Submission ID_____

Visual Assessment- High Gradient

New Jersey Department of Environmental Protection
Volunteer Monitoring Program

General Sheet

Site Name: _____ **Site ID:** _____ **Watershed Management Area:** _____

Waterbody Name: _____ **County:** _____

Segment Identification

Beginning at Latitude/Longitude: _____

Estimate of Segment Length (aim for 100m): _____

Survey Team: _____

Time: _____ **Date:** _____

Current Weather: ☐Clear ☐Partly Cloudy ☐Overcast ☐Light Rain
☐Steady Rain ☐Heavy Rain ☐Snow ☐Heavy Snow Melt

Rainfall:
Days since last rain: _____

Air Temperature: _____° C

Water Temperature:_____° C

Water Conditions

Odor:		1. Normal 2. Sewage 3. Petroleum 4. Chemical 5. Anaerobic (rotten eggs) 6. Other
Clarity:		1. Clear 2. Slightly turbid 3. Turbid
Surface Coating:		1. None 2. Oily 3. Foam 4. Scum 5. Other
Stream Flow:		1. Slow 2. Moderate 3. Swift 4. Combination

Stream Characteristics

Stream Width:		_____, _____, _____, _____, _____			
Stream Depth:		_____, _____, _____, _____, _____			
Stream Velocity:		_____, _____, _____, _____, _____ (V=D/T)			
Canopy:		1. Open 2. Mostly Open 3. Partly Open 4. Mostly Closed 5. Closed			
Woody Debris:		1. Abundant 2. Moderate 3. Rare			
Woody Debris:		1. Free floating 2. Attached 3. Both			
Predominant Aquatic Vegetation:		1. Rooted emergent 2. Rooted submergent 3. Rooted floating 4. Free floating 5. No vegetation			
Algae Growth:		1. Abundant 2. Moderate 3. Rare 4. Absent			
Predominant Algae Type:		1. Filamentous 2. Periphyton 3. None			
Litter Concentration:		1. Present 2. Absent			
Structures:	Bridges	Culverts	Dams	Other	

Site Sketch: Include stream flow, roads, sampling locations, riffles, pools, runs, ditches, riprap, outfalls, photo and GPS reference #s

2010-2011

High Gradient Monitoring Sheet

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing upstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORE

HABITAT SCORES	VALUE
OPTIMAL	160 X 200
SUB-OPTIMAL	110 X 159
MARGINAL	60 X 109
POOR	< 60

Assessment Sheet

Streamside Land Use							
	Within 50 ft. of top of bank		Comments		Within 50 ft. of top of bank		Comments
	Left Bank	Right Bank			Left Bank	Right Bank	
Residences				Parking lots			
Maintained Lawns				Athletic Fields			
Construction				Marinas			
Residential Pets&/or Pet waste				Waterfowl (approx. #)			
Dumping				Sewage Treatment			
Commercial				Preserved Open Space			
Roads Paved				Stormwater Basin			
Roads Unpaved				Wetlands			
Agricultural Orchards				Cemetery			
Agricultural livestock use				Recycling/ Waste Facility			
Agricultural Pasture				Industrial Plants			
Agricultural Feed Lots				Mines/ Quarries			
Agricultural Cropland				Other			
Inactive Agricultural Land / Fields				Comments:			
Golfing, Resorts							
Camping							
Swimming / Fishing / Canoeing/boating							
Hiking / Paths							
Horse Trails							

Pipe & Drainage Ditch Sheet

Pipe #	Outfall pipe reference #	Pipe Diameter (in or ft)	Type: 1. Storm Drain 2. Residential Discharge 3. Industrial Discharge (include NJPDES #) 4. Combined Sewer Overflow 5. Other	Pipe Material: 1. Concrete 2. Steel 3. PVC 4. Clay 5. Other	Pipe Location: 1. In water 2. In bank 3. Near water	Pipe Flow: 1. None 2. Trickle 3. Intermittent 4. Steady 5. Heavy	Is stream bank at outfall eroded? (y/n)	Is stream bed eroded downstream? (y/n)
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