

Stream Team Report



Various Streams Marlborough, Massachusetts

Study Conducted April 2010

Compiled by: Priscilla Ryder (with help from Jen Boudrie)

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Introduction

The Stream studies were conducted by Marlborough residents under the supervision of Priscilla Ryder, Marlborough Conservation Officer, with materials and assistance from the Massachusetts Riverways/Adopt-A-Stream Program.

This report covers various stream sections in Marlborough including:

- Stream Study 1- streams flowing into Sudbury Reservoir from the north of Farm Rd.
- Stream Study 2- streams flowing into Sudbury reservoir from the west into Southborough
- Stream Study 3- streams draining into Ft. Meadow Reservoir
- Stream Study 4- streams draining through the Desert Natural Area into Hop Brook

Information for this report was provided by stream team members whose names appear with their reports on the following pages.

Getting Started: Training Residents as Stream Team Observers

Training included an interactive slide show, maps, and stream survey data collection sheets for 12 residents. Training was conducted by Priscilla Ryder, Marlborough Conservation Officer. At this meeting held on March 23, 2010. Four stream areas were chosen and five groups were assigned sections. The study was to be done in April 2010.

Notifying Abutters

The conservation officer, Priscilla Ryder, mailed letters to notify residents and businesses abutting the stream that the stream team would be walking on their property and inviting them to participate in the stream team study.

Publicity

E-mails did go out to former stream team members to invite participation and letters did go to stream abutters to notify them of the study near their properties. No additional publicity of the Stream Team was done this time.

Mapping/GPS/Photos: Detailed stream survey maps were provided to stream team members. The stream team members were instructed to take notes and photos to document their work.

Survey Kits

Each team was provided with:

- Stream section maps
- A copy of letter to abutters
- Shoreline Survey Field Data Sheets

Field Work

Five groups surveyed the streams in April & May 2010

Follow Up: Meeting

The Stream Team reconvened in a follow up meeting on May 18th to report problems (debris/trash, chemical spill), resources (habitat, wetlands) and priorities items to be addressed (debris/trash, chemical spill) to the conservation officer.

Action/Implementation

The conservation officer notified the DPW about the priorities- a summary chart is at the end of this report.

Stream Team Members and Stream Sections Studied

(See maps corresponding to sections at the beginning of each section)

Stream Study 1

Farm Rd. drainage into Sudbury Reservoir

Karen Paquin and Betty Wright

Map sections: **B5, C4, C5, C6, D5, D6, E5, and E6**

(Note: sections A5, B5, B6, C6, C7 and D7 were not done)*

Stream Study 2

Brigham Street

Susan Alatolo and Gary Crossman

Map Sections: **B2, C2, C3, D3**

(Note: sections B4, C3, C4, D4, B5, C5, D5, B6, C6, D6, B7, C7 and D7 were not done)*

Stream Study 3 (two teams)

Intersection of Causeway and Hosmer Streets

Jen Boudrie

Map Sections: **A12, B11, B12** (note: all sections were done)

South of Lake Fort Meadow between Bolton and Hosmer Streets

Frank Bennett and Bill O'Tate

Map Sections: **D06, D09, E05-E09, F04-F07, G04-G07, H06-H07** (note: all sections were done)

Stream Study 4

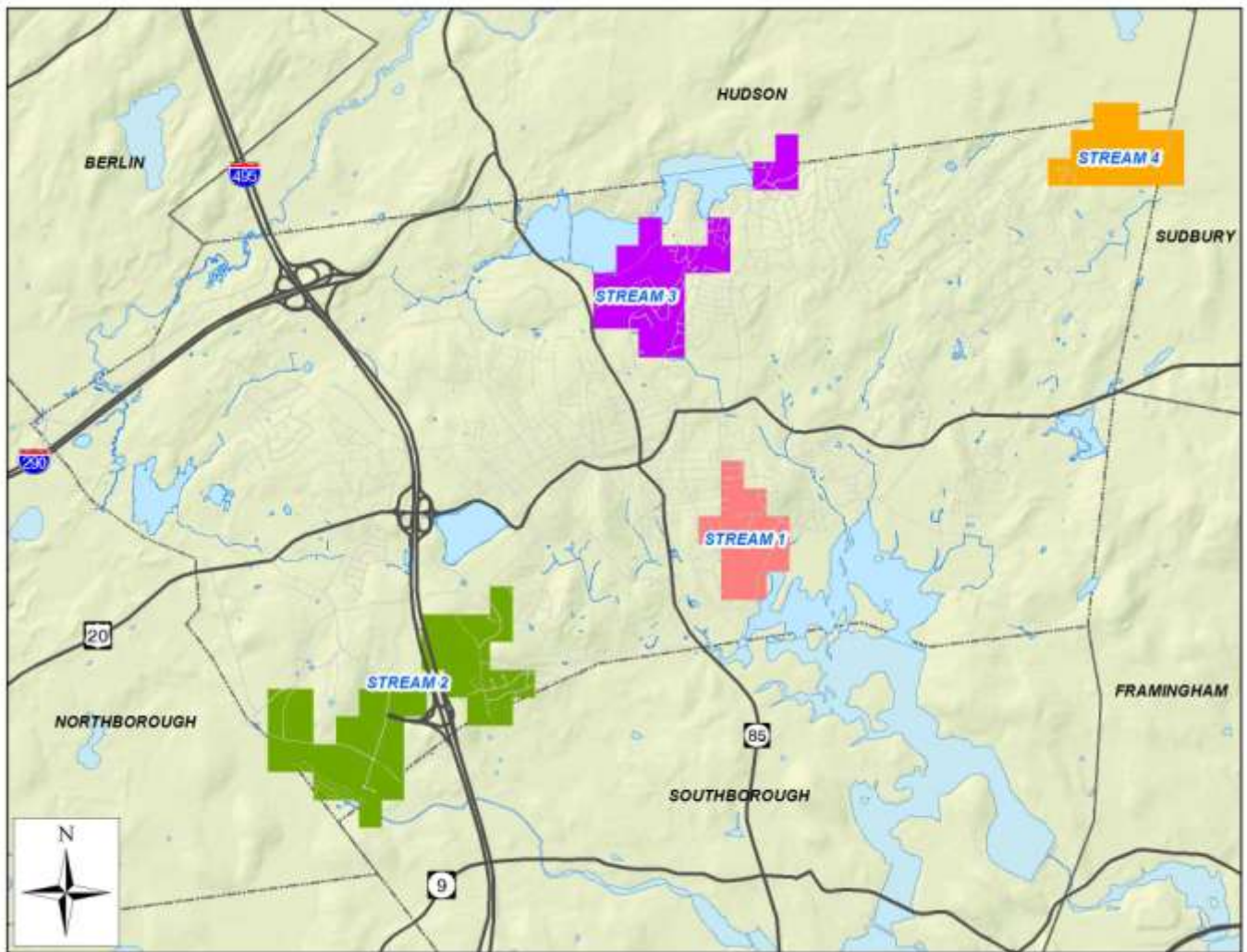
The Desert Conservation Land

Jim Watson, Rich Darragh, Aaron Sypko, Noah Watson, Jane Symes

Map Sections: **C2, C3, B3, B4, A4, A5, B5, B6, B7**

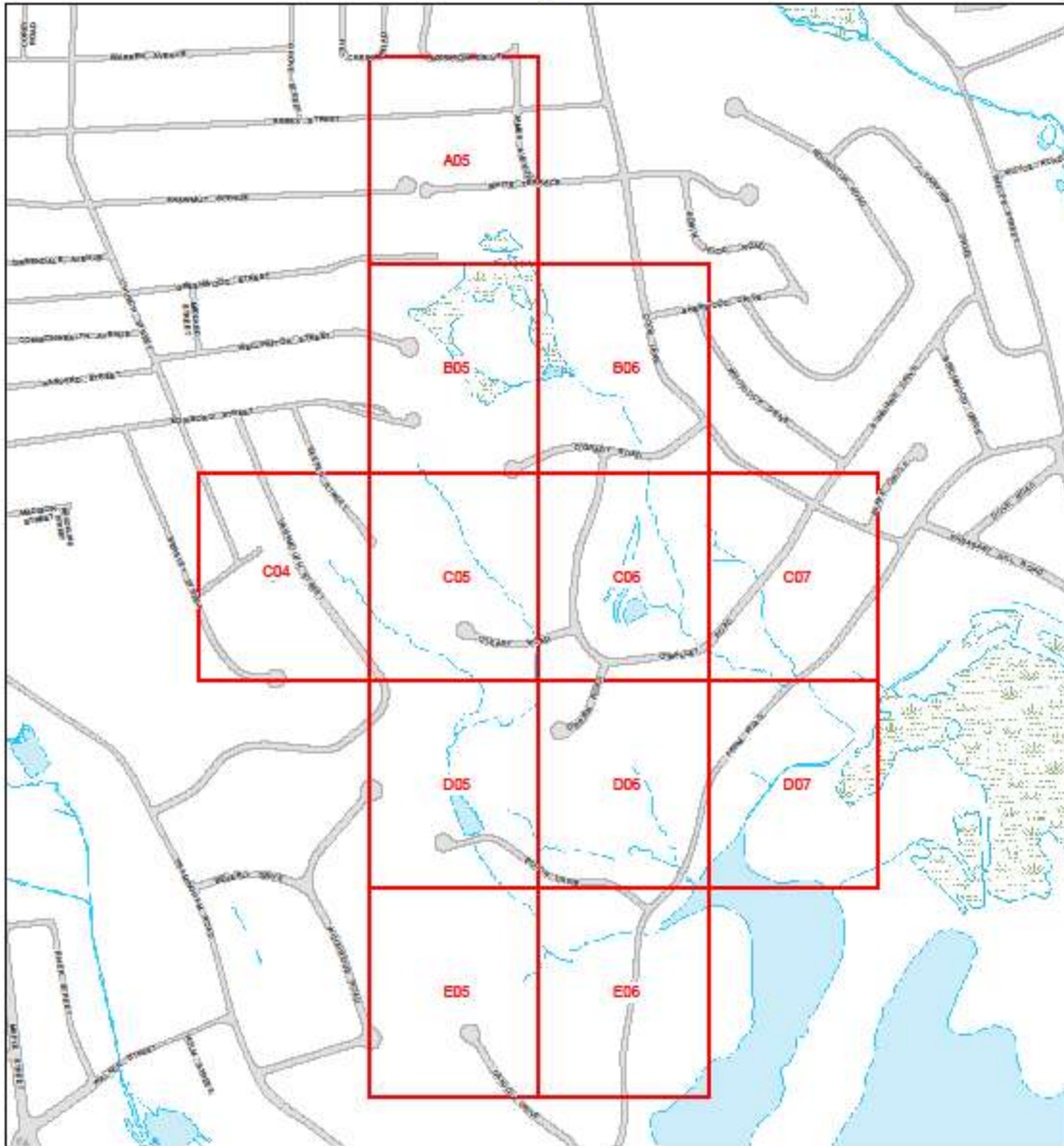
(Note: section C4, C5, C6 and C7 were not done)*

***(please note that on some maps only some sections were completed- The streams sections done are noted on the second map for the section as marked and correspond to the narrative.)**



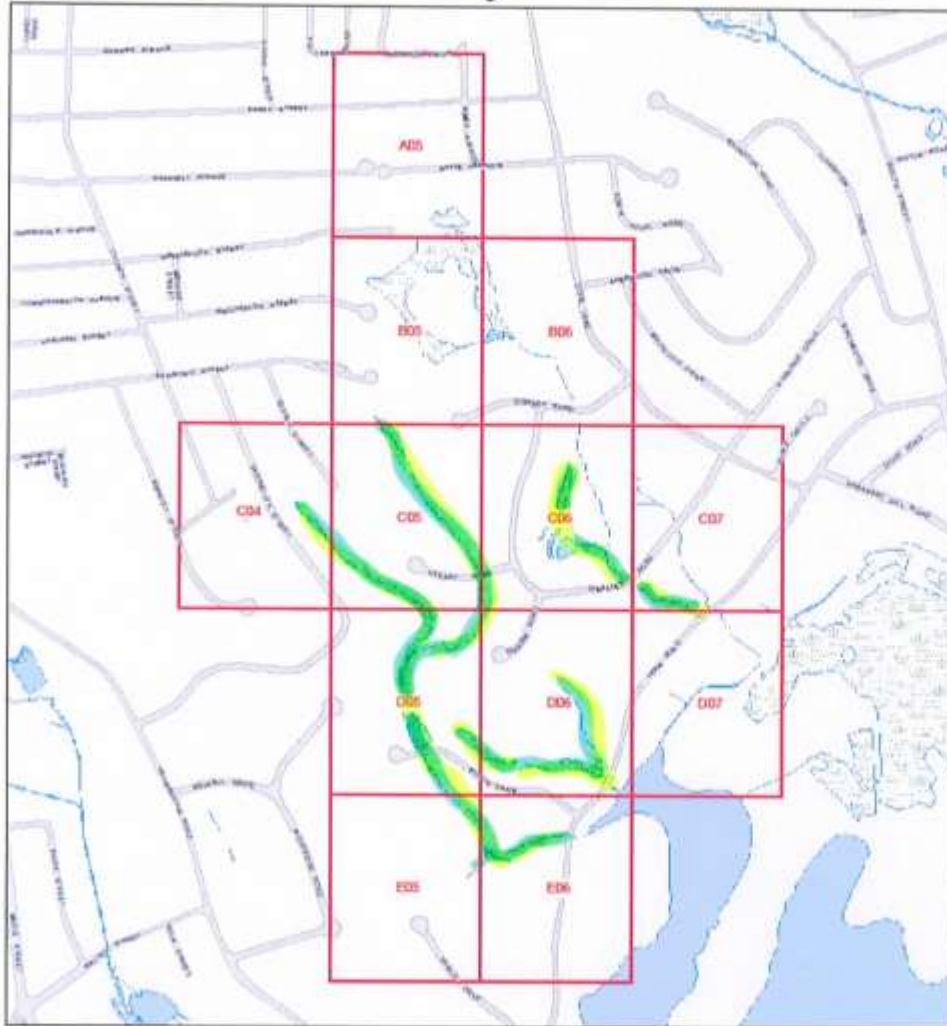


Spring 2010 Stream Study - Stream 1





Spring 2010 Stream Study - Stream 1



 section completed 2010

Stream Study 1

Stream Team: Farm Rd. drainage into Sudbury Reservoir

Map Segments: B5, C4, C5, C6, D5, D6, E5, and E6 (reviewed in two segments)

Stream Team: East branch of westerly (Edinboro Rd. to Boivin Drive)

Map Segments: B05, C05, D05

Dates: May 4th and 11th

Observers: Betty Wright and Karin Paquin

Weather: May 4th – Dry and sunny 80 degrees F

May 11th – Sunny and 58 degrees F

Recent weather: May 4th – No rain except brief thunderstorm on May 3rd

May 11th – Partly cloudy and windy

Stream description:

Edinboro to O'Leary (B05, C05)

O'Leary to Boivin Dr (C05)

Stream bottom: Muddy with organic debris

Organic debris and silt/mud

Water: Rusty colored, <6in. deep

Clear; dry to 6in deep

Flow: Swampy; low flow

Dry to low flow

Gradient: Moderate to flat

Low

Sinuosity: Meandering

Meandering

Habitat: Dry swamp ravine

Wooded; overhanging shrubs;

Wet swamp

swampy in places.

Human activities: Residential

Residential

Riparian area and land use:

Both stream reaches are in residential areas and wooded. Both had areas that are swampy as evidenced by lots of skunk cabbage. Both are great areas for wildlife with wide natural areas (>100 ft of undisturbed woodlands).

Wildlife:

Frogs, snake, deer sign, small mammals including a possible muskrat sighting.

Wildlife habitat:

Fallen limbs and dead trees with some areas of dense shrubs.

Problems: None really – possibly yard waste and compost bins within 30 feet of stream in C05. (Note: It was later determined that 30 feet from the stream is a reasonable location for a compost bin so this was considered not a problem).

Narrative: East branch of westerly stream off Edinboro Street: B05, C05, D05

We entered the east branch of the westerly stream off Edinboro Street down a steep embankment (dry gully) into a dry swamp area. The stream begins from a dry half-dome culvert into an area of



deciduous trees, shrubs and typical herbaceous plants. Walking downstream along the left bank we noted that the water in the streambed is very low and rusty colored but has no odor.



We are in a ravine and the stream is almost stagnant – a swamp. There are quite a few small mammals (one possible muskrat) and many frogs in the puddles/pools – some pools are about 2 foot across and 6 inches deep. In an area near another farmer's stone wall we noted a field of grasses (Carex) – again the area is swampy and there are lots of fallen limbs and logs across the streambed. Along most of the reach abutters can't be seen but as we near O'Leary Street there is an abutter off the right bank about 30 feet from streambed.



In this area the stream volume and flow are greater and there are many overhanging shrubs.



On May 11th we entered the east branch of the westerly stream below O'Leary from O'Leary Street beginning at the stone wall with a large double culvert under the road. (C05) Like the majority of culverts we encountered, this one is cement, in good shape with no obstructions.

The stream reach in this area has lots of overhanging shrubs including barberry.

The stream is small (1-3 foot across and <6 inches deep in most spots) the streambed organic, with low gradient and flow and



becomes swampy in several areas. Further downstream the stream meanders within about 5 feet of an abutter's chain link fence corner and then runs parallel to it for about 20 feet.

We then came to a very swampy area which appears to have been flooded recently and has lots of animal prints in the mud – mostly deer prints.



We hear an unusually high number of bird calls in this area. Further downstream along the left bank an abutter has compost cribs within about 30 feet of the streambed.



As we approach a farmer's stone wall the stream is dry but the streambed is obvious. The stream reach becomes so overgrown in this area that we decide to exit on Bovin Drive,(D05) walk around the eastern edge of the pond and attempt to follow the stream upstream. The stream characteristics in this stretch are similar to the ones described above.

Stream Team 1: Westerly stream off Exeter Street to Sudbury Reservoir

Westerly Stream

Map Segments: **C04, C05, D05, D06, E05 and E06**

Day 1: April 19, 2010

Observers: Betty Wright and Karin Paquin

Weather: Partly cloudy 55 degrees, no precipitation, windy

Recent weather: Light rain and about 50 degrees.

Stream Description:

Stream Bottom: Alternates between cobble/silt where gradient is steeper to mud/silt and organic debris in lower gradient areas.

Water: Clear, no odor. Generally 2-6 inches deep except in pools following culvert where water is at least one foot deep.

Flow: Slight in swampy areas to moderate riffle/run in steeper areas.

Gradient: Flat to moderate.

Sinuosity: Straight to meandering.

Reach: Herbaceous plants, large and small trees and shrubs along various parts of stream.

Habitat:

It is wooded along most of the riparian area with lots of organic materials. Herbaceous plants, with a lot of skunk cabbage in swampy areas, moss and grasses in other areas, lots of shrubs also.

Human Activity:

Roads, Culverts, Homes – stream runs through a fairly heavily populated area.

Assets:

A lovely wooded area with a good wildlife habitat and corridor to Sudbury Reservoir. Stream is in good condition.

Problems:

- There is a corroded metal culvert with a black hose exiting and running in streambed for a great length.
- There is a sewer type pipe in streambed near Farm Road.
- Most of the culverts under roadways are hanging culverts.
- Construction waste along eastern edge of pond in D05.

Narrative: Westerly Stream off Exeter C04, C05, D05, D06, E05, E06

The westerly stream has two branches one beginning west of Exeter Street and the other to the east of Exeter and then flows to the west of the Fay Estates neighborhood, under Boivin and Farm roads into Sudbury Reservoir.



We entered behind 53 Exeter and walked the west branch of the westerly stream and found that the stream in this area can be characterized in the following way: the stream alternated between being swampy and flat, and having a low/moderate gradient. Along the first 200 feet of the stream reach there was a large stone block wall along the right side of the stream with a chain link fence above it. There were homes above the embankment within 15-20

feet of the right stream bank going downstream. Homes on the left side of stream were 50 – 80 feet from stream. As the area levels out the stream becomes swampy with lots of skunk cabbage and the channel is less obvious – there is a farmer's stone wall in the middle. Flow is slight and stream meanders. Surrounding area is wooded and residential.



In the areas where there was a gradient the streambed was cobble and silt mix and the water was clear, about 2-6 inches deep. The level had been higher in the recent past as evidenced by the marks on the bank. The stream was about 2-4 feet wide. Some rocks had algae and moss on them and in parts there was brown, stringy algae in the streambed. The flow was slight in most places with an occasional area where the flow was moderate. The stream meandered. In areas where trees and branches were across the stream the flow was not impeded. The reach habitat consisted mostly of shrubs and herbaceous grasses and plants. The riparian area was wooded. The channels were mostly intact and there was only one small area where the bank was undercut.



In the flat areas the streambed was mud/silt with organic material. The flat areas were wide and swampy –the width of the wet area could be as much as 100 feet. In several areas the stream channel was indistinguishable. There was lots of skunk cabbage and organic debris. The water was less than 6 inches deep and flow nearly still. In areas there was sedimentation and we observed animal prints – specifically deer and bird prints.

Further downstream a small feeder stream joins the mainstream from a half-dome culvert in a hillside– the streambed is riprap from culvert and then cobble. There is yard waste above the culvert and a PVC pipe exiting near back of a home above hay pile.



Just north of O’Leary we came across a cement retaining wall in the middle of the woods with a culvert in it – here the stream goes underground for about 30 feet and exits from a culvert into a large pool.



After flowing through another culvert under a driveway, the stream bottom changes character from cobble where gradient is greater to mud/sand in flatter areas with slower flow and from straight to meandering all through lovely wooded areas. Though there were lots of branches in some portions of the stream, flow was not impeded.



Just north of the pond in D05 we observed a few small patches of oily sheen which appear to be synthetic with no odor. We also noted a muddy area with lots of animal prints. Surrounding the pond in D05 there was quite a bit of construction waste including rusty pipes, PVC pipe and lumber.

On both the upstream and far downstream ends of the pond there was quite a bit of green algae and we did see frogs in the pond.



This photo shows a good example of a hanging culvert exiting the pond and going under Boivin Drive. About 40% of the many culverts we saw along this stream system were hanging culverts. Most culverts were cement and in good shape.



Further downstream we encountered a corroded metal culvert (N 42 20 122 W 071 31 953) with lots of holes in it – the water flowing through it was clear. Coming out of this culvert was a one inch black plastic hose which then ran downstream mostly in the middle of the streambed for a great length (many hundreds of yards) about where the gravel drive near the gated red house is. Also near the gravel drive we found an abandoned cement culvert by the side of the stream.

Across Farm Road on the reservoir side there is a metal or ceramic “sewer” pipe in the streambed – it seems to begin at a substation off Farm Road (E06). We can’t follow the stream into the reservoir this area was far too overgrown.



Narrative- General overview of the area with more descriptive information on flora: Karin Paquin and Betty Wright monitored three Marlborough stream systems all of which start North of Farm Road and end up flowing into the Sudbury Reservoir. There are two big stream systems, in the map quadrants noted above.

The reaches of all the streams North of Farm Road all flow through lovely residential areas, some older, but mostly part of the recent development, Fay Estates. Along their banks are nice deciduous woodlands. The construction of the new residences appears to have disturbed the stream flow. The most notable changes are all the new stream culverts.

Almost all of the water in the stream was clear or light tea colored. As the season went on, there was less and less water in the streams. The bottoms of the streams were organic debris, mud, sand, gravel, cobbles and small boulders. When there was almost no flow, the bottoms had mostly organic debris and mud. When the flow was greater, there were cobbles and small boulders.

Whether the reaches of the streams had gradients or whether the reaches were swampy, tree limbs in them or over them did not appear to affect the flow. Leaves piled up behind them and the water flowed on. In the swampy areas the banks were very low. Where the banks were steeper and the gradient higher, there was some minor undercutting of the banks.



The streams all flow through culverts under the roads. The culverts with one or two exceptions are made of new concrete and are not blocked. About 40% (a guess) were over hanging culverts. As was to have been expected from this, there were no fish. They could not have moved up the overhanging culverts

Every stream had undeveloped wooded riparian areas. These varied from five feet wide to several hundred feet wide. The most common kind of tree in the canopy was Red Maple. Although there were some nice native shrubs, most of the shrubs were invasive, Multiflora Rose, Honeysuckle, Barberry, and Burning Bush. In different places there would be more of one or the other. They often grew over the streams. We saw a lot of the invasive vine, Oriental Bittersweet. There were far too many invasives to eliminate them. Skunk Cabbage was ubiquitous in the swampy areas. Moss and grasses were very common on the banks and in the riparian areas. Marsh Marigolds were a real treat. In a few areas there were very nice, not particularly common, plants like Golden Ragwort and Turtlehead.

We heard or saw mostly Red Bellied Woodpeckers, Robins and Crows. Later in the season we were treated to Grackles, Red Winged Black Birds, Catbirds, Orioles, Scarlet Tanagers, Wood Thrush and Yellow Throated Warbler. Our first day out we were treated to White Throated Sparrows. We saw an assortment of animal prints where there was mud along the banks. Most of these were deer tracks. Others were the prints of smaller animals. We, of course saw a chipmunk and squirrel or two.

In a pond at the top of Boivin Drive we saw no Wood Frog eggs or other signs of vernal pool activity. We saw a lot of algae in the pond though and also above the pond. On 5/4 we took a picture of a Wood Frog in the stream that begins in B05 and flows to O'Leary Road. On May 31, Betty Wright found the ponds in the center of C06. Based on general habitat and abutter information she is quite sure some if not all of these are Vernal Pools. Wood frogs quack in spring.



All of the streams had assorted trash near them. North of Farm Road, cleaning up this stuff would be an easy job for two or three people or an excellent scout project. In a few places people had carried in sheets of plywood and made bridges. These, of course, would be more difficult to remove. In several places people had dumped their yard waste. As was to have been expected, the worst trash and invasives were around Farm Road. That area needs a lot of work. South of Farm Road there is a lot of old trash. We found one area we will detail separately which was terrible - how else do you describe a rusted truck.

Off of Farm Road, we encountered two new invasives, Creeping Buttercup and, more upsetting, Cypress Spurge. The latter, I am told is extremely difficult to control because it exudes latex that irritates the skin.

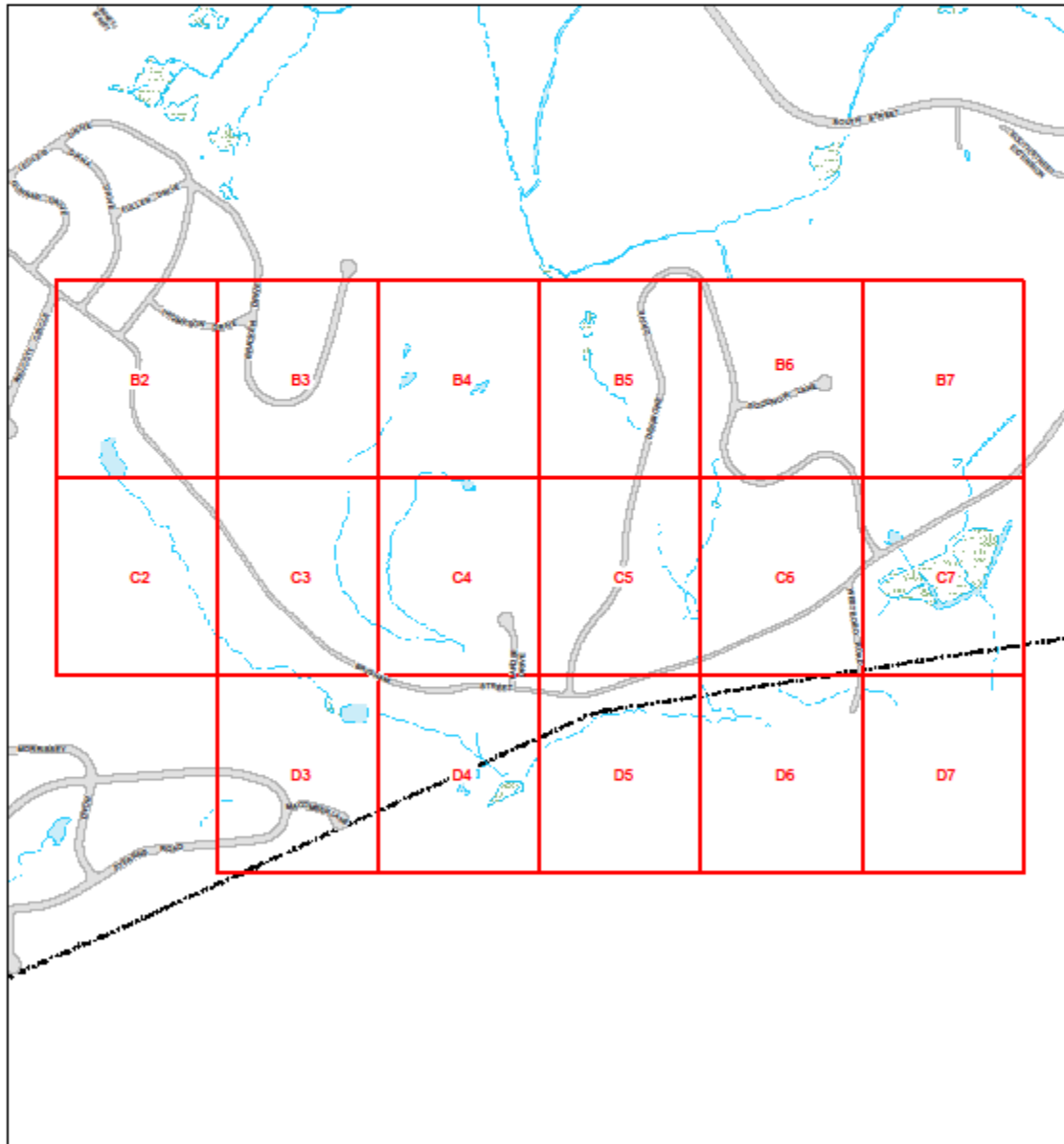
In a few small places we found tiny bits of oil (see later in our reports). We encountered no odors. We saw no industrial waste or gross deposits like market carts. There was no sign of sewage. There was nothing to be really upset about anywhere along the streams except for the areas South of Farm Road.





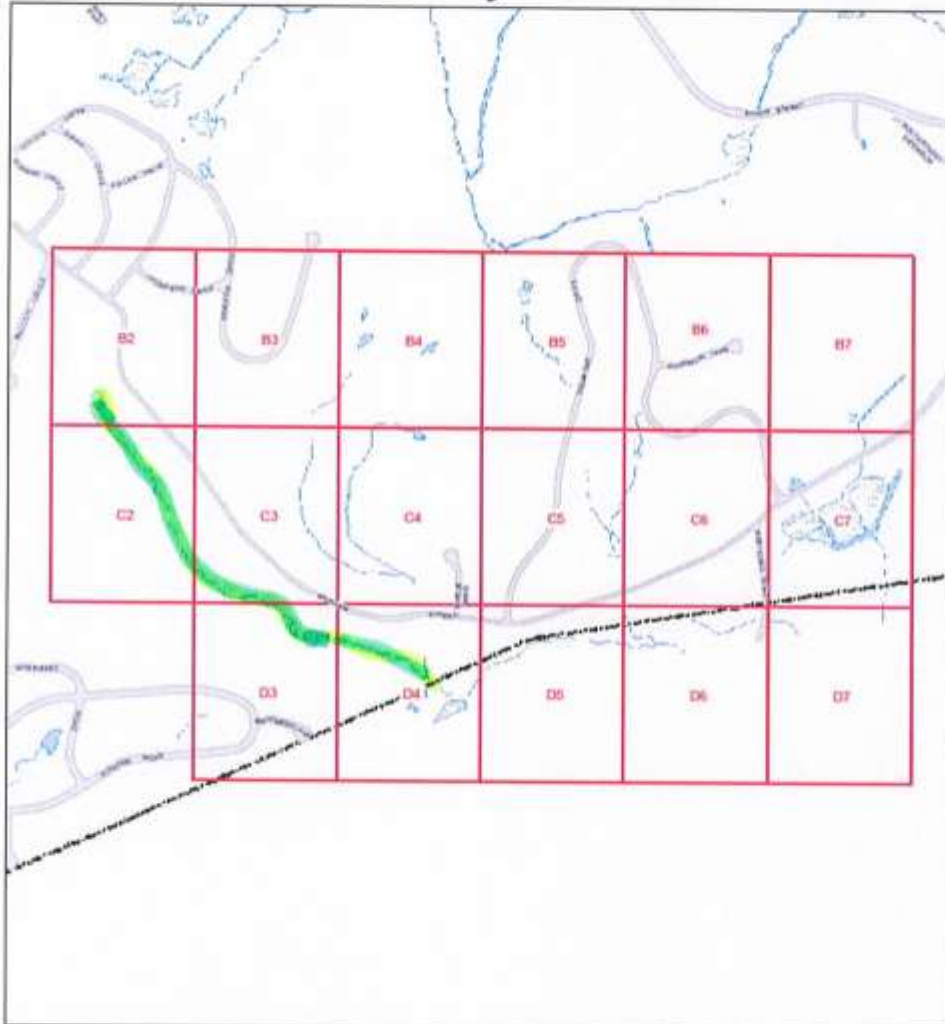
Spring 2010

Stream Study - Stream 2





Spring 2010 Stream Study - Stream 2



 Section completed 2010

Stream Study #2

Stream Team:

Map Segments: B2, C2, C3, and D3 (south of Brigham Street)

Date: May 16, 2010

Observers: Susan Alatalo, Gary Crossman

Weather: Sunny and clear

Recent weather:

Stream Description

Stream bottom: Muddy and silty at ponds, stream mostly

Water: murky color in pond

Flow: Beaver dam is blocking flow below pond, and then it picks up again slow trickle

Gradient: Some gradient after leaving Jericho Hill pond to the next pond

Sinuosity: Stream does meander through wetlands between ponds

Reach:

Habitat: Pond areas are open. Between ponds is swampy wooded area with overhanging vegetations.

Human Alterations: Both ponds appear to be man made or man altered. The stream below Jericho hill flows through woods then lower on Brigham St. the stream is in the back yards of homes and flows into the second pond.

Riparian Area and Land Use: Open recreation area at Jericho Hill then woods and back yards

Recreation: Recreation at Jericho Hill, otherwise just woods and stream

Wildlife: Lots of beaver activity, fresh scat seen, bull frogs and orange butterflies seen

Wildlife Habitat: Nice wooded wetland areas between open ponds, good undergrowth and overhang over stream along most of stream.

Problems: Beaver activity blocking outlet from Jericho Hill Pond.

Narrative

Grid B2- The pond in B2 is fairly clean looking with much pollen afloat. It is located in a heavily wooded area by a steep hill located behind basketball court on Brigham Street. Next to the court is a small parking lot lined with a guard rail along the very steep incline which is covered in heavy vegetation. Along the ravine is a fair amount of trash such as discarded cans. There was a fresh hole about 2 inches in diameter in the leaves located several feet away from the shoreline in the wooded region. There was fresh scat, appearing to consist of vegetative matter. Teeth marks on downed trees indicated beaver. There are skunk cabbage, poison ivy and thick leaves.

Around the larger portion of the pond is overhanging vegetation. A large area of the pond is wet mud. The water shows a brownish, murky color and moderate organic material.

A pipe, 15" in diameter, enters Jericho Pond but is dry. Through the mud a small stream rapidly trickles and enters the pond, entering a rectangular pipe about 22" x 22" which flows underground, under the flat portion

of the ski area. When standing on raised cement platform one hears running water below in a deep drain. Around the grates, beavers have evidently gathered brush around the sources of running water sounds.

A bull frog was heard and orange butterflies of different sizes were flying about. There is a new chain link fence with gate on both sides of Jericho Hill, by the culverts. Playground equipment and Recreation Department clubhouse are neat and clean. The front field is trimmed; it is a large field in front of the ski slope. The ski lifts are no longer there.

On other side of flat, freshly mowed area, at left as facing ski slope, water is not visible beyond fence. It appeared quite dry. There were signs of past beaver activity, but not recent.

Grid C2, C3 and D3- At Jericho Hill’s parking lot in C2 near C3 there is a square drainage grate by a new overhead street light. Much pine needle mulch has been deposited here. There are bamboo-like stalks growing here.

According to GIS map, the stream travels in a wiggly line through thick woods behind several houses on Brigham Street, through C-3 and D-3 to a pond larger than the large house in D3. A man made pond is located behind the house. Homeowner said house was built around the 1960’s. According to him, a concrete basin was built to help create a small pond, formed after a dam was built. Al Brigham’s father constructed the pond after fire took down one of the Brigham barns “a long time ago.” He was farmer/beekeeper living in a yellow house two houses down in D-4. The pond is about 18” at deepest. Homeowner said that this is the deepest it gets and by midsummer it will be a very small body of water. An otter, muskrat or beaver swam towards the house with a branch in its mouth.

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Photos provided by Susan Alatalo & Gary Crossman

Pond at Jericho Hill with pollen (B2)

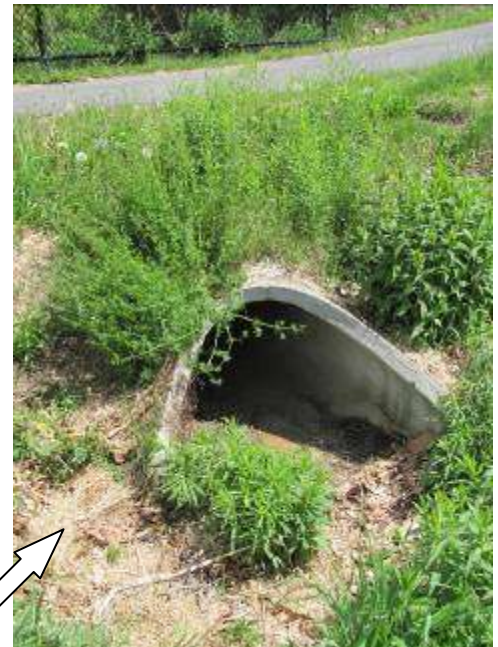
Pond at Jericho Hill (B2)



**Beaver
activity at
pond at
Jericho Hill**



Jericho hill pond outlet



Culvert from field below sledding hill

Pond at D3- built by Al Brigham

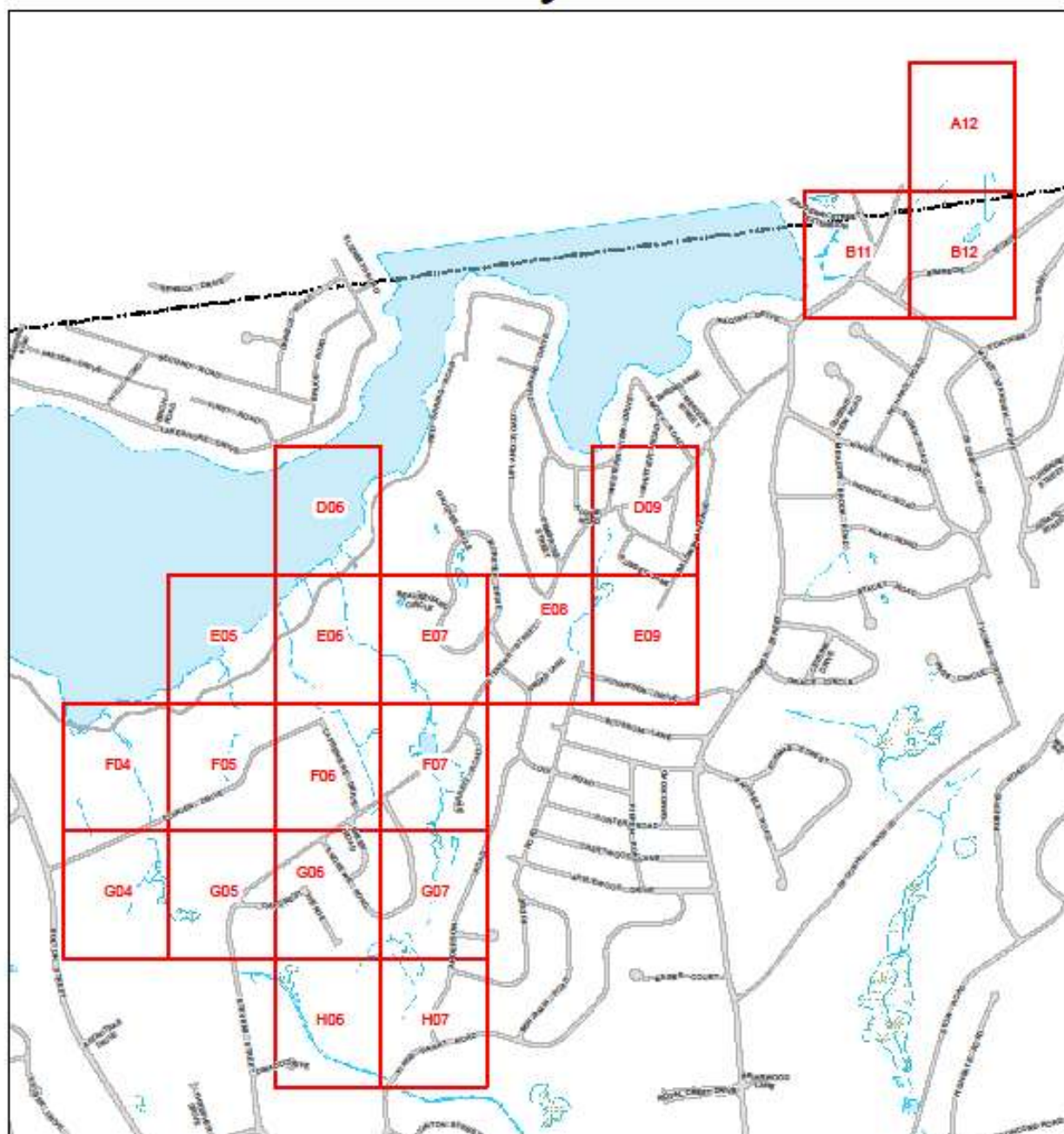


Jericho hill parking lot drainage surrounded by Japanese knotweed.



Spring 2010

Stream Study - Stream 3



Stream Study 3- All the streams in the grid were walked by two separate teams and produced 4 separate reports to follow each distinct stream section.

Stream Team: Intersection of Causeway and Hosmer Streets

Map Segments: A12, B11-B12
Date: April 11, 2010
Observers: Jen Boudrie
Weather: Sunny, warm, 65 Fahrenheit
Recent weather: Same as recent days, but last week was a 50-year rainstorm and streams were higher than usual (they are usually low).

Stream Description

Stream bottom: Sand, organic debris
Water: Clear water. Depth was 2-8 inches.
Flow: Fast, moderate
Gradient: Moderate
Sinuosity: Straight, some meandering
Reach: Moderate flow

Habitat

Large and small woody material, small organic materials, undercut banks.

Human Alterations

Roads, parking lot, residential area.

Riparian Area and Land Use

The banks are moderately undercut in some areas. The stream has a moderate gradient with a moderate flow. Near the stream are wetland areas and small woodlands. Tree coverage is 10 -100 feet on left and right banks between the streams and the roadways. Visible land uses are residential areas (houses), wetlands, and wooded areas. The area described is near Causeway and Hosmer Streets.

Recreation

Nearby is Fort Meadow Lake but it is not visibly connected to the streams studied.

Wildlife

Frog, tadpoles
Garter snake
Birds: chickadee, downy woodpecker, flicker, redwing blackbirds
Old beaver chews near Causeway Street Extension

Wildlife Habitat

Trees, standing dead trees, fallen limbs, scattered rocks and boulders, brambles, springs, seeps

Problems

B11 Vodka bottle dumping and a clogged culvert.

Assets

Wetlands and woodlands

Priorities

Investigate vodka bottle dumping and unclog culvert where the stream flows under Causeway Street Extension.

Narrative B11 – Memorial Beach Parking Lot Area



A short stream starts under Hosmer Street, flows by Memorial Beach parking lot and empties into a wetland east of Causeway Street Extension. The culvert under Hosmer Street looks OK, but there is an unknown 1" pipe in middle of stream nearby (photo left).

There is some dumping in the stream (photo right) and in the parking lot.



The stream flows under Causeway Street Extension Road but the culvert is obviously clogged. The top of the culvert is visible (below left) on one side of the road, but not on the other side (below right).



At this same location on Causeway Street Extension there are 75+ countable vodka bottles (photo left) likely tossed there by a passing driver from the nearby road. This was reported to the police & conservation department.

While I was walking from this location to the other side of Hosmer Street, there were four young boys amiably walking down Hosmer

Street with fishing poles and a wagon hauling their cooler. They had just caught five sun fish and three perch in Fort Meadow Lake.

A12, B12 East Side of Hosmer Street near Causeway Street junction



On the east side of Hosmer Street near its junction with Causeway Street is a woodland and wetland area.

What seems to be a 7ft high deer fence is erected between Hosmer Street near the red fire hydrant and the pond (photo left) in B12. The fence is about 800 feet long.

The stream water through the wetland was running clear and I saw no signs of beaver activity. (photo below)



There was some discolored stagnant water in the woods below the old house at the end of the long drive way. It was hard to tell if it was road run off or natural discoloration. It was a bit milky in one area and greenish blue in another.



Otherwise the woodland and wetland area seemed fine and looked like a good habitat.

In addition to photos Jen Boudrie took (above) Frank and Bill also visited this area and added these additional photos and comments as marked below)



Area B11

Small pond between Hosmer St and the Memorial Beach parking lot. Pond water appears to overflow or leak onto parking lot, creating unusually colored wetness.



Area B12

fence surrounding property near pond



NE Marlborough Stream Study - Unnamed Stream # 1
GPS Map Sections G05, G04, F04
(*Note: each colored section of the walking stick shown in
any of the photos, is 1 foot)

Map Segments : G05, G04, F04
Date(s): April 13, 2010
Observers: Frank Bennett and Bill Tate
Weather: cloudy, some sun, 45 - 50 degrees F
Recent Weather : one week after record rainfall

Stream Description:

Stream bottom: usually hard packed sand, some muddy areas, stones/rocks prevalent too.
Water : usually clear, 3 inches to 1.5 ft deep, Water level seemed normal.
Flow: generally slow moving with some areas of rippled flow
Gradient: slight
Sinuosity: mostly meandering one short stretch channelized
Stream Width: 2 - 6 feet
Reach: abundant vegetation: trees, bushes, low plants (abundance of skunk cabbage)

Habitat:

Small woody and organic material, usually small low banks on both sides of the stream.

Human Alterations:

The area is abutted by a large housing development.... numerous examples of yard waste (grass clippings, leaves, tree branches) build-up at edge of woods and wetlands.

Riparian Area and Land Use:

As mentioned, the area is surrounded by a large housing development. Most of the area on the stream banks is wooded, with trees about 20 - 150 feet on either side. Visible land uses include large houses, well kept yards and lawns, wetlands and wooded areas.

Recreation (None)

Wildlife:

ASSETS:

naturally beautiful area

PROBLEMS:

Some debris buildup in pipes and culverts

PRIORITIES: clean up litter near backstop area of softball field



Area F04

Off of Poirier Drive and running parallel to MHS softball field. Stream dissipates after 75 yards, at edge of field and wooded area





Areas G04 & F04

Flowing from wooded area toward
culvert on Poirier Drive about halfway
between MHS softball and field
hockey fields, and then onward to
Fort Meadow



stream flow out of culvert towards Fort Meadow



... through wooded area ...



.....beneath MHS Path (connecting softball & field hockey fields)



...water exiting beneath path



... through wooded area



... beneath Red Spring Road



.... and into Fort Meadow .

Areas F05 and E05

from Poirier Drive (just before MHS building) to Fort Meadow



*** Tarred stream bottom ***

from Poirier Rd to footpath leading to softball & Field hockey fields.



...stream flowing through wooded area towards Fort Meadow gradient became steeper.....



E05

.....washed out areas (due to recent heavy rainfall ????)



..... leading to culvert on
Red Spring Road



.... other side of culvert ... leading to Fort Meadow . The large stones apparently on the stream bed, were actually cemented into a large piece of concrete . *** NOTE how the base has been washed out !



NE Marlborough Stream Study - Fort Meadow Streams

April 13, 2010

GPS Map Sections F06 & E06

&

H07, G07, F07, E07, and E06 (Holt's Grove Stream)

(*Note: each colored section of the walking stick shown in any of the photos, is 1 foot)

Map Segments : F06, E06, and H07, G07, F07, E07, and E06

Date(s): April 13, 2010

Observers: Frank Bennett and Bill Tate

Weather: cloudy, some sun, 45 - 50 degrees F

Recent Weather : one week after record rainfall

Stream Description:

Stream bottom: usually hard packed sand, stones/rocks prevalent too.

Water : usually clear, 3 inches to 1 ft deep, Water level seemed normal.

Flow: generally slow moving with some areas of rippled flow

Gradient: slight, but drops just before Red Spring Road

Sinuosity: mostly meandering

Stream Width: 1- 6 feet

Reach: abundant vegetation: trees, bushes, low plants (abundance of skunk cabbage)

Habitat:

- Small woody and organic material, usually small low banks on both sides of the stream. Evidence of strong water flow (stream bank erosion) during recent heavy rains.

Human Alterations:

- The area is abutted by MHS at the beginning (Area F06) ... and small homes at the end (off of Red Spring Road - Area E06)

Riparian Area and Land Use:

- Most of the area on the stream banks is wooded, with numerous downed trees No discernible land uses to mention other than already stated.

Recreation

- school athletic fields nearby .

ASSETS:

- naturally pretty area

PROBLEMS:

- Good amount of litter bordering rear MHS parking lot, and also washed into wooded area cans, bottles, beer packaging, tires

PRIORITIES:

- Clean up litter in area F06 behind school parking lot.
- Clean up litter **IN** and around Holt's Grove (Pond).
- check out discolored stream bed (Area E06) as it enters Fort Meadow off of Red Spring Road.

Area F06

... stream beside MHS (rear) Parking Lot ...

corner of Andrews Rd, & Stevens St.
(across from rear of MHS parking lot)



#



... behind MHS parking lot



Area E06

... leading away from parking lot ... through wooded area ... towards Fort Meadow ...



... huge uprooted tree ...



... stream enters culvert on Red Spring Road



... exit side - *** NOTE large rocks cemented to concrete base and washed out stream base .



... continues to Fort Meadow.

* Owner (photo left) was pumping water into stream. Stream bed became discolored, although water out of hose seemed clear ..



... hose was attached to a pipe coming out of the ground



Areas H07, G07, F07, E07, E06, and D06 (The Holts' Grove Stream)

... Area H07 - not far from Anderson Rd. ...



...continuing on and behind Andrews Road ... Area G07



..... into Area F07
not far from the end of
Barrett Road



... and into the culvert
beneath Stevens St.





.... stream exits culvert and empties into Holt's Grove (Pond)



... water level of pond seemed about 2 ft. lower than "water stain" on concrete "dam" ... one side of concrete structure appeared washed out by earlier rainy period and remedied by sandbagging also abundant plant growth covering water's surface ... much litter as well ...



..... heading away from pond (Area F07) and entering wooded areas E07 and E06



Holt's Grove (Map F07)

exit pipe from pond (small fish spotted in water) trash & algae at pond's edge

dam's edge sandbagged to fill washout eggs in stream that leads away from dam ...



Marsh Marigolds (bottom left) found in areas G04 & G07

Jack-In-The-Pulpit (?) found in area D09



...continuing through woods and into culvert under Red Spring Road... then onward to Fort Meadow .



NE Marlborough Stream Study - Fort Meadow Streams
(April 21, 2010)
GPS Map Sections H06, E07, E08, E09, & D09

(*Note: each colored section of the walking stick shown in any of the photos, is 1 foot)

Map Segments : H06, E07, E08, E09, D09
Date(s): April 21, 2010
Observers: Frank Bennett and Bill Tate
Weather: sunny, 50 - 60 degrees F
Recent Weather : two weeks after record rainfall

Stream Description:

Stream bottom: usually hard packed sand, some muddy areas, stones/rocks prevalent too.
Water : usually clear, 3 inches to 1 ft deep, Water level seemed normal.
Flow: generally slow moving with some areas of rippled flow
Gradient: slight ... except at culvert at end of Ridge Rd. (steep) E08
Sinuosity: mostly meandering ..
Stream Width: 1 - 6 feet
Reach: abundant vegetation: trees, bushes, low plants (abundance of skunk cabbage)

Habitat:

- Small woody and organic material, usually small low banks on both sides of the stream.

Human Alterations:

-Homemade catchment basin and pipes from some homes to stream (E08,E09,D09)

Riparian Area and Land Use:

- areas (H06, E07, E08, E09, D09) are either bordered or surrounded by homes

Recreation - tarred path through area H06

Wildlife:

Although actually not seeing any, did hear birds chirping..

ASSETS:

- naturally beautiful area

PROBLEMS:

- Some stream bed erosion (E08)

PRIORITIES:

- clean downed trees at culvert opening & clogged culverts on Kings Grant Road. (H06)
- check out cracked culvert encasement at end of Ridge Road (E08)

Area H06



Just outside Area H06 (culvert beneath Stevens St., leading from Middle School) and going to Kings Grant Road (Area H06)



Stream follows adjacent route beside tarred path, which runs from Stevens St. (near Middle School) and eventually enters two clogged culverts on Kings Grant Road.



Area E07 (Worster Drive)



Two small pools (vernal ?) located on Worster Drive.



Areas E08, E09, and D09



Culvert in Area E08, at the very end of Ridge Road, and the cracked cement encasement covering. Steep gradient.

evidence of bank erosion after recent heavy rains ... stream continues past backyards on Stevens St. some green algae in the water at this point



... stream empties into a privately constructed, backyard catchment basin on Stevens St. (directly across from Western View Drive).



Red Spring Road (Map - E05 & E06)

stones on concrete bed end of 20 ft. long bed
has been washed out



same area (below) washed out stretch of stream just before Red Spring Road



same area (below) ... animal prints



These are final pictures the first 4 that go with A12 section (note the strange device below is a beaver deceiver to help keep beavers from over flooding an area). The algae in the bottom frames will continue to be monitored to determine what is the cause of this growth) in section H06.



Area A12

stream from pond (B12) runs into wetland



strange device and headless crow found in the wetland



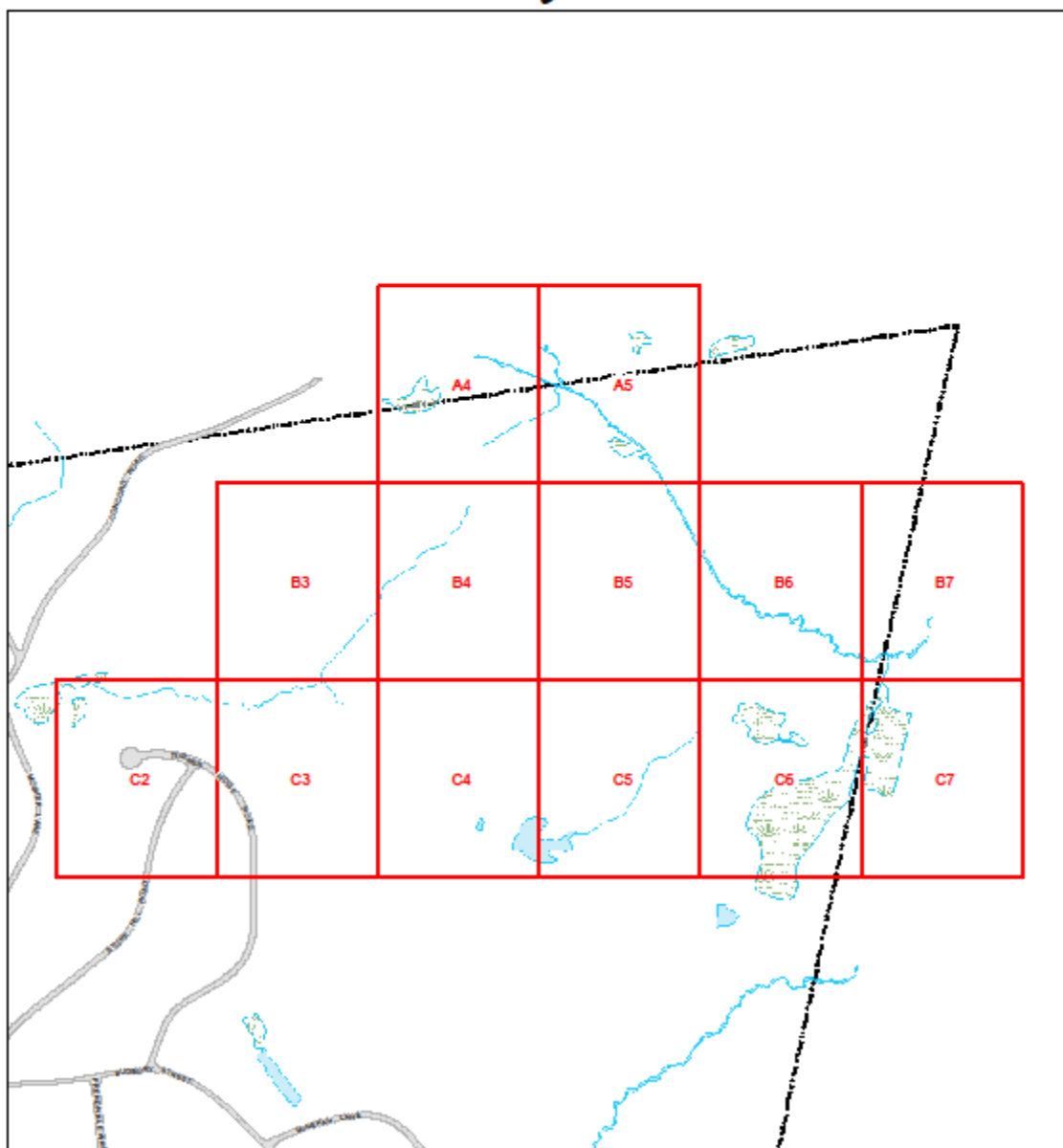
Area H06 (stream from Stevens St to Kings Grant Rd.) long stringy algae





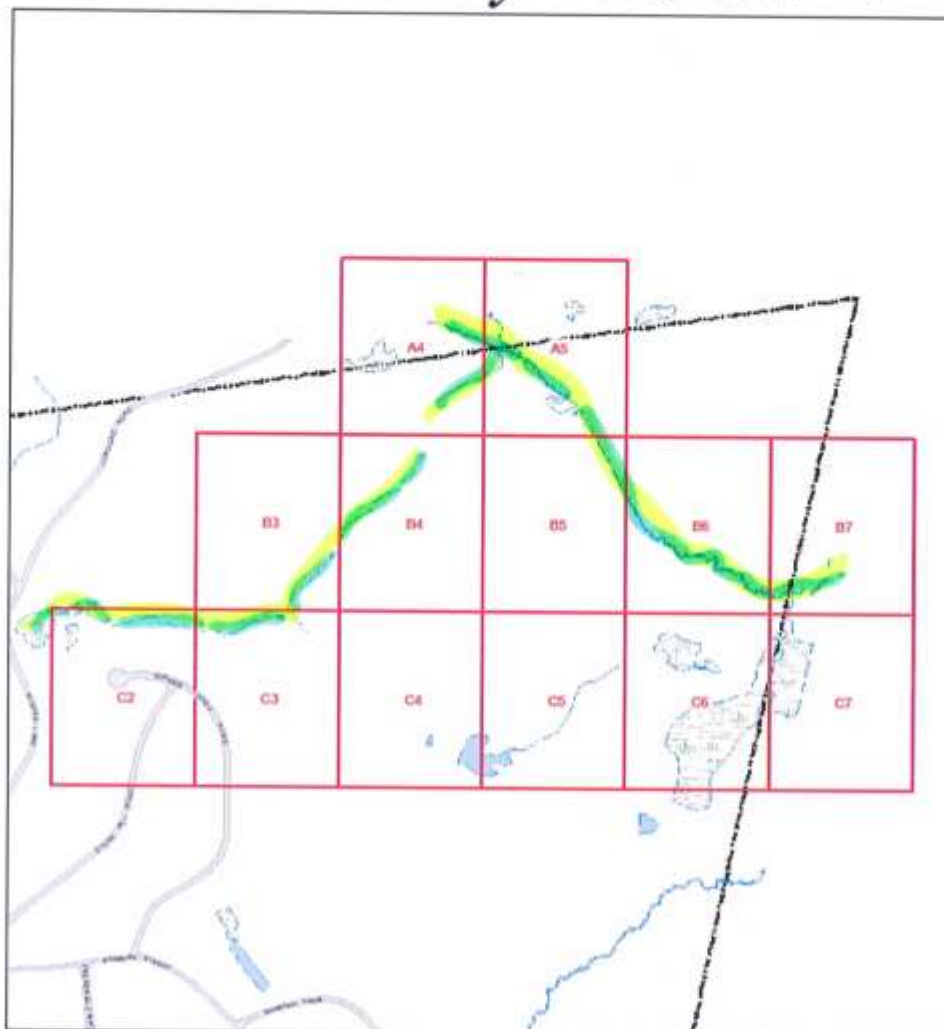
Spring 2010


Stream Study - Stream 4





Spring 2010 Stream Study - Stream 4



 Section Completed 2010

Stream Study Area #4

STREAM TEAM SURVEY: "THE DESERT NATURAL AREA"

Map Segments: C2, C3, B3, B4, A4, A5, B5, B6, B7

Date: 4/25/10

Observers: JIM WATSON, RICH DARRAGH, AARON SYPKO, NOAH WATSON, JANE SYMES

Weather: Cloudy to partly sunny temps 50's to 60's

Recent weather: Has been dry, but some areas were subject to heavy flooding from March rains

Stream Description: Stream bottoms in all areas surveyed very sandy, but could see a layer of clay loam down to first few inches.

Water: Overall very clear, fast moving flowing, depth ranged anywhere from 6" to 12"

Flow:

Gradient: In the C2 through A4 area there was a good gradient of about 5 to maybe 8 degrees, in the A5 B6 area the flow was a bit slower due to a more even gradient maybe a degree or two.

Sinuosity: Both streams surveyed varied from some even stretches to some areas of heavy meandering

Habitat: In the areas of C2 through A4 we had swampy to heavy forest, with good understory, areas of maple, ash, beech leading into some heavy pine stands toward A4 through B6 near the SVT land more open very shady soils. Soils changed from good clay loam to sandy areas.

Human Alterations: Small parking area near Concord Rd. and trail head. Human interaction along Old rail bed and pipe line to include ATV use.

Wildlife: Many sign of turkey, coyote, deer, frogs, snakes (King), myriad of good bird life as well

Wildlife Habitat: Wooded forest pine, pitch pine and Red Maple swamp dominate, lots of wildlife. 300 acres of land surrounded on three sides by subdivisions- none close to streams

Problems: ATV activity seems to be the only problem in this area.

Narrative (by Priscilla Ryder)

Stream C2 through A4 flows to the right (south) of the Old Concord Road trail of the Desert Conservation Land then crosses the roadway around B4. Some large sewer pipes are on the right just as you enter the trail beside a large swampy area and the trail head parking lot. The stream starts from the wetland near the parking lot on Concord Rd. and flows through the woods until it crosses Old Concord Rd. The roadway has recently been repaired where the stream washed it out. The stream has a bit of a gradient at this location and heads north to A4 and connects with a stream flowing in from Hudson. This area is a large swamp created 10-12 years ago by the beavers in this area.

The stream A-4 to B7 has been impacted by beavers quite a bit with remnants of dams all along this section of the brook. Some areas are thick woods; others are more open swamp areas where beavers have changed the landscape.

No photos provided.

Stream Team Spring 2010 - Action Report by Priscilla Ryder, January 2011

The following action items are listed in the Stream Team Spring 2010 report. Each item is listed and the stream section and who the issue was assigned to as noted. As items are resolved Ms. Ryder will update the status of each.

Various streams in Marlborough (please refer to maps in the report)

Stream section	Problem Identified	Assigned to:	status
Stream 1			
Section: D-05	The corroded metal culvert with black hose exiting and running in streambed for a great length. . Construction waste along eastern edge of pond in D05.	Conservation Commission will investigate these pipes and determine if they are a hazard. If so efforts to have them removed will be taken.	
Section: E06	Sewer type pipe in streambed near Farm Road	Conservation Commission and DPW will investigate	
Sections:C6,C5,	Hanging culverts- most of the culverts observed in this section have hanging culverts	Conservation Commission is now aware of this, when repairs are made to these structures – this will be addressed.	
Stream 2			
Section B-2	Beaver activity at Jericho Hill pond outlet	Conservation Commission to investigate and work with DPW	DPW notified in summer 2010, clogged outlet was addressed. Ongoing monitoring needed to resolve problem.
Stream 3			
Section: B-11	Vodka bottles dumped next to Causeway Street Extension at brook crossing.	Conservation Commission to follow up with cleanup and if continues contact police again.	
Section: B-11	Unclog culvert where stream flows under causeway street extension	Conservation Commission and DPW	Beaver activity was found in this area, and the beavers have been actively clogging the culvert. In Fall 2010 DPW did some unclogging, this will need to be monitored regularly- as the beavers can be persistent. A beaver

			pipe may be needed if the problem persists.
Section: F-06	Debris and trash behind high school parking lot in stream and flowing down hill	Conservation Commission will add this to the Clean Sweep list of areas to be cleaned up.	
Section: E-06	Discolored stream bed	Conservation Commission will investigate	From the photo this looks like iron loving algae, which is a natural byproduct of high iron content in the water. Not usually a problem, it just looks bad.
Section: F-07	Holts grove pond- trash and debris in and around pond	Conservation Commission will investigate	In summer of 2010 the dam and outlet structure of the pond was repaired, the pond was cleaned of debris and the slopes were stabilized. Ongoing cleanup and maintenance will be needed in years to come.
Section: H-06	Bank erosion with deep cuts along stream bed	Conservation Commission will investigate to determine if there is some way to curb the erosion- work with DPW	
Section: H-06	Clear downed trees at culvert opening and clogged culverts at Kings Grant Rd.	Conservation Commission will work with DPW to address	
Section: E-08	Check out cracked culvert encasement at end of Ridge Road	Conservation Commission to work with DPW to investigate	
Stream 4			
All sections with trails	ATV activity through some of the trails near the brooks	Conservation Commission will investigate	Commission contacted state environmental police in summer 2010, investigation and enforcement is underway.