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JOB 133 York Street
 SHEET NO. 1 OF 1
 CALCULATED BY TSG DATE 9/27/13
 CHECKED BY _____ DATE _____
 SCALE _____

TREE FILTER SYSTEM

THE TREE FILTER SYSTEM PROVIDES TREATMENT OF STORMWATER BY FILTRATION THROUGH THE ROOT ZONE OF THE TREE AND INFILTRATION INTO THE SURROUNDING SOILS.

BASED ON COUNTY SOILS MAPPING THE SOILS AT THIS LOCATION ARE HUXKLEY GRAVELLY SAND. THIS SOIL HAS A PERMEABILITY OF GREATER THAN 6.3 "/hr BASED ON THE COUNTY SOILS SHEETS.

THE AREA THAT DRAINS TO THE TREE WELL INCLUDES THE FRONT PARKING AREA, DRIVEWAY AND A SECTION OF THE PARKING LOT BEHIND THE PROPOSED BUILDING. THIS IS ESTIMATED AT 36 SQ FT.

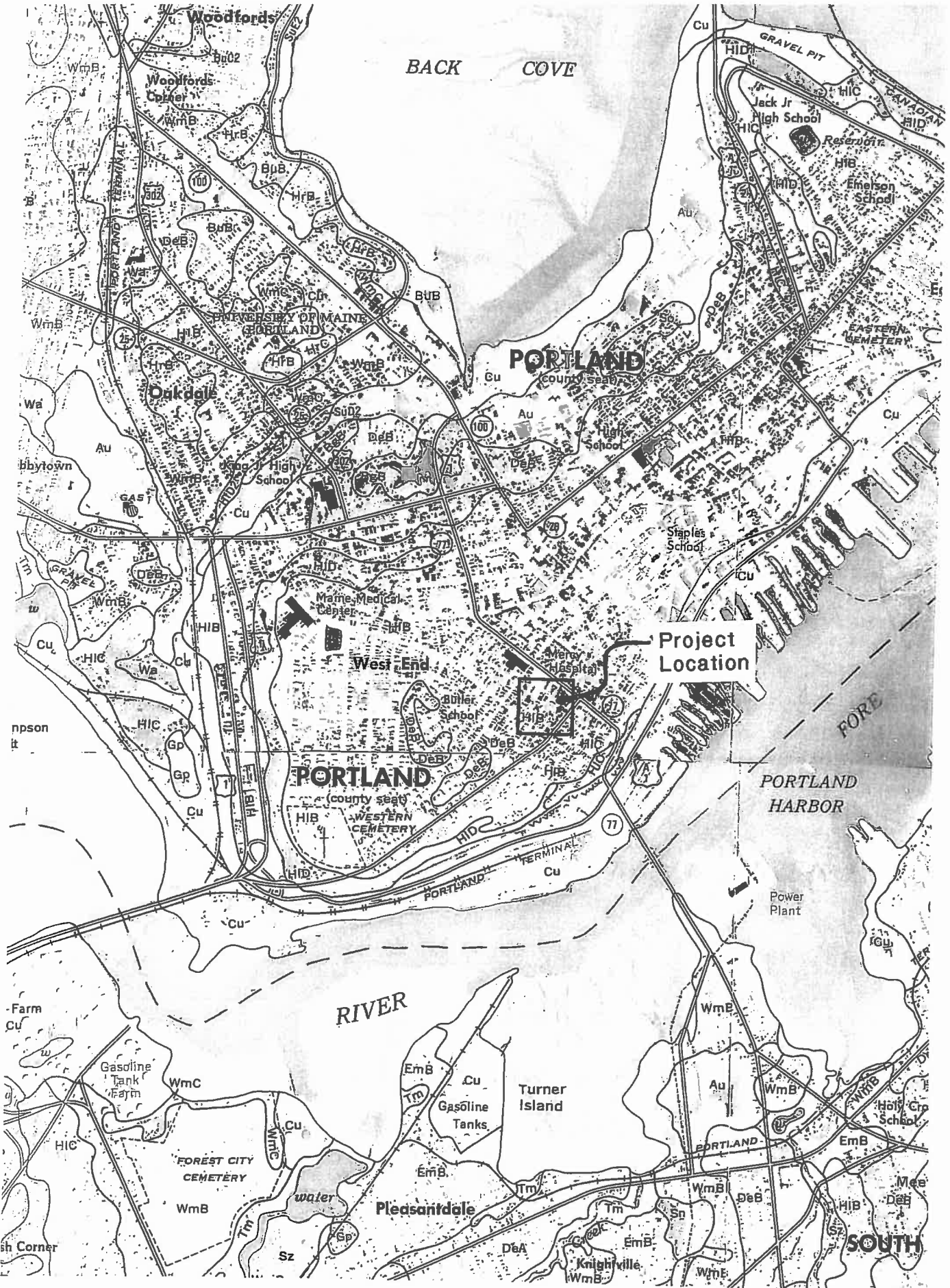
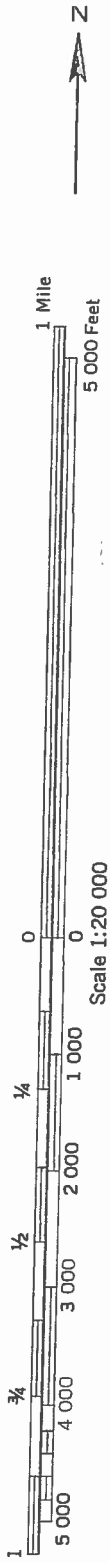
FLOW TO THE TREE WELL FOR 1" OF RUNOFF:

AREA OF INFILTRATION 36 SQ FT OF BOTTOM AREA AND 7/8 FEET OF SIDE WALL.

INFILTRATION RATE

$$6.3 \text{ "/hr} \times 60 \times \frac{1}{12} \text{ "} \times \frac{1 \text{ MIN}}{60 \text{ SEC}} = 0.525 \text{ CFS}$$

SEE ATTACHED HYDROCAD SHEET FOR 1.25" RAIN EVENT.



13105 - 133 York Street

SOILS MAP

Summary for Pond 37P: TREE WELL

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.127 ac, 100.00% Impervious, Inflow Depth > 0.98"
 Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.010 af
 Outflow = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af, Atten= 1%, Lag= 0.2 min
 Discarded = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

x 43,560 = 5532 sqft dk
1" of Runoff COMES FROM 1.25" RAIN

Routing by Storage method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 32.02' @ 12.08 hrs Surf.Area= 63 sf Storage= 1 cf

Plug-Flow detention time= 0.1 min calculated for 0.010 af (100% of inflow)
 Center-of-Mass det. time= 0.1 min (752.5 - 752.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	219 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	64	0	0
34.00	10	74	74
36.00	10	20	94
38.00	10	20	114
39.00	200	105	219

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	0.53 cfs Exfiltration at all elevations
#2	Primary	33.50'	6.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 33.50' / 33.25' S= 0.0417 '/' Cc= 0.900 n= 0.010
#3	Primary	38.50'	4.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.53 cfs @ 12.08 hrs HW=32.02' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.53 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=32.00' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 37P: TREE WELL

Hydrograph

