



MEMORANDUM

To: Nancy McClintock, Department Manager
Watershed Protection Utility

From: Scott E. Hiers, Hydrogeologist
Watershed Protection Utility

Date: December 2, 1998

Re: Short Spring Branch Turbidity investigation.

In response to your request to investigate Short Spring Branch for high turbidity, I collected water samples and made field observations at three sites in the Short Spring Branch watershed on November 16, 1998. Field observations, photodocumentation and water samples were collected at Barton Creek at Lost Creek Blvd. (just downstream of Short Spring Branch's confluence with Barton Creek), Short Spring Branch at Lost Creek Blvd., and Short Spring Branch at Travis Cook Road. Field observations and water chemistry results confirm high turbidity in Short Spring Branch at Lost Creek Blvd. The turbidity and total suspended solids concentrations are sufficiently greater in Short Spring Branch at Lost Creek Blvd. than upstream at Travis Cook Road and in Barton Creek just below Short Spring Branch's confluence with Barton Creek. Perhaps, the high flow volume of Barton Creek (~180 cfs on 11/16/98) likely diluted this sediment-laden discharge and prevented serious ecological damage that could have occurred under lower flow conditions.

At Short Spring Branch at Lost Creek Blvd. I observed sediment-laden water discharging downstream towards the Lost Creek Country Club (Photo 5-8), and the deposition of sand-size sediment in Short Spring Branch's floodplain and along its the banks (Photos 9-12). No evidence of high turbidity were observed upstream at Short Travis Cook Road (Photos 13-16) or at Short Spring Branch at its confluence with Barton Creek. The water chemistry analysis on the water samples collected that day confirms my field observations (see below).

	Barton @ L.C.	Short Spring @ L.C.	Short Spring @ T.C.
pH	8.1	8.0	7.8
Total Dissolved Solids (mg/l)	285	294	347
Conductivity (μ S/cm)	571	593	695
Turbidity (NTUs)	2.9	208	1.5
Ammonia-nitrogen (mg/l)	<0.01	<0.01	<0.01
Orthophosphorus (mg/l)	0.01	0.01	0.03
Nitrate-nitrogen (mg/l)	0.3	0.6	1.7
Total Suspended Solids (mg/l)	2.4	185.2	0.8

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November 20, 1998
Nancy L. McClintock
Short Spring Branch

If you have any questions or require additional information, please call me at 499-1916.



Scott E. Hiers, Hydrogeologist
Watershed Protection Department

cc: Edward Peacock, Watershed Protection Department
Mateo Scoggins, Watershed Protection Department
David Johns, Watershed Protection Department
Mike Lyday, Watershed Protection Department
Central Files

Description of Photographs

- Photo 1 An upstream view of Barton Creek below the confluence of Short Spring Branch. Photo take from the lower Lost Creek Blvd. bridge.
- Photo 2 A view of the turbidity of Barton Creek on the upstream side of the bridge taken from the left bank (if facing upstream).
- Photo 3 A view of the turbidity of Barton Creek on the upstream side of the bridge taken from the right side of bank (if looking upstream).
- Photo 4 A view of Barton Creek's discharge on the downstream side of the lower bridge. Water samples collected opposite bank from the first pipe on the right (if looking downstream).
- Photo 5 An upstream view of Short Spring Branch at Lost Creek Blvd.
- Photo 6 A view of Short Spring Branch flowing into the culvert on the right side of the bridge (if facing upstream).
- Photo 7 & 8 A downstream view of Short Spring Branch from the Lost Creek Blvd. Bridge. Photo taken from the left side of the bridge (if facing downstream).
- Photo 9 A photo of the sand deposition along the banks of Short Spring Branch on the upstream side of the Lost Creek Blvd. Bridge.
- Photo 10 A photo of the sand deposition along the banks of Short Spring Branch on the upstream side of the Lost Creek Blvd. Bridge.
- Photo 11 A photo of the sand deposition along the banks of Short Spring Branch on the upstream side of the Lost Creek Blvd. Bridge.
- Photo 12 A photo of the sand deposition along the banks of Short Spring Branch on the upstream side of the Lost Creek Blvd. Bridge.
- Photo 13 An upstream view of Short Spring Branch were it crossing Travis Cook Rd.
- Photo 14-16 An view of Short Spring Branch downstream side of Travis Cook Rd.
- Photo 17 A picture of grab samples collected at Barton Creek at Lost Creek Blvd., Short Spring Branch at Lost Creek Blvd., and Short Spring Branch at Travis Cook (Left to Right).



Photo1

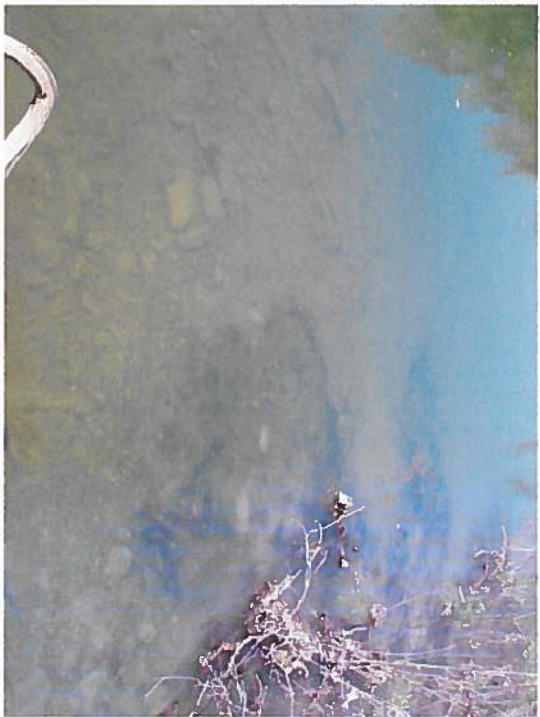


Photo2



Photo3



Photo4



Photo5

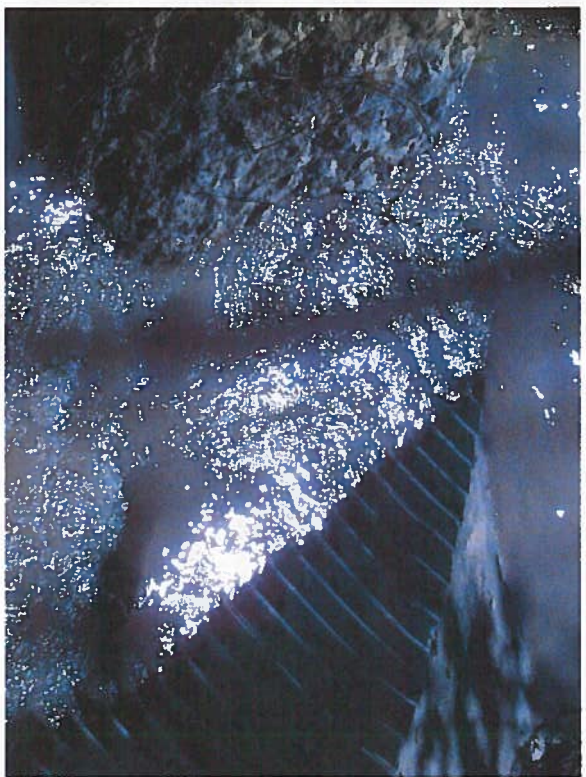


Photo6



Photo7

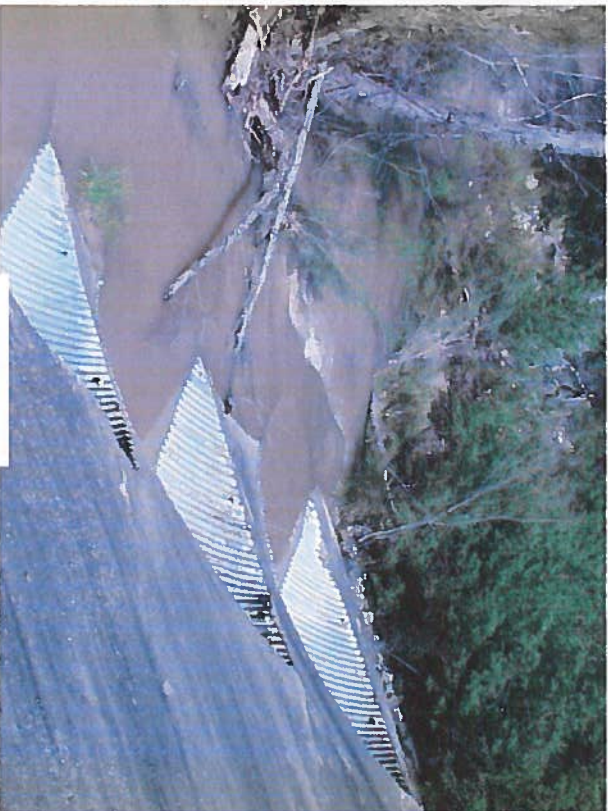


Photo8



Photo9



Photo10



Photo11



Photo12



Photo13



Photo14



Photo15



Photo16



Photo17

256
274

ERM LAB ANALYSIS SHEET Batch I.D. No.

Project:

Date:

Time:

Personnel:

Quality Control	Low Range Standard			High Range Standard			Split Results			
	Standard Conc.	Analysis Result	Acceptable Range	Standard Conc.	Analysis Result	Acceptable Range	Sample Name	Sample Result	Split Result	Acceptable Variability
NH3-N				0.3	0.12	0.09 to 0.34				± 0.03
Ortho-P	0.06	—	0.05 to 0.07	0.33	0.32	0.32 to 0.34		0.01	0.01	± 0.03
NO3-N	0.4		0.3 to 0.5	1.00	1.3	0.9 to 1.10		0.6	0.5	± 0.3
Turbidity										± 3.

Method	Oakton PEN	Corning PEN	Corning PEN	HACH Turbiditymeter 8237	HACH Spectrophotometer 8155	HACH Spectrophotometer 8048	HACH Spectrophotometer 8192/8171	Standard Methods	Standard Methods	Standard Methods
Sample Site	pH	TDS (mg/L)	Cond. (uS)	Turbidity NTUs	NH3-N (mg/L)	Ortho-P Filtered (mg/L)	NO3-N (mg/L)	TSS (mg/L)	Fecal Coliform (Col./100ml)	HACH
Barlow Creek @ Lost Creek Blvd		285	571	2.9	<0.01	0.01	0.3	2.4		8042
Short Spring Branch @ Lost Creek Blvd - 55R		294	593	2.08	<0.01	<0.01	0.6	185.2	<0.01	
Short Spring Branch @ Travis Cook	7.8	347	695	1.5	<0.01	0.03	1.7	0.8		

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