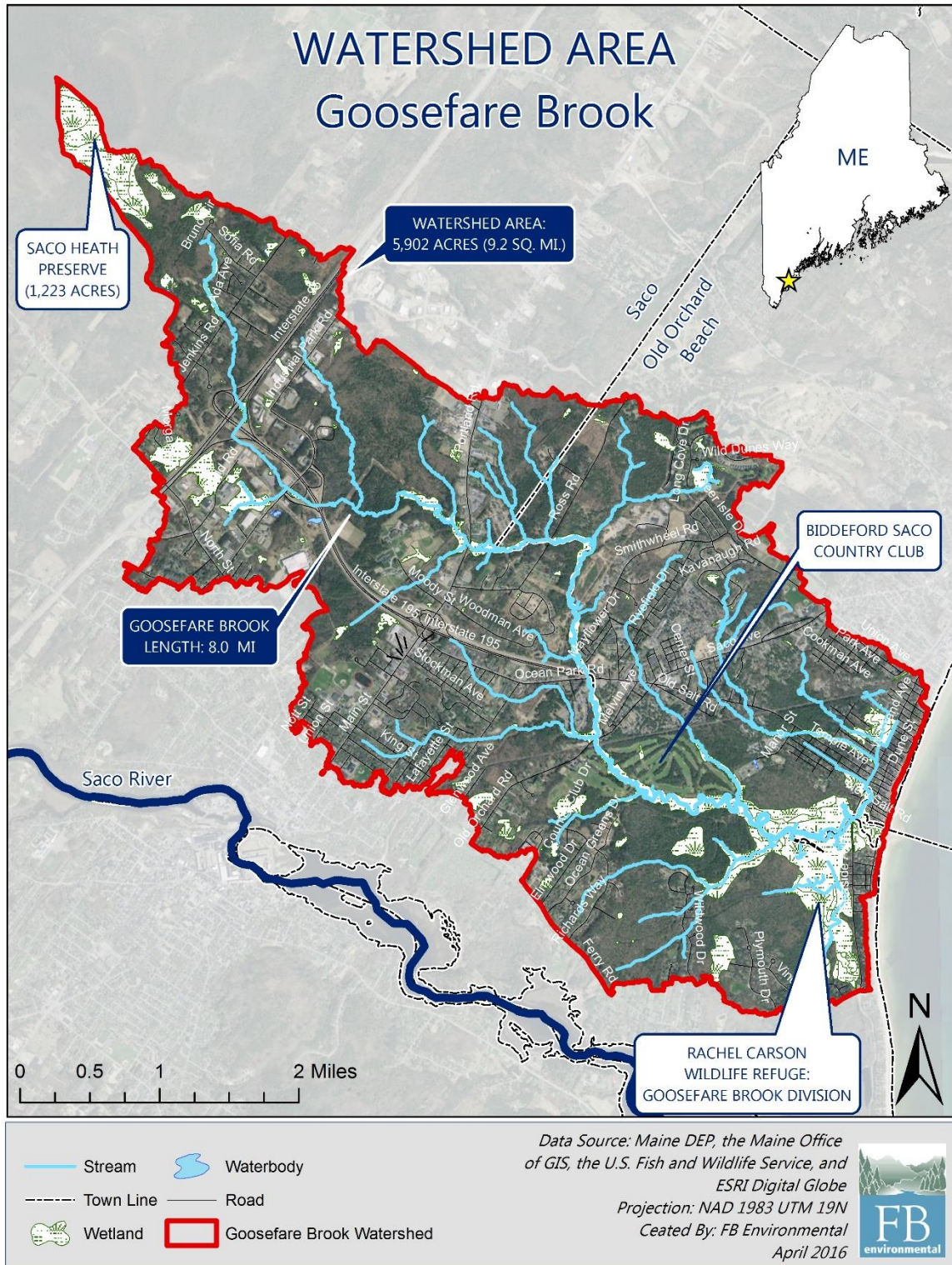
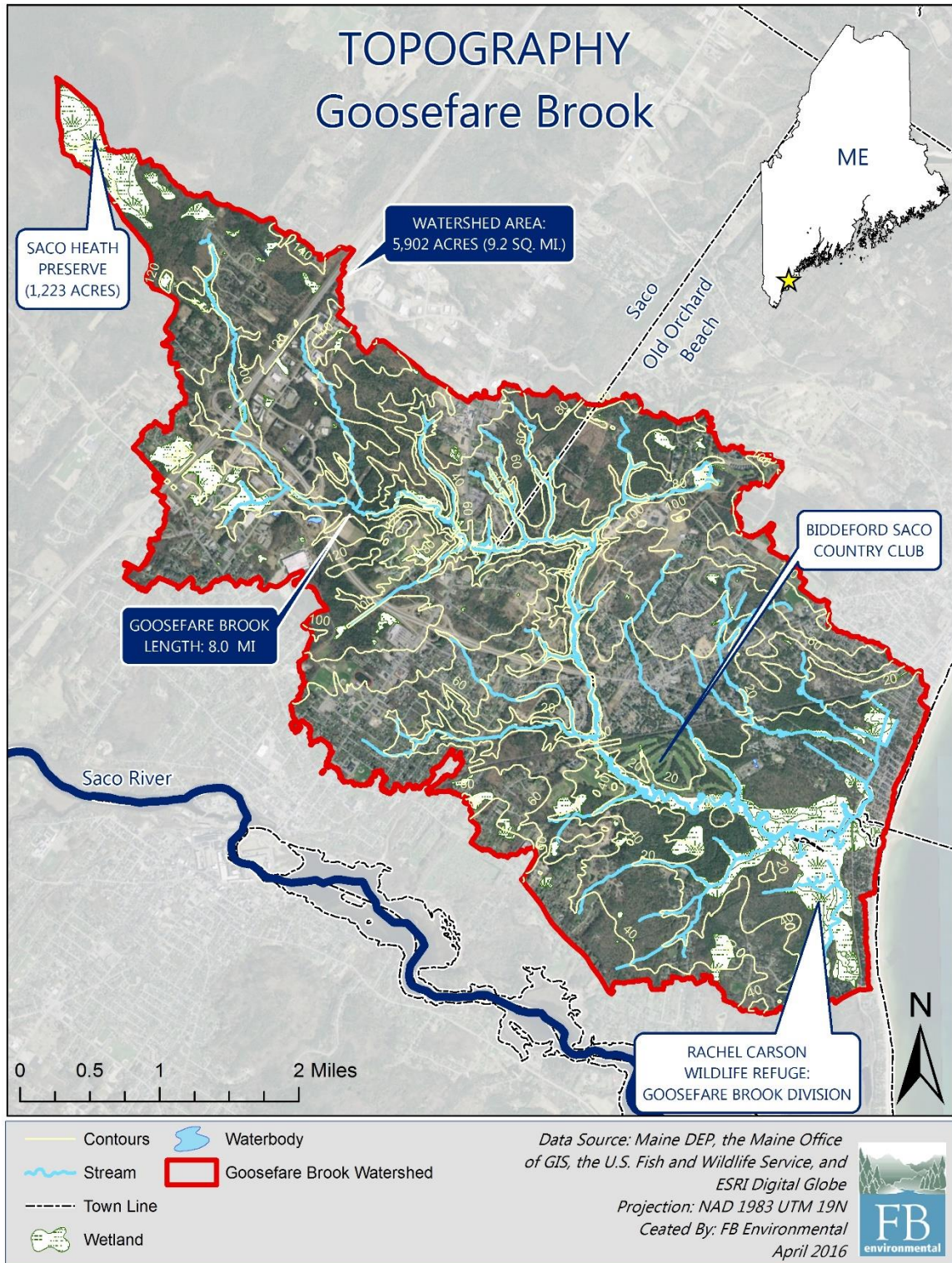


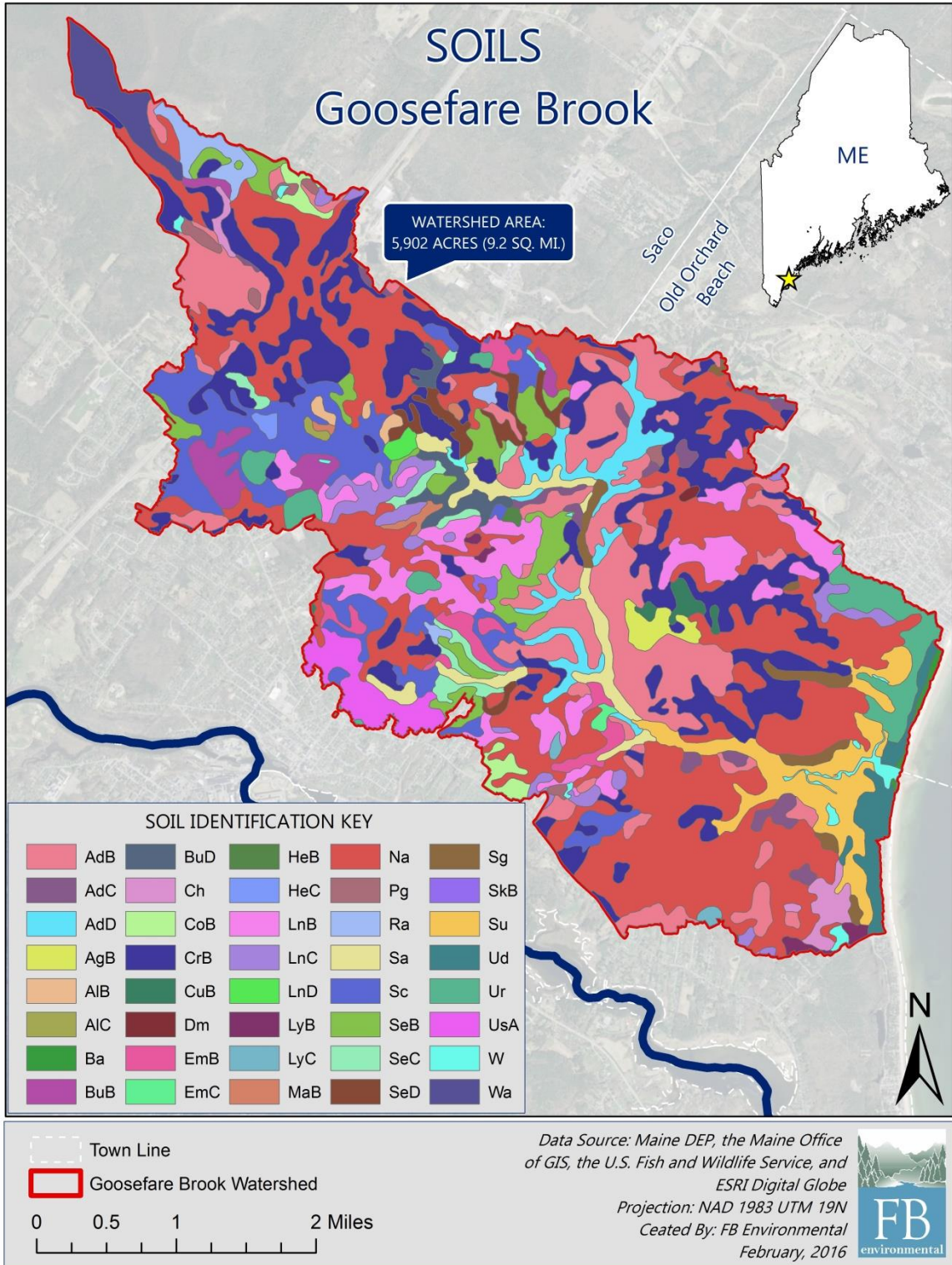
# APPENDIX I: Relevant Maps of the Goosefare Brook Watershed



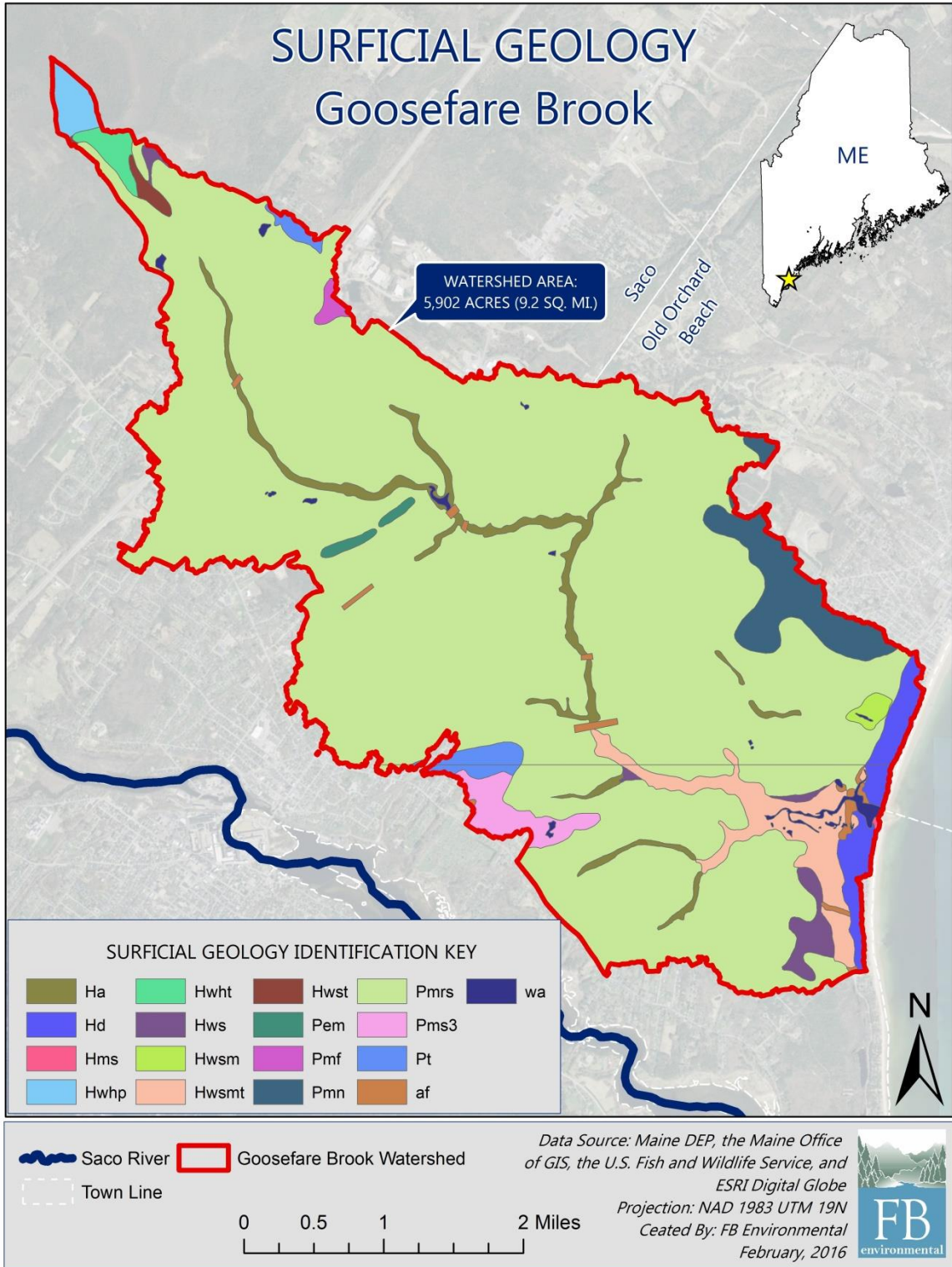
MAP A



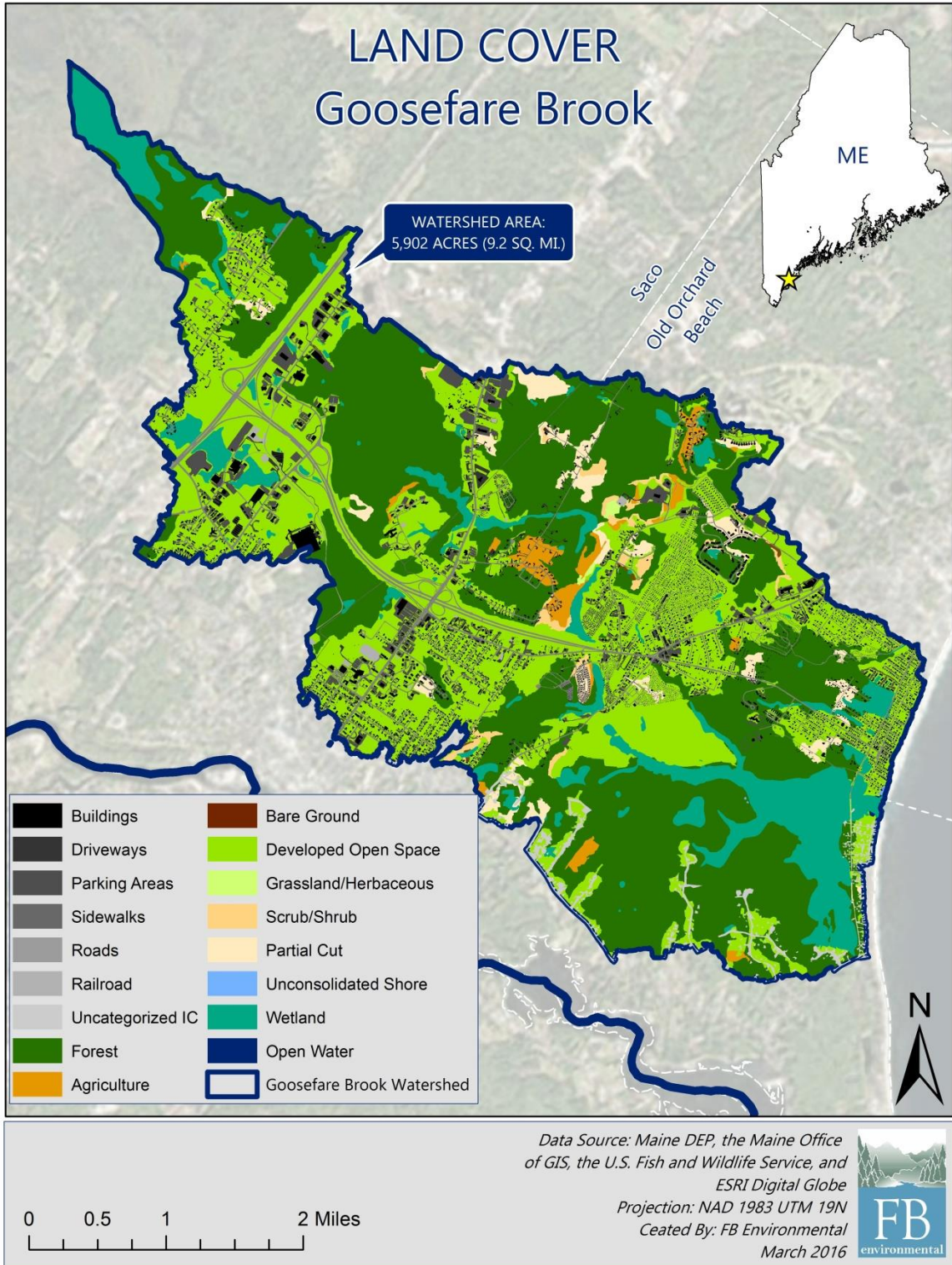
**MAP B**



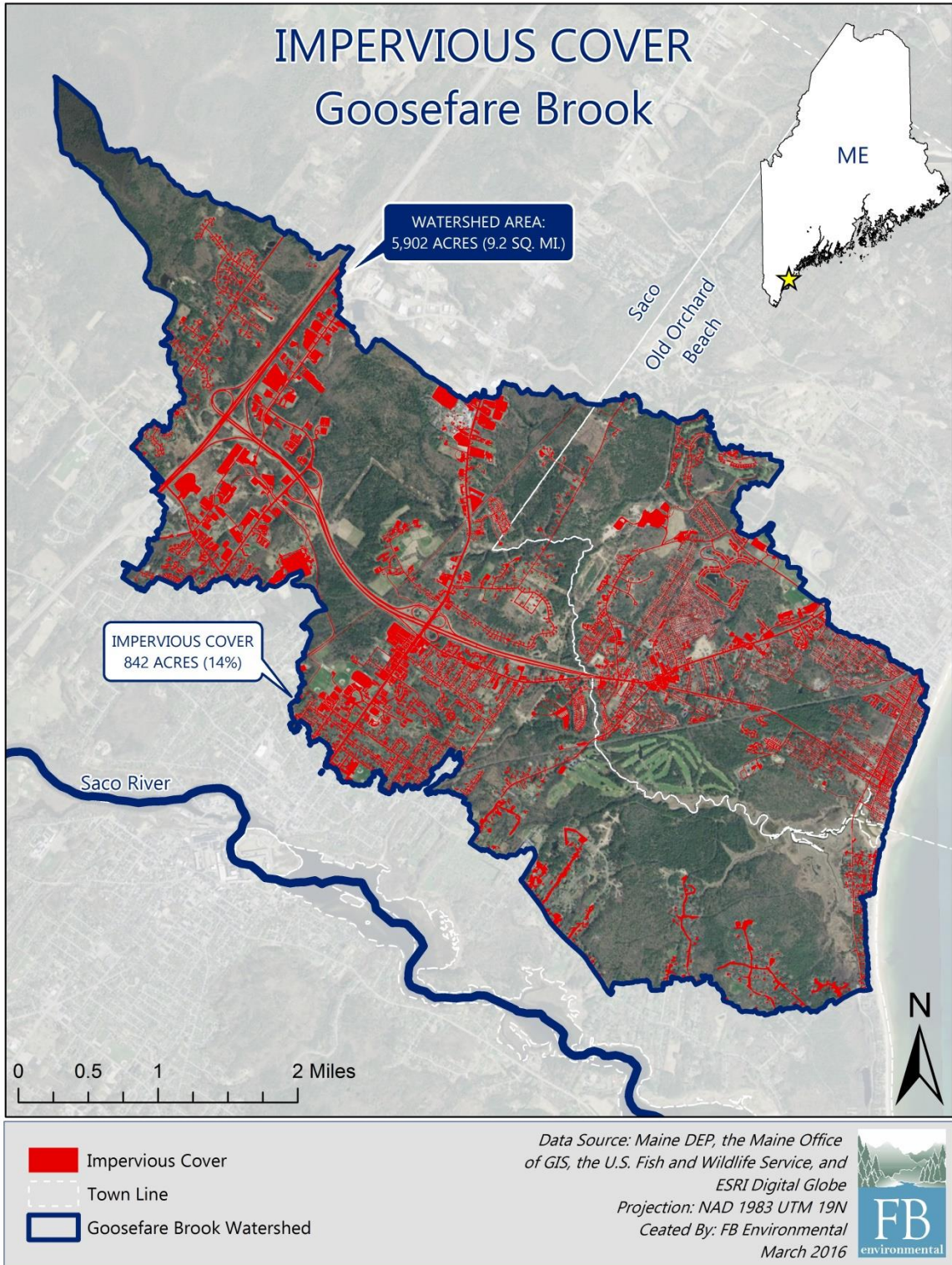
**MAP C**



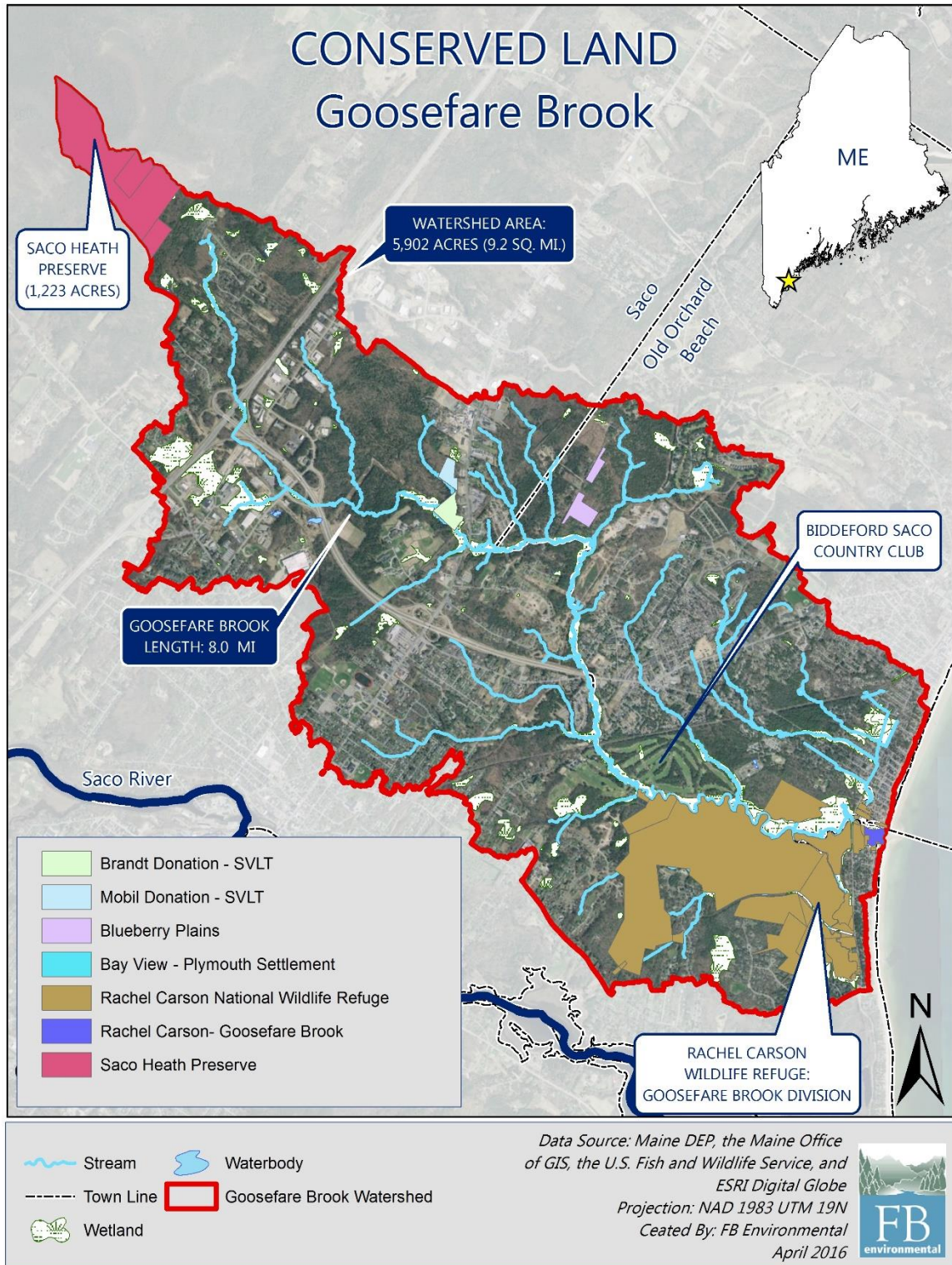
**MAP D**



**MAP E**

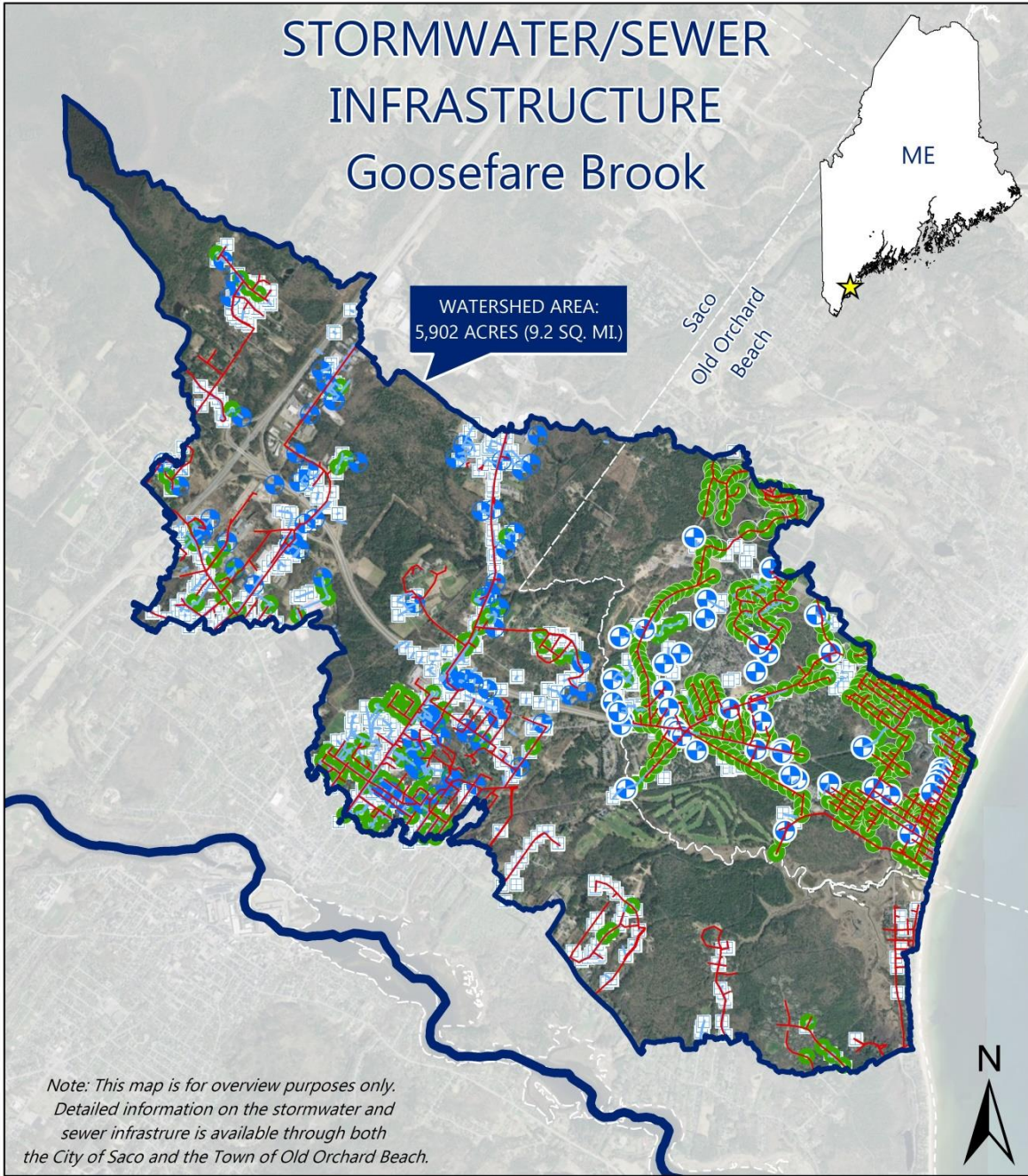


**MAP F**



## MAP G

# STORMWATER/SEWER INFRASTRUCTURE Goosefare Brook



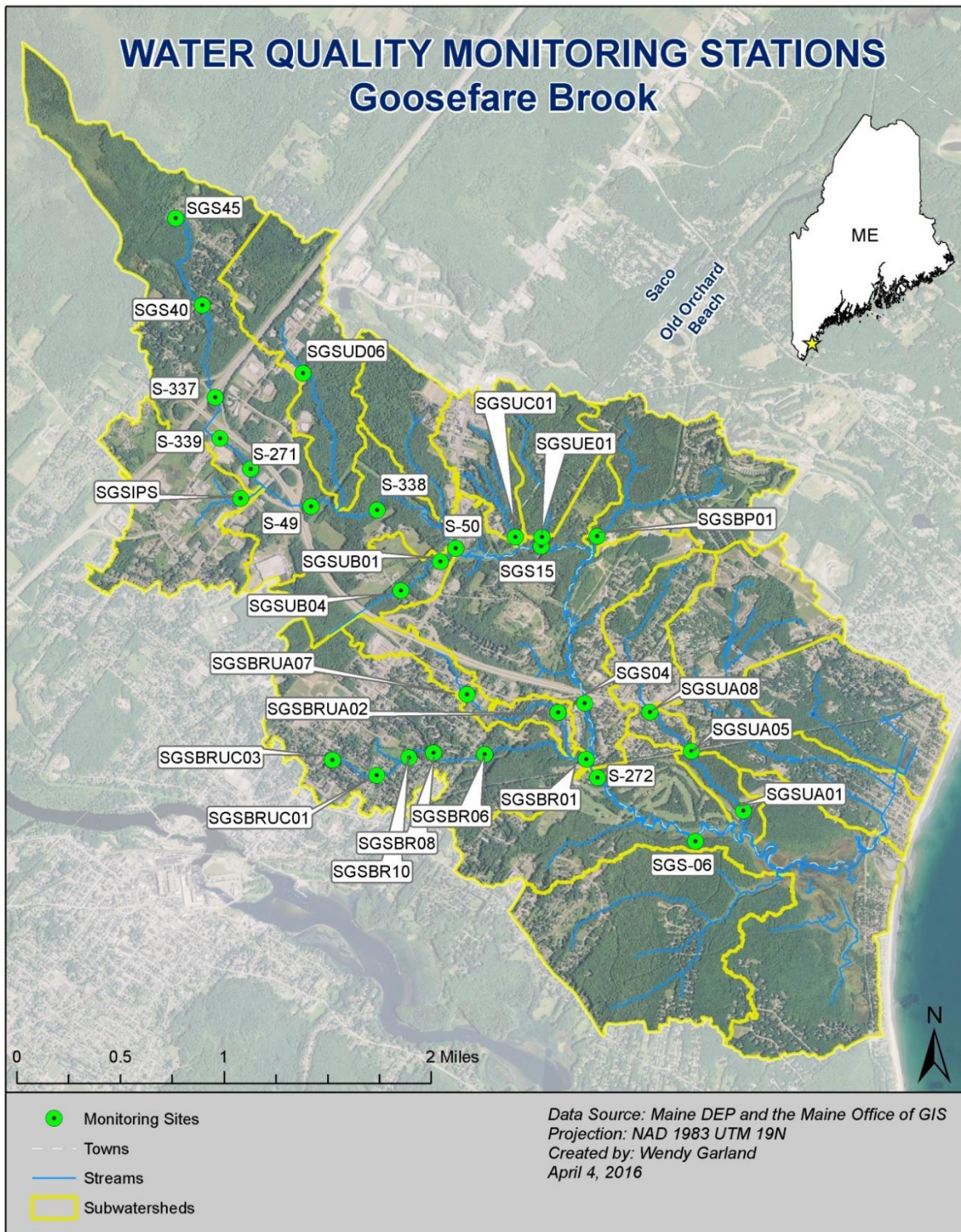
Sewer Lines	Catch Basins	<p>Data Source: Maine DEP, the Maine Office of GIS, the City of Saco, the Town of OOB, and ESRI Digital Globe</p> <p>Projection: NAD 1983 UTM 19N</p> <p>Created By: FB Environmental April 2016</p>
Storm Drains	Town Line	
Outfalls	Goosefare Brook Watershed	<p>0 0.25 0.5 1 Miles</p>
Manholes		



**MAP H**

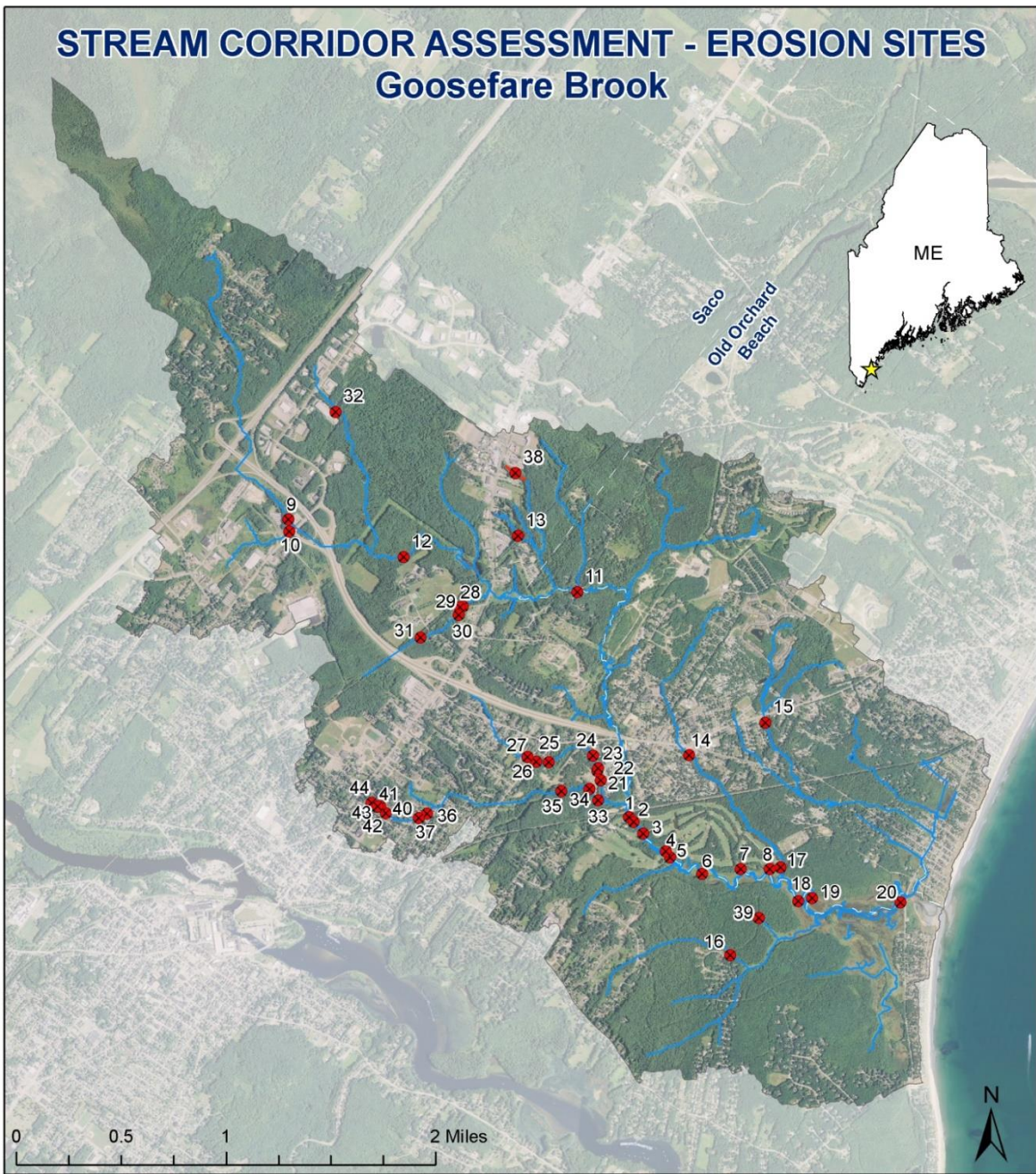


# WATER QUALITY MONITORING STATIONS Goosefare Brook



MAP I

# STREAM CORRIDOR ASSESSMENT - EROSION SITES Goosefare Brook



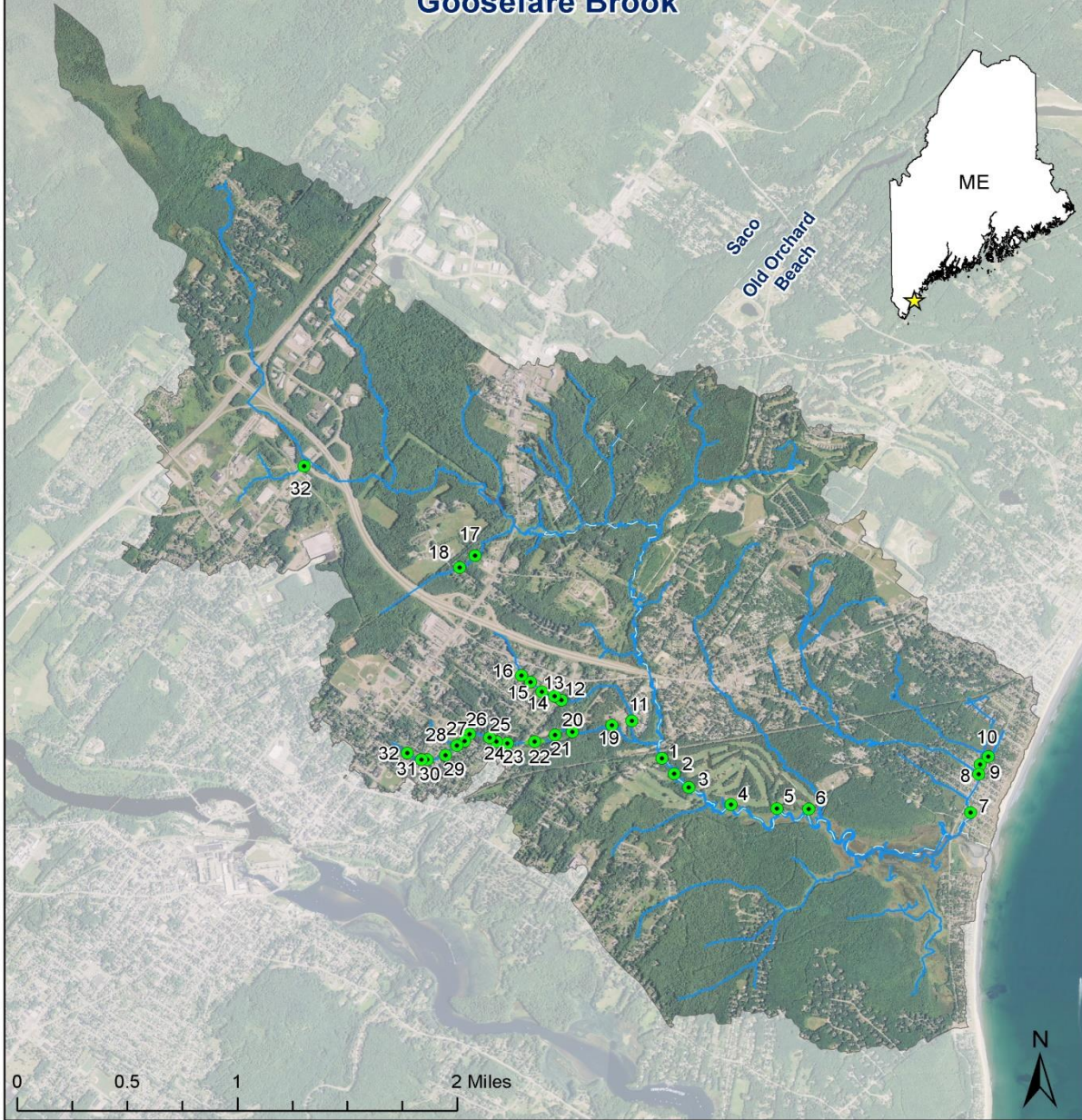
- SCA Erosion Sites
- Streams
- - - Towns
- Watershed





Data Source: Maine DEP and the Maine Office of GIS  
Projection: NAD 1983 UTM 19N  
Created by: Wendy Garland  
April 5, 2016

## MAP J

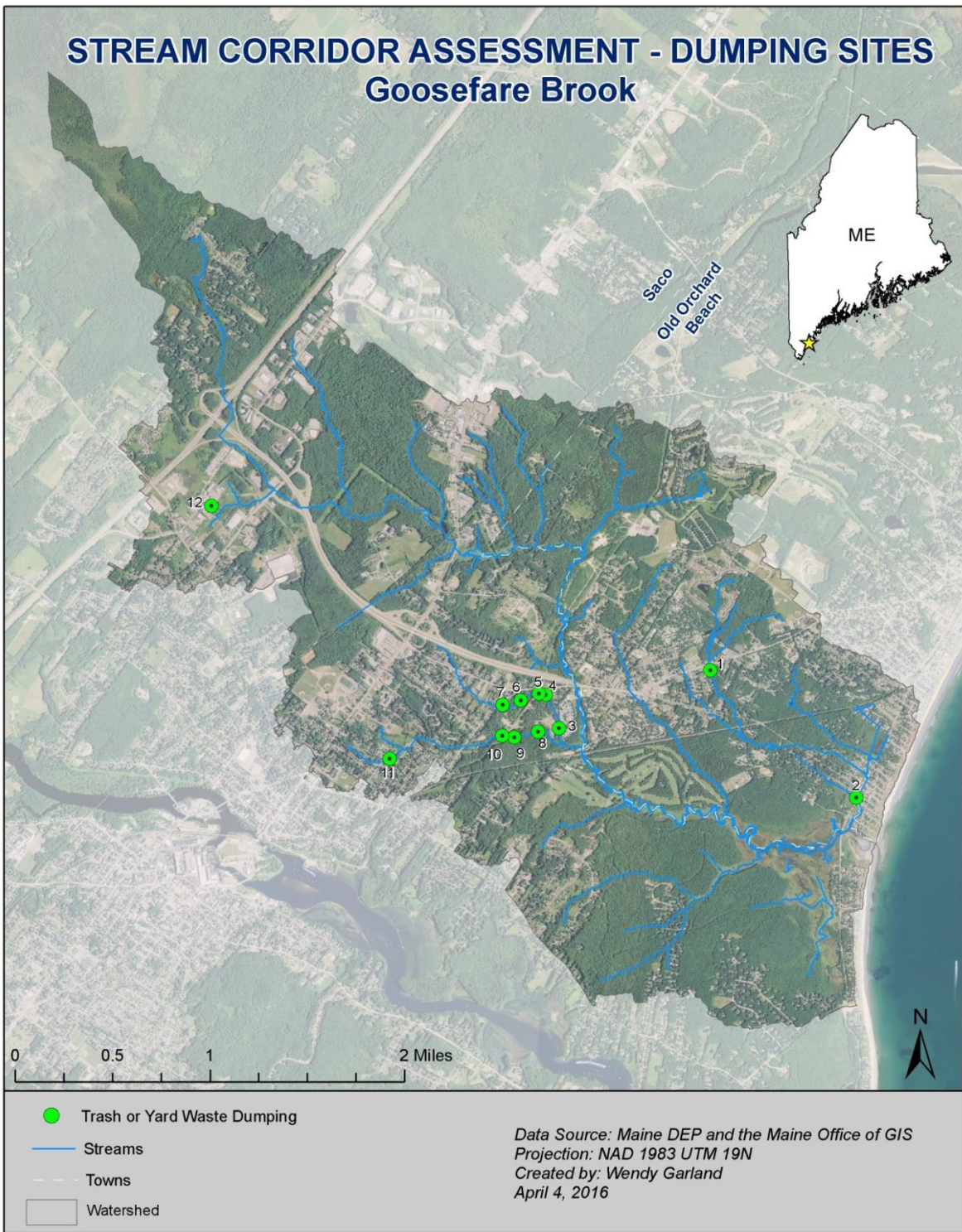
# STREAM CORRIDOR ASSESSMENT - INADEQUATE BUFFER SITES

## Goosefare Brook



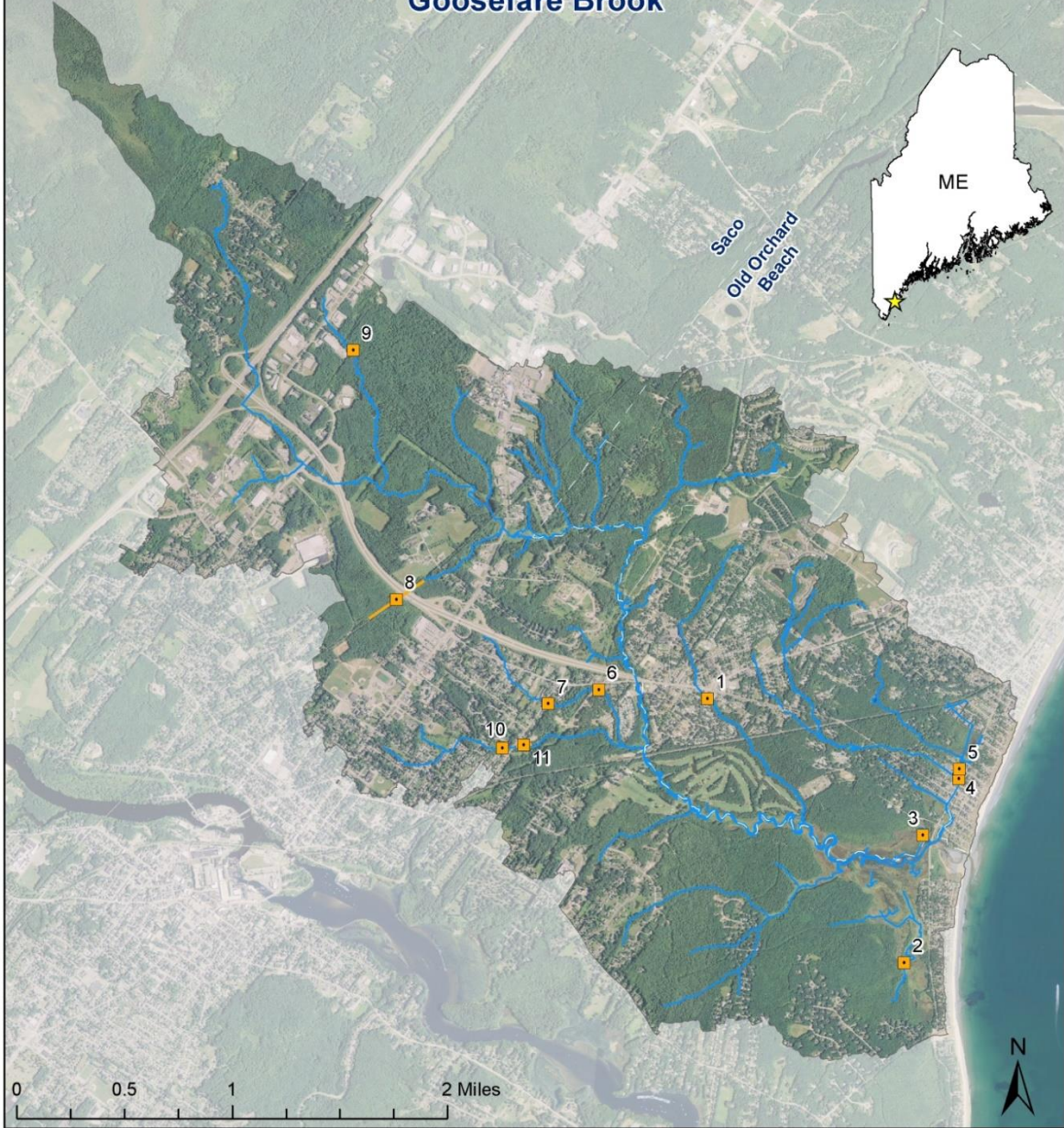
 Inadequate Buffer Points	<p><i>Data Source: Maine DEP and the Maine Office of GIS</i> <i>Projection: NAD 1983 UTM 19N</i> <i>Created by: Wendy Garland</i> <i>April 5, 2016</i></p>
 Streams	
 Towns	
 Watershed	

# STREAM CORRIDOR ASSESSMENT - DUMPING SITES Goosefare Brook



MAP L

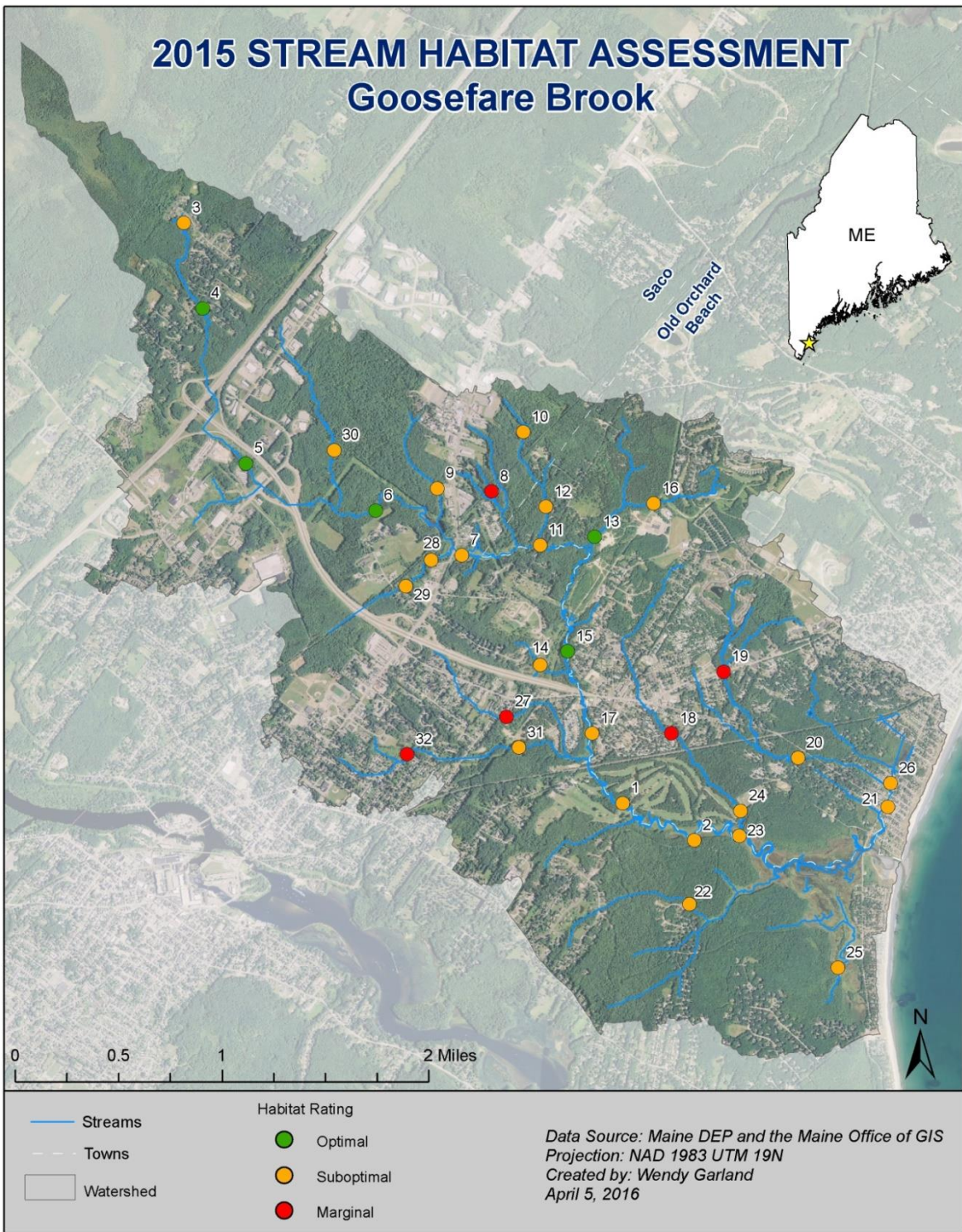
# STREAM CORRIDOR ASSESSMENT - CHANNEL ALTERATION SITES Goosefare Brook



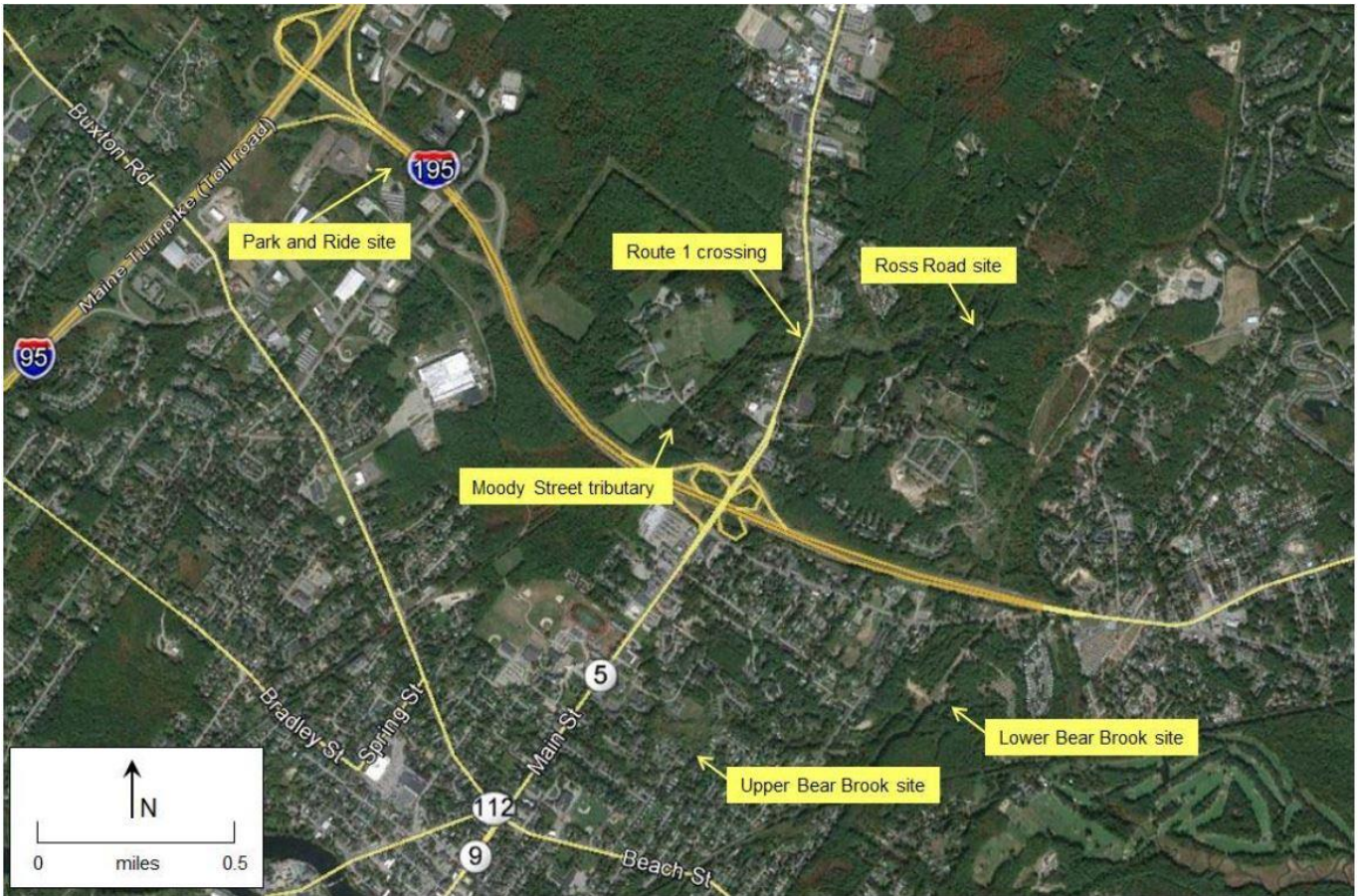
- Channel Alteration Site
- Streams
- Towns
- Watershed

Data Source: Maine DEP and the Maine Office of GIS  
Projection: NAD 1983 UTM 19N  
Created by: Wendy Garland  
April 4, 2016

# 2015 STREAM HABITAT ASSESSMENT Goosefare Brook



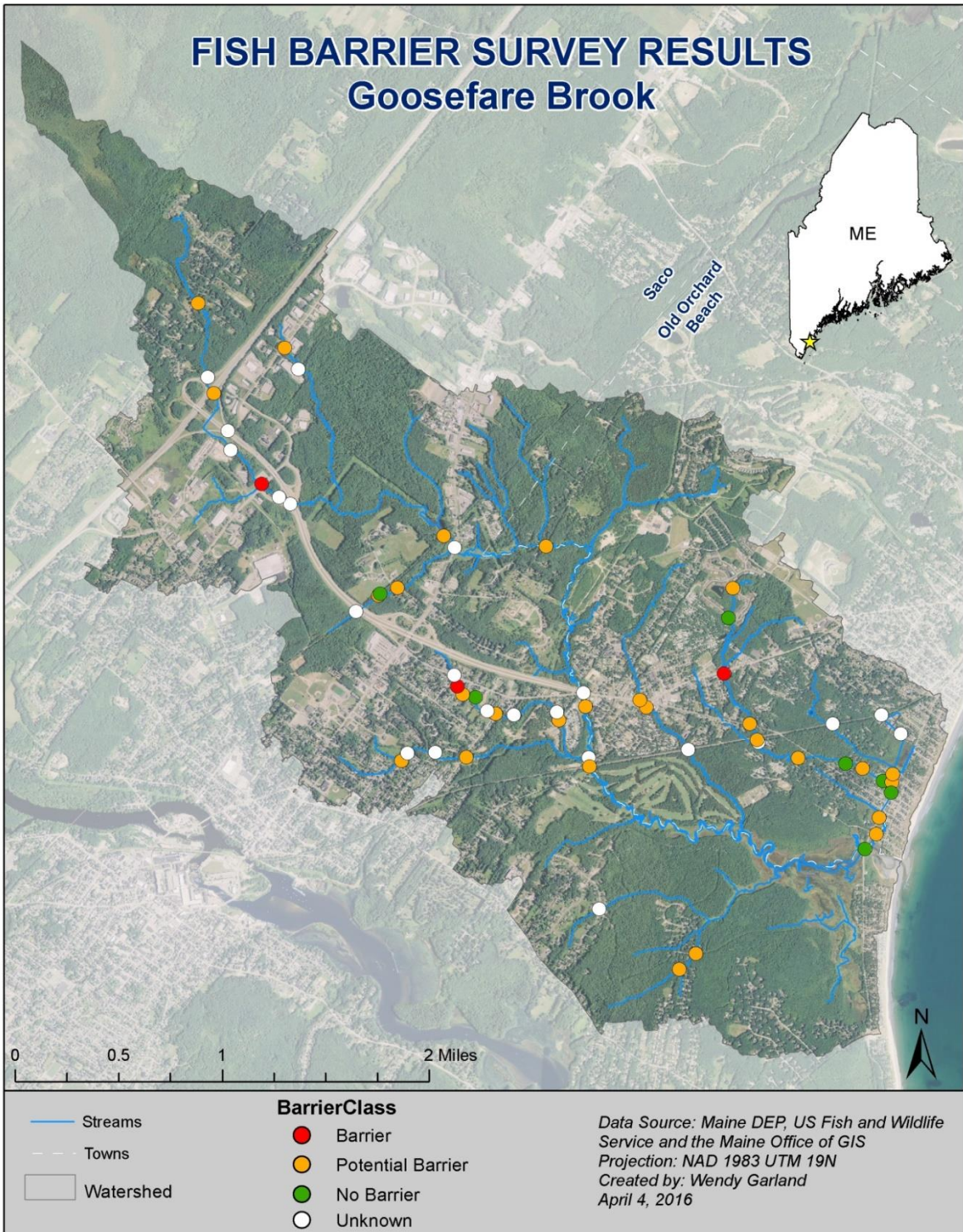
**MAP N**



**MAP O**

# FISH BARRIER SURVEY RESULTS

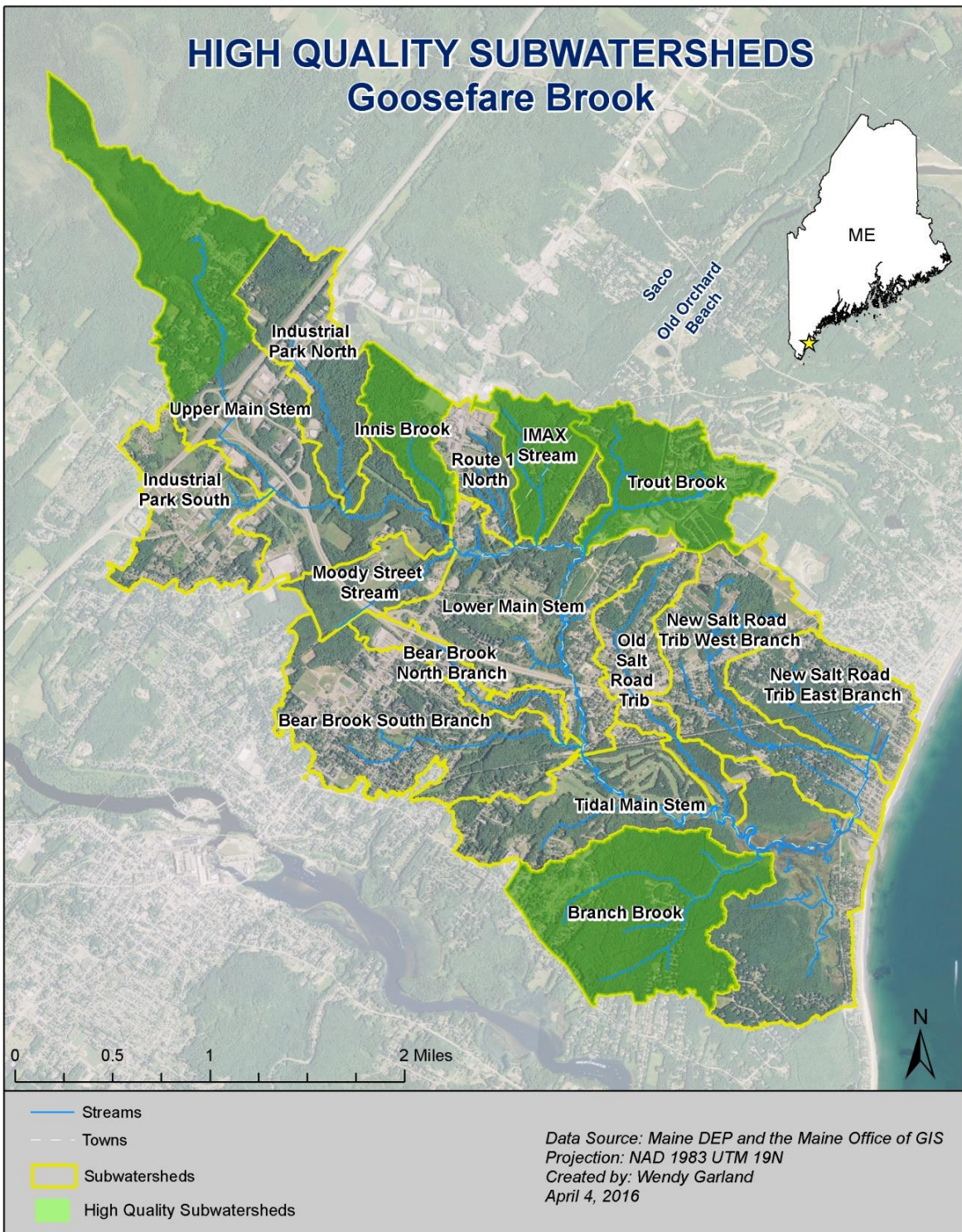
## Goosefare Brook



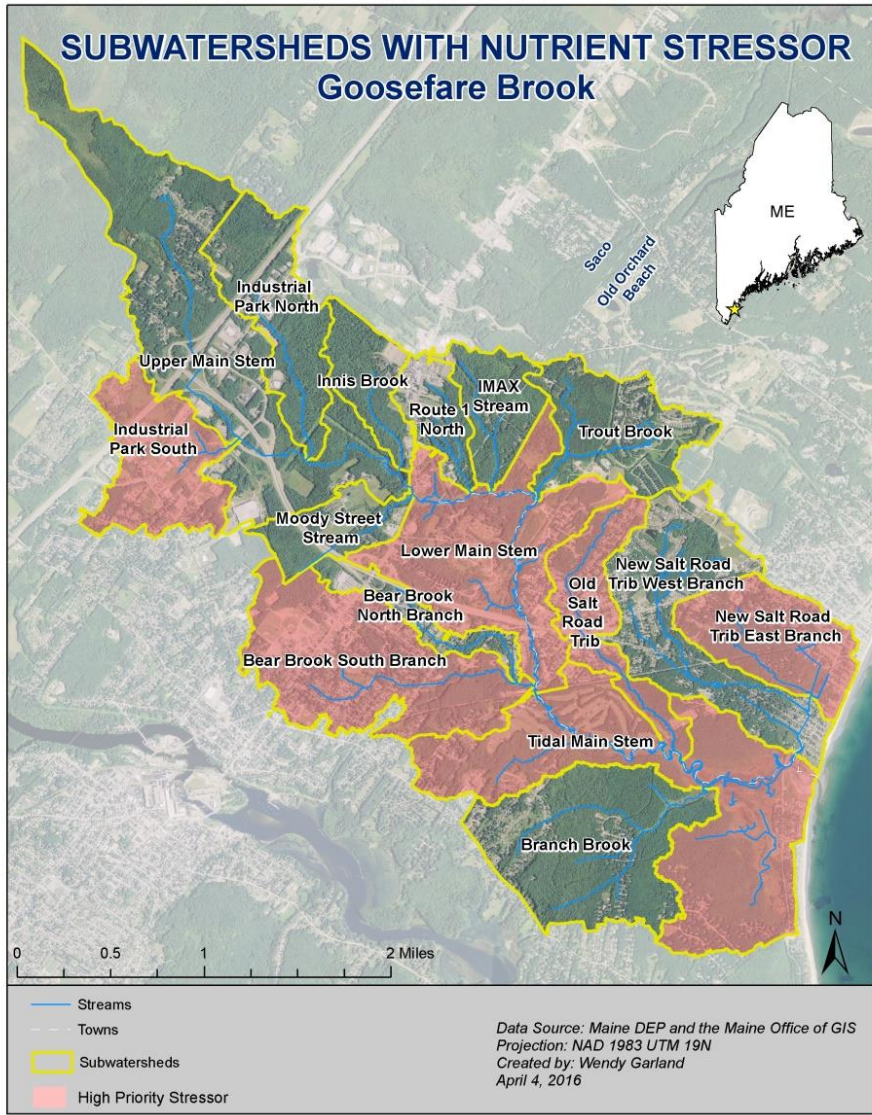
**MAP P**



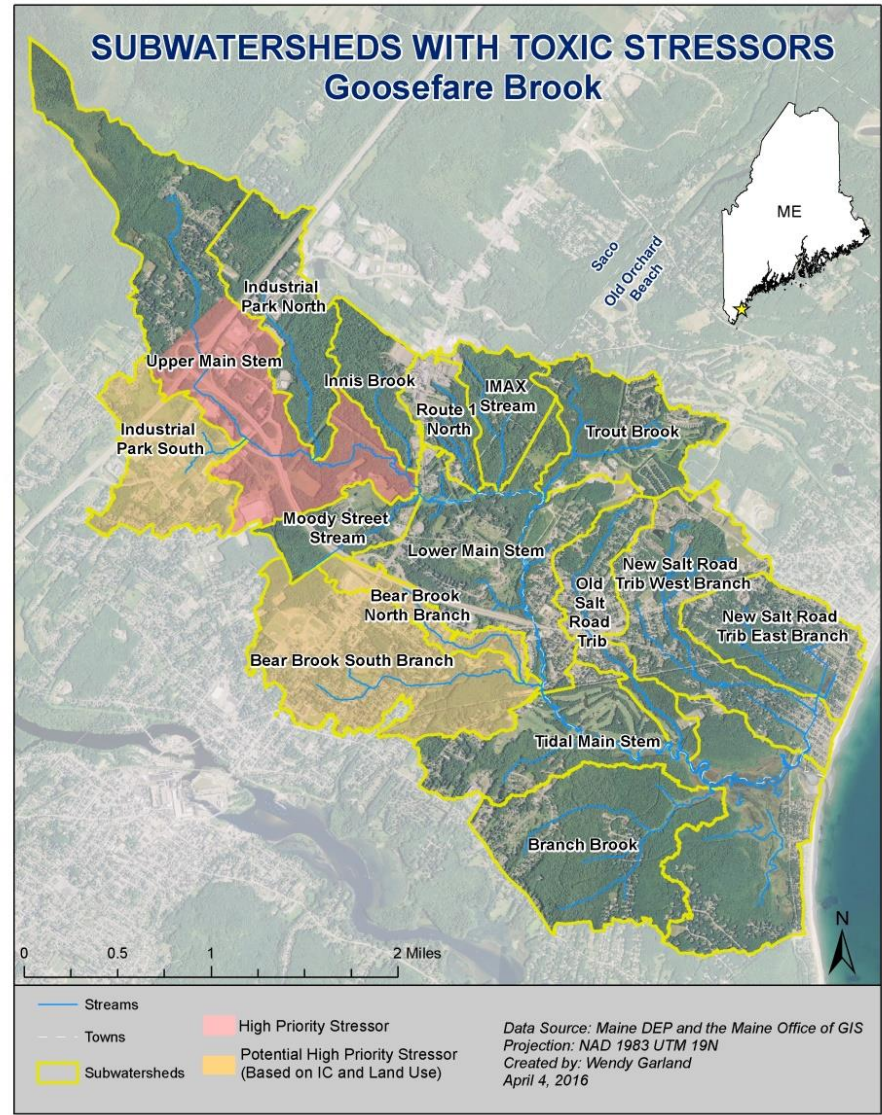
# HIGH QUALITY SUBWATERSHEDS Goosefare Brook



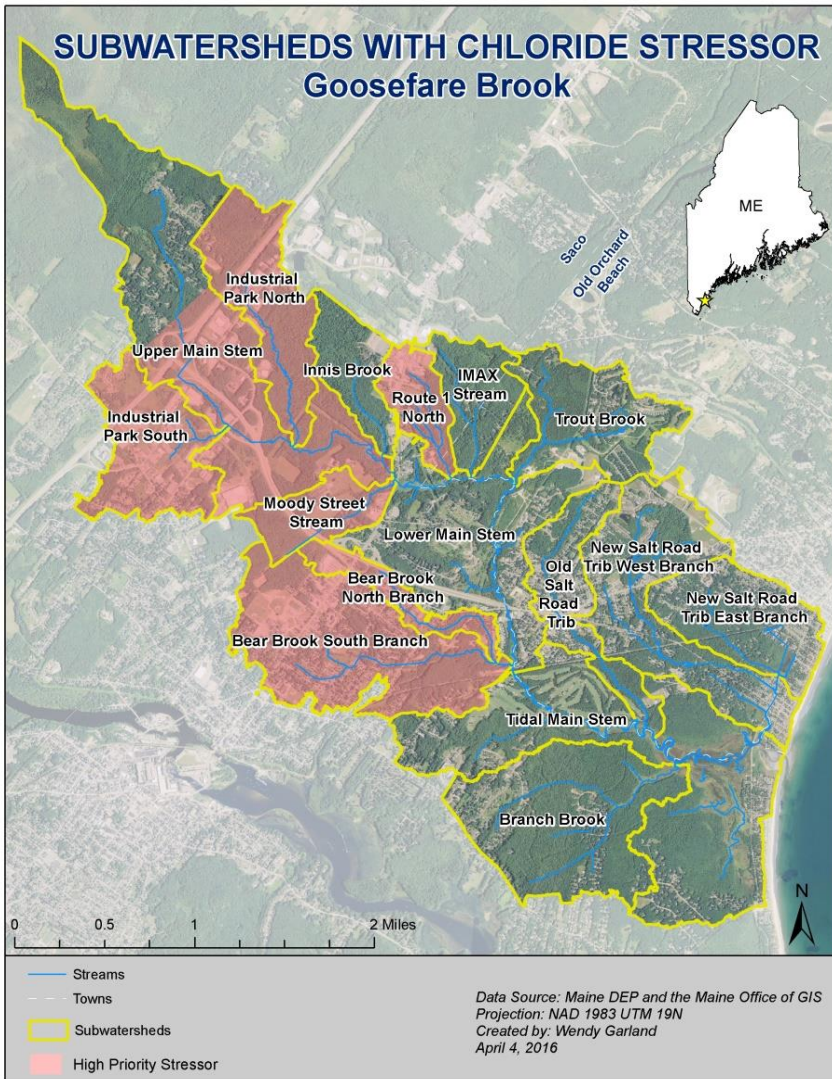
MAP Q



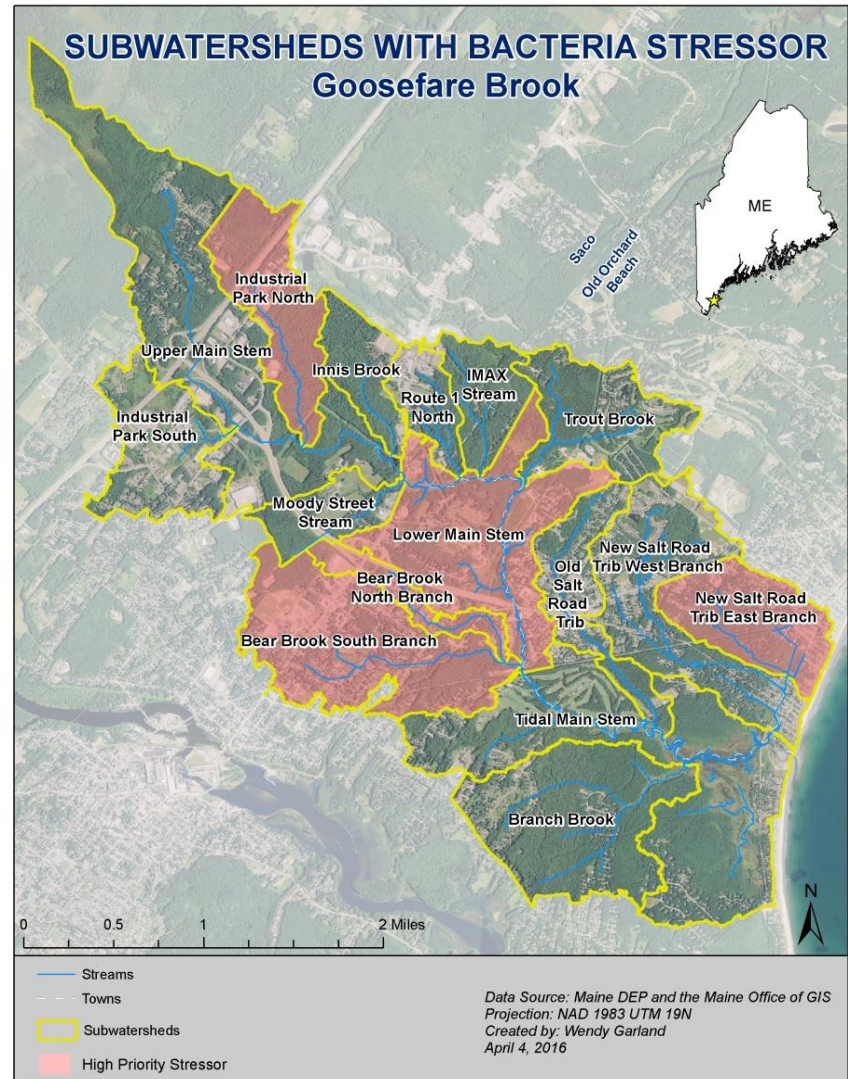
**MAP R**



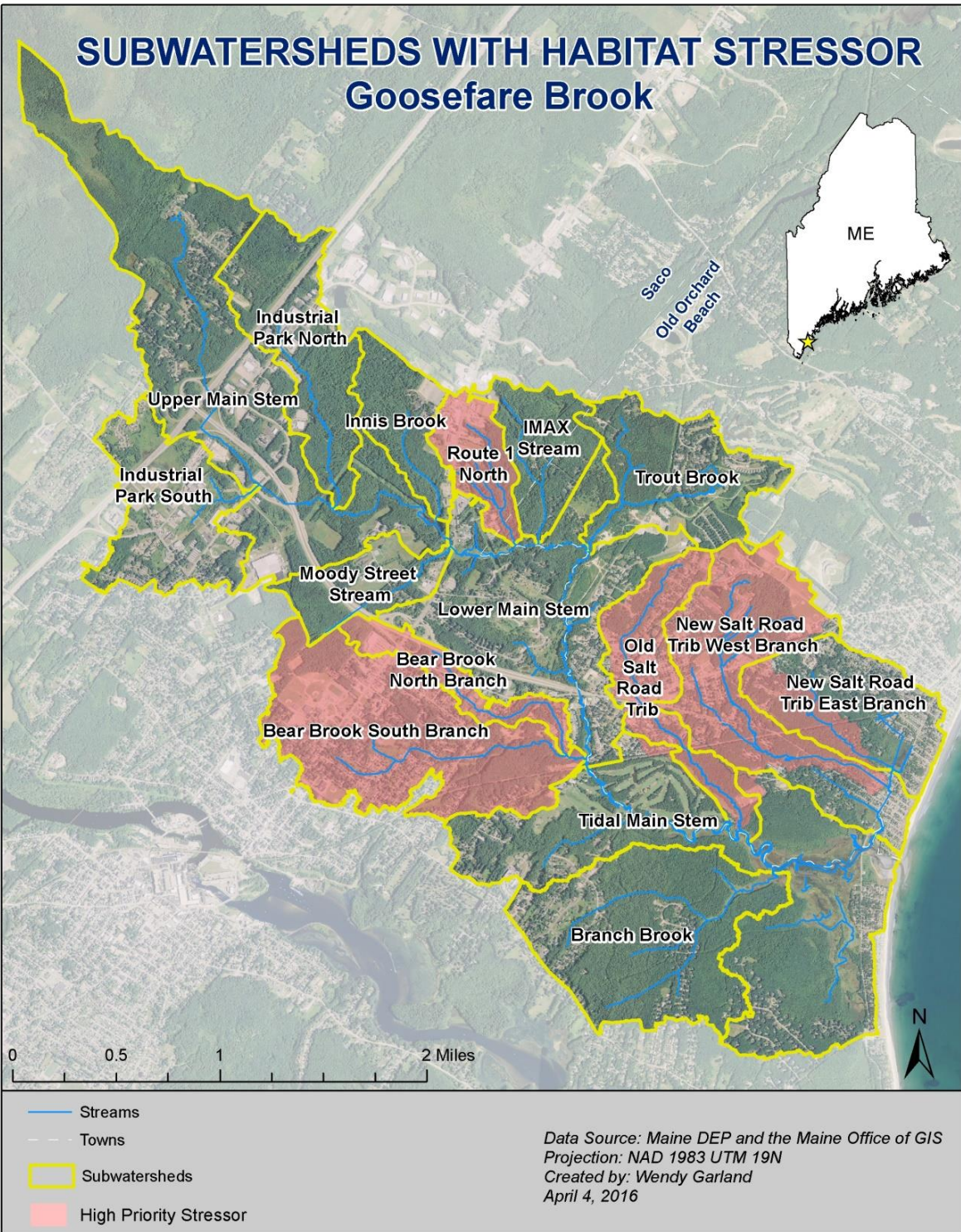
**MAP S**



**MAP T**

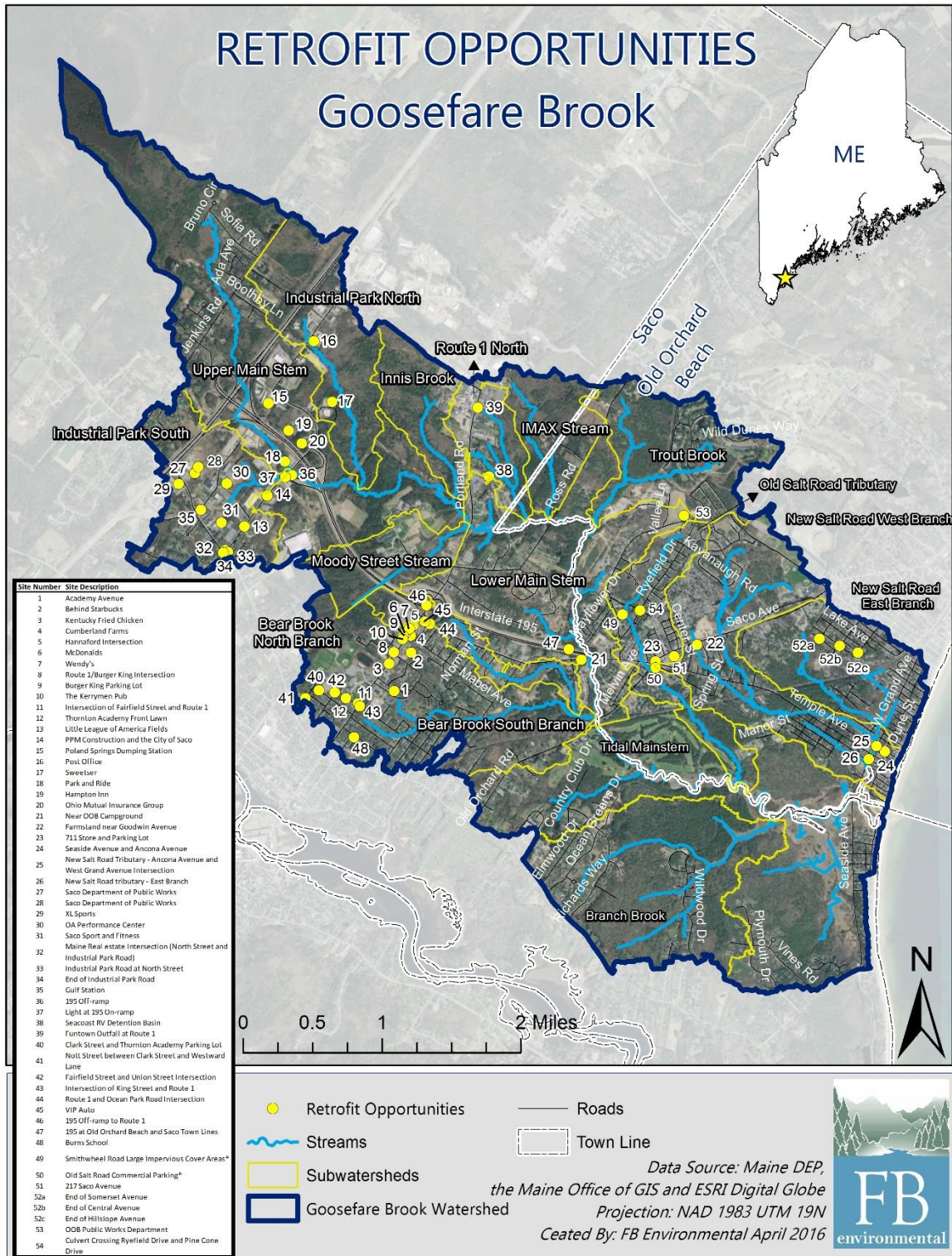


**MAP U**



**MAP V**

# RETROFIT OPPORTUNITIES Goosefare Brook



\*Representative site. Does not reflect exact site location.

**MAP W**

## APPENDIX II: Supplemental Water Quality Data and Figures

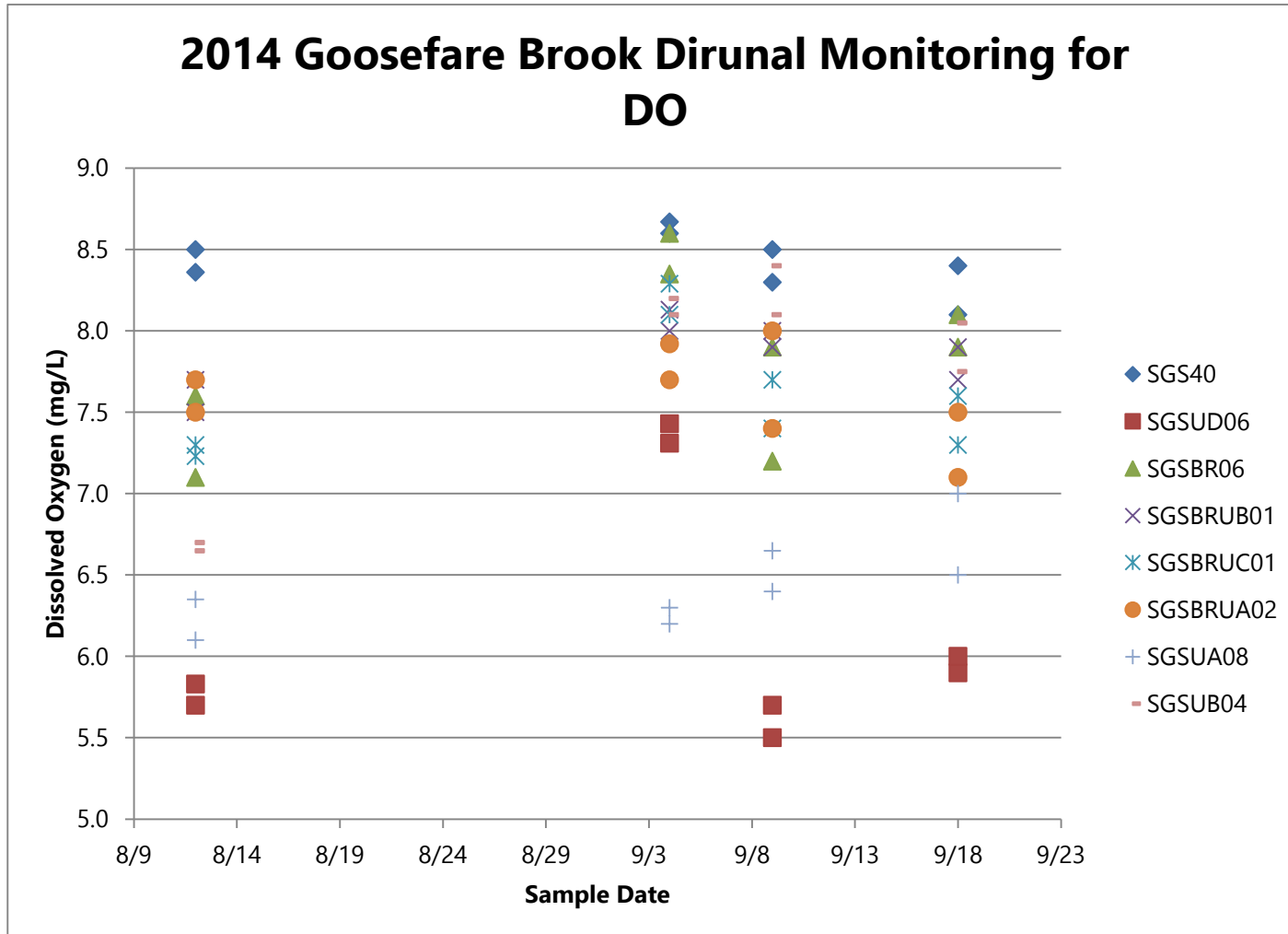
### BIOMONITORING

**Table 1.** Biomonitoring data history for the eight sites monitored in the Goosefare Brook watershed from 1984 to present.

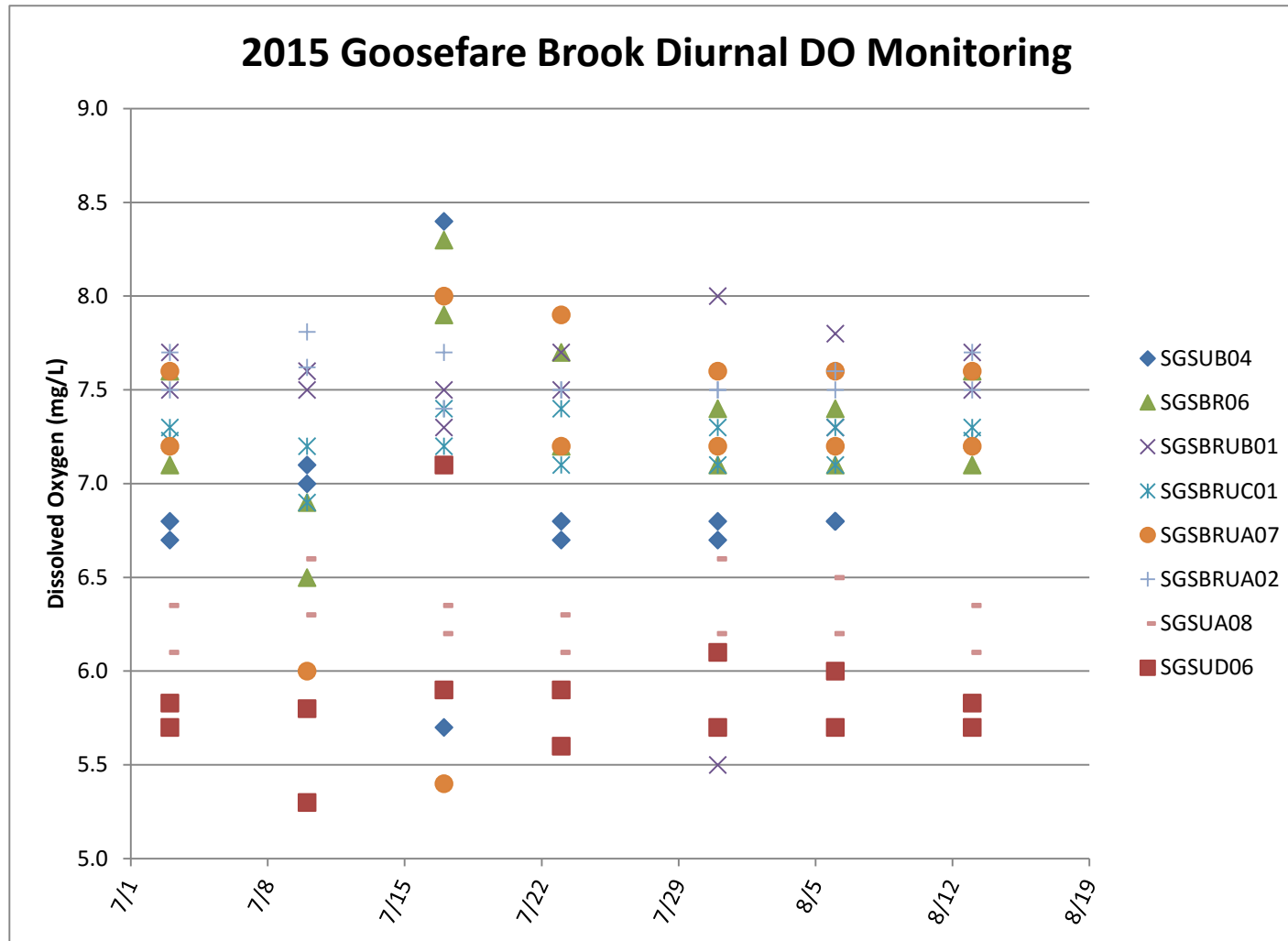
SITE	YEAR	STATUTORY CLASS	ATTAINMENT CLASS	TOTAL ABUNDANCE*	GENERIC RICHNESS	RELATIVE ABUNDANCE CHIRONOMIDAE	EPT GENERIC RICHNESS
<b>S-272</b>	2015	--	--	--	--	--	--
	2014	B	NA	453	30	0.18	5
	1995	B	C	409	49	0.77	13
<b>S-1041</b>	2015	--	--	--	--	--	--
	2014	B	NA	86	38	0.34	6
<b>S-1065</b>	2015	--	--	--	--	--	--
<b>S-50</b>	1984	B	NA	145	28	0.25	2
<b>S-49</b>	2015	--	--	--	--	--	--
	1995	B	C	62	36	0.52	7
	1994	B	C	80	47	0.57	8
	1986	B	NA	74	26	0.78	5
	1984	B	NA	489	24	0.01	--
<b>S-271</b>	2015	--	--	--	--	--	--
	2010	B	I	12	22	0.36	10
	2005	B	A	59	46	0.49	10
	2000	B	NA	271	43	0.80	4
	1998	B	C	42	40	0.49	8
	1995	B	C	25	21	0.35	6
<b>S-337</b>	2005	B	B	149	57	0.49	11
	2000	B	NA	180	35	0.87	5
	1998	B	B	202	66	0.71	16
<b>S-48</b>	2015	--	--	--	--	--	--
	2010	B	C	143	46	0.69	13
	2005	B	C	334	44	0.84	11
	2000	B	A	493	74	0.67	18
	1998	B	B	199	56	0.58	14
	1995	B	C	193	36	0.62	13
	1994	B	A	272	49	0.49	14
	1986	B	A	217	41	0.51	19
1984	B	A	100	38	0.49	13	

**\*ROUNDED TO THE NEAREST DECIMAL**

## DISSOLVED OXYGEN



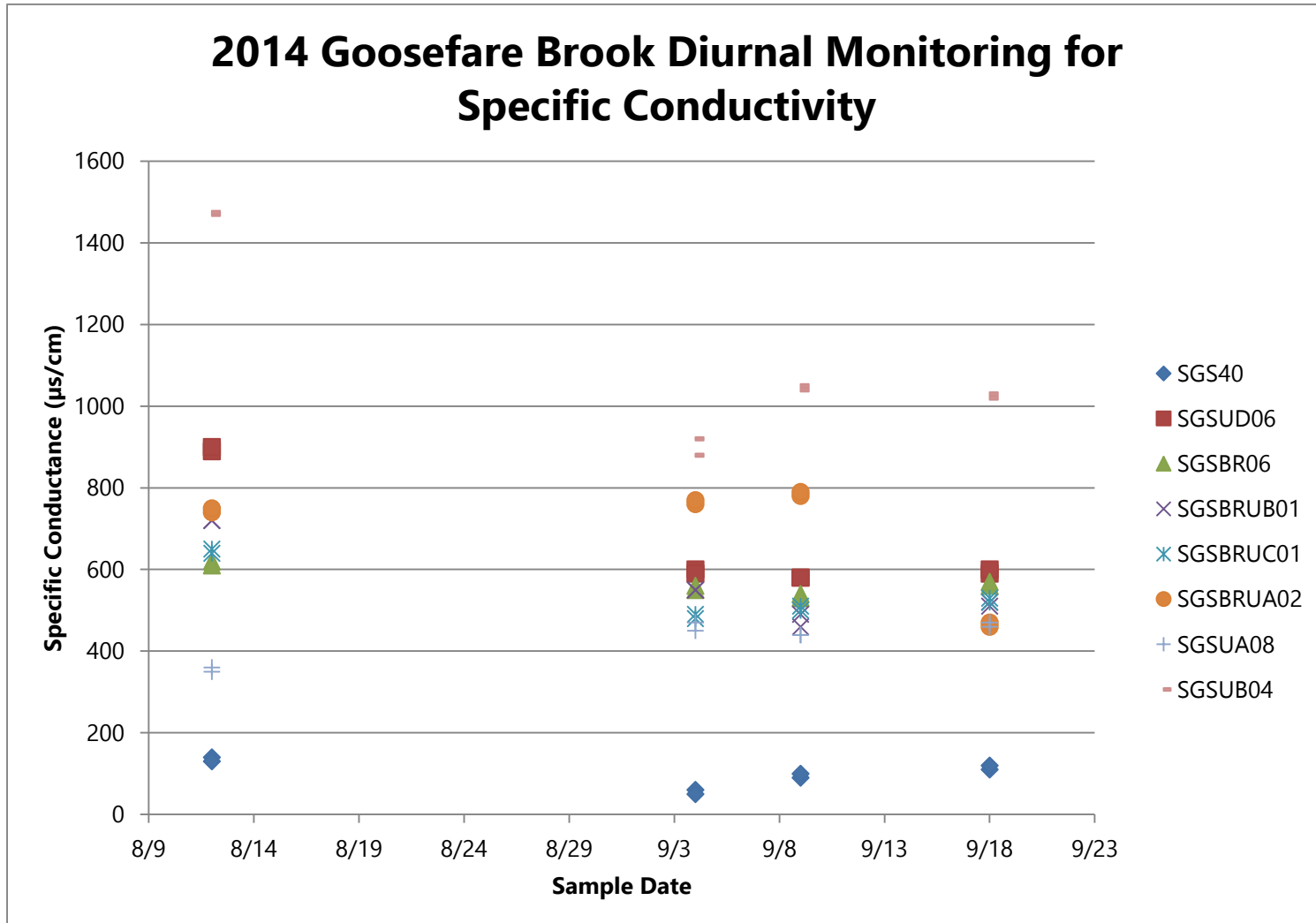
**Figure 1.** Diurnal DO monitoring conducted in 2014 by York County Soil and Water Conservation District (YCSWCD). Each site was sampled once in the morning and once in the afternoon to assess swings in DO.



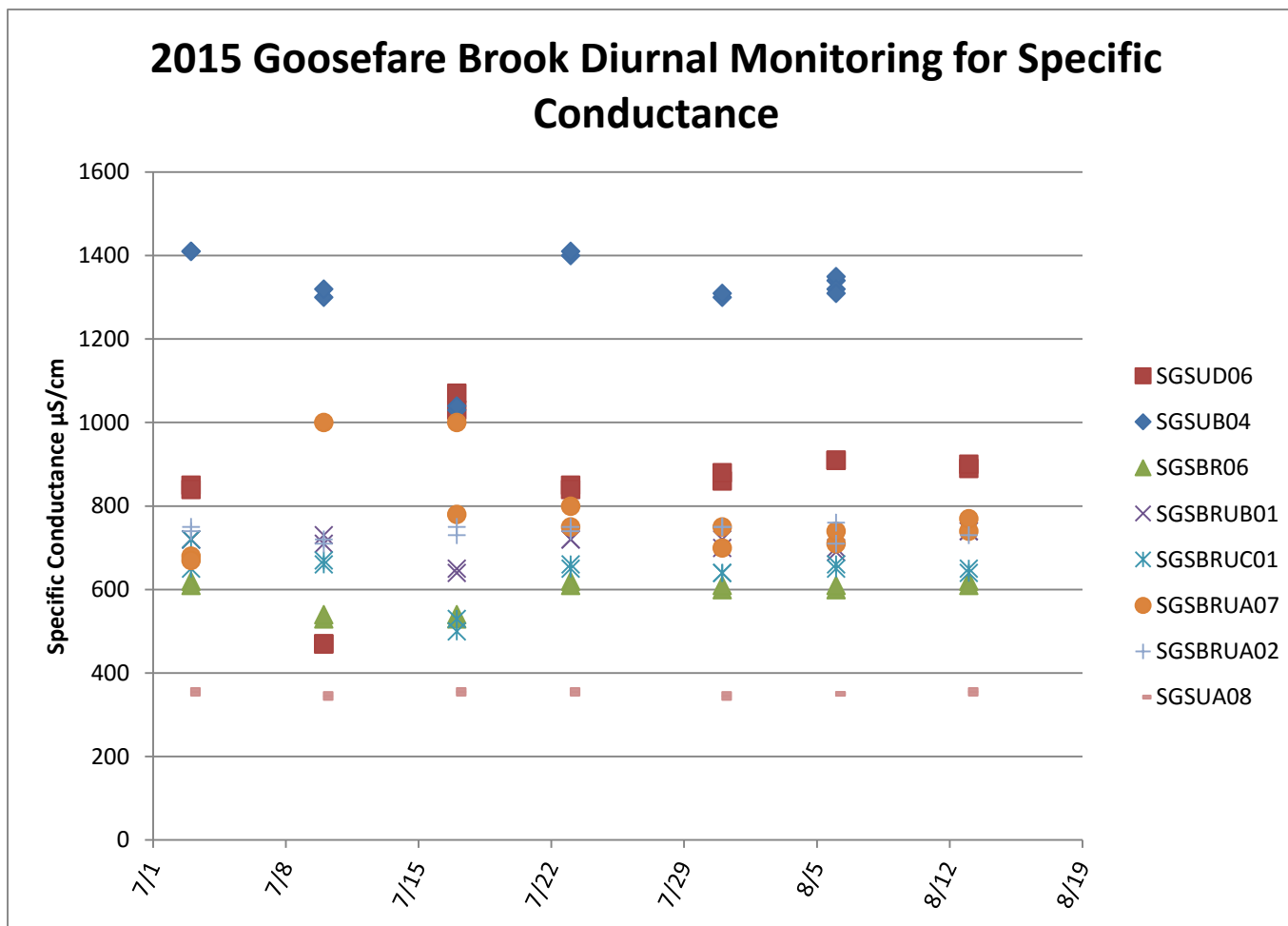
**Figure 2.** Diurnal DO monitoring conducted in 2015 by York County Soil and Water Conservation District (YCSWCD). Each site was sampled once in the morning and once in the afternoon to assess swings in DO.



## SPECIFIC CONDUCTIVITY



**Figure 3.** Diurnal specific conductivity monitoring conducted in 2014 by York County Soil and Water Conservation District (YCSWCD). Each site was sampled once in the morning and once in the afternoon to assess swings in specific conductivity.



**Figure 4.** Diurnal specific conductivity monitoring conducted in 2015 by York County Soil and Water Conservation District (YCSWCD). Each site was sampled once in the morning and once in the afternoon to assess swings in specific conductivity.

## TOXICS

**Table 2.** Table excerpt of lengths, weights, and heavy metals in Brook Trout from Goosefare Brook, Saco (Maine DEP).



## BACTERIA

**Table 3.** Geometric mean results from *E. coli* sampling on Goosefare Brook at six sites from 2011 – 2014.

Goosefare Brook E. Coli Geometric Mean Results 2011-2014						
Station ID	SGS01	SGS04	SGS15	SGS32	SGS40	SGS45
Road	Old Orchard Rd	Ocean Park Rd.	Ross Rd.	Ind. Park Rd.	Jenkins	Bruno Circle
2011	248	178	184	134	226	
2012	279		218	168	116	
2013			184	95	71	
2014	294		425		110	85.7

**Table 4.** Geometric mean results from *E. coli* sampling on Goosefare Brook tributaries at eight sites from 2011 – 2014.

Goosefare Brook Tributaries (excluding Bear Brook) E. coli Geometric Mean Results*								
Station ID	SGSUA05	SGSUB04	SGSUB04	3STS/SGSBPC	SGSUC01	SGSUD06	SGSUE01	SGSIB01
Road	Old Salt Rd.	Moody St.	Moody St. Lower	Trout Brook	IMAX Trib	Ind. Park North Trib	Route 1 North	Main St.
2011	218	256		8				42
2012					326		157	
2014		59	298.7/325.5	3.1/12	89	1553/1203		

**Table 5.** Geometric mean results from *E. coli* sampling on Bear Brook at seven sites from 2011 – 2014.

Bear Brook E. coli Geometric Mean Results 2011-2014							
Station ID	SGSBR01	SGSBR06	SGSBR08	SGSBR10	SGSRUA02	SGSBRUA07	SGSBRUC01/03
Road	Old Orchard Rd.	Cumberland	Lafayette	Locke	Ocean Park	Coolidge	King St.
2011	566	1675	1970	1994	194	445	1255
2012	405			2420		101	
2014	174			370		184	633

*Note for all tables:*

**Red Text** > 236 MPN/100ml

**Orange Text** 101 – 325 MPN/100ml

## Fisheries

**Table 6.** Summary of fisheries data (credit: Maine DEP)

Site	Date	Fish Present	Brook Trout	Lake Chub	Eel	Three Spine Stickleback	Brook Trout Size Classes*
Jenkins Rd.	7/10/86	Yes	None	Abundant	12		
	7/23/15	Yes	19	1	1		4 YOY, 8 sublegals, 7 legals
Park & Ride	9/19/83	Yes	None	Abundant			
	7/10/86	No	None				
	7/23/15	Yes	16	10	8		5 YOY, 2 sublegals, 9 legals
Route 1	7/23/15**	Yes	1		3	2	
Route 5	9/19/83	Yes	3	Abundant	Abundant		0 YOY, 0 sublegals, 3 legals
	7/23/15***	Yes	3	1	19	1	1 YOY, 0 sublegals, 2 legals
Moody St. Tributary	7/23/15	Yes	17				17 YOY, 0 sublegals, 0 legals

\*YOY – young of year (2-3”), sublegals (3-5”), legals (6-11”)

\*\*Difficult to sample due to depth and high conductivity

\*\*\* Also 2 White sucker and 4 Pumpkinseed sunfish

## APPENDIX III: Supplemental Stream Corridor Assessment and In-Stream Habitat Assessment Data.

**Table 7. Erosion sites** identified in the Stream Corridor Assessment. Seventeen additional sites were found but not prioritized and are available by request.






Map ID	Description	Cause	Length (ft)	Bank Height (ft)	Severity	Correctability	Access	Benefit	M-O	Priority	Cost	Other Issues	Photo
<b>Phase I</b>													
E15	Streambank erosion	Associated with road culvert	100	7	5 - V. Severe	3 - Mod.	4 - Easy	2	9	14	Mod.	Also buffer site and severe fish barrier.	
E1	Bank erosion from concentrated drainage golf course	Landuse Change	35	10	3 - Mod.	3 - Mod.	4 - Easy	3	8	13	Mod.	Buffer would reduce nutrients.	
E35	Streambank erosion below campground culvert	Fallen trees below undersize d culvert	100	16	5 - V. Severe	3 - Mod.	3 - Mod.	2	8	13	High	Connected to geomorph/ culvert issue.	
E37	Streambank erosion	Other	200	7	3 - Mod.	3 - Mod.	5 - V. Easy	2	9	13	Mod.	Also dumping and buffer site.	
E3	Streambank erosion due to upland drainage/ lack of buffer by 2nd bridge	Landuse Change	30	5	3 - Mod.	3 - Mod.	3 - Mod.	3	7	12	Low	Could help with nutrients.	

Table 7(cont'd)






Map ID	Description	Cause	Length (ft)	Bank Height (ft)	Severity	Correctability	Access	Benefit	M-O	Priority	Cost	Other Issues	Photo
E9	Downcutting to stream from stormwater channel at Park and Ride	Storm-water Outfall	50	3	3 - Mod.	3 - Mod.	5 - V. Easy	1	8	12	Mod.	Also retrofit site	
E10	Ind Park South trib recently cleared of vegetation and eroding	Landuse Change	300	3	3 - Mod.	3 - Easy	5 - V. Easy	1	9	12	Low	Also Buffer site and would reduce algae.	
E13	Bank erosion @ RV outfall drainage. Adjust RV pond outlet structure and/or armor bank.	Storm-water drainage	75	15	4 - Severe	3 - Mod.	3 - Mod.	2	7	12	High	Also retrofit site	
E14	Streambank erosion	Road culvert, unstable fill and knotweed	50	5	3 - Mod.	3 - Mod.	4 - Easy	2	7	12	Mod.	Also Buffer and channel alteration site	
E25	Inadequate erosion controls by rd crossing, silt fence not keyed in, ditch erosion		250	15	3 - Mod.	4 - Easy	4 - Easy	0	9	12	Low		

Table 7(cont'd)






Map ID	Description	Cause	Length (ft)	Bank Height (ft)	Severity	Correctability	Access	Benefit	M-O	Priority	Cost	Other Issues	Photo
E26	Widening due to lack of buffer	Landuse Change	20	3	3 - Mod.	4 - Easy	4 - Easy	1	8	12	Low	Also Buffer site	
E36	Streambank erosion along steep banks behind homes	Other	150	15	4 - Severe	2 - Hard	3 - Mod.	3	9	12	High	Also geomorph, habitat. City ripped during sewer work.	
E38	Severe streambank erosion from Funtown and Rt 1 outfalls	Storm-water Outfall	700	15	5 - V. Severe	3 - Mod.	3 - Mod.	1	8	12	High	Also retrofit site	
<b>Phase II</b>													
E7	Streambank erosion on steep banks by golf course, and lack of buffer	Landuse Change	200	20	5 - V. Severe	2 - Hard	3 - Mod.	1	9	11	High	Also Buffer site	
E8	Streambank erosion on steep banks by golf course, lack of buffer	Landuse Change	300	30	5 - V. Severe	2 - Hard	3 - Mod.	1	9	11	High	Also Buffer site	



Table 7(cont'd)






Map ID	Description	Cause	Length (ft)	Bank Height (ft)	Severity	Correct-ability	Access	Benefit	M-O	Priority	Cost	Other Issues	Photo
E11	Erosion from chronic road shoulder erosion with large amount of material in floodplain	Road Crossing	125	2	4 - Severe	3 - Mod.	4 - Easy	0	8	11	Mod.		
E16	Down-cutting at trail crossing. Culvert clogged.	Pipe Outfall	200	3	4 - Severe	4 - Easy	3 - Mod.	0	9	11	Mod.		
E21	Erosion camp-ground drainage above	Below Road Crossing	20	15	3 - Mod.	4 - Easy	4 - Easy	0	8	11	Low		
E22	Erosion camp-ground drainage above	Below Road Crossing	20	8	3 - Mod.	4 - Easy	4 - Easy	0	8	11	Low		
E27	Widening	Landuse Change	50	5	3 - Mod.	3 - Mod.	4 - Easy	1	7	11	Mod.	Also Buffer site	

Table 7(cont'd)








Map ID	Description	Cause	Length (ft)	Bank Height (ft)	Severity	Correctability	Access	Benefit	M-O	Priority	Cost	Other Issues	Photo
E39	Erosion around old trail culvert, bridge under construction	Road Crossing	25	4	4 - Severe	4 - Easy	3 - Mod.	0	8	11	Mod.		
E43	Eroded stormwater drainage	Storm-water Outfall	50	3	4 - Severe	4 - Easy	3 - Mod.	0	8	11	Mod.		
E44	Streambank erosion	Inadequate Buffer and Knotweed	150	2	3 - Mod.	3 - Mod.	4 - Easy	1	7	11	High		
E2	Streambank erosion next to first golf course bridge	Landuse Change	30	5	2 - Minor	4 - Easy	4 - Easy	0	7	10	Low		
E32	Streambank erosion		30	4	3 - Mod.	3 - Mod.	4 - Easy	0	7	10	Mod.		
E40	Eroded stormwater outfall	Storm-water Outfall	25	2	3 - Mod.	4 - Easy	3 - Mod.	0	7	10	Low		

Table 7(cont'd)

Map ID	Description	Cause	Length (ft)	Bank Height (ft)	Severity	Correctability	Access	Benefit	M-O	Priority	Cost	Other Issues	Photo
E41	Eroded drainage channel	Stormwater Outfall	25	3	4 - Severe	3 - Mod.	3 - Mod.	0	7	10	Low		

**Table 8. Inadequate buffer sites** identified in the Stream Corridor Assessment. Seven additional sites were found but not prioritized and are available by request. (credit: Maine DEP)







Map ID	Side of Stream	Buffer Width Left (ft)	Buffer Width Right (ft)	Land Use Left	Land Use Right	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
<b>Phase I</b>													
B1	Right		0	Lawn	Lawn	3 - Mod.	4 - Easy	4 - Easy	3	14	Mod.	Erosion site and nutrients.	
B3	Both	5	5	Lawn	Lawn	3 - Mod.	4 - Easy	4 - Easy	2	13	Mod.	Algae and erosion site.	
B29	Both	7	9	Lawn	Lawn	3 - Mod.	4 - Easy	4 - Easy	2	13	Mod.	Geomorph, yard waste and erosion site.	
B33	Both	0	0	Lawn	Paved	3 - Mod.	4 - Easy	4 - Easy	2	13	Low	Erosion site and algae.	
B4	Left	25		Lawn	Other	3 - Mod.	3 - Mod.	4 - Easy	2	12	Mod.	Algae and erosion site.	
B5	Left	10		Lawn	Other	3 - Mod.	3 - Mod.	4 - Easy	2	12	Mod.	Algae and erosion site.	

Table 8 (cont'd)








Map ID	Side of Stream	Buffer Width Left (ft)	Buffer Width Right (ft)	Land Use Left	Land Use Right	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
B6	Left	10		Lawn	Other	3 - Mod.	3 - Mod.	4 - Easy	2	12	Mod.	Algae and erosion site.	
B12	Left	0		Lawn	Lawn	4 - Severe	3 - Mod.	3 - Mod.	2	12	Low	Erosion and channel alteration.	
B13	Both	3	15	Lawn	Lawn	3 - Mod.	4 - Easy	4 - Easy	1	12	Low	Erosion site.	
B22	Both	50	10	Shrubs/ Small Trees	Paved	3 - Mod.	3 - Mod.	4 - Easy	2	12	Mod.	Algae and channel alteration.	
B24	Both	2	20	Lawn	Forest	4 - Severe	4 - Easy	3 - Mod.	1	12	Mod.	Geomorph	
B25	Right		15	Shrubs/ Small Trees	Lawn	3 - Mod.	4 - Easy	4 - Easy	1	12	Low	Geomorph	
B26	Left	0		Lawn	Forest	3 - Mod.	4 - Easy	4 - Easy	1	12	Low	Geomorph	

Table 8 (cont'd)














Map ID	Side of Stream	Buffer Width Left (ft)	Buffer Width Right (ft)	Land Use Left	Land Use Right	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
B27	Both	6	6	Paved	Lawn	3 - Mod.	4 - Easy	4 - Easy	1	12	Mod.	Geomorph	
B28	Both	6	6	Lawn	Lawn	3 - Mod.	4 - Easy	4 - Easy	1	12	Mod.	Geomorph	
B31	Left	2		Lawn	Forest	3 - Mod.	4 - Easy	4 - Easy	1	12	Low	Geomorph	
<b>Phase II</b>													
B2	Left	10		Shrubs/ Small Trees	Forest	3 - Mod.	4 - Easy	3 - Mod.	1	11	Low	Algae	
B7	Left		50	Lawn	Salt Marsh	3 - Mod.	4 - Easy	4 - Easy	0	11	Mod.		
B8	Both	4	4	Lawn	Lawn	4 - Severe	3 - Mod.	4 - Easy	0	11	Mod.		
B23	Both	100	15	Shrubs/ Small Trees	Paved	3 - Mod.	3 - Mod.	4 - Easy	1	11	Mod.	Algae	

Table 8 (cont'd)






Map ID	Side of Stream	Buffer Width Left (ft)	Buffer Width Right (ft)	Land Use Left	Land Use Right	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
B9	Both	2	2	Lawn	Lawn	4 - Severe	2 - Hard	3 - Mod.	1	10	Mod.	Channel alteration	
B18	Left	0		Other	Forest	2 - Minor	4 - Easy	4 - Easy	0	10	Low		
B19	Both	25	75	Forest	Forest	3 - Mod.	3 - Mod.	4 - Easy	0	10	Mod.		
B21	Left	0		Shrubs/ Small Trees	Forest	3 - Mod.	3 - Mod.	3 - Mod.	1	10	Mod.	Algae	
B30	Both	7	10	Lawn	Lawn	2 - Minor	3 - Mod.	4 - Easy	1	10	Mod.	Geomorph	
B32	Right		10	Forest	Lawn	3 - Mod.	4 - Easy	4 - Easy	1	10	Mod.	Geomorph	

**Table 9. Waste dumping sites** identified in the Stream Corridor Assessment. (credit: Maine DEP)

Map Site	Type of Material	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
<b>Phase I</b>									
D11	Yard Waste	4 - Severe	3 - Mod.	5 - V. Easy	3	15	Low	Nutrients and geomorph. issue	
D12	Yard Waste - Business grass clippings into drainage	4 - Severe	3 - Mod.	5 - V. Easy	3	15	Low	Nutrients, retrofit site.	
D1	Yard Waste - adjacent landowner grass dumping	3 - Mod.	4 - Easy	4 - Easy	2	13	Low	Fish barrier, Erosion	
D7	Yard Waste - at apartments	3 - Mod.	4 - Easy	2 - Hard	3	12	Mod.	Nutrients	
D8	Tires	4 - Severe	4 - Easy	3 - Mod.	0	11			
<b>Phase II</b>									
D2	Yard Waste	1 - V. Minor	4 - Easy	5 - V. Easy	0	10	Low		



Table 9 (cont'd)

Map Site	Type of Material	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
D3	Yard Waste	2 - Minor	4 - Easy	4 - Easy	0	10	Mod.		
D4	Yard Waste	3 - Mod.	4 - Mod.	3 - Mod.	0	10	Low		
D9	Other - Old car in stream	4 - Severe	3 - Mod.	3 - Mod.	0	10	Mod.		
D10	Tires - 20+	4 - Severe	3 - Mod.	3 - Mod.	0	10			
D5	Yard Waste - next to horses and power line	3 - Mod.	3 - Mod.	3 - Mod.	0	9	Mod.		
D6	Yard Waste - old dump	2 - Minor	4 - Easy	2 - Hard	0	8	Low		

**Table 10. Channel alteration sites** identified in the Stream Corridor Assessment. (credit: Maine DEP)












Map ID	Type	Bottom Width (ft)	Length (ft)	Part of Road	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
<b>Phase I</b>												
CA11	Rip-rap - damming up stream and creates fish barrier	37	2	No	3 - Mod.	4 - Easy	3 - Mod.	3	13	Low	Marg. habitat rating.	
CA1	Bank Stabilization with concrete rubble	15	25	No	3 - Mod.	2 - Hard	4 - Easy	3	12	Mod.	Erosion and buffer site. Marginal habitat rating.	
CA7	Rip-rap	4	100	Below	3 - Mod.	3 - Mod.	3 - Mod.	3	12	Mod.	Marg. habitat rating.	
CA9	Rip-rap ponding flow - old stone ford?	10	6	No	3 - Mod.	4 - Easy	2 - Hard	3	12	Low	Marg. habitat rating.	
CA10	Rip-rap	37	300	No	4 - Severe	2 - Hard	3 - Mod.	3	12	High	Buffer site/ Marg. habitat rating.	

Table 10 (cont'd)

Map ID	Type	Bottom Width (ft)	Length (ft)	Part of Road	Severity	Correctability	Access	Benefit	Priority	Cost	Other Issues	Photo
<b>Phase II</b>												
CA5	Bank stabilization w/ wood beams. Landowner asked for TA.	3	150	No	4 - Severe	1 - V.Hard	3 - Mod.	1	9	High	Buffer site.	
CA2	Concrete pipe in channel, collapsing in stream. No longer needed, footbridge	5	30	No	2 - Minor	3 - Mod.	3 - Mod.	0	8	Mod.		
CA3	Concrete - old tide gate	0	0	No	2 - Minor	3 - Mod.	3 - Mod.	0	8	Mod.		
CA4	Rip-rap	3	500	No	3 - Mod.	1 - V.Hard	3 - Mod.	1	8	High	Buffer site.	
CA6	Old road bank?	0	0	No	2 - Minor	3 - Mod.	3 - Mod.	0	8	High		
CA8	Channel straightened - adjacent to trail	5	1500	No	4 - Severe	1 - V.Hard	3 - Mod.	0	8	High		

**Table 11. Habitat ratings for sites** identified in the Stream Corridor Assessment. (credit: Maine DEP)








Site	Photo	Location	Macro. Substrate	Embedd-edness	Shelter for Fish	Channel Alter-ation	Sediment Deposit.	Velocity Depth	Channel Flow	Bank Veg.	Bank Con-dition	Riparian Veg.	Total
1		Biddeford Saco Country Club - third bridge	Marg.	Poor	Poor	Opt.	S-opt.	S-opt.	S-opt.	Marg.	Marg.	Marg.	S-opt. 23
2		Rachel Carson NWR - sonde site	S-opt.	Poor	S-opt.	Opt.	S-opt.	Poor	Poor	Opt.	Marg.	Opt.	S-opt. 26
3		Bruno Circle	Poor	Poor	S-opt.	Opt.	S-opt.	Marg.	Marg.	Opt.	S-opt.	Opt.	S-opt. 27
4		Jenkins Road	Opt.	Opt.	S-opt.	Opt.	S-opt.	S-opt.	S-opt.	Opt.	Opt.	Opt.	<b>Opt. 36</b>
5		Park and Ride	S-opt.	S-opt.	Opt.	Opt.	S-opt.	S-opt.	S-opt.	Opt.	Opt.	Opt.	<b>Opt. 35</b>
6		Goosefare Gorge	Opt.	Opt.	Marg.	Opt.	Opt.	S-opt.	S-opt.	Opt.	Opt.	Opt.	<b>Opt. 36</b>
7		Route 1	Poor	Poor	S-opt.	S-opt.	Opt.	Marg.	Opt.	S-opt.	Opt.	Opt.	S-opt. 29

Table 11 (cont'd)








Site	Photo	Location	Macro. Substrate	Embedd- edness	Shelter for Fish	Channel Alter- ation	Sediment Deposit.	Velocity Depth	Channel Flow	Bank Veg.	Bank Cond- ition	Riparian Veg.	Total
8		Silver Spring Trib. Eastern Trail	Poor	Poor	Poor	Opt.	Poor	Poor	Marg.	S-opt.	S-opt.	Opt.	S-opt. 21
9		Route 1 Big Apple/Funto wn backlot trib.	Poor	Poor	Marg.	Opt.	Opt.	Poor	Marg.	S-opt.	Opt.	Opt.	S-opt. 23
10		Cinemagic Trib	Poor	Poor	Poor	Opt.	Opt.	Poor	Marg.	Opt.	Opt.	Opt.	S-opt. 26
11		Ross Road	Marg.	Poor	Marg.	Opt.	Opt.	Marg.	S-opt.	Opt.	Opt.	S-opt.	S-opt. 29
12		Ross Road Trib (behind 152 Ross Rd)	Poor	Poor	Poor	Opt.	Opt.	Poor	Marg.	Opt.	Opt.	Opt.	S-opt. 26
13		Blueberry Plains - former sonde location	Marg.	Poor	S-opt.	Opt.	S-opt.	Marg.	S-opt.	Opt.	Opt.	Opt.	<b>Opt. 30</b>
14		Woodman Road Trib.	Poor	Poor	Marg.	Opt.	Opt.	Poor	Marg.	Opt.	Opt.	Opt.	S-opt. 27

Table 11 (cont'd)








Site	Photo	Location	Macro. Substrate	Embedd- edness	Shelter for Fish	Channel Alter- ation	Sediment Deposit.	Velocity Depth	Channel Flow	Bank Veg.	Bank Cond- ition	Riparian Veg.	Total
15		Stagecoach Road	Marg.	Poor	Opt.	Opt.	Opt.	Marg.	S-opt.	Opt.	Opt.	Opt.	<b>Opt. 32</b>
16		Trib. behind Quality Flooring	S-opt.	Poor	Marg.	Opt.	Opt.	Marg.	S-opt.	S-opt.	Opt.	S-opt.	S-opt. 29
17		Beachplum Road	Marg.	Poor	S-opt.	Opt.	S-opt.	Marg.	Marg.	Opt.	Opt.	Opt.	S-opt. 29
18		Old Orchard Road Trib	S-opt.	Poor	Marg.	Marg.	S-opt.	Poor	Marg.	Marg.	Marg.	Poor	Marg. 19
19		Saco Road Trib	Poor	Poor	Poor	S-opt.	Poor	Marg.	Marg.	Marg.	Poor	Poor	Marg. 15
20		Manor Rd Trib	Marg.	Marg.	S-opt.	S-opt.	S-opt.	Poor	Marg.	Opt.	S-opt.	Opt.	S-opt. 25
21		Seaside Ave Trib - salt marsh	Poor	Poor	S-opt.	Marg.	S-opt.	S-opt.	Opt.	S-opt.	Opt.	Marg.	S-opt. 26

Table 11 (cont'd)












Site	Photo	Location	Macro. Substrate	Embedd- edness	Shelter for Fish	Channel Alter- ation	Sediment Deposit.	Velocity Depth	Channel Flow	Bank Veg.	Bank Cond- ition	Riparian Veg.	Total
22		Wildwood Ave. Trib	Marg.	Marg.	Marg.	S-opt.	S-opt.	Poor	Marg.	Opt.	S-opt.	S-opt.	S-opt. 25
23		Tidal Goosefare by OOB Old Outfall	Poor	Poor	Marg.	Opt.	S-opt.	Marg.	S-opt.	Opt.	S-opt.	S-opt.	S-opt. 26
24		Old Salt Rd Trib by mouth	Poor	Poor	S-opt.	Opt.	Marg.	Poor	Opt.	Opt.	S-opt.	Opt.	S-opt. 27
25		Lower Tidal Goosefare	Poor	Poor	Opt.	Opt.	S-opt.	Poor	Poor	Opt.	S-opt.	Opt.	S-opt. 26
26		New Salt Road Trib - across from Ancona Rd.	S-opt.	S-opt.	Marg.	Poor	S-opt.	Marg.	S-opt.	Marg.	S-opt.	Poor	S-opt. 24
27		Bear Brook Trib	Marg.	Marg.	Poor	Marg.	S-opt.	Poor	Marg.	Marg.	S-opt.	Poor	S-opt. 19
28		Moody Street Trib	S-opt.	S-opt.	Marg.	Opt.	S-opt.	Poor	Marg.	Opt.	S-opt.	Opt.	S-opt. 29

Table 11 (cont'd)

Site	Photo	Location	Macro. Substrate	Embedd-edness	Shelter for Fish	Channel Alter-ation	Sediment Deposit.	Velocity Depth	Channel Flow	Bank Veg.	Bank Cond-ition	Riparian Veg.	Total
29		Moody Street trib	S-opt.	S-opt.	Marg.	Opt.	Poor	Poor	Poor	S-opt.	S-opt.	Opt.	S-opt. 25
30		Ind. Park North Trib	Marg.	Marg.	S-opt.	Opt.	Marg.	Poor	Marg.	Opt.	Marg.	Opt.	S-opt. 26
31		Lower Bear Brook	Marg.	Poor	Marg.	S-opt.	Marg.	Marg.	Marg.	Poor	S-opt.	S-opt.	S-opt. 21
32		Upper Bear Brook - Locke Street	Poor	Poor	Poor	Poor	Opt.	Poor	S-opt.	Poor	S-opt.	Poor	Marg. 17



## **APPENDIX IV: Nine Elements of a Watershed-Based Management Plan (WBMP)**

A Watershed-Based Management Plan (WBMP) is a strategic plan of action needed over a 5- to 15-year timeframe. The US Environmental Protection Agency (EPA) has identified nine key elements that are critical for achieving improvements in water quality. These elements must be addressed in all watershed plans in which federal Clean Water Act Section 319 funds are used to develop the plan. Although there is no formal requirement for EPA to approve these plans, section 319 funding cannot be used in a watershed plan that does not have a nine element plan. Therefore, developing a nine-element plan is beneficial to municipalities and watershed groups to assure eligibility for future 319 funding to implement the watershed plan. Below is a list of the nine key elements:

- 1) Identification of Causes and Sources
- 2) Estimation of Load Reductions from Planned Management Measures
- 3) Description of Management Measures
- 4) Description of Technical & Financial Assistance Needed
- 5) Information & Education Outreach
- 6) Implementation Schedule
- 7) Milestones to Measure Progress Implementation Management Measures
- 8) Criteria to Determine Progress in Attaining Water Quality Standards & Load Reductions
- 9) Plan to Monitor Progress Compared to Criteria

The Maine DEP website provides a local example of a Watershed-Based Plan on their 319 grant program website: <http://www.maine.gov/dep/blwg/docgrant/319/htm>

A description of a Watershed-Based Plan and a detailed reference “toolbox” can be found on the USEPA website: <http://www.epa.gov/owow/nps/cwact.html> or [http://www.epa.gov/owow/nps/watershed\\_handbook/](http://www.epa.gov/owow/nps/watershed_handbook/)