



E.

Aquatic Ecology

APPENDIX E1

Aquatic Assessment Field Notes

Appendix E E1 - Aquatic Habitat Assessment Notes

Rapid Assessment Methodology Field Form

Mandatory Fields in Grey
Must be filled out for processing

Elfrida Lands - 5 TRANSECTS

Stream Code: Site Code: Sample:

Year: 2025 Month: 10 Day: 23

Site Type: Calibration Survey

Stream Name: 3-SC1 Crew Leader (initial & last name): M SHIN Crew: MS, OF Recorder:

Channel Structure	Pools (Hydraulic Head = 0-3 mm)				Glides (Hydraulic Head = 4-7 mm)				Slow Riffles (Hydraulic Head = 8-17 mm)				Fast Riffles (Hydraulic Head > 17 mm)				
	Depth (mm)	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total
0 - 100 mm																	
101 - 600 mm																	
601 - 1000 mm																	
> 1000 mm																	
Total # Points																	

ONE POINT TRANSECT

Islands	Instream Cover					
Cover Types	Flat Rock	Round Rock	Wood	Macrophytes	Bank	Other
Number of Points						

Substrate Types		Fines (<2 mm)	Gravel (2-100 mm)	Cobble (100-1000mm)	Bedrock (>1000mm)	Gavia Feces	Concrete
Point Particle	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>						
Maximum Particle	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>						

5 POINT TRANSECT

Bank Stability	Mean Stream Width (m)	Mean Depth at Crossover (mm)	Maximum Particle Size (mm)
Eroding Bank		CB	RB
Vulnerable Bank			
Protected Bank			
Deposition Zone			

ONE POINT TRANSECT

Comments	Entered	Verified	Corrected
* Macrophytes - narrow leaf cattail / cursed arrowroot * * * * * 10 Nov @ 18:33 - WT: 11.2oz			



Reach-Based Watercourse Characterization							GeoProcess RESEARCH ASSOCIATES				
Date: 2025-10-23		Waterbody: Elfrida Lands					Page: 5/				
Weather:		Crew: MS, DF					Data entered by:				
Reach	Planform	Bankful Width (m)	Bankful Depth (m)	Wetted Width (m)	Max Water Depth (m)	Canopy Cover (%)	Substrate			Bank Stability and Material	
							Dominant	Subdominant	% Embeddedness	Left	Right
3-sci xxx	single loop sin.	6.12	0.7	3.6	0.2	0	grcs	grcs	0	<input checked="" type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding	<input checked="" type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding
Reach Start UTM	Aquatic Vegetation (Type and %)	Instream Cover (Type and %)		Channel Confinement		Riparian community and extent			Bank Angle (°)		
17T 601092 4782125	<input type="checkbox"/> Submerged rooted NA <input type="checkbox"/> Emergent rooted NA <input type="checkbox"/> Floating NA	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input checked="" type="checkbox"/> Overhanging vegetation <input type="checkbox"/> Aquatic vegetation <input type="checkbox"/> Algae 100% cattails		<input type="checkbox"/> Confined <input type="checkbox"/> Partially confined <input checked="" type="checkbox"/> Unconfined		Left	<input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input checked="" type="checkbox"/> 10 - 20x width	Left	<input type="checkbox"/> Steep <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Shallow	
						Right	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input checked="" type="checkbox"/> Meadow <input checked="" type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input checked="" type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input type="checkbox"/> 10 - 20x width	Right	<input type="checkbox"/> Steep <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Shallow	
Reach End UTM	Temperature (°C)	DO (mg/L)	DO (%)	pH	Sp Cond (µs/cm)	Gradient (H/M/L)					
	-	-	-	-	-	-					
Notes	<input checked="" type="checkbox"/> Channel hardening or straightening <input type="checkbox"/> Sediment loading or deprivation <input type="checkbox"/> Instream habitat modifications <input type="checkbox"/> Barriers / dams present <input type="checkbox"/> High fishing pressure <input type="checkbox"/> Log jam deflectors <input type="checkbox"/> Springs or seeps present artificial straightening					Habitat Type	<input type="checkbox"/> Spawning <input type="checkbox"/> Rearing				



Elfrida Lands- 5 TRANSECTS Rapid Assessment Methodology Field Form

Mandatory Fields In Grey Must be filled out for processing

Stream Code: _____ Site Code: _____ Sample: _____
 YYYY: 2025 MM: 10 DD: 23
 Stream Name: 3-SC2 Crew Leader (initial & last name): M SHIN Crew: MS, DF Recorder: DF

Site Type: Calibration Survey

Channel Structure

Depth (mm)	Pools (Hydraulic Head = 0-3 mm)			Glides (Hydraulic Head = 4-7 mm)				Slow Riffles (Hydraulic Head = 8-17 mm)				Fast Riffles (Hydraulic Head > 17 mm)			
	No Cover	Total	Cover Present	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total
0 - 100 mm			2												
101 - 600 mm															
601 - 1000 mm															
> 1000 mm			2												
Total # Points															

Islands:

Instream Cover

Cover Types	Flat Rock	Round Rock	Wood	Macrophytes	Bank	Other
Number of Points			1	3		

Substrate Types

	Fines (<2 mm)	Gravel (2-100 mm)	Cobble (100-1000mm)	Bedrock (>1000mm)	Gavia Feces	Concrete
Point Particle	25					
Maximum Particle	25					

Bank Stability

Mean Stream Width (m)	Mean Depth at Crossover (mm)	Maximum Particle Size (mm)
LB	LB	

Bank Type	Count	Description
Eroding Bank		Angle > 45°, erodible soil, undercut or bare soil
Vulnerable Bank		Angle > 45°, erodible soil, no sign of recent erosion
Protected Bank	5	Angle > 45°, non-erodible material/soil
Deposition Zone		Angle < 45°, (gradual slope from river), fine grained sediments

Comments: *Dry w/ cover.

Entered: _____ Verified: _____ Corrected: _____

ONE POINT / TRANSECT (written vertically on the left)

5 POINTS / TRANSECT (written vertically on the right)

ONE POINT / TRANSECT (written vertically on the right)



Reach-Based Watercourse Characterization							GeoProcess RESEARCH ASSOCIATES																																																																																												
Date: 2025-10-23		Waterbody: Elfrida Lands					Page: 6/		Data entered by:																																																																																										
Weather:		Crew: MS, DF																																																																																																	
Reach	Planform	Bankful Width (m)	Bankful Depth (m)	Wetted Width (m)	Max Water Depth (m)	Canopy Cover (%)	Substrate			Bank Stability and Material																																																																																									
							Dominant	Subdominant	% Embeddedness	Left	Right																																																																																								
3-SC2	single straight	4.6	0.73	2.1	0.15	0	Gravel	Gravel	0	<input checked="" type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding	<input checked="" type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding																																																																																								
Reach Start UTM	Aquatic Vegetation (Type and %)		Instream Cover (Type and %)		Channel Confinement		Riparian community and extent			Bank Angle (°)																																																																																									
17T 600792 4792153	<input type="checkbox"/> Submerged rooted NA <input type="checkbox"/> Emergent rooted NA <input type="checkbox"/> Floating NA		<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input checked="" type="checkbox"/> Overhanging vegetation 100% cattails		<input type="checkbox"/> Confined <input type="checkbox"/> Partially confined <input checked="" type="checkbox"/> Unconfined		<table border="0"> <tr> <td rowspan="2">Left</td> <td><input type="checkbox"/> Crop</td> <td><input checked="" type="checkbox"/> Less than 1x width</td> <td rowspan="2">Left</td> <td><input type="checkbox"/> Steep</td> </tr> <tr> <td><input type="checkbox"/> Meadow</td> <td><input type="checkbox"/> 1 - 5x width</td> <td><input checked="" type="checkbox"/> Moderate</td> <td><input type="checkbox"/> Shallow</td> </tr> <tr> <td rowspan="2">Right</td> <td><input type="checkbox"/> Scrubland</td> <td><input type="checkbox"/> 5 - 10x width</td> <td rowspan="2">Right</td> <td><input type="checkbox"/> Steep</td> </tr> <tr> <td><input type="checkbox"/> Forest</td> <td><input type="checkbox"/> 10 - 20x width</td> <td><input checked="" type="checkbox"/> Moderate</td> <td><input type="checkbox"/> Shallow</td> </tr> <tr> <td colspan="2"></td> <td><input type="checkbox"/> Wetland</td> <td colspan="3"></td> <td colspan="2"></td> <td><input type="checkbox"/> Lawn</td> <td><input type="checkbox"/> Less than 1x width</td> <td colspan="2"></td> </tr> <tr> <td colspan="2"></td> <td><input type="checkbox"/> Wetland</td> <td colspan="3"></td> <td colspan="2"></td> <td><input type="checkbox"/> Crop</td> <td><input type="checkbox"/> 1 - 5x width</td> <td colspan="2"></td> </tr> <tr> <td colspan="2"></td> <td><input type="checkbox"/> Wetland</td> <td colspan="3"></td> <td colspan="2"></td> <td><input type="checkbox"/> Meadow</td> <td><input type="checkbox"/> 5 - 10x width</td> <td colspan="2"></td> </tr> <tr> <td colspan="2"></td> <td><input type="checkbox"/> Wetland</td> <td colspan="3"></td> <td colspan="2"></td> <td><input type="checkbox"/> Scrubland</td> <td><input type="checkbox"/> 10 - 20x width</td> <td colspan="2"></td> </tr> <tr> <td colspan="2"></td> <td><input type="checkbox"/> Wetland</td> <td colspan="3"></td> <td colspan="2"></td> <td><input type="checkbox"/> Forest</td> <td><input type="checkbox"/> 10 - 20x width</td> <td colspan="2"></td> </tr> <tr> <td colspan="2"></td> <td><input type="checkbox"/> Wetland</td> <td colspan="3"></td> <td colspan="2"></td> <td><input checked="" type="checkbox"/> Wetland</td> <td></td> <td colspan="2"></td> </tr> </table>			Left	<input type="checkbox"/> Crop	<input checked="" type="checkbox"/> Less than 1x width	Left	<input type="checkbox"/> Steep	<input type="checkbox"/> Meadow	<input type="checkbox"/> 1 - 5x width	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Shallow	Right	<input type="checkbox"/> Scrubland	<input type="checkbox"/> 5 - 10x width	Right	<input type="checkbox"/> Steep	<input type="checkbox"/> Forest	<input type="checkbox"/> 10 - 20x width	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Shallow			<input type="checkbox"/> Wetland						<input type="checkbox"/> Lawn	<input type="checkbox"/> Less than 1x width					<input type="checkbox"/> Wetland						<input type="checkbox"/> Crop	<input type="checkbox"/> 1 - 5x width					<input type="checkbox"/> Wetland						<input type="checkbox"/> Meadow	<input type="checkbox"/> 5 - 10x width					<input type="checkbox"/> Wetland						<input type="checkbox"/> Scrubland	<input type="checkbox"/> 10 - 20x width					<input type="checkbox"/> Wetland						<input type="checkbox"/> Forest	<input type="checkbox"/> 10 - 20x width					<input type="checkbox"/> Wetland						<input checked="" type="checkbox"/> Wetland			
Left	<input type="checkbox"/> Crop	<input checked="" type="checkbox"/> Less than 1x width	Left	<input type="checkbox"/> Steep																																																																																															
	<input type="checkbox"/> Meadow	<input type="checkbox"/> 1 - 5x width		<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Shallow																																																																																														
Right	<input type="checkbox"/> Scrubland	<input type="checkbox"/> 5 - 10x width	Right	<input type="checkbox"/> Steep																																																																																															
	<input type="checkbox"/> Forest	<input type="checkbox"/> 10 - 20x width		<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Shallow																																																																																														
		<input type="checkbox"/> Wetland						<input type="checkbox"/> Lawn	<input type="checkbox"/> Less than 1x width																																																																																										
		<input type="checkbox"/> Wetland						<input type="checkbox"/> Crop	<input type="checkbox"/> 1 - 5x width																																																																																										
		<input type="checkbox"/> Wetland						<input type="checkbox"/> Meadow	<input type="checkbox"/> 5 - 10x width																																																																																										
		<input type="checkbox"/> Wetland						<input type="checkbox"/> Scrubland	<input type="checkbox"/> 10 - 20x width																																																																																										
		<input type="checkbox"/> Wetland						<input type="checkbox"/> Forest	<input type="checkbox"/> 10 - 20x width																																																																																										
		<input type="checkbox"/> Wetland						<input checked="" type="checkbox"/> Wetland																																																																																											

Reach End UTM	Temperature (°C)	DO (mg/L)	DO (%)	pH	Sp Cond (µs/cm)	Gradient (H/M/L)
	-	-	-	-	-	-

Notes: Channel hardening or straightening Artificial straightening
 Sediment loading or deprivation
 Instream habitat modifications
 Barriers / dams present
 High fishing pressure
 Log jam deflectors
 Springs or seeps present

Habitat Type: Spawning
 Rearing



Rapid Assessment Methodology Field Form

Elfrida Lando - 5 TRANSECTS

Stream Code: _____ Site Code: _____ Sample: _____

Year: **2025** Month: **10** Day: **23**

Stream Name: **1-SIC 4** Crew Leader (initial & last name): **SHIN** Crew: **MS, DF** Recorder: _____

Mandatory Fields In Grey
Must be filled out for processing
Site Type
 Calibration Survey

Depth (mm)	Pools (Hydraulic Head = 0-3 mm)			Glides (Hydraulic Head = 4-7 mm)			Slow Riffles (Hydraulic Head = 8-17 mm)			Fast Riffles (Hydraulic Head > 17 mm)		
	No Cover	Total	Cover Present	No Cover	Total	Cover Present	No Cover	Total	Cover Present	No Cover	Total	Cover Present
0 - 100 mm	3											
101 - 600 mm												
601 - 1000 mm												
> 1000 mm	1											
Total # Points												

ONE POINT TRANSECT

Islands	Instream Cover					
Number of Points	Flat Rock	Round Rock	Wood	Macrophytes	Bank	Other
				3		

Substrate Types		Fines (<2 mm)	Gravel (2-100 mm)	Cobble (100-1000mm)	Bedrock (>1000mm)	Gavia Feces	Concrete
Point Particle	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	20					
Maximum Particle	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	20	5				

5 POINTS / TRANSECT

Bank Stability	Mean Stream Width (m)	Mean Depth at Crossover (mm)	Maximum Particle Size (mm)	
Eroding Bank	1	RB	1	Angle > 45°, erodible soil, undercut or bare soil
Vulnerable Bank	4		4	Angle > 45°, erodible soil, no sign of recent erosion
Protected Bank				Angle > 45°, non-erodible material/soil
Deposition Zone				Angle < 45°, (gradual slope from river), fine grained sediments

ONE POINT / TRANSECT

Comments: _____

Entered: _____ Verified: _____ Corrected: _____



Reach-Based Watercourse Characterization							GeoProcess RESEARCH ASSOCIATES					
Date: 2025-10-23				Waterbody: Elfrida Lando			Page: 31					
Weather:				Crew: MS, DE			Data entered by:					
Reach	Planform	Bankful Width (m)	Bankful Depth (m)	Wetted Width (m)	Max Water Depth (m)	Canopy Cover (%)	Substrate			Bank Stability and Material		
							Dominant	Subdominant	% Embeddedness	Left	Right	
1-SICY	single reg. meander sinuous	6.2	0.17	4.2	0.12	0%	fines	organic	∅	<input type="checkbox"/> Protected <input checked="" type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding	<input type="checkbox"/> Protected <input checked="" type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding	
Reach Start UTM	Aquatic Vegetation (Type and %)		Instream Cover (Type and %)		Channel Confinement		Riparian community and extent			Bank Angle (°)		
17T 599876 4779730	<input type="checkbox"/> Submerged rooted <input checked="" type="checkbox"/> Emergent rooted <input type="checkbox"/> Floating		<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input checked="" type="checkbox"/> Aquatic vegetation <input type="checkbox"/> Algae		<input type="checkbox"/> Confined <input type="checkbox"/> Partially confined <input checked="" type="checkbox"/> Unconfined		Left <input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland		Right <input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland		Left <input type="checkbox"/> Steep <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Shallow	
Reach End UTM		Temperature (°C)	DO (mg/L)	DO (%)	pH		Sp Cond (µs/cm)		Gradient (H/M/L)			
		DRY mostly	-	-	-		-					
Notes		<input checked="" type="checkbox"/> Channel hardening or straightening <input type="checkbox"/> Sediment loading or deprivation <input type="checkbox"/> Instream habitat modifications <input type="checkbox"/> Barriers / dams present <input type="checkbox"/> High fishing pressure <input type="checkbox"/> Log jam deflectors <input type="checkbox"/> Springs or seeps present				running through agricultural field. Eastern portion straightened		Habitat Type <input type="checkbox"/> Spawning <input type="checkbox"/> Rearing				



Rapid Assessment Methodology Field Form

Elfrida Lands - 5 TRANSECTS

Stream Code: _____ Site Code: _____ Sample: _____
 YYYY: 2025 MM: 10 DD: 23
 Stream Name: **1-SIC 1** Crew Leader (initial & last name): **M SHEN** Crew: **MS, DF** Recorder: _____

Mandatory Fields In Grey Must be filled out for processing
 Site Type: Calibration Survey

Channel Structure

Depth (mm)	Pools (Hydraulic Head = 0-3 mm)			Glides (Hydraulic Head = 4-7 mm)			Slow Riffles (Hydraulic Head = 8-17 mm)			Fast Riffles (Hydraulic Head > 17 mm)		
	No Cover	Total	Cover Present	No Cover	Total	Cover Present	No Cover	Total	Cover Present	No Cover	Total	Cover Present
0 - 100 mm			3			2						
101 - 600 mm												
601 - 1000 mm												
> 1000 mm												
Total # Points												

Islands:

Instream Cover

Cover Types	Flat Rock	Round Rock	Wood	Macrophytes	Bank	Other
Number of Points			1	4		

Substrate Types

	Fines (<2 mm)	Gravel (2-100 mm)	Cobble (100-1000mm)	Bedrock (>1000mm)	Gavia Feces	Concrete
Point Particle	1					
Maximum Particle	25		1			

Bank Stability

	Mean Stream Width (m)	Mean Depth at Crossover (mm)	Maximum Particle Size (mm)
Eroding Bank			
Vulnerable Bank			
Protected Bank	5		4
Deposition Zone			

Bank Stability Legend:
 Eroding Bank: Angle > 45°, erodible soil, undercut or bare soil
 Vulnerable Bank: Angle > 45°, erodible soil, no sign of recent erosion
 Protected Bank: Angle > 45°, non-erodible material/soil
 Deposition Zone: Angle < 45°, (gradual slope from river), fine grained sediments

Comments: **Tad pole obs in creeks (potentially bullhead); Turtle (no species obs).
 WT taken 9:30 @ 12:02 water cross/duckweed obs @ 3rd bet.**

Entered: _____ Verified: _____ Corrected: _____

Handwritten notes: ONE POINT TRANSECT (vertical), 5 POINT TRANSECT (vertical), ONE POINT TRANSECT (vertical)



Reach-Based Watercourse Characterization							GeoProcess RESEARCH ASSOCIATES				
Date: 2025-10-23			Waterbody: Elfrida Lands			Page: 41					
Weather:			Crew: MS, DF			Data entered by:					
Reach	Planform	Bankful Width (m)	Bankful Depth (m)	Wetted Width (m)	Max Water Depth (m)	Canopy Cover (%)	Substrate			Bank Stability and Material	
							Dominant	Subdominant	% Embeddedness	Left	Right
1-SIC1	single regiment low sinuous	6.1	0.64	4.4	0.58	5	fnos.	organic (leaf)	—	<input checked="" type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding	<input checked="" type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding
Reach Start UTMs	Aquatic Vegetation (Type and %)	Instream Cover (Type and %)		Channel Confinement	Riparian community and extent			Bank Angle (°)			
17T 600281 477937	weicross <input checked="" type="checkbox"/> Submerged rooted 10% <input type="checkbox"/> Emergent rooted <input checked="" type="checkbox"/> Floating duckweed 10%	<input checked="" type="checkbox"/> LWD → 5% <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input checked="" type="checkbox"/> Overhanging vegetation → 20% <input checked="" type="checkbox"/> Aquatic vegetation → 90% <input type="checkbox"/> Algae		<input type="checkbox"/> Confined <input type="checkbox"/> Partially confined <input checked="" type="checkbox"/> Unconfined	Left <input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland Right <input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Wetland			Left <input type="checkbox"/> Steep <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Shallow Right <input type="checkbox"/> Steep <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Shallow			
Reach End UTMs	Temperature (°C)	DO (mg/L)	DO (%)	pH	Sp Cond (µs/cm)		Gradient (H/M/L)				
	9.9 US @ pulling 9.3 @ pulling	—	—	—	—		—				
Notes	<input checked="" type="checkbox"/> Channel hardening or straightening <input type="checkbox"/> Sediment loading or deprivation <input type="checkbox"/> Instream habitat modifications <input type="checkbox"/> Barriers / dams present <input type="checkbox"/> High fishing pressure <input type="checkbox"/> Log jam deflectors <input type="checkbox"/> Springs or seeps present			straightened in DS portion in wetland area adjacent agricultural fields.			Habitat Type <input type="checkbox"/> Spawning <input type="checkbox"/> Rearing				



Elfrida Lands - 5 TRAVERSECTS Rapid Assessment Methodology Field Form

Mandatory Fields In Grey Must be filled out for processing

Stream Code: _____ Site Code: _____ Sample: _____
 YYYY: 2025 MM: 10 DD: 23

Stream Name: 1-THCI Crew Leader (initial & last name): H SHIN Crew: MS, OF Recorder: _____

Site Type: Calibration Survey

Channel Structure

Depth (mm)	Pools (Hydraulic Head = 0-3 mm)			Glides (Hydraulic Head = 4-7 mm)			Slow Riffles (Hydraulic Head = 8-17 mm)			Fast Riffles (Hydraulic Head > 17 mm)		
	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total	No Cover	Total	Cover Present	Total
0 - 100 mm			3				1					
101 - 600 mm												
601 - 1000 mm												
> 1000 mm												
Total # Points												

Islands:

Instream Cover

Cover Types	Flat Rock	Round Rock	Wood	Macrophytes	Bank	Other
Number of Points			1	2		

Substrate Types

	Fines (<2 mm)	Gravel (2-100 mm)	Cobble (100-1000mm)	Bedrock (>1000mm)	Gavia Feces	Concrete
Point Particle	21	4				
Maximum Particle	19	6				

Bank Stability

	Mean Stream Width (m)	Mean Depth at Crossover (mm)	Maximum Particle Size (mm)
Eroding Bank	1	LB	RB
Vulnerable Bank	2		2
Protected Bank	2		3
Deposition Zone			

Bank Stability Legend:
 Eroding Bank: Angle > 45°, erodible soil, undercut or bare soil
 Vulnerable Bank: Angle > 45°, erodible soil, no sign of recent erosion
 Protected Bank: Angle > 45°, non-erodible material/soil
 Deposition Zone: Angle < 45°, (gradual slope from river), fine grained sediments

Comments:

Entered: Verified: Corrected:

Handwritten notes:
 ONE POINT / TRAVERSECT (written vertically on the left)
 SPOTS / TRAVERSECT (written vertically on the right)
 ONE POINT / TRAVERSECT (written vertically on the right)
 * undercut 0.42 on LB, no undercut.



Reach-Based Watercourse Characterization							GeoProcess RESEARCH ASSOCIATES				
Date: 2025-10-23			Waterbody: Elfrida Lands			Page: 1					
Weather:			Crew: HS, DF			Data entered by:					
Reach	Planform	Bankful Width (m)	Bankful Depth (m)	Wetted Width (m)	Max Water Depth (m)	Canopy Cover (%)	Substrate			Bank Stability and Material	
							Dominant	Subdominant	% Embeddedness	Left	Right
1-THCI	with single straight	4.7	0.42	1.2	0.21	Wetland areas	finer	gravel	0	Left	<input type="checkbox"/> Protected <input checked="" type="checkbox"/> Vulnerable <input type="checkbox"/> Eroding
Reach Start UTMs	Aquatic Vegetation (Type and %)		Instream Cover (Type and %)		Channel Confinement		Riparian community and extent			Bank Angle (°)	
177 595312 477811	<input type="checkbox"/> Submerged rooted <input type="checkbox"/> Emergent rooted <input checked="" type="checkbox"/> Floating Duck weed (subvent)		<input checked="" type="checkbox"/> TWGWD <input type="checkbox"/> Flat rock <input checked="" type="checkbox"/> Round rock - 20% <input checked="" type="checkbox"/> Overhanging vegetation 4-20% <input type="checkbox"/> Aquatic vegetation <input type="checkbox"/> Algae		<input type="checkbox"/> Confined <input type="checkbox"/> Partially confined <input checked="" type="checkbox"/> Unconfined		Left: <input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland Right: <input type="checkbox"/> Lawn <input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland			Left: <input type="checkbox"/> Steep <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Shallow Right: <input type="checkbox"/> Steep <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Shallow	
Reach End UTMs	Temperature (°C)		DO (mg/L)		DO (%)		pH		Sp Cond (µs/cm)		Gradient (H/M/L)
	-		-		-		-		-		L
Notes	<input checked="" type="checkbox"/> Channel hardening or straightening <input type="checkbox"/> Sediment loading or deprivation <input type="checkbox"/> Instream habitat modifications <input type="checkbox"/> Barriers / dams present <input type="checkbox"/> High fishing pressure <input type="checkbox"/> Log jam deflectors <input type="checkbox"/> Springs or seeps present					artificial straightening in agricultural field.		Habitat Type <input type="checkbox"/> Spawning <input type="checkbox"/> Rearing			



Reach-Based Watercourse Characterization							GeoProcess RESEARCH ASSOCIATES				
Date: 2025-10-23		Waterbody: Elfrida Lands			Page: 2		Data entered by:				
Weather:		Crew: FIS, DF									
Reach	Planform	Bankful Width (m)	Bankful Depth (m)	Wetted Width (m)	Max Water Depth (m)	Canopy Cover (%)	Substrate			Bank Stability and Material	
							Dominant	Subdominant	% Embeddedness	Left	Right
1-THC2	single straight	3.84	0.758	DRY	DRY	30	fine	organic	-	Left	<input type="checkbox"/> Protected <input type="checkbox"/> Vulnerable <input checked="" type="checkbox"/> Eroding
Reach Start UTM	Aquatic Vegetation (Type and %)		Instream Cover (Type and %)		Channel Confinement		Riparian community and extent			Bank Angle (°)	
17T 596298 4779691	<input type="checkbox"/> Submerged rooted <input type="checkbox"/> Emergent rooted <input type="checkbox"/> Floating	NA	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input type="checkbox"/> Aquatic vegetation <input type="checkbox"/> Algae	NA	<input type="checkbox"/> Confined <input type="checkbox"/> Partially confined <input checked="" type="checkbox"/> Unconfined	Left	<input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input checked="" type="checkbox"/> 10 - 20x width	Left	<input type="checkbox"/> Steep <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Shallow	
Reach End UTM	Temperature (°C)	DO (mg/L)	DO (%)	pH	Sp Cond (µs/cm)	Gradient (H/M/L)					
	DRY	-	-	-	-	L					
Notes	<input checked="" type="checkbox"/> Channel hardening or straightening <input type="checkbox"/> Sediment loading or deprivation <input type="checkbox"/> Instream habitat modifications <input type="checkbox"/> Barriers / dams present <input type="checkbox"/> High fishing pressure <input type="checkbox"/> Log jam deflectors <input type="checkbox"/> Springs or seeps present					artificial straightening in agricultural field.		Habitat Type <input type="checkbox"/> Spawning <input type="checkbox"/> Rearing			



Stream Crossing Characterization						GeoProcess RESEARCH ASSOCIATES				
Date: <u>2025-10-23</u>			Watercourse: <u>Elfrida Lands</u>			Page: <u>67</u>			Data entered by:	
Weather: _____			Crew: <u>MS, DE</u>							
Culvert ID	Culvert Type	Culvert Width (m)	Culvert Height (m)	Approximate Length (m)	Culvert Condition	Debris Blockage	Culvert Embeddedness	Culvert Substrate		Instream Cover (Type and %)
								Dominant	Subdominant	
C8	<input type="checkbox"/> CSP (corrugated steel pipe) <input checked="" type="checkbox"/> Open box (precast) <input type="checkbox"/> Closed box (precast) <input type="checkbox"/> Bridge <input type="checkbox"/> Other:	0.87	Top of culv to culv 0.67 Top of water to top of cul 0.37	15	<input type="checkbox"/> Good <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Poor	<input checked="" type="checkbox"/> Blockage present <input type="checkbox"/> No blockage % Blockage: 20	<input checked="" type="checkbox"/> Embedded <input type="checkbox"/> Not embedded % Embeddedness: 100	gravel	lines	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input checked="" type="checkbox"/> Aquatic vegetation - 40% <input type="checkbox"/> Algae
Culvert UTMs	Perched Condition		Tailwater Condition		Sedimentation from Roadway		Scour Pool		Riparian community and extent	
17T 601035 4782357	<input type="checkbox"/> Perched <input checked="" type="checkbox"/> Not perched		Perch height to water level Backwater (YN)		<input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low		<input type="checkbox"/> Scour Pool Present <input checked="" type="checkbox"/> Scour pool not present Residual pool depth (m) <input type="checkbox"/> Unsafe to measure		Left <input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland <input type="checkbox"/> Less than 1x width <input type="checkbox"/> 1-5x width <input type="checkbox"/> 5-10x width <input type="checkbox"/> 10-20x width	
Notes			Perch height to channel bed % of Culvert Backwatered: 100		Culvert slope		Crossing width : Bankfull width			
					<input type="checkbox"/> Steep <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Shallow		Left <input type="checkbox"/> Less than 1:1 <input checked="" type="checkbox"/> 1-2:1 <input type="checkbox"/> Greater than 2:1 Right <input type="checkbox"/> Less than 1:1 <input checked="" type="checkbox"/> 1-2:1 <input type="checkbox"/> Greater than 2:1			



Stream Crossing Characterization										
Date: <u>10/25/10/18</u> Weather: <u>cool, cloudy</u>				Watercourse: <u>Elfrida Lands</u> Crew: <u>MS, DF</u>				GeoProcess RESEARCH ASSOCIATES Page: _____ Data entered by: _____		
Culvert ID	Culvert Type	Culvert Width (m)	Culvert Height (m)	Approximate Length (m)	Culvert Condition	Debris Blockage	Culvert Embeddedness	Culvert Substrate		Instream Cover (Type and %)
<u>C6</u>	<input type="checkbox"/> CSP (corrugated steel pipe) <input checked="" type="checkbox"/> Open box (precast) <input type="checkbox"/> Closed box (precast) <input type="checkbox"/> Bridge <input type="checkbox"/> Other:	<u>5.0</u>	<u>0.52</u> <small>measured to top of culvert</small> <u>0.16</u> <small>Top of water to top of culvert</small>	<u>15</u>	<input type="checkbox"/> Good <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Poor	<input checked="" type="checkbox"/> Blockage present <input type="checkbox"/> No blockage % Blockage: <u>50%</u>	<input checked="" type="checkbox"/> Embedded <input type="checkbox"/> Not embedded % Embeddedness: <u>100</u>	<u>Artes</u>	<u>organics</u> <u>clay/silt</u>	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input checked="" type="checkbox"/> Aquatic - <u>duckweed</u> <input type="checkbox"/> Vegetation - <u>50%</u> <input type="checkbox"/> Algae
Culvert UTMs	Perched Condition	Tailwater Condition		Sedimentation from Roadway		Scour Pool		Riparian community and extent		
<u>17T</u> <u>601039</u> <u>478236</u>	<input type="checkbox"/> Perched <input checked="" type="checkbox"/> Not perched	Perch height to water level	Backwater (Y/N)		<input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low		<input type="checkbox"/> Scour Pool Present <input checked="" type="checkbox"/> Scour pool not present	Left	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input checked="" type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input type="checkbox"/> 10 - 20x width
		Perch height to channel bed	% of Culvert Backwatered: <u>100%</u>				<input type="checkbox"/> Residual pool depth (m) <input type="checkbox"/> Unsafe to measure	Right	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input type="checkbox"/> 10 - 20x width
Notes	<u>Air temp 11.7°C @ 17:18 wT: 10.8°</u> <u>observed debris on top of culvert that appears consistent w backwatered/flooding</u>						Culvert slope	Crossing width : Bankfull width		
							<input type="checkbox"/> Steep <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Shallow	Left	<input type="checkbox"/> Less than 1:1 <input type="checkbox"/> 1-2:1 <input checked="" type="checkbox"/> Greater than 2:1	
								Right	<input type="checkbox"/> Less than 1:1 <input type="checkbox"/> 1-2:1 <input checked="" type="checkbox"/> Greater than 2:1	



Stream Crossing Characterization					GeoProcess RESEARCH ASSOCIATES					
Date: <u>2025-10-23</u>			Watercourse: <u>Elfrida Lands</u>			Page: <u>37</u>				
Weather: _____			Crew: <u>KS, DE</u>			Data entered by: _____				
Culvert ID	Culvert Type	Culvert Width (m)	Culvert Height (m)	Approximate Length (m)	Culvert Condition	Debris Blockage	Culvert Embeddedness	Culvert Substrate		Instream Cover (Type and %)
								Dominant	Subdominant	
C5	<input type="checkbox"/> CSP (corrugated steel pipe) <input checked="" type="checkbox"/> Open box (precast) <input type="checkbox"/> Closed box (precast) <input type="checkbox"/> Bridge <input type="checkbox"/> Other:	5.50	Top of water 1.70 Top of culvert to sub 1.89	16.3 m	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Poor	<input type="checkbox"/> Blockage present <input checked="" type="checkbox"/> No blockage % Blockage	<input checked="" type="checkbox"/> Embedded <input type="checkbox"/> Not embedded % Embeddedness 100%	8:1	organics (instream veg)	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input checked="" type="checkbox"/> Aquatic vegetation <input checked="" type="checkbox"/> Algae
Culvert UTM's		Perched Condition	Tailwater Condition	Sedimentation from Roadway		Scour Pool		Riparian community and extent		
17T 600683 4779280		Perch height to water level	Backwater (Y/N) Y			<input type="checkbox"/> Scour Pool Present <input checked="" type="checkbox"/> Scour pool not present		Left		<input type="checkbox"/> Lawn <input checked="" type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland
		Perch height to channel bed	% of Culvert Backwatered: 100	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low		<input type="checkbox"/> Residual pool depth (m) <input type="checkbox"/> Unsafe to measure		Right		<input type="checkbox"/> Lawn <input checked="" type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland
Notes WT 9.20c. WD: 290mm.							Culvert slope		Crossing width : Bankfull width	
							<input type="checkbox"/> Steep <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Shallow	Left	<input type="checkbox"/> Less than 1:1 <input checked="" type="checkbox"/> 1-2:1 <input type="checkbox"/> Greater than 2:1	
								Right	<input type="checkbox"/> Less than 1:1 <input checked="" type="checkbox"/> 1-2:1 <input type="checkbox"/> Greater than 2:1	



Stream Crossing Characterization					GeoProcess RESEARCH ASSOCIATES							
Date: 2025-10-23		Watercourse: Elfrida Lands			Page: 7/							
Weather:		Crew: H2, DF			Data entered by:							
Culvert ID	Culvert Type	Culvert Width (m)	Culvert Height (m)	Approximate Length (m)	Culvert Condition	Debris Blockage	Culvert Embeddedness	Culvert Substrate		Instream Cover (Type and %)		
								Dominant	Subdominant			
C3	<input type="checkbox"/> CSP (corrugated steel pipe) <input checked="" type="checkbox"/> Open box (precast) <input type="checkbox"/> Closed box (precast) <input type="checkbox"/> Bridge <input type="checkbox"/> Other:	2.5	2.1 to top of culvert 1.21 Top of water to top of culvert 1.1	21.7	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Moderate <input type="checkbox"/> Poor	<input type="checkbox"/> Blockage present <input checked="" type="checkbox"/> No blockage % Blockage	<input checked="" type="checkbox"/> Embedded <input type="checkbox"/> Not embedded % Embeddedness 100	Fines	Gravel	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input type="checkbox"/> Aquatic vegetation <input type="checkbox"/> Algae		
Culvert UTM's	Perched Condition		Tailwater Condition		Sedimentation from Roadway		Scour Pool		Riparian community and extent			
17T 598805 4780057	<input type="checkbox"/> Perched <input checked="" type="checkbox"/> Not perched	Perch height to water level	Backwater (M/N)		<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low		<input type="checkbox"/> Scour Pool Present <input checked="" type="checkbox"/> Scour pool not present <input type="checkbox"/> Residual pool depth (m) <input type="checkbox"/> Unsafe to measure		Left	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Wetland		
		Perch height to channel bed	% of Culvert Backwatered: 100						Right	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Wetland		
Notes	lots of dead snails							Culvert slope		Crossing width : Bankfull width		
								<input type="checkbox"/> Steep <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Shallow		Left		<input type="checkbox"/> Less than 1:1 <input type="checkbox"/> 1-2:1 <input checked="" type="checkbox"/> Greater than 2:1
										Right		<input type="checkbox"/> Less than 1:1 <input type="checkbox"/> 1-2:1 <input checked="" type="checkbox"/> Greater than 2:1



Stream Crossing Characterization						GeoProcess RESEARCH ASSOCIATES				
Date: <u>1025-1023</u>				Watercourse: <u>Elfrida Lando</u>		Page: <u>2</u>				
Weather: <u>Overcast, BF wind 2-4, Temp: 8°C</u>				Crew: <u>MS, DE</u>		Data entered by: _____				
Culvert ID	Culvert Type	Culvert Width (m)	Culvert Height (m)	Approximate Length (m)	Culvert Condition	Debris Blockage	Culvert Embeddedness	Culvert Substrate		Instream Cover (Type and %)
								Dominant	Subdominant	
<u>C2</u>	<input type="checkbox"/> CSP (corrugated steel pipe) <input checked="" type="checkbox"/> Open box (precast) <input type="checkbox"/> Closed box (precast) <input type="checkbox"/> Bridge <input type="checkbox"/> Other:	<u>3.15</u>	<u>1.13 to sub.</u> <u>0.54 to top of water</u>	<u>6.3m</u>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Poor	<input type="checkbox"/> Blockage present <input checked="" type="checkbox"/> No blockage % Blockage	<input checked="" type="checkbox"/> Embedded <input type="checkbox"/> Not embedded % Embeddedness <u>100</u>	<u>cobble</u>	<u>riparian gravel</u>	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input checked="" type="checkbox"/> Round rock - <u>30%</u> <input checked="" type="checkbox"/> Overhanging - <u>10%</u> vegetation <input checked="" type="checkbox"/> Aquatic vegetation - <u>80%</u> <input type="checkbox"/> Algae
Culvert UTM's	Perched Condition		Tailwater Condition		Sedimentation from Roadway		Scour Pool		Riparian community and extent	
<u>17T</u> <u>596650</u> <u>4771408</u>	<input type="checkbox"/> Perched <input checked="" type="checkbox"/> Not perched		Perch height to water level Backwater: <u>(N/A)</u>		<input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low		<input type="checkbox"/> Scour Pool Present <input checked="" type="checkbox"/> Scour pool not present		Left <input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input checked="" type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland Right <input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input checked="" type="checkbox"/> Meadow <input checked="" type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input type="checkbox"/> Wetland	
Notes	<u>Abund. duck weed, Flood stream logs present in MP's</u>						Culvert slope		Crossing width : Bankfull width	
							<input type="checkbox"/> Steep <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Shallow	Left <input type="checkbox"/> Less than 1:1 <input checked="" type="checkbox"/> 1-2:1 <input type="checkbox"/> Greater than 2:1	Right <input type="checkbox"/> Less than 1:1 <input checked="" type="checkbox"/> 1-2:1 <input type="checkbox"/> Greater than 2:1	



Stream Crossing Characterization										
Date: 2025-10-23		Watercourse: Elfrida Lands				Page: 1				
Weather:		Crew: M.S. OF				Data entered by:				
Culvert ID	Culvert Type	Culvert Width (m)	Culvert Height (m)	Approximate Length (m)	Culvert Condition	Debris Blockage	Culvert Embeddedness	Culvert Substrate		Instream Cover (Type and %)
								Dominant	Subdominant	
C1	<input checked="" type="checkbox"/> CSP (corrugated steel pipe) <input type="checkbox"/> Open box (precast) <input type="checkbox"/> Closed box (precast) <input type="checkbox"/> Bridge <input type="checkbox"/> Other:	0.91	sub ^{strat.} 0.42 u ^{beds.} 0.24	16.	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Poor	<input checked="" type="checkbox"/> Blockage present <input type="checkbox"/> No blockage % Blockage: 75	<input checked="" type="checkbox"/> Embedded <input type="checkbox"/> Not embedded % Embeddedness: 75	silt	organic	<input type="checkbox"/> LWD <input type="checkbox"/> Flat rock <input type="checkbox"/> Round rock <input type="checkbox"/> Overhanging vegetation <input checked="" type="checkbox"/> Aquatic vegetation <input type="checkbox"/> Algae organic 100% 1:4:5 2:2+2:1
Culvert UTMs	Perched Condition		Tailwater Condition		Sedimentation from Roadway		Scour Pool		Riparian community and extent	
177 595312 477984	<input type="checkbox"/> Perched <input checked="" type="checkbox"/> Not perched	Perch height to water level	Backwater (Y/N)	Y	rip rep.	<input type="checkbox"/> Scour Pool Present <input checked="" type="checkbox"/> Scour pool not present	Left	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input checked="" type="checkbox"/> 10 - 20x width	
		Perch height to channel bed	% of Culvert Backwatered:	100.	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Residual pool depth (m) <input type="checkbox"/> Unsafe to measure	Right	<input type="checkbox"/> Lawn <input type="checkbox"/> Crop <input type="checkbox"/> Meadow <input type="checkbox"/> Scrubland <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Wetland	<input type="checkbox"/> Less than 1x width <input type="checkbox"/> 1 - 5x width <input type="checkbox"/> 5 - 10x width <input checked="" type="checkbox"/> 10 - 20x width	
Notes	Upstream side - not 10% embedded / silty organic sub.						Culvert slope		Crossing width : Bankfull width	
							<input type="checkbox"/> Steep <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Shallow	Left <input type="checkbox"/> Less than 1:1 <input type="checkbox"/> 1-2:1 <input checked="" type="checkbox"/> Greater than 2:1	Right <input type="checkbox"/> Less than 1:1 <input type="checkbox"/> 1-2:1 <input checked="" type="checkbox"/> Greater than 2:1	



APPENDIX E2

HDF Management Recommendations Table

Appendix E E2 - Headwater Drainage Feature Detailed Assessment

Table 1. HDF Assessment for Sinkhole Creek

Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
1-SIC1	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	N/A	Wetland (MAM2-2/MAS2(1)) Important	Fish captured during sampling within this reach, provides late summer refuge Important	High potential due to presence of water throughout the summer Important (potential)	Watercourse (Protection)	Watercourse (Protection)	Combined with catchment sizing considerations, it is likely that this segment screens out as a watercourse rather than an HDF
1-SIC10	FT=2 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	
1-SIC1-1a	FT=4 FC=5 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC1-1b	FT=4 FC=5 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC1-1c	FT=3 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Upstream wetland Valued	Agriculture	Upstream wetland (MAM2-2(2)) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential general amphibian habitat. Valued	Conservation	Mitigation	Isolated wetland area could be incorporated into Sinkhole Creek corridor rather than persist as an ecological island.
1-SIC1-1d	FT=4 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC1-1e	FT=4 FC=5 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC1-1f	FT=4 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
1-SIC1-1g	FT=4 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC1-1h	FT=4 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC1-1i	FT=4 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC2	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	Possible historical channel realignment; influence from adjacent CVR_4(3) area	Wetlands (SWD2-2(1))(MAM2-2(3)) and (MAS2-1(3)) Important	Fish captured immediately downstream of this reach during sampling. Water present throughout summer, and likely provides late summer refuge Important	High potential due to presence of water throughout the summer Important (potential)	Watercourse (Protection)	Watercourse (Protection)	Combined with catchment sizing considerations, it is likely that this segment screens out as a watercourse rather than an HDF
1-SIC2-1a	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Wetland (MAS2-1(3)) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Conservation	Conservation	
1-SIC2-1b	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture and upstream industrial land uses	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC2-1c	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC2-1d	FT=7 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC2-1e	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC2-1f	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions.	No terrestrial habitat functions within this segment due to open agricultural field	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
	FC=1 (3rd Visit) Valued			Contributing	Limited			
1-SIC2-1g	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC2-1h	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC2-1i	FT=4 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC2-1j	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC2-1k	FT=7 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
1-SIC2-1l	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC3	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	N/A	Wetland (MAS2-1(3)) Important	Fish captured immediately downstream of this reach during sampling. Water present throughout summer, and likely provides late summer refuge Important	High potential due to presence of water throughout the summer Important (potential)	Watercourse (Protection)	Watercourse (Protection)	Combined with catchment sizing considerations, it is likely that this segment screens out as a watercourse rather than an HDF
1-SIC3-1a	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher, and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
1-SIC3-1b	FT=7 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC3-1c	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher, and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	
1-SIC3-1d	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC3-1e	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC3-1f	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher, and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	
1-SIC3-1g	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher, and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	
1-SIC3-1h	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
1-SIC3-1i	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=4 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	
1-SIC3-1j	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=2 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
1-SIC3-1k	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=2 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	
1-SIC3-1l	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=2 (3rd Visit) Important	Agriculture	Wetland (MAS2-1(3)) Important	Due to presence of dense vegetation, seasonal opportunities for fish habitat may be present in the spring when flow is higher and diminish as flows decrease. Valued	High potential due to presence of water throughout the summer Important (potential)	Protection	Protection	
1-SIC4	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Important	N/A	Agriculture Limited	Due to being a larger system (watercourse) and connected directly to fish-bearing reaches downstream, seasonal opportunities to move through the area, to upstream reaches, exists. Valued	High potential due to presence of water throughout the summer Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Watercourse (Protection)	Watercourse (Protection)	Combined with catchment sizing considerations, it is likely that this segment screens out as a watercourse rather than an HDF
1-SIC4-1a	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Important	Agriculture	Meadow (CUM1-1(7)) Valued	Due to being a smaller system (HDF) with dense vegetation, limited fish habitat opportunities are present. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Protection	Protection	
1-SIC4-1b	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Important	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Protection	Protection	
1-SIC4-1c	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Important	Agriculture	Wetland (MAM2(4)) Important	Indirect fish habitat function. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Protection	Protection	
1-SIC4-1d	FT=6 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Wetland (MAM2(3)) Important	Indirect fish habitat function. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Conservation	Conservation	Maintenance of the wetland area within the larger Sinkhole Creek subwatershed is required. Opportunities to incorporate this wetland pocket into a larger, contiguous natural heritage area should be explored.
1-SIC4-1e	FT=7 FC=1 (1st Visit) Limited	Agriculture/Potential Tile Drainage	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management Required	Mitigation	Upstream tile drainage/historical stormwater catchment alters downstream flow. Upstream segments identified for mitigation, thus this segment requires mitigation.



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
1-SIC4-1f	FT=7 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	
1-SIC4-1g	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management Required	No Management Required	
1-SIC4-1h	FT=7 FC=4 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management Required	No Management Required	
1-SIC4-1i	FT=7 FC=4 (1st Visit) FC=1 (2nd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	
1-SIC5	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Presence of Forest (FOD5(1 &2)) and Wetland (SWD2(1)) Ecosites Important	Due to being a larger system and connected directly to fish-bearing reaches downstream, seasonal opportunities to move through the area, to upstream reaches, exists. Valued	High potential due to important, contiguous ecosites, and connected to reaches with water. Important (potential)	Protection	Protection	
1-SIC6	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Presence of wetland ecosite (MAM2(2)) Important	Fish captured along this reach during mid-spring conditions. Valued	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Protection	Protection	
1-SIC6-1a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC6-2a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC6-3a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit)	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
	Limited							
1-SIC6-4a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC6-5a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC6-6a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7	FT=1 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	Larger system that is directly connected to seasonally fish-bearing segments, indicates seasonal opportunities. Valued	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Conservation	Protection	Upstream wetland (1-SIC8) screens out as Protection, therefore 1-SIC7 is protection level. Opportunities to enhance the 1-SIC7 and 1-SIC6 segment corridors may be explored.
1-SIC7-1a	FT=7 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-1b	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-1c	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-2a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-3a	FT=7 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
	FC=1 (2nd Visit) Limited							
1-SIC7-4a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-5a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-6a	FT=7 FC=4 (1st Visit) FC=1 (2nd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	
1-SIC7-7a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC7-8a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC8	FT=6 FC=5 (1st Visit) FC=5 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Wetland ecosite (MAS2-1(1)) Important	Presence of very dense vegetation within the wetland likely precludes any fish occupation. Contributing	Potential amphibian breeding habitat as a wetland ecosite. Important (potential)	Protection	Protection	
1-SIC8-1a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC9	FT=2 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
1-SIC9-1a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC9-2a	FT=7 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	
1-SIC9-3a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	No Management	No Management	
1-SIC10	FT=2 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	Indirect fish habitat function. Contributing	No Terrestrial Habitat present. Limited	Mitigation	Mitigation	
2-SIC1	FT=2 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Cultural Thicket (CUT1(4)) and agriculture Important/Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	Conservation	Mitigation	The presence of thicket riparian vegetation, within the TRCA/CVC guidelines is considered important riparian function. However, the thicket area only abuts the HDF on its right bank. All other areas, including upstream and the HDF left bank are agricultural lands, and generally meet a limited riparian value. Overall, Mitigation is recommended for this feature.
2-SIC2	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	No Management	No Management	
3-SIC1	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	No Management	No Management	
3-SIC1-1a	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	No Management	No Management	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	SLR Management Recommendation	Notes
4-SIC1	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential movement corridor between HDF and adjacent forest and wetland communities. Contributing	No Management	No Management	
5-SIC1	FT=2 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Protection	As the upstream wetland feature segments are identified for Protection, a protection level designation is assigned to this segment as well.
5-SIC1-1a	FT=7 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	Mitigation	Mitigation	
5-SIC1-1b	FT=7 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
5-SIC1-1c	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat functions within this segment due to open agricultural field Limited	No Management	No Management	
5-SIC2	FT=6 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	N/A	Woodland (FOD4-1 and FOD9-4) and Wetland (SWD3-1) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	High potential due to presence of vernal pooling into mid-spring. Important (potential)	Protection	Protection	
5-SIC2-1a	FT=6 FC=4 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	N/A	Woodland (FOD4-1) and Wetland (SWD3-1) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	High potential due to presence of vernal pooling into mid-spring. Important (potential)	Protection	Protection	

Table 2. HDF Assessment for Twenty Mile Creek

Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-TMC1-10a	FT=4 FC=4 (1st Visit) FC=1 (2nd Visit)	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions.	No terrestrial habitat present.	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing	Limited			
1-TMC1-10b	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC11-1a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC11-2a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC11-3a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC11-4a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-1a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC12	FT=1 FC=2 (1st Visit) FC=2 (2nd Visit) Limited	N/A	Wetlands Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-2a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-TMC1-3a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-4a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-5a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-6a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-8a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC1-8b	FT=4 FC=2 (1st Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC1-8c	FT=1 FC=2 (1st Visit) FC=2 (2nd Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC1-8d	FT=4 FC=2 (1st Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC1-9a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing				
1-TMC2-1a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC2-1b	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC2-1c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-1a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-1b	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-1c	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-1d	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-TMC3-1e	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-2aa	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC3-2ab	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2ac	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2b	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-2c	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-2c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Scrubland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-2d	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Contributing			Contributing				
1-TMC3-2e	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2f	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2g	FT=1 FC=1 (1st Visit) Limited	N/A	Scrubland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-2h	FT=1 FC=1 (1st Visit) Limited	N/A	Scrubland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2i	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2j	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2k	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2l	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-TMC3-2m	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2n	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2o	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2p	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2q	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2r	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC3-2s	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC3-2s	FT=1 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2t	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing				
1-TMC3-2u	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2v	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2w	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2x	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2y	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC3-2z	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC4	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC4-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-TMC4-2a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC4-2b	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC4-3a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC5	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC5-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC5-1b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC6	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC6-1a	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC6-1b	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing				
1-TMC6-1b	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC7	FT=1 FC=2 (1st Visit) FC=2 (2nd Visit) Limited	N/A	Wetlands Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-TMC8	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
1-TMC9	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC10	FT=1 FC=4 (1st Visit) FC=2 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-TMC11	FT=1 FC=4 (1st Visit) FC=4 (2nd Visit) FC=1 (3rd Visit) Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
2-TMC1	FT=1 FC=1 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Wetland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-TMC1-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Meadow Valued	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
2-TMC1-1b	FT=1 FC=1 (1st Visit) Limited	N/A	Scrubland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-TMC2	FT=4 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-TMC2-1a	FT=7 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-TMC3	FT=1 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-TMC3-1a	FT=2 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-TMC3-1b	FT=7 FC=1 (1st Visit) Limited	Agriculture	Lawn Contributing	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-TMC1	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-TMC1-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-TMC1-1b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing				
4-TMC1	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC1-1a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC1-1b	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC1-1c	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC1-1d	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC1-2a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC2	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC3	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
4-TMC3-1a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-1a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-1b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-2a	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-2b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-2c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-2d	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing				
4-TMC4-4c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-4d	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC4-5a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC5	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC5-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC5-2a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC5-3a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-TMC5-4a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
4-TMC5-4b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC1	FT=4 FC=2 (1st Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	Potential movement corridor between upstream woodlands (FOD5-1) and downstream watercourse (reach TM3-R1). Contributing.	Mitigation	Protection	Downstream of protection level feature. Upgraded from mitigation.
5-TMC1-1a	FT=4 FC=2 (1st Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
5-TMC1-1b	FT=4 FC=2 (1st Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
5-TMC1-1c	FT=7 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management.
5-TMC1-1d	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC1-1d	FT=1 FC=2 (1st Visit) FC=2 (2nd Visit) Upstream wetland Valued	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
5-TMC1-1e	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC1-1e	FT=9 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit)	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions.	No terrestrial habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Valued			Contributing				
5-TMC1-1f	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC1-1f	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC2	FT=1 FC=4 (1st Visit) FC=2 (2nd Visit) Valued	N/A	Wetland (SWD4-2) and Woodland (FOD5-1). Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	High potential due to surrounding wetland (SWD4-2) and woodlands (FOD5-1) and connection to downstream watercourse (reach TM3-R1). Important.	Protection	Protection	
5-TMC3	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC3-1a	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC3-1b	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC3-1c	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-TMC3-1d	FT=1 FC=2 (1st Visit) Limited	Agriculture	Scrubland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited							
5-TMC4	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-1a	FT=2 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-1b	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-1b	FT=1 FC=1 (1st Visit) Limited	N/A	Wetland (SWD3-2) and Woodlands (FOD5-2) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-1c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-2a	FT=4 FC=1 (1st Visit) Limited	N/A	Scrubland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
6-TMC1-2a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-2b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-2c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-2d	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC1-2e	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
6-TMC2	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
7-TMC1	FT=1 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Table 3. HDF Assessment for Stoney Creek

Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-SC1	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-SC1	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1b	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1c	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1d	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1e	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1f	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
3-SC2-1g	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-1h	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-2a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management
3-SC2-2b	FT=3 FC=4 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management
3-SC2-2c	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2d	FT=3 FC=4 (1st Visit) FC=2 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2e	FT=2 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management
3-SC2-2f	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management
3-SC2-2g	FT=3 FC=2 (1st Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing	Limited			
3-SC2-2h	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2h	FT=1 FC=4 (1st Visit) FC=2 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-2i	FT=1 FC=4 (1st Visit) FC=2 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-2i	FT=2 FC=4 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2j	FT=1 FC=4 (1st Visit) FC=2 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2k	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2l	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2m	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Contributing							
3-SC2-2n	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2o	FT=1 FC=4 (1st Visit) FC=2 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
3-SC2-2p	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-SC2-2q	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
4-SC1	FT=6 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	N/A	Wetlands (SAM1) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	Feature connected to wetland community (SAM1) suitable for potential stepping stone habitat. Valued	Conservation	Conservation	
4-SC2	FT=6 FC=2 (1st Visit) FC=2 (2nd Visit) FC=1 (3rd Visit) Valued	N/A	Wetlands (SAM1) Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	Feature connected to wetland community (SAM1) suitable for potential stepping stone habitat. Valued	Conservation	Conservation	
4-SC2-1a	FT=4 FC=2 (1st Visit) Limited	Agriculture	Meadow Valued	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
5-SC2-1d	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1e	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1f	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1g	FT=3 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1h	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1i	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC2-1j	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC4	FT=4 FC=1 (1st Visit) Limited	N/A	Forest Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC4-1a	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions.	No terrestrial habitat present.	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing	Limited			
5-SC5	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC5-1a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC5-2a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC5-2b	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
5-SC5-2c	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Table 4. HDF Assessment for Hannon Creek

Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-HC1	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC1-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-HC1-2a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-HC1-2b	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-HC1-3a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-HC1-4a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC1-5a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC1-6a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
1-HC2	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC2-1a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC2-1b	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC2-2b	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
1-HC2-3a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
1-HC2-4a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC1	FT=1 FC=1 (1st Visit) Limited	N/A	Wetland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Conservation	The 2024 management approach of conservation (based on Valued or Contributing Hydrology) is deemed more appropriate.
2-HC2	FT=1 FC=1 (1st Visit) FC=1 (2nd Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management
2-HC2-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited			Contributing	Limited			
2-HC2-2a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC2-3a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC2-4a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC3	FT=1 FC=2 (1st Visit) FC=2 (2nd Visit) Limited	N/A	Wetland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	Mitigation	Downstream of mitigation level feature. Upgraded from no management
2-HC3-1a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC3-1b	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC3-1c	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC3-1d	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited							
2-HC3-1e	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC3-1f	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
2-HC4-1a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-2a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-2b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-3a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-4a	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
2-HC4-4b	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
2-HC4-4c	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-4d	FT=4 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-4e	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-4f	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC4-4g	FT=7 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC5	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	
2-HC5-1a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
2-HC6	FT=1 FC=4 (1st Visit) FC=1 (2nd Visit) Contributing	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	Mitigation	Mitigation	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Contributing			Contributing	Limited			
2-HC7	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC1	FT=1 FC=2 (1st Visit) Limited	N/A	Meadow Valued	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC1-1b	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC2	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC2-1a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC2-2a	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC3	FT=1 FC=2 (1st Visit) FC=1 (2nd Visit) Limited	N/A	Wetland Important	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



Drainage Feature Segment	Hydrology	Hydrology Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	HDF Guidelines Management Recommendation	GeoProcess Management Recommendation	Notes
	Limited							
3-HC4	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC4-1a	FT=1 FC=1 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC5	FT=1 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	
3-HC5-1a	FT=4 FC=2 (1st Visit) Limited	Agriculture	Agriculture Limited	No direct fish habitat observed along this reach. Indirect functions. Contributing	No terrestrial habitat present. Limited	No Management Required	No Management Required	



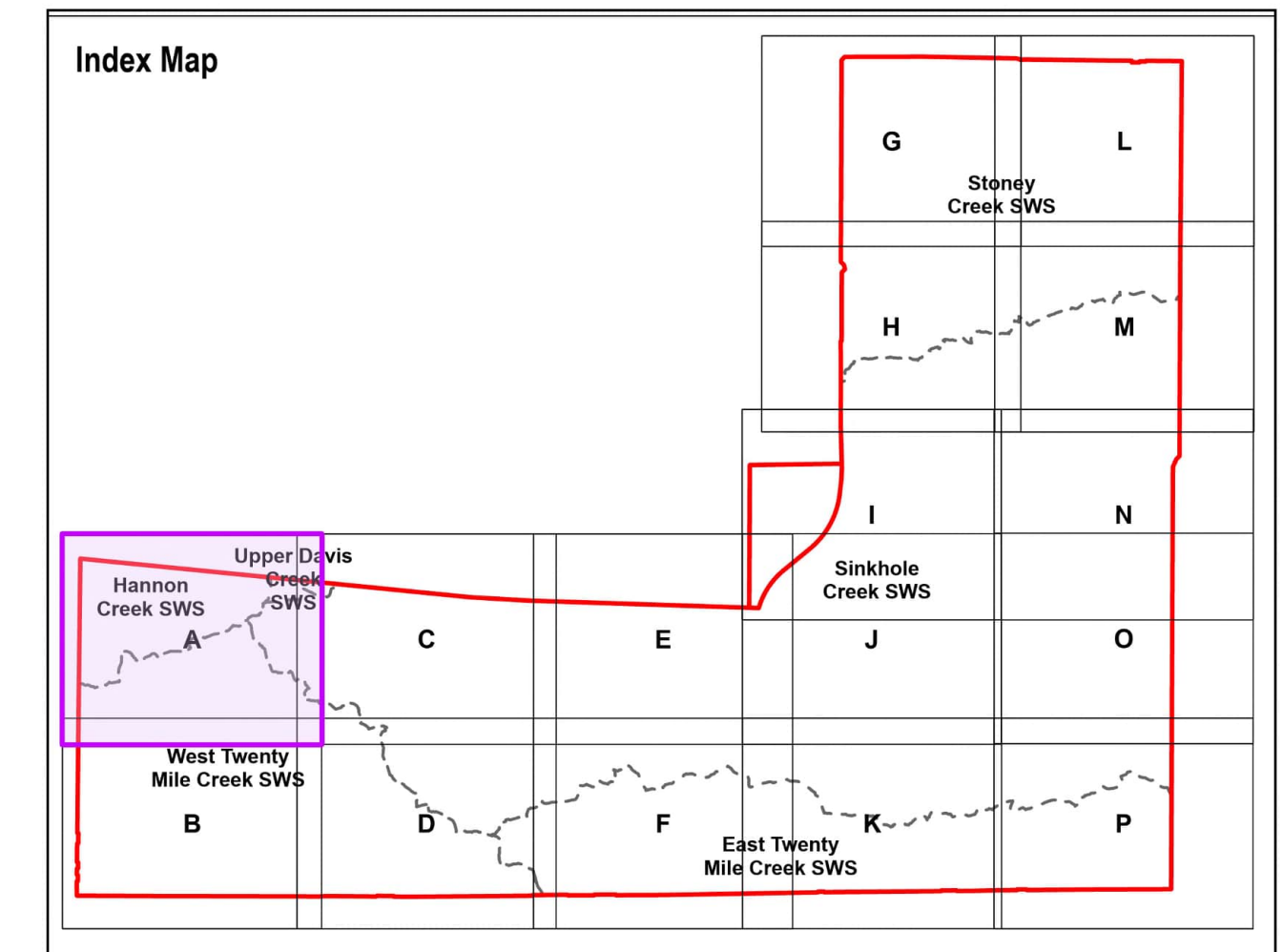
APPENDIX E3

HDF Mapping



LEGEND

- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Conservation
 - Mitigation
 - No Management Required



1 - Watercourses as labelled by Geohub Ontario mapping. Drainage feature alignments have been refined in specific locations based on field observations and satellite imagery to better reflect current conditions. Drainage features within participating lands have been confirmed to be watercourses. Drainage features on non-participating lands are subject to refinement following assessments (once land access is permitted) and may result in categorization under a Headwater Drainage Feature classification following appropriate field studies.

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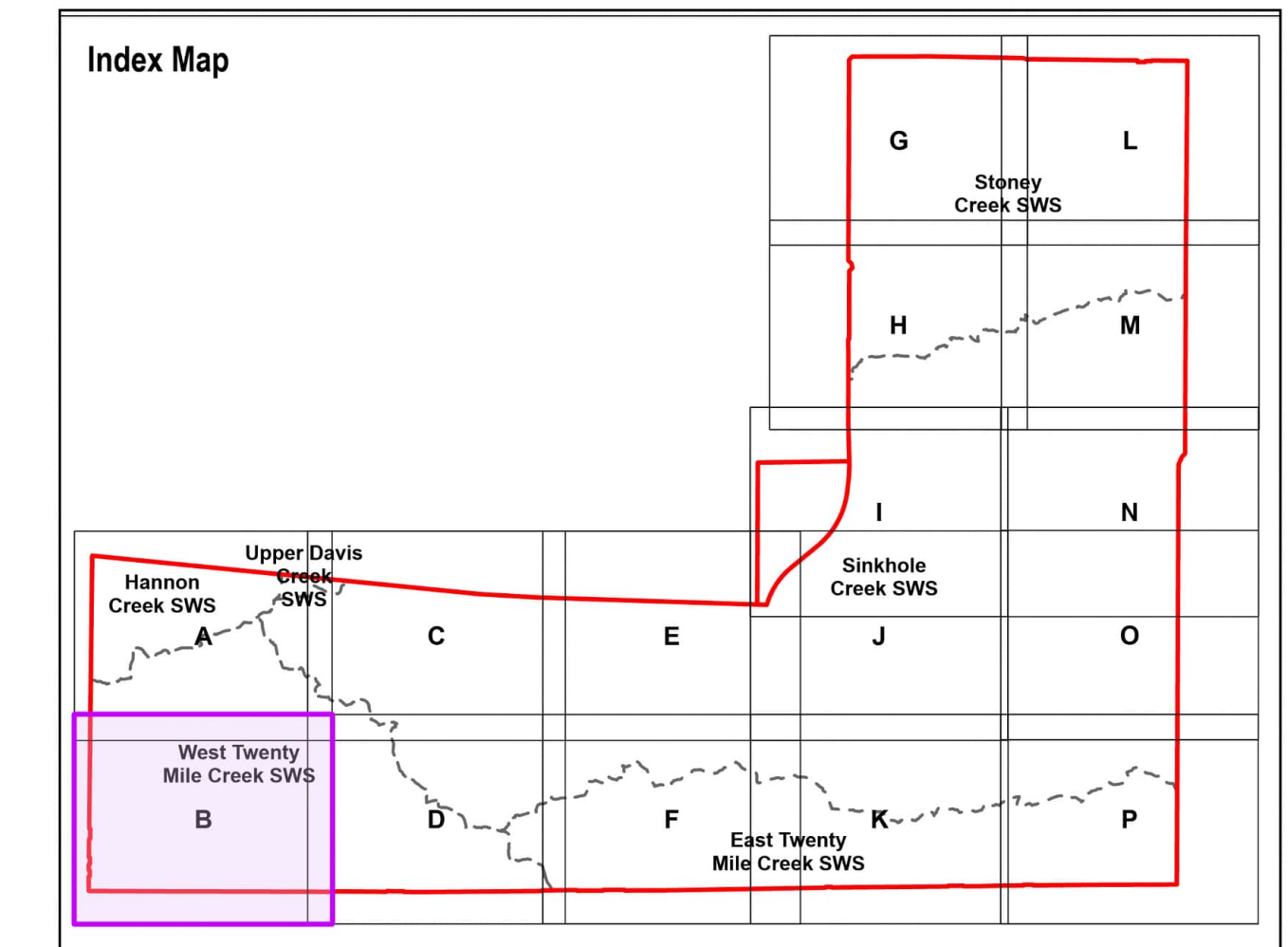
TITLE
Headwater Drainage Feature (HDF) Classifications

REF. NO. 2306301-3.3.2A-1

Figure 3.3.2 A



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Mitigation
 - No Management Required



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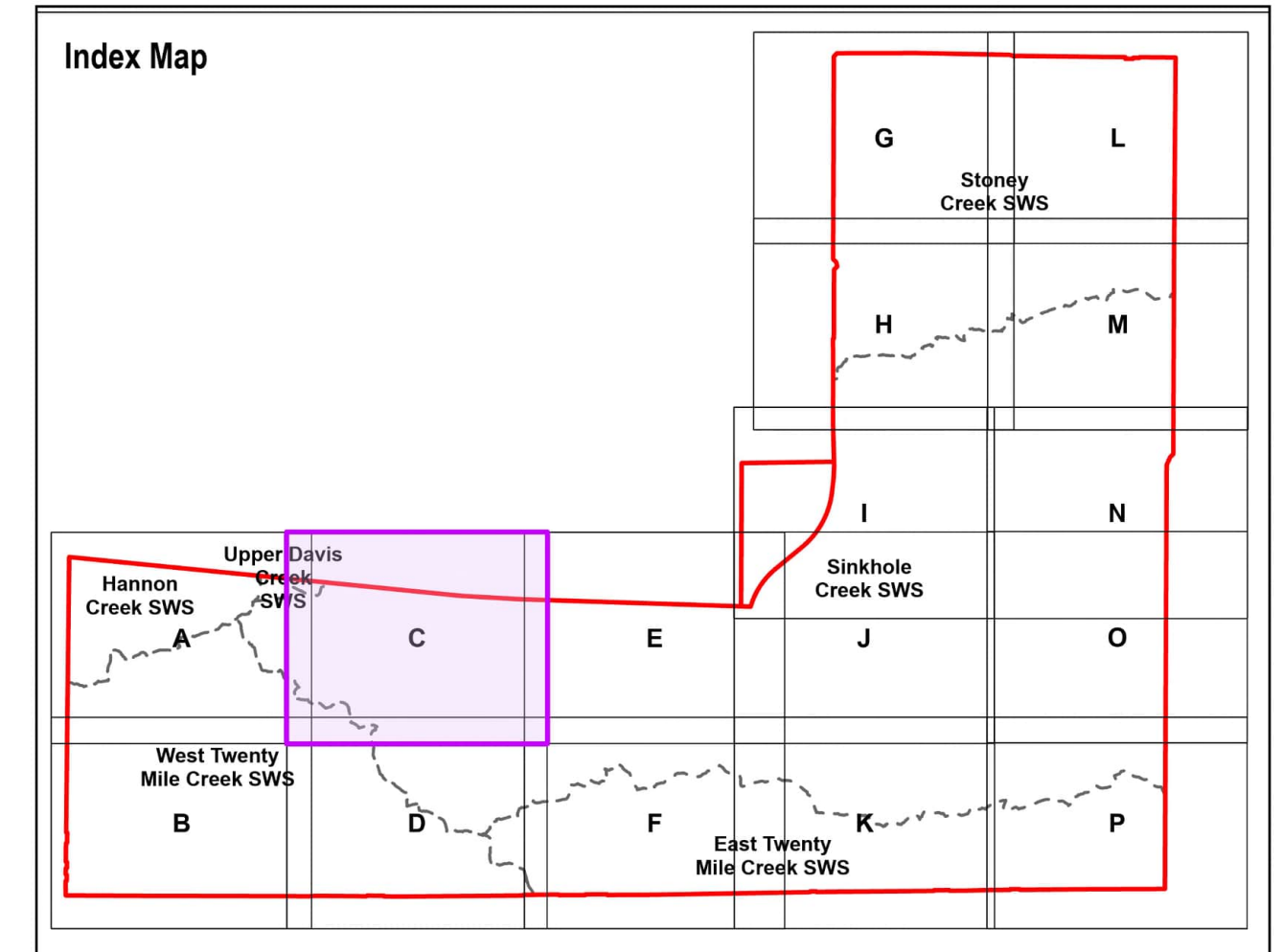
TITLE
Headwater Drainage Feature (HDF) Classifications

REF. NO. 2306301-3.3.2B-1

Figure 3.3.2 B



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
 - Mitigation
 - No Management Required



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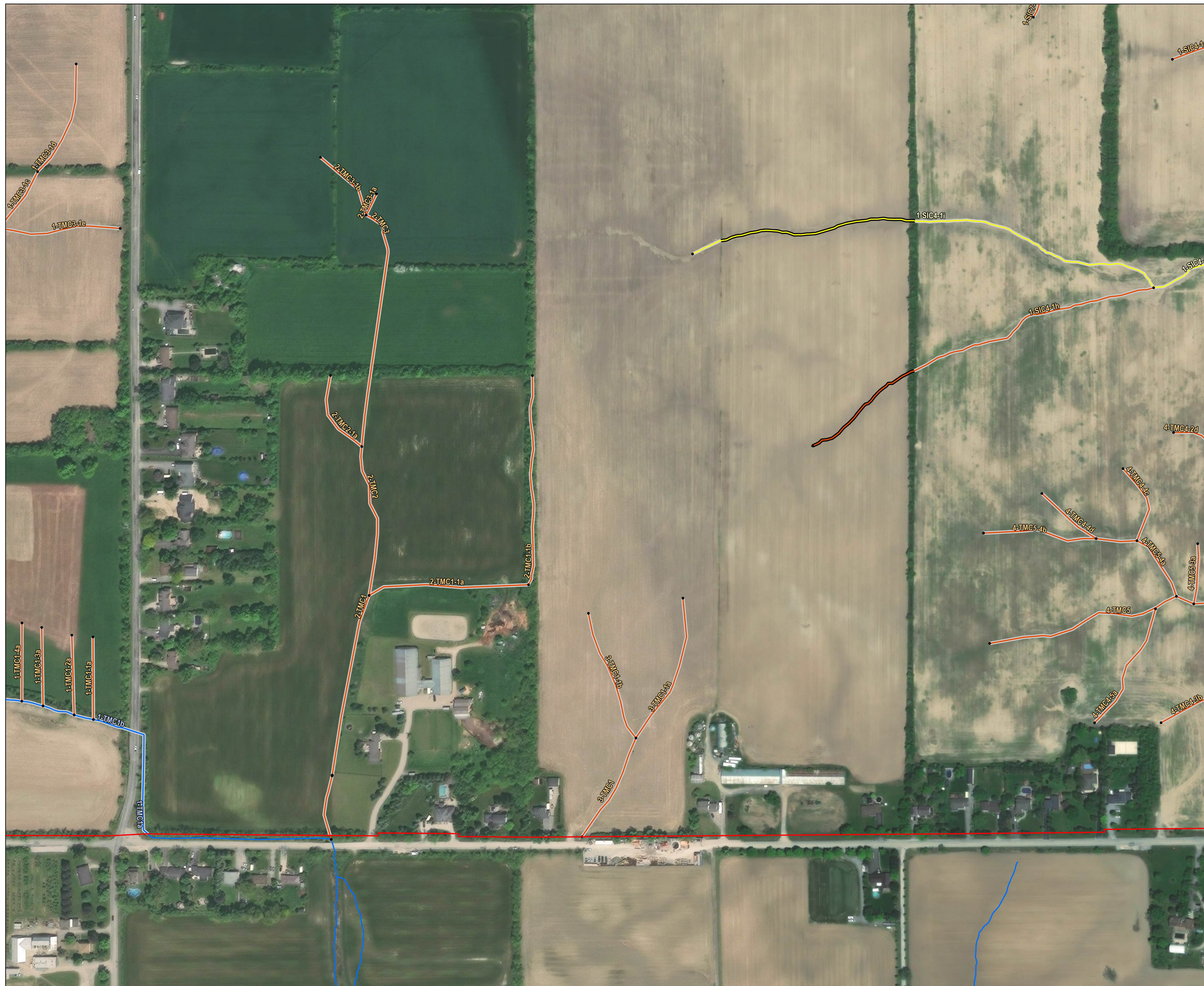


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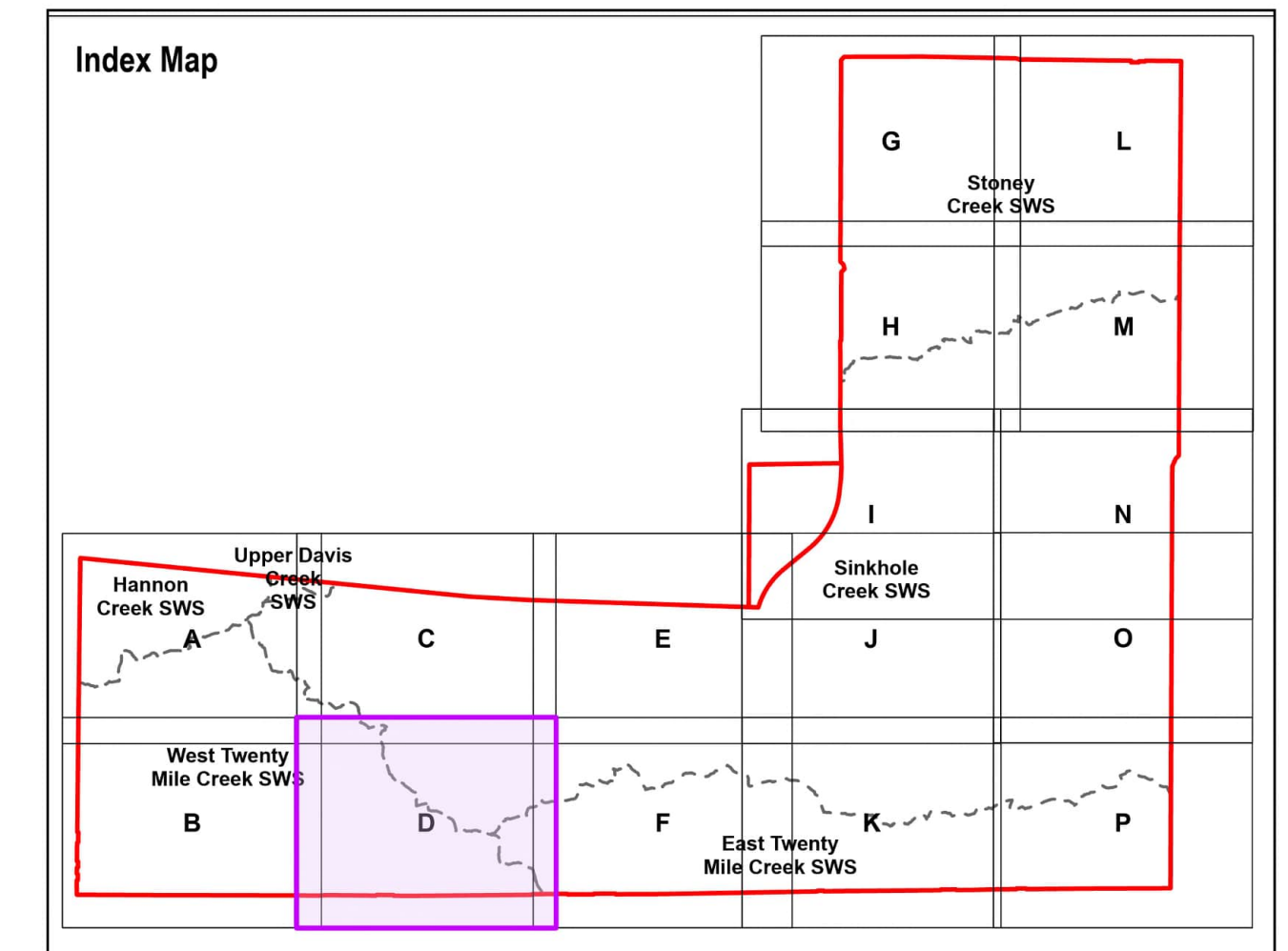
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 	TITLE Headwater Drainage Feature (HDF) Classifications
	REF. NO. 2306301-3.3.2C-1
Figure 3.3.2 C	



LEGEND

- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Mitigation
 - No Management Required



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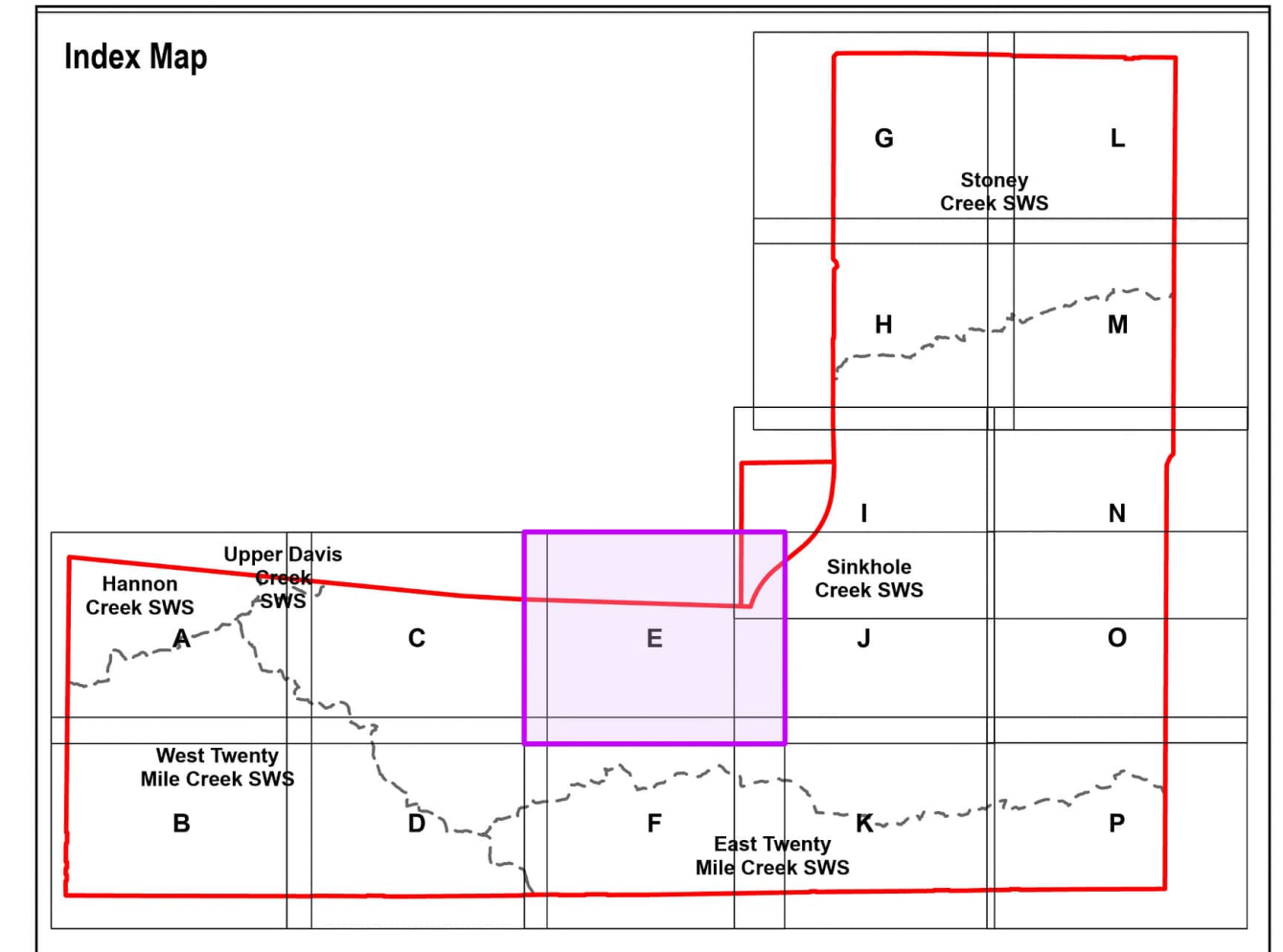
TITLE
Headwater Drainage Feature (HDF) Classifications

REF. NO. 2306301-3.3.2D-1

Figure 3.3.2 D



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
 - Conservation
 - Mitigation
 - No Management Required



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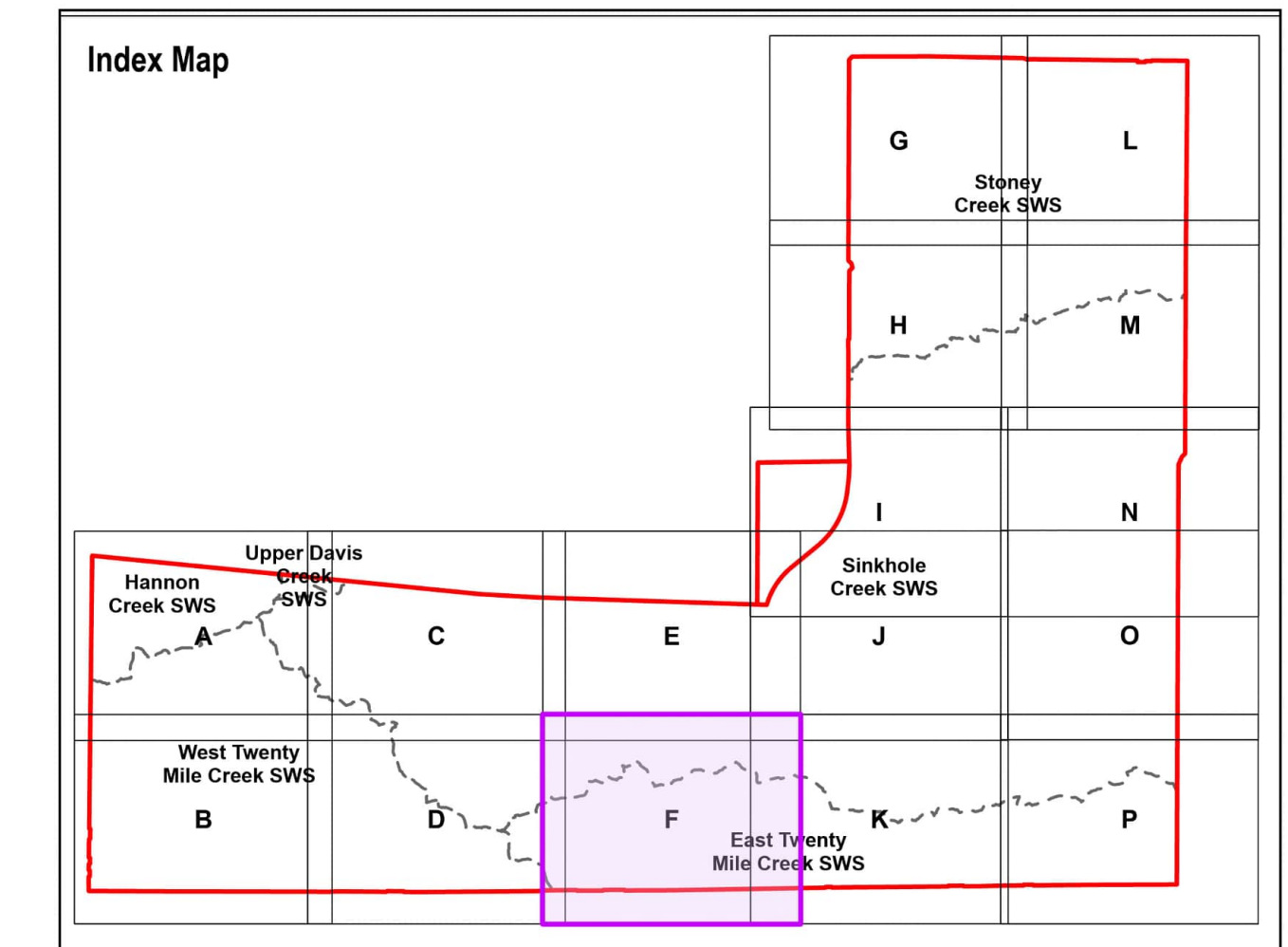
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	TITLE Headwater Drainage Feature (HDF) Classifications
	REF. NO. 2306301-3.3.2E-1
Figure 3.3.2 E	



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Mitigation
 - No Management Required



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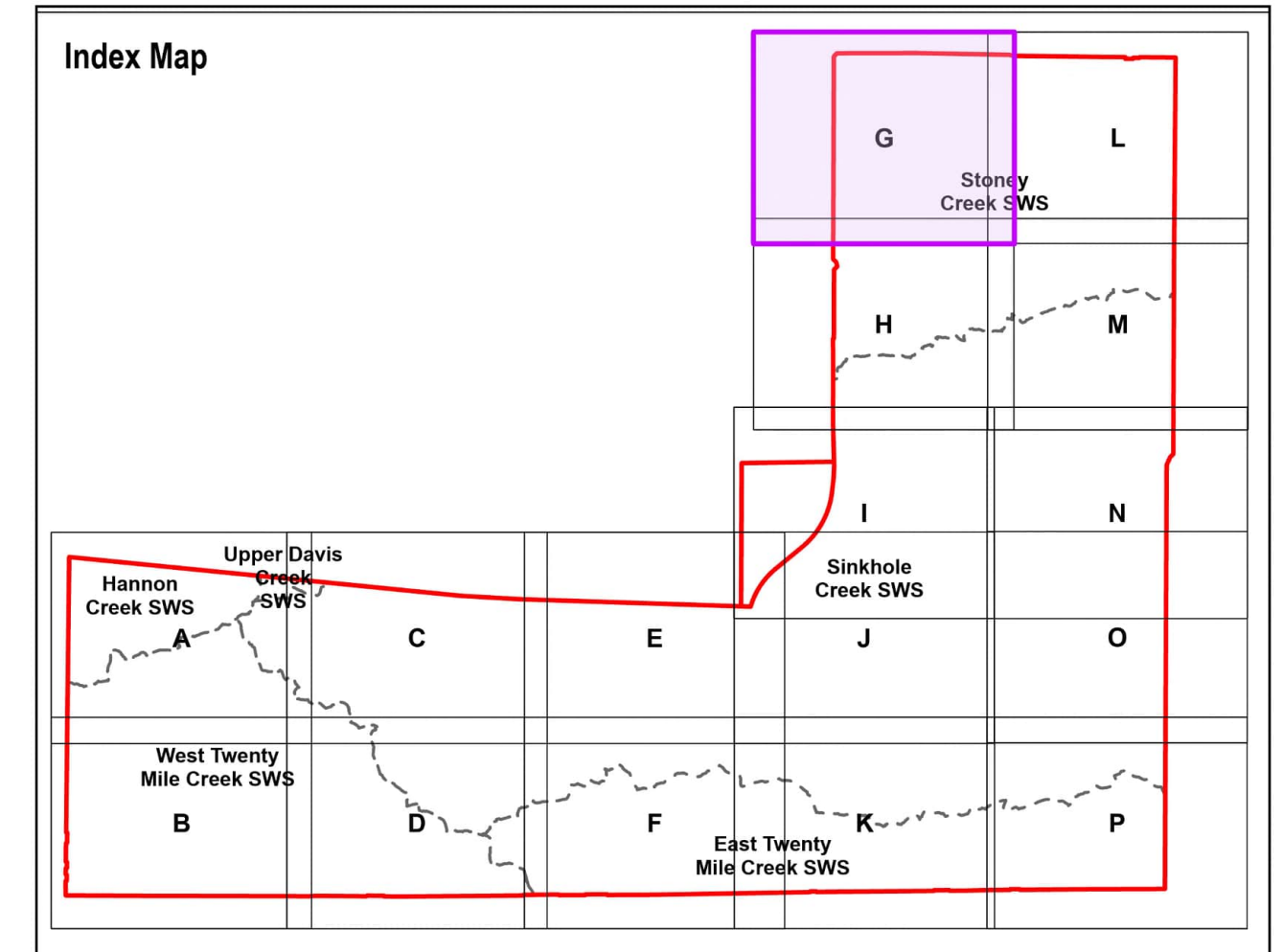
TITLE
**Headwater Drainage Feature (HDF)
Classifications**

REF. NO. 2306301-3.3.2F-1

Figure 3.3.2 F



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
 - Headwater Drainage Feature (HDF)²**
 - Conservation
 - No Management Required



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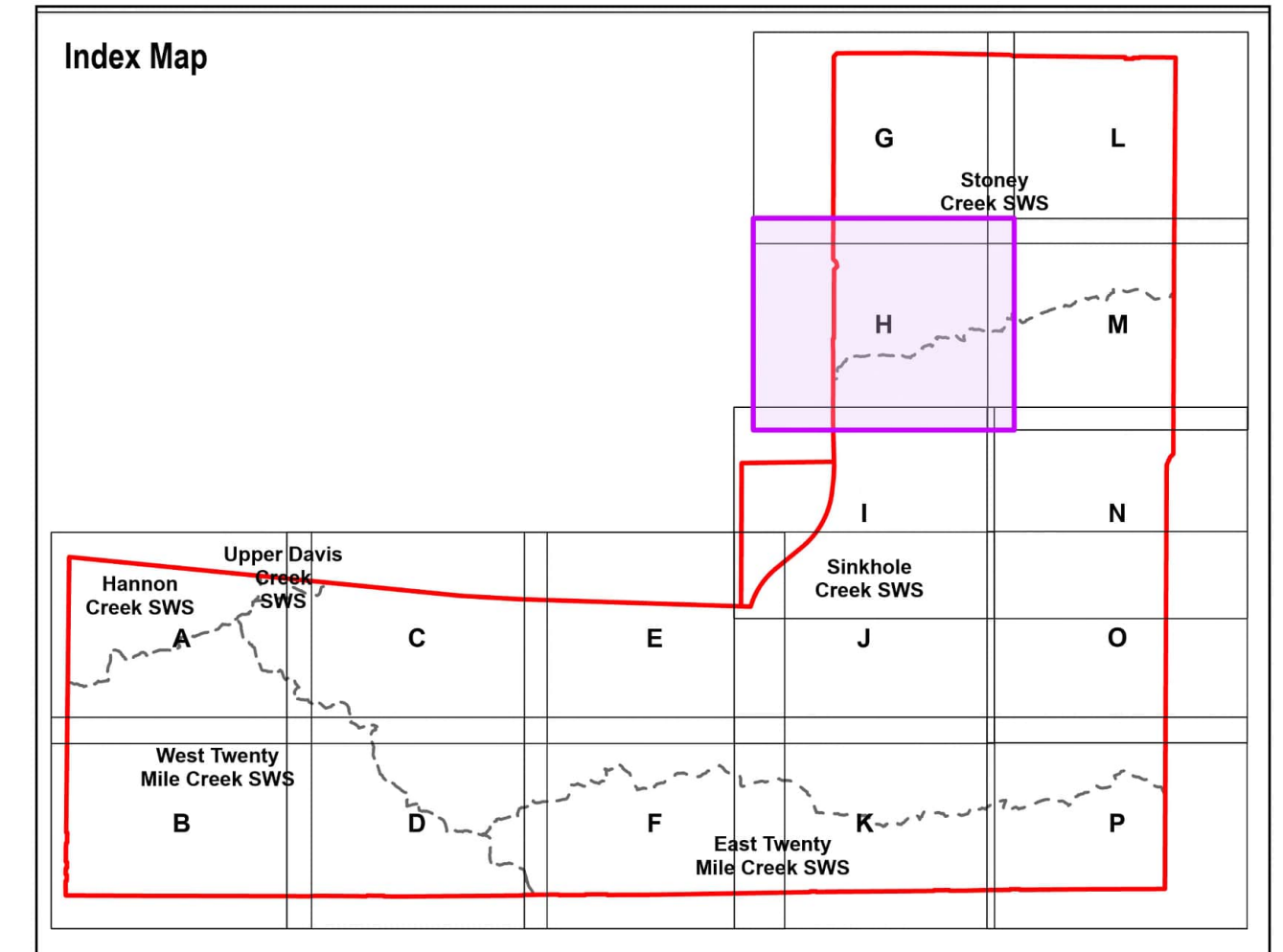
TITLE
Headwater Drainage Feature (HDF) Classifications

REF. NO.
 2306301-3.3.2G-1

Figure 3.3.2 G



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- No Management Required



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TITLE
Headwater Drainage Feature (HDF) Classifications

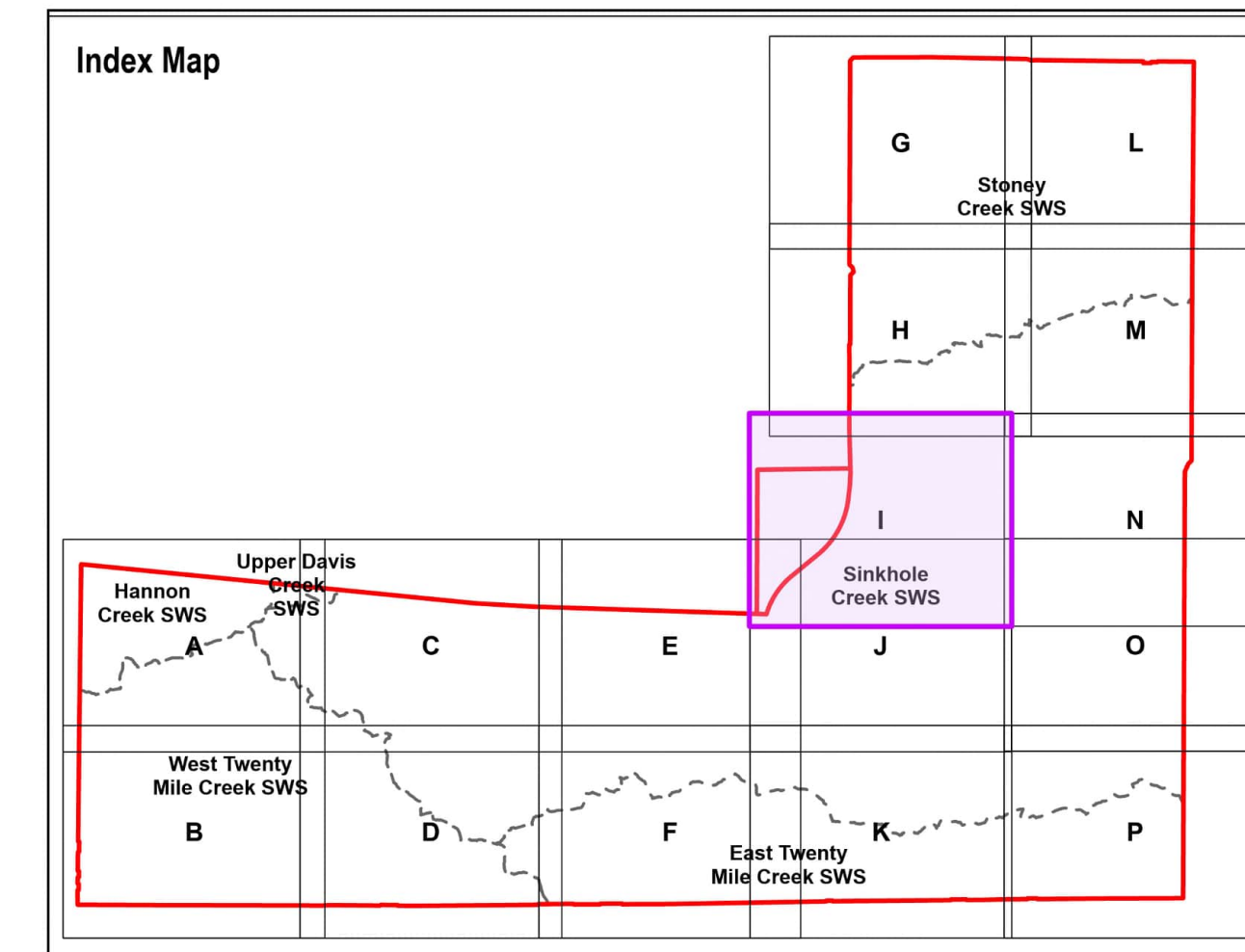
REF. NO. 2306301-3.3.2H-1

Figure 3.3.2 H



LEGEND

- Study Area
- Additional Lands (Unsurveyed)
- Subject Property
- Subwatershed Boundary
- Drainage Feature¹
- Unevaluated Drainage Feature within Non-Participating Land
- Evaluated Drainage Feature within Participating Land
- Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
- Mitigation
- No Management Required



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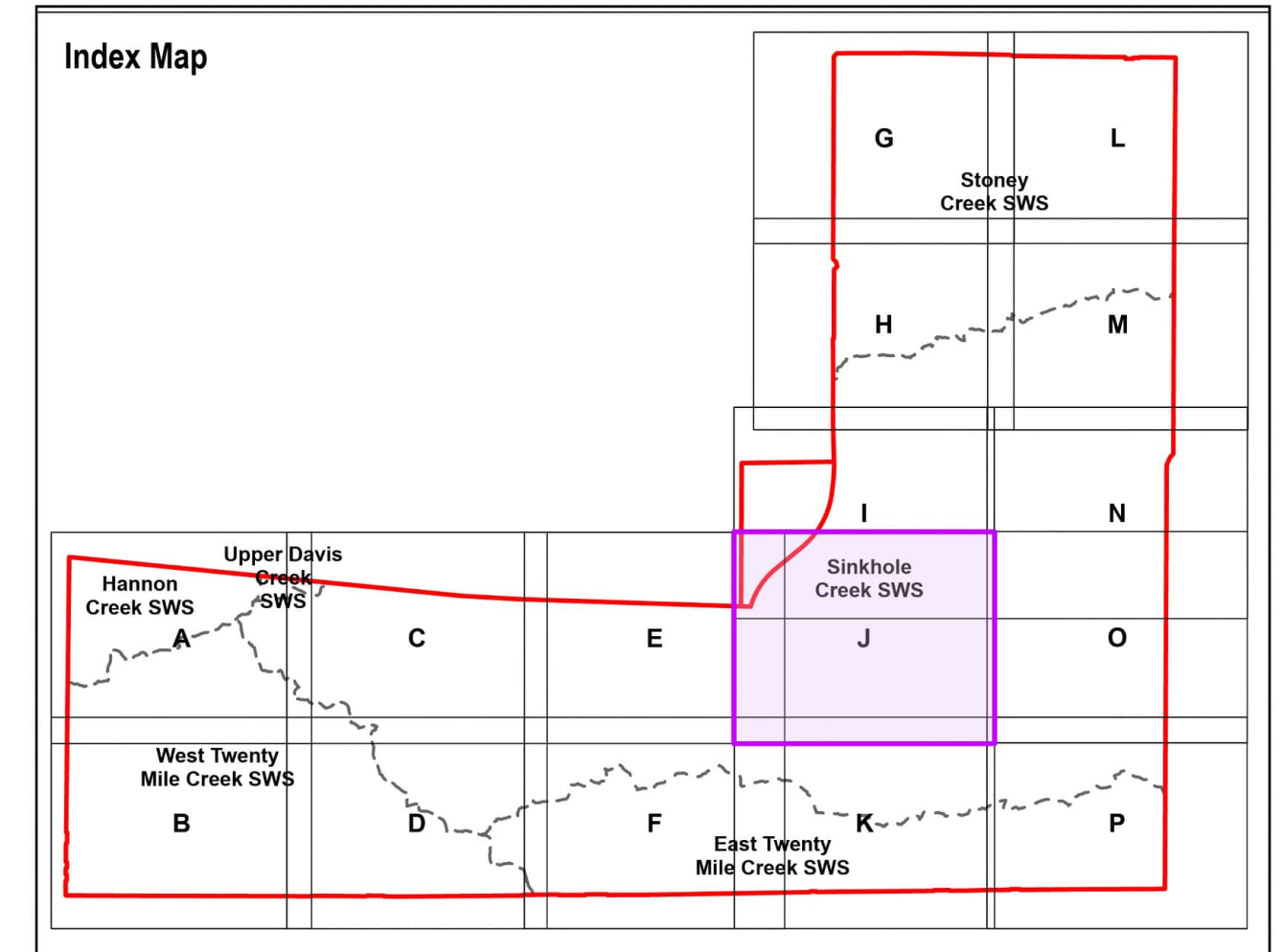
TITLE
 Headwater Drainage Feature (HDF) Classifications

REF. NO.
 2306301-3.3.2I-1

Figure 3.3.2 I



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
 - Conservation
 - Mitigation
 - No Management Required



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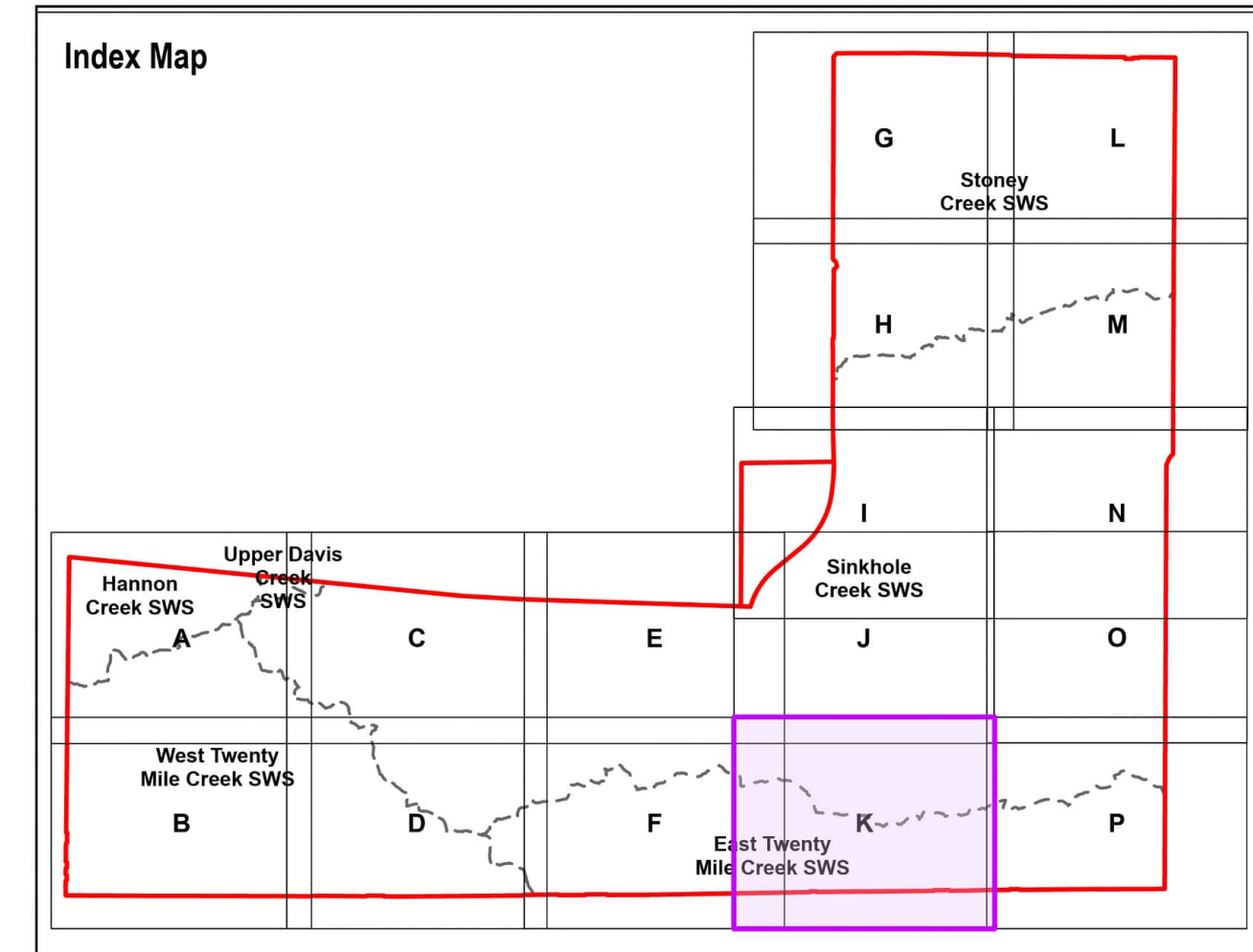
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	TITLE Headwater Drainage Feature (HDF) Classifications
	REF. NO. 2306301-3.3.2J-1
	Figure 3.3.2 J



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
 - Mitigation
 - No Management Required



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TITLE
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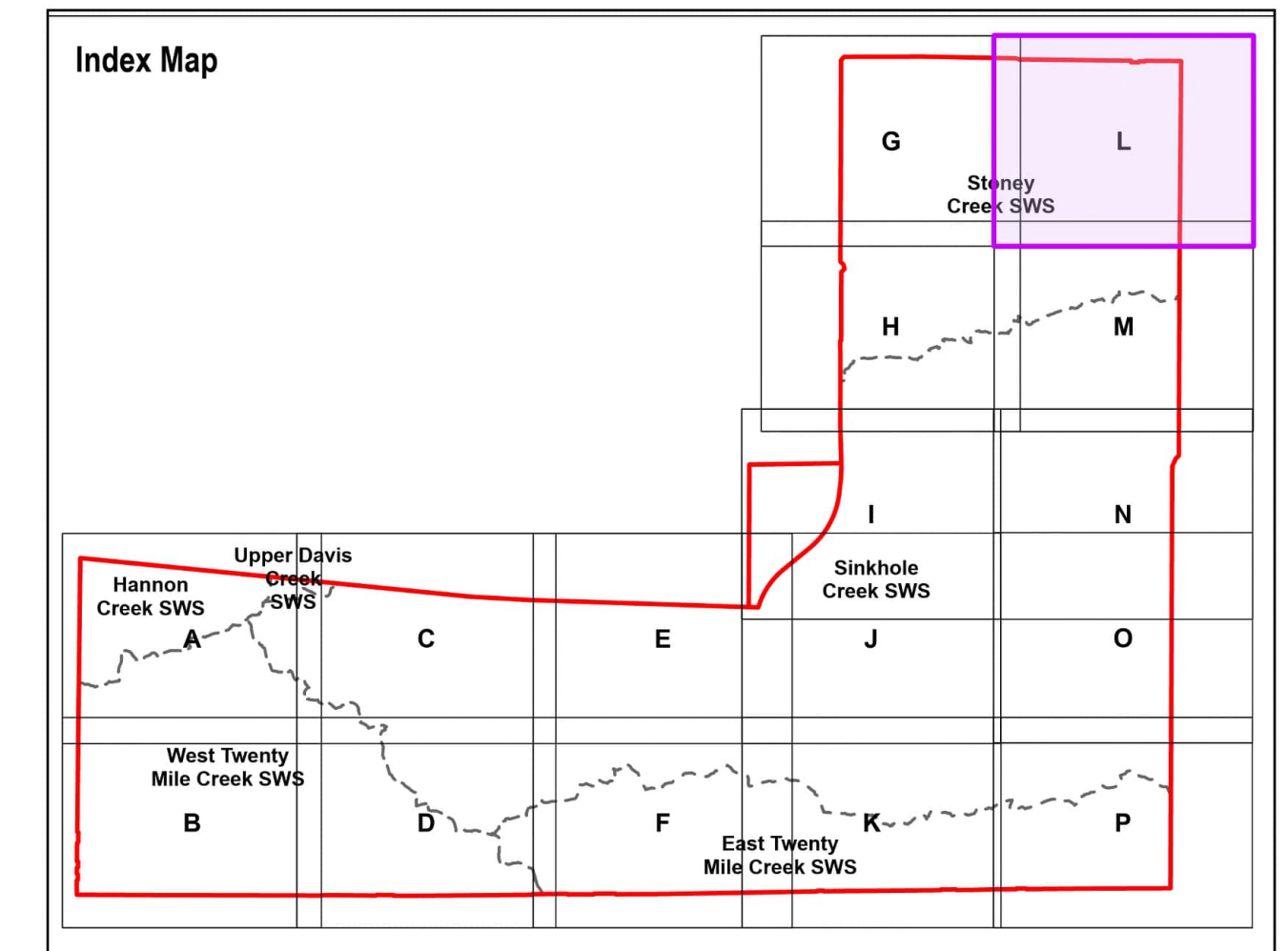
REF. NO.
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Figure 3.3.2 K



LEGEND

- Study Area
- Additional Lands (Unsurveyed)
- Subject Property
- Subwatershed Boundary
- Drainage Feature¹
- Unevaluated Drainage Feature within Non-Participating Land
- Evaluated Drainage Feature within Participating Land
- Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Mitigation
- No Management Required



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TITLE
Headwater Drainage Feature (HDF) Classifications

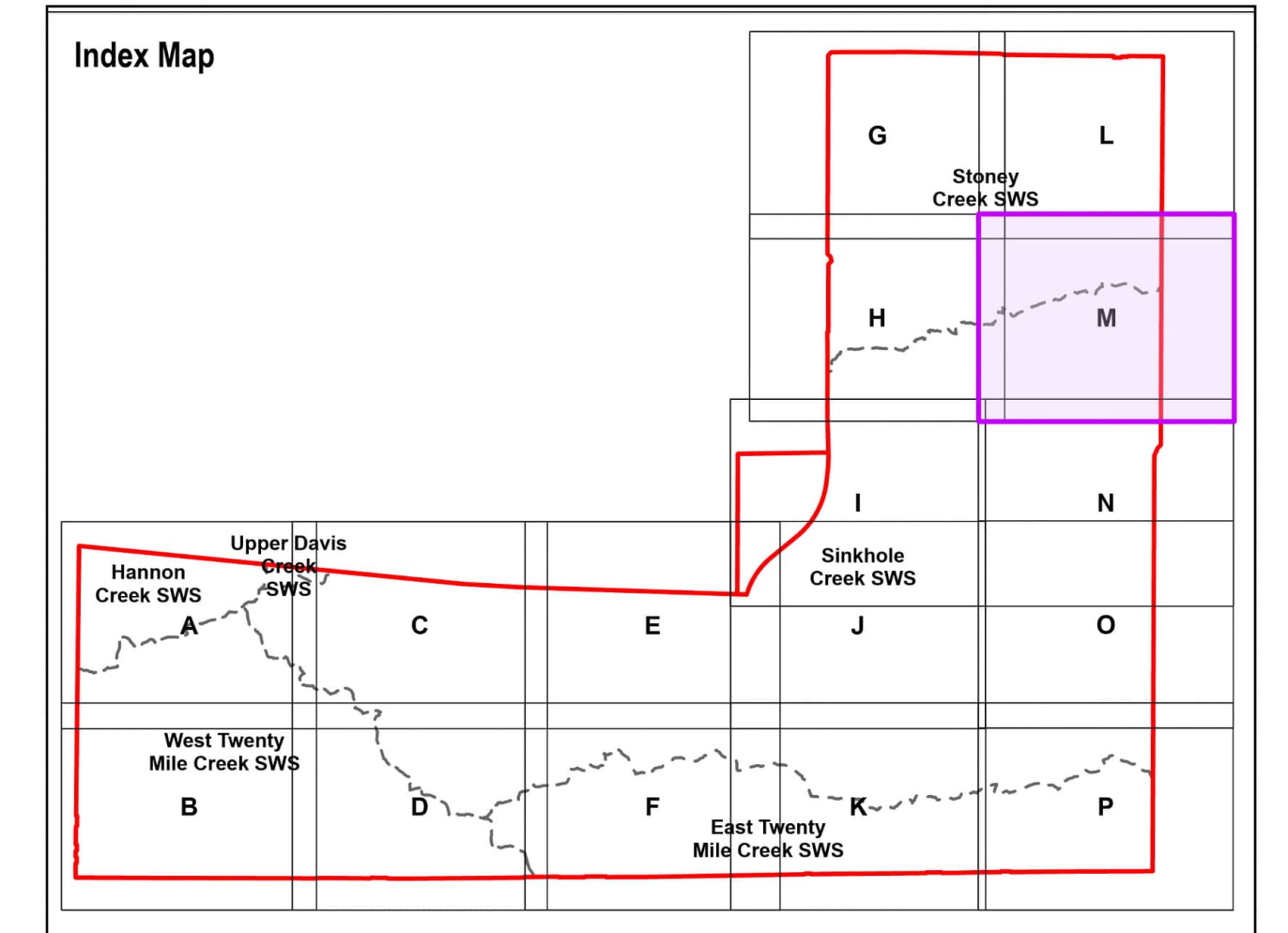
REF. NO. 2306301-3.3.2L-1

Figure 3.3.2 L



LEGEND

- Study Area
- Additional Lands (Unsurveyed)
- Subject Property
- Subwatershed Boundary
- Drainage Feature¹
- Unevaluated Drainage Feature within Non-Participating Land
- Evaluated Drainage Feature within Participating Land
- Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
- Mitigation
- No Management Required



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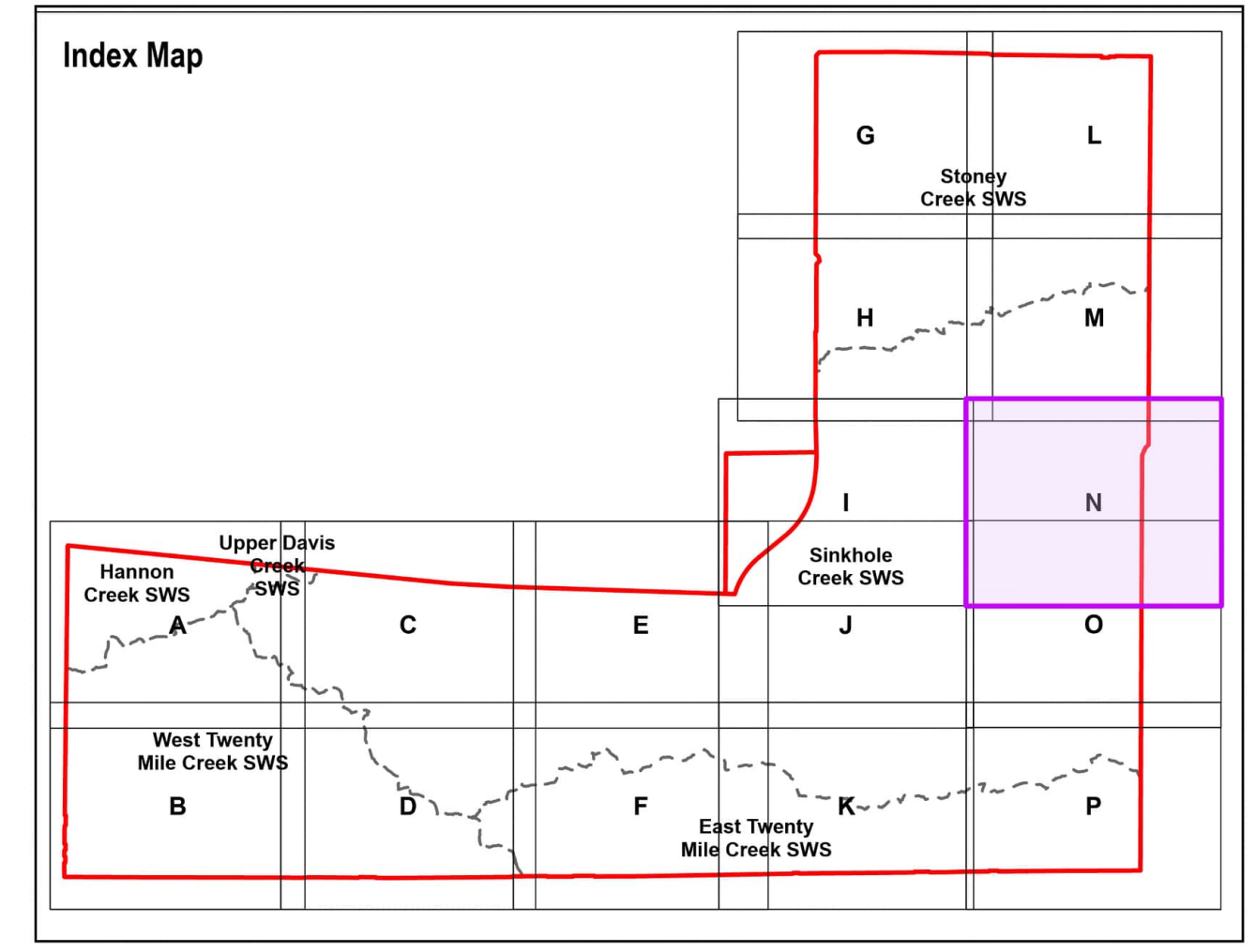
TITLE
Headwater Drainage Feature (HDF) Classifications

REF. NO. 2306301-3.3.2M-1

Figure 3.3.2 M



- LEGEND**
- Study Area
 - Additional Lands (Unsurveyed)
 - Subject Property
 - Subwatershed Boundary
 - Drainage Feature¹
 - Unevaluated Drainage Feature within Non-Participating Land
 - Evaluated Drainage Feature within Participating Land
 - Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Protection
 - Mitigation
 - No Management Required



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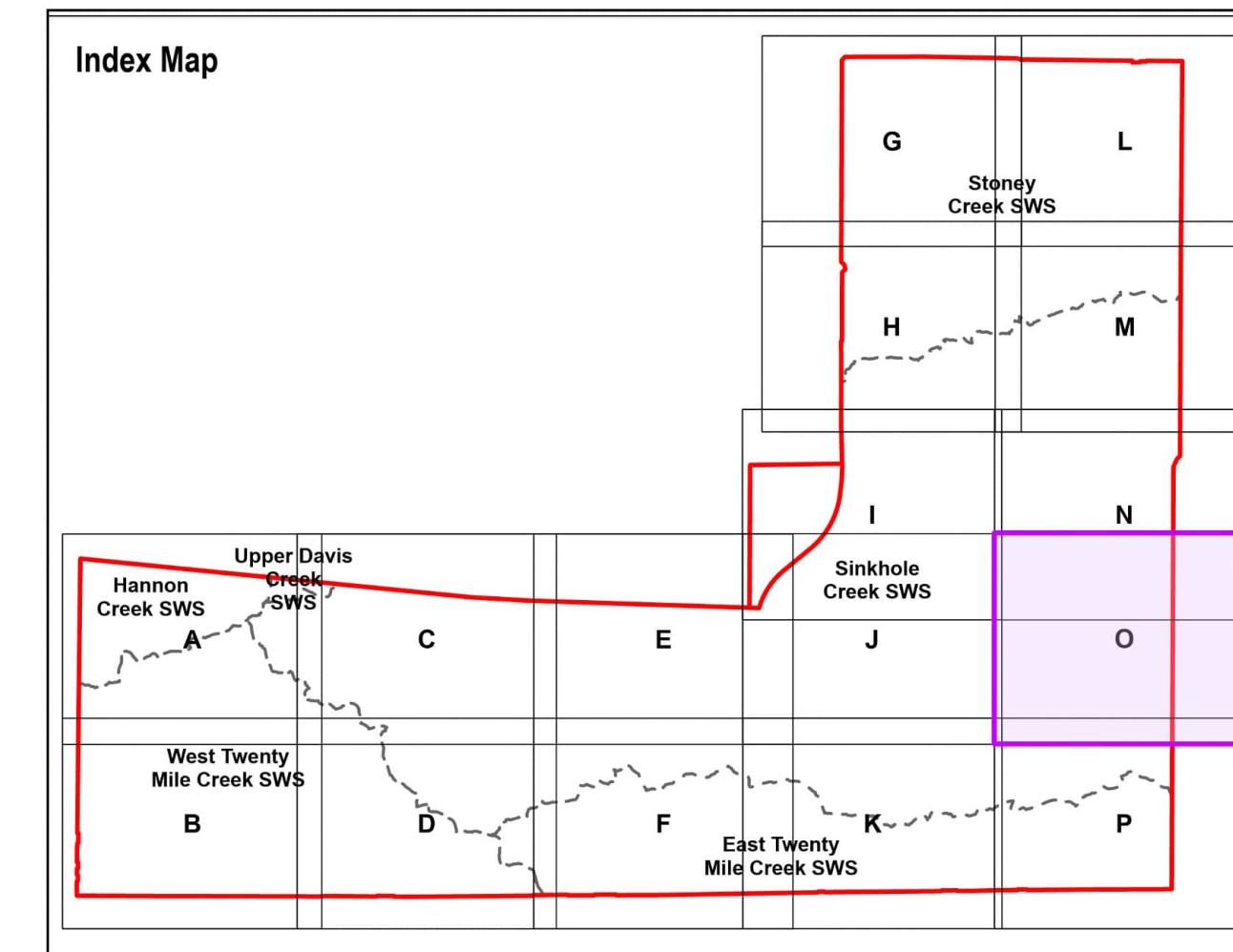
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	TITLE Headwater Drainage Feature (HDF) Classifications
	REF. NO. 2306301-3.3.2N-1
	Figure 3.3.2 N



LEGEND

- Study Area
- Additional Lands (Unsurveyed)
- Subject Property
- Subwatershed Boundary
- Drainage Feature¹
- Unevaluated Drainage Feature within Non-Participating Land
- Evaluated Drainage Feature within Participating Land
- Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- Conservation
- Mitigation
- No Management Required



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TITLE
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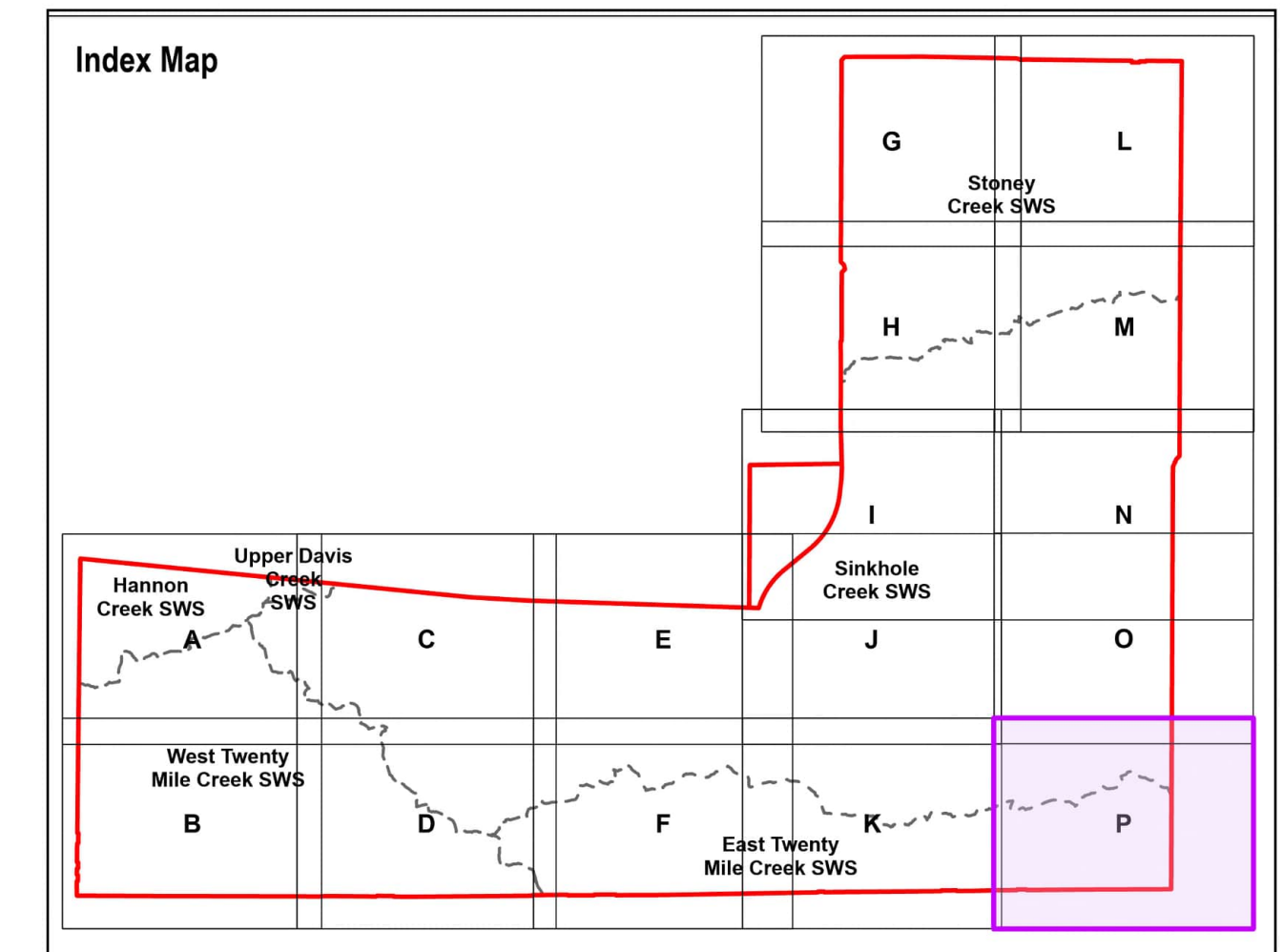
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Figure 3.3.2 O



LEGEND

- Study Area
- Additional Lands (Unsurveyed)
- Subject Property
- Subwatershed Boundary
- Drainage Feature¹
- Evaluated Drainage Feature within Participating Land
- Confirmed Watercourse Verified Through Field Surveys
- Headwater Drainage Feature (HDF)²**
- No Management Required



1 - Watercourses as labelled by Geohub Ontario mapping. Drainage feature alignments have been refined in specific locations based on field observations and satellite imagery to better reflect current conditions. Drainage features within participating lands have been confirmed to be watercourses. Drainage features on non-participating lands are subject to refinement following assessments (once land access is permitted) and may result in categorization under a Headwater Drainage Feature classification following appropriate field studies.

2 - HDF classifications within non participating properties were assessed based on the most conservative adjacent HDF classification.

NOTE: The information contained within this figure is preliminary and will be refined during further study. Features delineated within non-participating properties will need to be verified at a later date, refer to Fig 1.4.1 for list of non-participating properties.



North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:2,000
Page Size: ANSI D (22 x 34 inches)

Drawn: SM
Checked: DJ
Date: Apr 14, 2026



Source Notes:
Imagery (2022) provided by Bramalea region map service. Contains information licensed under the Open Government Licence – Ontario.

CLIENT
Elfrida Community Builders Group Inc.

PROJECT
Elfrida Subwatershed Plan



TITLE
Headwater Drainage Feature (HDF) Classifications

REF. NO. 2306301-3.3.2P-1

Figure 3.3.2 P

APPENDIX E4

Fish Community Sampling Results

Appendix E E4 - Fish Communities Summaries

Table 1. Fish Sampling Station Locations, Elfrida Subwatershed Study, June and July 2024

WATERCOURSE		SINKHOLE CREEK	SINKHOLE CREEK	TWENTY MILE CREEK	TWENTY MILE CREEK	TWENTY MILE CREEK	STONEY CREEK	
Date		2024-07-26	2024-07-26	2024-06-25	2024-06-25	2024-06-25	2024-06-25	
Station ID		1	2	TM01	TM02	TM03	ST02	
Location (UTM 17T)	Easting	598643	600169	596651	596468	595742	601509	
	Northing	4780155	4779430	4779392	4779575	4779780	4782233	
Station Length		40	40	40	40	40	40	
Water Temperature (°C)		24	Not recorded	19.9	21.2	22.0	18.9	
Air Temperature (°C)		21.5	Not recorded	24	23	22	24	
Dominant Vegetation Types	Left Bank (m)	1.5-10	Wetlands	Wetlands	Lawn	Scrubland	Wetlands	Scrublands
		10-30	Cropland	Wetlands	Tilled Soil	Cropland	Cropland	Cropland
		30-100	Cropland	Cropland	Tilled Soil	Cropland	Cropland	Cropland
	Right Bank (m)	1.5-10	Wetlands	Wetlands	Scrubland	Scrubland	Wetlands	Wetlands
		10-30	Cropland	Wetlands	Cropland	Cropland	Cropland	Cropland
		30-100	Cropland	Anthropogenic	Cropland	Cropland	Cropland	Cropland
Access Route		Parked along RR 56	Parked along RR 56	Parked Across from Golden Gate Equestrian	Parked Across Fletcher Road in Golden Gate's Field	Parked next to concrete barriers on Golf Club Road	Parked on Mud Street	



<p>Notes</p>	<p>Station is situated u/s of the RR 56 culvert within a cropped area. ELC mapping identifies the area as a narrow, wetland community (ELC unit MAM2). Run habitat. Channel is uniform in both depth and width.</p>	<p>Station is situated within a wetland area. Run habitat within a narrow wetland (ELC unit MAM2-2). Channel includes partial high canopy with mature trees along the LB. Abundant instream vegetation present (mostly Coontail, <i>Ceratophyllum demersum</i>).</p>	<p>Station starts u/s of Bridge. Run Habitat. Lots of reed canary grass, some jewel weed, channel width decreases further from bridge</p>	<p>Straight section after bed away from road, open flat and shallow. Water purslane at station. Garter snake observed. Potential burrow in RHB. Run Habitat.</p>	<p>Station runs 30m through wetland plants then 10m through open field. Lots of cattails and rushes, water plantains, limited flow, Narrow watercourse with abundant instream vegetation. Redtail Hawk x2 and Green Frog x1</p>	<p>Station starts in wooded area, u/s of thick cattails. Mostly Cattails, some reed canary grass and buckthorn. Lots of duckweed in the channel.</p>
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Table 2. Fishing Effort and Catch, Elfrida Subwatershed Study, June and July 2024

WATERCOURSE	STATION ID	START TIME	END TIME	EFFORT (S)	BROOK STICKLEBACK		BLUNTNOSE MINNOW		CENTRAL MUDMINNOW		COMMON SHINER		FATHEAD MINNOW		PUMPKINSEED	
					Captured (#)	CPUE (fish/s)	Captured (#)	CPUE (fish/s)	Captured (#)	CPUE (fish/s)	CPUE (fish/s)	CPUE (fish/s)	Captured (#)	CPUE (fish/s)	Captured (#)	CPUE (fish/s)
Sinkhole 1	SIC01	10:36	11:12	561	0	0.00	2	0.003	0	0.00	0	0.00	0	0.00	1	0.002
Sinkhole 2	SIC02	11:30	12:45	281	16	0.056	0	0.00	0	0.00	3	0.011	0	0.00	3	0.011
Twenty Mile Creek	TM01	11:45	12:15	410	0	0.00	0	0.00	4	0.010	0	0.00	3	0.007	0	0.00
Twenty Mile Creek	TM02	14:03	15:30	480	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Twenty Mile Creek	TM03	15:45	16:00	234	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Stoney Creek	ST02	9:45	10:30	1134	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

Note: Halltech HT-2000 Electrofish used for all stations, set to 150v and 80hz.



APPENDIX E5

Benthic Analysis Results

Appendix E E5 - Benthic Macroinvertebrate Data Summary

	Fall 2023					Spring 2024					Fall 2024
	Sinkhole Creek Station 1	Twenty Mile Creek Station 1	Twenty Mile Creek Station 2	Twenty Mile Creek Station 3	Stoney Creek Station 1	Sinkhole Creek Station 1	Twenty Mile Creek Station 1	Twenty Mile Creek Station 2	Twenty Mile Creek Station 3	Stoney Creek Station 1	Sinkhole Creek Station 2
Sampling ID	Sic1	TM01	TM02	TM03	ST02	Sic1	TM01	TM02	TM03	ST02	Sic2
Total Number of Organisms	328	397	698	331	18	216	451	549	147	-	254
Taxa Richness	13	13	9	17	7	12	8	7	11	-	6
% EPT	14.94	15.62	2.90	1.21	0	0.93	2.66	1.15	6.12	-	0.79
EPT Index	0.15	0.16	0.03	0.01	0	0.01	0.03	0.01	0.06	-	0.01
Simpson's Diversity Complement (1-D)	0.70	0.69	0.48	0.43	0.75	0.71	0.40	0.31	0.52	-	0.12
Shannon-Wiener Diversity Index	1.52	1.58	1.02	1.18	1.61	1.48	0.92	0.64	1.19	-	0.33



APPENDIX E6

Aquatics Photolog

Appendix E E6 – Aquatics Photo Log

Photo 1: Reach 1-SIC1 Culvert Crossing (Bird's Eye View)



Photo 2: Reach 1-SIC1 Crossing (October 23, 2025). Outlet of crossing, facing upstream.



Photo 3: Reach 1-SIC1 (October 23, 2025). Typical view, facing downstream.



Photo 4: Reach 1-SIC1 (October 23, 2025). Typical view, facing upstream.



Photo 5: Reach 1-SIC1 (October 23, 2025). Evidence of groundwater seepage (watercress abundant in stream).



Photo 6: Reach 1-SIC1 (July 9, 2025). Aerial view of channel, facing eastwards.



Photo 7: Reach 1-SIC2 (May 9, 2025). Aerial view of channel, facing westwards.



Photo 8: Reach 1-SIC3-1i. Aerial view of channel, facing eastwards.



Photo 9: Reach 1-SIC3-1k. Aerial view of channel, facing westward. Crossing outlet is shown.



Photo 10: Reach 1-SIC4 (October 23, 2025). Typical view, facing downstream.



Photo 11: Reach 1-SIC4 (October 23, 2025). Typical view, facing upstream.



Photo 12: Reach 1-SIC4. Aerial view of channel, facing eastwards.



Photo 13: Reach 1-SIC5 (October 23, 2025). Outlet of crossing, facing upstream.



Photo 14: 5-SIC2 Pond (October 23, 2025). Pond facing southwest.



Photo 15: Reach 1-TMC1 (October 23, 2025). Typical view, facing downstream.



Photo 16: Reach 1-TMC1 (October 23, 2025). Typical view, facing upstream.



Photo 17: Reach 1-TMC1 (June 25, 2024). Typical view, facing upstream.



Photo 18: Reach 1-TMC1 (June 25, 2024). Typical view, facing downstream.



Photo 19: Reach 1-TMC1 (June 25, 2024). Central Mudminnow, caught with backpack electrofisher.



Photo 20: Reach 1-TMC1 (June 25, 2024). Fathead Minnow, caught with backpack electrofisher.



Photo 21: 1-TMC1 Crossing (October 23, 2025). Inlet of crossing, facing downstream.



Photo 22: 1-TMC1 Crossing (October 23, 2025). Inlet of crossing, facing downstream.



Photo 23: Reach 1-TMC2 (October 23, 2025). Typical view, facing downstream.



Photo 24: Reach 1-TMC2 (October 23, 2025). Typical view, facing upstream.



Photo 25: Reach 1-TMC2 (October 23, 2025). Tile drain outlet within Reach 1-TMC2.



Photo 26: 1-TMC2 (October 16, 2023). Typical view.



Photo 27: Reach 1-TMC9 (October 16, 2023). Typical view.



Photo 28: 1-TMC10 (October 16, 2023). Typical view.



Photo 29: Reach 1-TMC11 (October 16, 2023). Typical view.



Photo 30: 1-TMC12 (October 16, 2023). Typical view.



Photo 31: Reach 5-TMC4 (October 16, 2023). Typical view.



Photo 32: 5-TMC3 (October 16, 2023). Typical view.



Photo 33: Reach 5-TMC2 (October 16, 2023). Typical view.



Photo 34: 5-TMC1 (October 16, 2023). Typical view.



Photo 35: Reach 3-SC1 (October 23, 2025). Typical view, facing downstream.



Photo 36: Reach 3-SC1 (October 23, 2025). Typical view, facing upstream.



Photo 37: Reach 3-SC1 (June 25, 2024). Typical view, facing upstream.



Photo 38: Reach 3-SC1 (June 25, 2024). Typical view, facing downstream.



Photo 39: Reach 3-SC1 (June 25, 2024). Brook Stickleback caught with backpack electrofisher.



Photo 40: Reach 3-SC2 (October 23, 2025). Typical view, facing downstream.



Photo 41: Reach 3-SC2 (October 23, 2025). Typical view, facing upstream.



Photo 42: Reach 3-SC2 Crossing (October 23, 2025). Typical view, facing downstream.



Photo 43: 3-SC1 Pond (October 23, 2025). Tile drain outlet connecting to pond.



Photo 44: 3-SC1 Pond (October 23, 2025). Tile drain inlet connecting to pond.



Photo 45: 3-SC1 Pond (October 23, 2025). Pond facing eastwards.



Photo 46: Reach 5-SC1 (October 17, 2023). Typical view.



Photo 47: Reach 5-SC3 (October 17, 2023). Typical view.



Photo 48: Reach 5-SC5 (October 17, 2023). Typical view.



Photo 49: Reach 5-SC4-1a (October 17, 2023). Typical view.

