	33			
TSS Removal, %										
Average Annual	62	59	62		61	60	59			
Maximum Month	59	55	58		58	57	56			
Peak Day	51	46	47		46	45	43			

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
Mass of Sludge/unit, lb/d										
Average Annual	1,222	1,546	1,230		1,326	1,442	1,574			
Maximum Month	1,609	2,070	1,670		1,694	1,835	1,993			
Peak Day	2,553	3,196	3,064		3,199	3,408	3,634			
Primary Sludge Production										
Total sludge, lb/d										
Average Annual	4,264	5,560	4,750		5,493	5,952	6,464			
Maximum Month	5,548	7,037	5,337		8,044	8,677	9,381			
Peak Day	8,558	10,515	6,077		6,321	6,695	7,094			
Total WPS, gpd @ 0.9%TS										
Average Annual	55,145	71,893	61,427		71,036	76,961	83,592			
Maximum Month	71,745	90,998	69,018		104,012	112,208	121,301			
Peak Day	110,659	135,975	78,578		81,734	86,569	91,733			
Solids Underflow, %TS	0.9								2 to 6%	2 to 7 %
Aeration Basins										
Number, each	3	3	3							
Side water depth, feet	24	24	24							
Volume each, gal	309,000	309,000	309,000		309,000	309,000	309,000			
Number of cells per Basin	4	4	4							
Volume of cells, gal										
Cell No. 1	19,500	19,500	19,500		19,500	19,500	19,500			
Cell No. 2	19,500	19,500	19,500		19,500	19,500	19,500			
Cell No. 3	212,500	212,500	212,500		212,500	212,500	212,500			
Cell No. 4	57,500	57,500	57,500		57,500	57,500	57,500			
Total Detention Time, hr								Table 8-16		
Average Annual	5.7	4.1	5.4		4.9	4.5	4.0			
Maximum Month	4.1	3.0	3.9		3.9	3.5	3.2		3 to 5	
Peak Day	2.3	1.6	1.7		1.6	1.5	1.3			
SRT, days										
Average Annual	6.6	4.3	6.1		5.5	4.8	4.2			
Maximum Month	3.6	2.4	3.4		3.3	2.9	2.5		3 to 15	5 to 15
Peak Day					2.4	2.1	1.8			
F:M Ratio										
Average Annual	0.25	0.34	0.29		0.34	0.38	0.42			
Maximum Month	0.34	0.47	0.33		0.52	0.58	0.64			
Peak Day	0.62	0.86	0.54		0.58	0.64	0.71			
MLSS Conc, mg/L	2500								1500-4000	1500 to 3500
AOR, lbs O2/hr										
Average Annual	313	433	365		430	475	528			1.1 lbs O2/lb BOD
Maximum Month	433	594	411		659	728	808			
Peak Day	787	1092	687		734	811	900			
SOR, lbs O2/hr										
Average Annual	921	1275	1074		1265	1397	1551			
Maximum Month	1172	1605	1112		1782	1968	2185			
Peak Day	1967	2729	1718		1835	2027	2250			
Air Req'd, SCFM										

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
Average Annual	2907	4025	3392		3995	4412	4899			
Maximum Month	3699	5069	3511		5626	6214	6899			
Peak Day	6210	8617	5424		5793	6399	7105			
Diffuser SOTE	30%									
Secondary Clarifiers										
Number, each	4	4	4		4	4	4			
Length, feet	120	120	120		120	120	120			
Width, feet	24	24	24		24	24	24			
Side water depth, feet	14	14	14		14	14	14			
Area each, sq feet	2,880	2,880	2,880		2,880	2,880	2,880			
Volme/unit, gal	301,615	301,615	301,615		301,615	301,615	301,615			
Weir length / unit, feet	320	320	321		320	320	320			
Surface loading rate/unit, gpd/sf:								Table 8-7		
Average Annual	339	469	358		391	432	479		400 to 700	
Maximum Month	469	642	490		499	551	612			
Peak Day	851	1,181	1,107		1,182	1,306	1,450			
Peak Hour			1,531		1,670	1,845	2,049		1000 to 1600	1,200
Weir loading rate, gpd/lf										
Average Annual	3,047	4,219	3,214		3,517	3,884	4,313			
Maximum Month	4,219	5,781	4,400		4,491	4,960	5,508			
Peak Day	7,656	10,625	9,930		10,639	11,750	13,047			
Detention Time, hr										
Average Annual	7.4	5.4	7.0		6.4	5.8	5.2			
Maximum Month	5.4	3.9	5.1		5.0	4.6	4.1			
Peak Day	3.0	2.1	2.3		2.1	1.9	1.7			
Solids loading rate/unit, lb/sf·h										
Average Annual	1.2	1.6	1.2		1.4	1.5	1.7		1.0 to 1.4	20-30 lb/day/sqft
Maximum Month	1.6	2.2	1.7		1.7	1.9	2.1	1.8		
Peak Day	3.0	4.1	3.8		4.1	4.5	5.0			
Solids retention time, day										
Average Annual	6.6	4.3	6.1		5.5	4.8	4.2			
Maximum Month	3.6	2.4	3.4		3.3	2.9	2.5			
Peak Day	3.7	2.4	2.6		2.4	2.1	1.8			
Sludge produced, lb/d										
Average Annual	3,406	5,251	3,668		4,122	4,706	5,406			
Maximum Month	6,178	9,293	6,556		6,706	7,633	8,735			
Peak Day	7,291	11,054	10,196		11,072	12,522	14,227			
Solids underflow, %TS	0.75								0.5 to 1.5	
Sludge produced, gal/d@0.75%										
Average Annual	52,858	81,488	56,918		63,958	73,025	83,890			
Maximum Month	95,865	144,208	101,731		104,066	118,443	135,551			
Peak Day	113,130	171,532	158,222		171,809	194,303	220,761			
Total Sludge Produced, lbs/day										
Average Annual	7,287	10,271	7,997		9,134	10,125	11,277			
Maximum Month	11,726	16,330	11,893		14,750	16,310	18,116			

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
Peak Day	15,848	21,569	16,273		17,393	19,216	21,321			
Chlorine Contact Tank										
Length, feet	56	56	56		56	56	56			
Width, feet	42	42	42		42	42	42			
Side water depth, feet	20	20	20		20	20	20			
Volume, gallons	326,000	326,000	326,000		326,000	326,000	326,000			
Detention Time, min										
Average Annual	120	87	114		104	94	85		30 to 120 min	60-120
Maximum Month	87	63	83		82	74	67			
Peak Day	48	35	37		34	31	28			
Peak Hour			27		24	22	20		15 to 90 min	> 20
Chlorination System										
Number, each	2									
Capacity/unit, lb/day	2,000									
Number of chlorine containers	6									
Chlorine container size, ton	1									
Chlorine dosage, mg/L	5								6 to 15	
Chlorine feed rate, lb/day CL_2										
Average Annual	163	225	172		188	207	230			
Maximum Month	225	308	236		240	265	294			
Peak Day	408	567	532		568	627	696			
Peak Hour			736		802	886	984			
Gravity Thickener										
Number, each	1									
Settling area, sq feet	450									
Side water depth, feet	11									
Volume, gal	37,000									
Surface loading rate, gpd/sq feet										
Average Annual	245	340	137		158	171	186			
Maximum Month	340	440	153		231	249	270			
Peak Day		. . .	175		182	192	204		380 to 760	600 to 792
Solids loading rate, ppd/sq feet										
Average Annual	10	14	11		12	13	14		Table 14-19	
Maximum Month	14	18	12		18	19	21		20-30	20 -30
Peak Day		. . .	14		14	15	16			
Detention time, hr										
Average Annual	8.1	5.8	14.5		12.5	11.5	10.6			
Maximum Month	5.8	4.5	12.9		8.5	7.9	7.3			
Peak Day		. . .	11.3		10.9	10.3	9.7			
Underflow solids, conc.	8%		3.95%						5 to 10	5 to 10
WAS Pre-Concentration Tank										
Number, each	1									
Settling Area, sq feet	400									
Side water depth	15									

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
Volume, gal	44,883									
Surface loading rate, gpd/sq feet										
Average Annual	132	204	142		160	183	210			
Maximum Month	240	361	254		260	296	339			
Peak Day		. . .	396		430	486	552		100 to 200	100 to 200
Solids loading rate, ppd/sq feet									Table 14-19	
Average Annual	9	13	9		10	12	14			
Maximum Month	15	23	16		17	19	22		4 to 8	3 to 7
Peak Day		. . .	25		28	31	36			
Detention time, hr										
Average Annual	20	13	19		17	15	13			
Maximum Month	11	7	11		10	9	8			
Peak Day		. . .	7		6	6	5			
Underflow Solids, Conc.	1.75%								2 to 3	2 to 3
Centrifuge										
Number, each	2									
Capacity per unit, lb/hr	940									
Hydraulic loading, gpm (24-hr basis)										
Average Annual	75	37	27		30	34	38			
Maximum Month	41	59	41		47	53	60			
Peak Day		. . .	60		64	72	80			
Solids loading, lb/hr (24-hr basis)										
Average Annual	329	481	351		401	444	495			
Maximum Month	520	725	496		615	680	755			
Peak Day		. . .	678		725	801	888			

Fluid Bed Incineration System										
Number, each	1				Operators believe cap is 80% rating					
Capacity, lb/hr D.S.	860					688				
Capacity, lb/day D.S.	20,640					16,512				
Diameter	9.5									
Solids loading, lb/day										
Average Annual	6,650	9,560	7,997		9,134	10,125	11,277			
Maximum Month	9,560	13,050	11,893		14,750	16,310	18,116			
Peak Day			16,273		17,393	19,216	21,321			
Feed solids conc., % TS	28									
Feed VS content, btu/lb V.S.	10,000									
Feed sludge fuel value, 10^6 btu/day										
Average Annual	49.9	71.7								
Maximum Month	71.7	97.9								
Peak Day		. . .								
Fluidizing air blower rating	1,900 SCFM @ 5 PSIG									

Lynnwood WWTP

Design / Plant	Design Data			NPDES	Projections			Metcalf and Eddy		Orange Book
	Statup	Design	DMR Summary		Year	Year	Year	Typical	Range	Range
Component	**1991**	**2010**	**4/08 - 3/11**	**Permit WA-002403**	**2017**	**2025**	**2032**	**Design**	**Design**	**Design**
Atomizing blower rating	700 SCFM @ 1.5 PSIG									
Preheat blower rating, SCFM	2,000									
Preheater (heat exchanger) size, btu/hr	1.9×10^6									
Preheater Temperature, ^oF	1,000									
Venture pressure drop, in W.C.	30									
Cooling scrubber size	4 TRAY									
Ash thickener diameter, feet	10									
Ash vaccum filter size	3									

Design / Plant	Statup	Design			Year	Year	Year	Typical
Component	**1991**	**2010**			**2017**	**2025**	**2032**	**Design**
Flow, mgd								
Average Annual	3.9	5.4	4.1		4.5	5.0	5.5	
Maximum Month	5.4	7.4	5.7		5.7	6.3	7.1	
Peak Day	9.8	13.6	12.8		13.6	15.0	16.7	
Aeration Basins								
Number, each	3	3	3		3	3	3	
Side water depth, feet	24	24	24		24	24	24	
Volume each, gal	309,000	309,000	309,000		309,000	309,000	309,000	
Number of cells per Basin	4	4	4		4	4	4	
Sludge Age, d	(based on MLSSconc/Primary TSS effluent)							
@ design avg flow	6.6	4.3	6.1		5.5	4.8	4.2	
@ design max month flow	3.6	2.4	3.4		3.3	2.9	2.5	
@ peak flow	3.7	2.4	2.6		2.4	2.1	1.8	
F:M ratio	(assuming 85% MLVSS)							
@ design avg flow	0.23	0.35	0.25		0.28	0.31	0.36	
@ design max month flow	0.42	0.62	0.44		0.45	0.51	0.58	
@ peak flow	0.41	0.62	0.57		0.62	0.71	0.81	
MLSS Conc, mg/L								
@ design avg flow	2500	2500	2500		2500	2500	2500	3000-5000
@ design max month flow	2500	2500	2500		2500	2500	2500	2000 MLVSS
@ peak flow	2500	2500	2500		2500	2500	2500	2500 MLSS
S, mg/L BOD								
@ design avg flow	3.2	4.6	3.4		3.7	4.2	4.7	
@ design max month flow	5.5	8.4	5.8		5.9	6.8	7.9	
@ peak flow	3.1	4.7	4.3		4.7	5.3	6.2	
Ro								
@ design avg flow	133.7	181.5	140.7		152.6	167.7	185.4	
@ design max month flow	210.9	289.1	220.5		224.3	247.7	275.2	
@ peak flow	211.9	295.9	276.9		296.3	328.2	365.7	
SOTR								
@ design avg flow	7346	9971	7728		8383	9211	10184	
@ design max month flow	11586	15881	12114		12323	13605	15119	
@ peak flow	11639	16253	15209		16274	18031	20089	
SCFM								
@ design avg flow	736	999	775		840	923	1021	
@ design max month flow	1161	1592	1214		1235	1364	1516	
@ peak flow	1167	1629	1525		1631	1808	2014	

Typical Values			Primary	flow %
TSSo=	230	mg/L	rectangular	0.7981381
			circular	0.2518619
Ks=	30	mg/L BOD		
kd=	0.06	d^-1		
µm=	4.28	d^-1		
Y=	0.71	mg VSS/ mg BOD		
k=	5	mg BOD/ mgVSS*d		
So=		mg/L BOD USE →		
Xe_pri=		mg/L TSS USE →		
Xo,i=	25	mg/L nbVSS		
fd=	0.15	g VSS/g VSS		

120	129	121	124	127	130	250
156	169	157	158	162	166	300
86	94	92	94	96	99	141
90	99	91	94	96	100	240
120	133	122	122	126	130	290
63	70	69	70	73	75	126

SRT_min= -0.06 days

RAS_conc. 8000 mg/L

0.44

AOTR/SOTR= 0.31

SOTE= 0.4

(*Wastewater Engineering* Metcalf & Eddy,p. 681) VSS production based on Y_obs

Sludge produced, lb/d VSS									Y_obs													
@ design avg flow	2831	4373	3049		3428	3917	4502		@ design a	0.74	0.78	0.75		0.76	0.77	0.78						
@ design max month flow	5159	7771	5476		5602	6379	7303		@ design r	0.76	0.79	0.77		0.77	0.78	0.78						
@ peak flow	6036	9171	8456		9186	10394	11815		@ peak flo	0.90	0.91	0.91		0.91	0.91	0.92						

(*Wastewater Engineering* Metcalf & Eddy,p. 586-588) VSS production rate using Y_obs

Sludge produced, lb/d VSS						
@ design avg flow	3260	5002	3509	3940	4490	5146
@ design max month flow	5843	8678	6191	6328	7174	8174
@ peak flow	8567	12932	11951	12953	14596	16506

(*Wastewater Engineering* Metcalf & Eddy,p. 586-588)

r_su, mg/L*d							
-1215	-1659	-1277		-1385	-1526	-1697	
-1934	-2745	-2030		-2069	-2308	-2596	
-1167	-1681	-1562		-1684	-1888	-2133	
r_x_t, g/m^3*d VSS							
1042	1479	1104		1212	1350	1515	
1674	2411	1763		1798	2016	2278	
1486	2158	2004		2161	2421	2730	
Y_obs							
0.86	0.89	0.86		0.87	0.88	0.89	
0.87	0.88	0.87		0.87	0.87	0.88	
1.27	1.28	1.28		1.28	1.28	1.28	

(*Wastewater Engineering* Metcalf & Eddy,p. 593-595) VSS and TSS production rates using SRT

Sludge produced, lb/d VSS						
@ design avg flow	2610	4068	2815	3174	3636	4191
@ design max month flow	4855	7357	5158	5279	6023	6908
@ peak flow	5479	8399	7733	8413	9541	10869
Sludge produced, lb/d TSS						
@ design avg flow	3406	5251	3668	4122	4706	5406
@ design max month flow	6178	9293	6556	6706	7633	8735
@ peak flow	7291	11054	10196	11072	12522	14227
Y_obs						
@ design avg flow	0.69	0.72	0.69	0.70	0.72	0.73
@ design max month flow	0.72	0.74	0.72	0.72	0.73	0.74
@ peak flow	0.81	0.83	0.83	0.83	0.84	0.84

(*Wastewater Engineering* Metcalf & Eddy,p. 593-595)

	1902	3125	2072	2371	2759	3229
A	3908	6104	4172	4278	4930	5709
	3864	6207	5669	6218	7131	8208
	120	130	122	125	128	131
B	134	138	135	135	137	138
	139	144	143	144	145	145
	587	813	621	678	749	831
C	813	1114	851	866	956	1062
	1476	2048	1920	2051	2265	2515
	440	609	465	508	561	623
Q(TSSo-VSSo)	609	835	637	648	716	795
	1105	1534	1438	1536	1697	1884

VSS

	2900	4481	3125	3514	4014	4613
	5286	7935	5608	5736	6525	7462
AVG, lbs/d	6694	10168	9380	10184	11510	13063
	331	476	353	390	436	487
	506	675	529	537	590	648
STD, lbs/d	1646	2425	2256	2429	2706	3019
	11%	11%	11%	11%	11%	11%
	10%	9%	9%	9%	9%	9%
STD, %	25%	24%	24%	24%	24%	23%

TSS

	3524	5427	3795	4263	4866	5586
	6374	9548	6760	6914	7859	8981
AVG, lbs/d	8157	12353	11402	12373	13974	15849
	272	400	292	325	365	409
	437	577	456	464	507	555
STD, lbs/d	1667	2482	2305	2486	2773	3096
	8%	7%	8%	8%	7%	7%
	7%	6%	7%	7%	6%	6%
STD, %	20%	20%	20%	20%	20%	20%