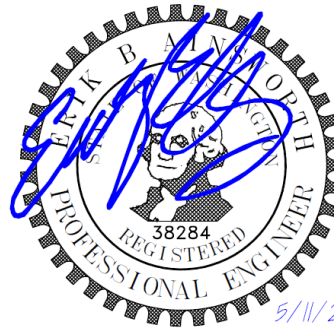
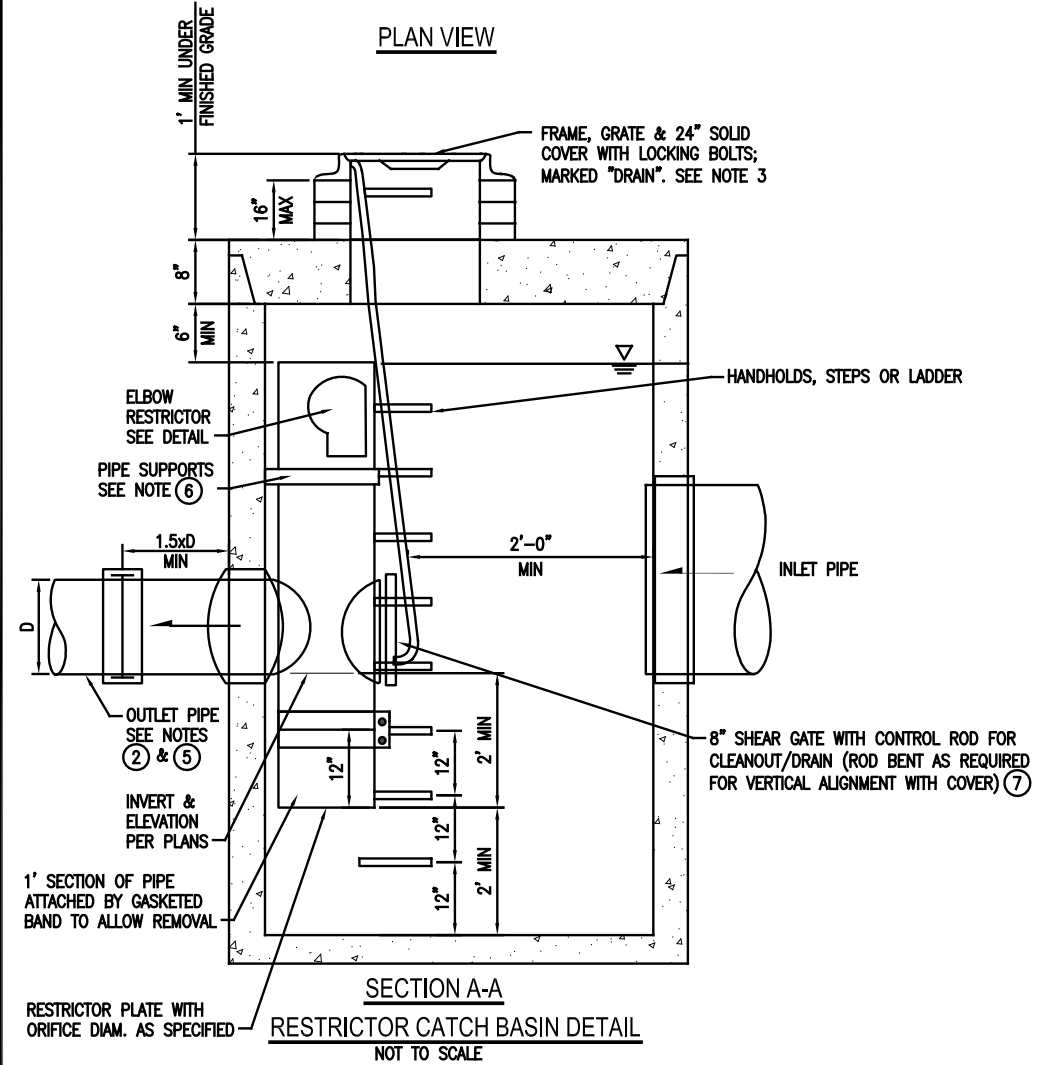
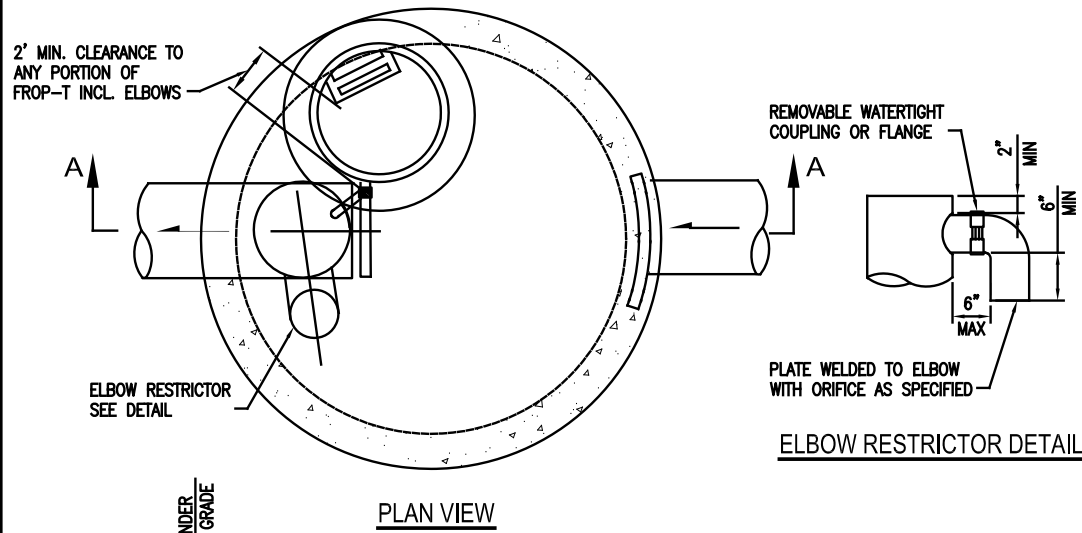


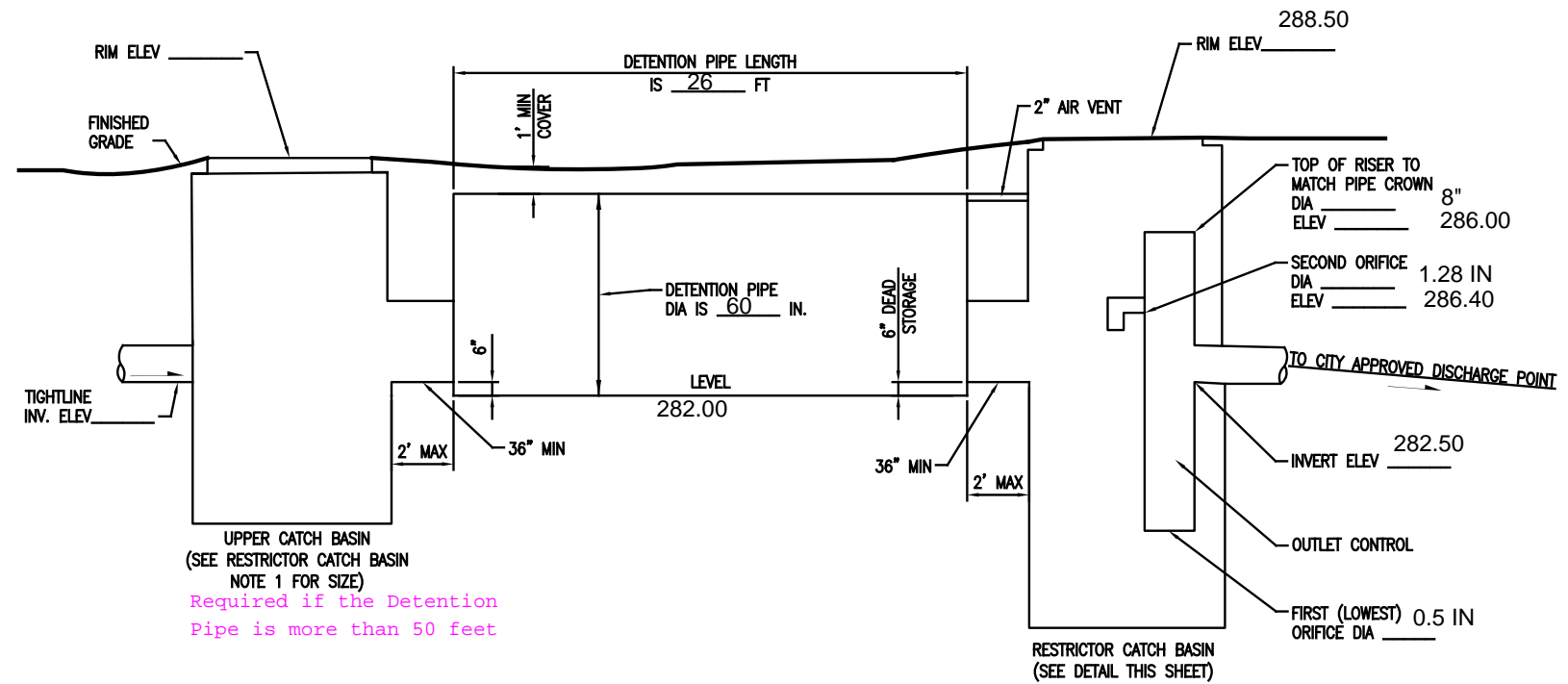
Attachment 1
CITY OF MERCER ISLAND
STANDARD DETENTION SYSTEM WORKSHEET
(FOR IMPERVIOUS AREA OF 5,000 SF OR LESS)



OWNER: CHEN	ADDRESS: XXX West Mercer Way, Mercer Island, WA	PREPARED BY: THE LAND DEVELOPER, INC.
PERMIT #:		PHONE: 360-890-4806
		DATE: 5/11/21
IMPERVIOUS SURFACE AREA (SF): 3704	DETENTION PIPE DIA (INCH):	DETENTION PIPE LENGTH (FT):
	PIPE MATERIAL:	ORIFICE #1 DIA INCH, ELEV
		ORIFICE #2 DIA INCH, ELEV



FOOTING DRAINS SHALL NOT BE CONNECTED TO DETENTION SYSTEM



STANDARD PIPE DETENTION SYSTEM
 NOT TO SCALE (ENGINEER TO FILL IN BLANKS)

RESTRICTOR CATCH BASIN NOTES:

- ① USE A MINIMUM OF A 72 IN. DIAM. TYPE 2 CATCH BASIN WHEN CONNECTING PIPE MATERIAL IS CONCRETE OR LCPE. A 54 IN. DIAM. TYPE 2 CATCH BASIN MAY BE USED FOR OTHER CIRCULAR SINGLE WALL PIPE (SUCH AS CORRUGATED ALUMINUM PIPE).
- ② OUTLET PIPE: MIN. 6 INCH.
- ③ METAL PARTS: CORROSION RESISTANT. NON-GALVANIZED PARTS PREFERRED. GALVANIZED PIPE PARTS TO HAVE ASPHALT TREATMENT 1.
- ④ FRAME AND LADDER OR STEPS OFFSET SO:
 - A. CLEANOUT GATE IS VISIBLE FROM TOP;
 - B. CLIMB-DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE;
 - C. FRAME IS CLEAR OF CURB.
- ⑤ IF METAL OUTLET PIPE CONNECTS TO CEMENT CONCRETE PIPE, OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4 IN.
- ⑥ PROVIDE AT LEAST ONE 3 X 0.090 GAUGE SUPPORT BRACKET ANCHORED TO CONCRETE WALL WITH 5/8 IN. STAINLESS STEEL EXPANSION BOLTS OR EMBEDDED SUPPORTS 2 IN. INTO CATCH BASIN WALL (MAXIMUM 3'-0" VERTICAL SPACING).
- ⑦ THE SHEAR GATE SHALL BE MADE OF ALUMINUM ALLOY IN ACCORDANCE WITH ASTM B 26M AND ASTM B 275, DESIGNATION ZG32A; OR CAST IRON IN ACCORDANCE WITH ASTM A 48, CLASS 30B. THE LIFT HANDLE SHALL BE MADE OF A SIMILAR METAL TO THE GATE (TO PREVENT GALVANIC CORROSION), IT MAY BE OF SOLID ROD OR HOLLOW TUBING, WITH ADJUSTABLE HOOK AS REQUIRED. A NEOPRENE RUBBER GASKET IS REQUIRED BETWEEN THE RISER MOUNTING FLANGE AND THE GATE FLANGE. INSTALL THE GATE SO THAT THE LEVEL-LINE MARK IS LEVEL WHEN THE GATE IS CLOSED. THE MATING SURFACES OF THE LID AND THE BODY SHALL BE MACHINED FOR PROPER FIT. ALL SHEAR GATE BOLTS SHALL BE STAINLESS STEEL.

STANDARD DETENTION SYSTEM NOTES:

1. CALL DEVELOPMENT SERVICES (206-275-7605) 24 HOURS IN ADVANCE FOR A DETENTION SYSTEM INSPECTION BEFORE BACKFILLING AND FOR FINAL INSPECTIONS.
2. RESPONSIBILITY FOR OPERATION AND MAINTANANCE OF DRAINAGE SYSTEMS ON PRIVATE PROPERTY IS RESPONSIBILITY OF THE PROPERTY OWNER. MATERIAL ACCUMULATED IN THE STORAGE PIPE MUST BE REMOVED FROM CATCH BASINS TO ALLOW PROPER OPERATION. THE OUTLET CONTROL ORIFICE MUST BE KEPT OPEN AT ALL TIMES.
3. PIPE MATERIAL, JOINT, AND PROTECTIVE TREATMENT SHALL BE IN ACCORDANCE WITH SECTION 7.04 AND 9.05 OF THE WSDOT STANDARD SPECIFICATION FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, LATEST VERSION. SUCH MATERIALS INCLUDE THE FOLLOWING, LINED CORRUGATED POLYETHYLENE PIPE (LCPE), ALUMINIZED TYPE 2 CORRUGATED STEEL PIPE AND PIPE ARCH (MEETS AASHTO DESIGNATIONS M274 AND M36), CORRUGATED OR SPIRAL RIB ALUMINUM PIPE, OR REINFORCED CONCRETE PIPE. CORRUGATED STEEL PIPE IS NOT ALLOWED.

**TABLE 2 – STANDARD DETENTION PIPE DESIGN FOR PROJECTS BETWEEN 500 SF AND 5,000 SF IMPERVIOUS AREA
(WITH 120% CORRECTION FACTOR)**

Soil Type*	New Impervious Area (sf)														
	500 to 1,000 sf			1,001 to 2,000 sf			2,001 to 3,000 sf			3,001 to 4,000 sf			4,001 to 5,000 sf		
	Detention Pipe Size (in.) and Length (ft)			Detention Pipe Size (in.) and Length (ft)			Detention Pipe Size (in.) and Length (ft)			Detention Pipe Size (in.) and Length (ft)			Detention Pipe Size (in.) and Length (ft)		
B	36"	48"	60"	36"	48"	60"	36"	48"	60"	36"	48"	60"	36"	48"	60"
C	30	18	11	66	34	22	90	48	30	120	62	42	186	90	48
	22	11	7	43	23	14	66	36	20	78	42	26	132	60	37

Outlet Orifice Size and Design Height for Type B Soils Only															
Detention Pipe Size (in)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)
	36	0.5	2.2	0.5	0.5	2.2	0.94	0.5	2.2	0.94	0.5	2.4	1.4	0.5	2.44
48	0.5	3.3	0.94	0.5	3.2	0.9	0.5	3.1	0.9	0.5	2.8	0.8	0.5	2.7	0.75
60	0.5	4.15	0.47	0.5	4.3	0.94	0.5	4.2	0.94	0.5	3.8	0.94	0.5	4.14	0.9

Outlet Orifice Size and Design Height for Type C Soils Only															
Detention Pipe Size (in)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)	Lowest Orifice Diameter (inches) ¹	Distance from Outlet to Second Orifice (feet)	Second Orifice Diameter (inches)
	36	0.5	2	0.8	0.5	2.3	1.41	0.5	2.4	1.9	0.5	2.15	1.64	0.5	1.72
48	0.5	3.2	0.8	0.5	3.3	1.17	0.5	2.83	1.5	0.5	2.9	1.3	0.5	2.43	1.6
60	0.5	3.4	0.6	0.5	3.6	0.89	0.5	3.7	1.1	0.5	3.9	1.28	0.5	4.3	2.2

¹Minimum diameter = 0.5 inches

*Geotechnical Analysis or Soil Map Required

Basis of Sizing Assumptions:

- Based on the Stormwater Management Manual for Puget Sound Basin (1992 Manual)
- Converting 2nd growth forest to impervious
- Assumes 0.5 foot sediment storage in detention pipe
- Moderate slope
- Include Volume Correction Factor, assuming 120% safety factor