

DANBURY BRANCH IMPROVEMENT PROGRAM TASK 5

ENVIRONMENTAL TECHNICAL MEMORANDUM

STATE PROJECT 302-008



SECTION 8: FLOODPLAINS AND FLOODWAYS

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SECTION 8. FLOODPLAINS AND FLOODWAYS

INTRODUCTION

This section discusses floodplains, floodways, and stream channel encroachment lines in the study corridor. Floodplains are flat or nearly flat areas adjacent to rivers or streams that are inundated occasionally or periodically by flood waters. Floodways are located within floodplains and consist of the river or stream channel plus any portion of the floodplain which carries stream flows during flood events. Floodplains and floodways are important nation-wide for handling and holding floodwaters, so that adjacent properties and downstream areas are not damaged by floods. Stream channel encroachment lines are jurisdictional boundaries established by the State of Connecticut.

Regulatory Context

The federal and state laws that will govern the project's effects on floodplains, floodways, and stream channel encroachment lines (SCELs) are described below. In most situations, restrictions on development and other activities apply to floodways and to floodplain areas known as 100-year floodplains. These are floodplains where flooding might be expected, on average, once every 100 years.

The National Flood Insurance Program administered by the Federal Emergency Management Administration (FEMA) encourages state and local authorities to restrict development in floodplains. For this purpose, the program oversees the mapping of floodways and 100-year floodplains on maps known as the FEMA Flood Insurance Rate Maps. These maps are the accepted standard by which floodways and 100-year floodplains are identified.

At the federal level, legislation pertinent to floodways and floodplains includes the following:

• Executive Order 11988, *Floodplain Protection*, directs federal agencies to plan and design projects in order to avoid floodplain impacts. If a proposed project action is located in a floodplain, alternatives that avoid adverse effects and incompatible development must be considered. In addition, the action must be designed to minimize potential harm to or within the floodplain.

At the state level, the following legislation is relevant:

• Sections 25-68b through 25-68h inclusive of the Connecticut General Statutes (CGS) establishes Connecticut's Flood Management Program. This program, administered by the DEP, regulates state agency actions affecting floodplains and natural or man-made storm drainage facilities. Agencies undertaking such actions must submit a Flood Management Certification describing the project activities and the measures taken to meet the program's standards. Standards relative to floodplain management apply to any proposed construction or activities in floodplains, such as excavation, fill, materials storage, and others. Standards for stormwater management apply to activities and structures affecting the collection, release, and detention of drainage and runoff,

including construction or modification of bridges, culverts, and open channels. The DEP bases their approval on a variety of considerations: conformance to the provisions of the National Flood Insurance Program; prevention of flood hazards to human life, health or property; prevention of adverse impacts to fish populations or fish passage; and prevention of intensification of land uses or development in flood prone areas.

• The Connecticut Stream Channel Encroachment Line (SCEL) program was established post-1955 to ensure that floodplain development is compatible hydraulically and structurally with highly flood-prone rivers in the state. The DEP published a list of SCELs which identifies which rivers are included and the geographic boundaries of the SCELs within each community. DEP issues permits for development within designated SCELS only if there is a clear demonstration that the project will not cause an increase in flood hazard or other adverse effects to the floodplain.

Methods, Coordination, and Data Sources

Information on floodplains, floodways, and SCELS in the study corridor was obtained from existing mapping (DEP GIS Data Layers 2008). Supplemental information about flood elevations was obtained from the Flood Insurance Rate Maps (FIRMs) for each municipality. The 100-year floodplains are mapped on the FIRMs as Zones A (flood elevations documented), B (flood elevations not documented), and V (coastal flood hazard areas). Based on the National Flood Hazard Layer (NFHL) data published by FEMA on August 28 2008, there are no Letters of Map Revision (LOMR) associated with the study corridor, which would change or update the data shown on the FIRMs.

EXISTING CONDITIONS

The Danbury Branch lies along a series of river valleys, reflecting the historic construction of the rail line on lands with gentle slopes. From Norwalk into the south end of Redding, the rail line parallels the Norwalk River, crossing back and forth a number of times. In Redding, the rail line follows the path of Umpawaug Pond Brook and crosses the Saugatuck River. In Bethel, the rail line follows the general course of Sympaug Brook to the brook's junction with the Still River in Danbury. From Danbury north through Brookfield and into New Milford, the rail rests within the Still River valley, primarily on the east side of the river. The line crosses the Still River where the river joins the Housatonic River in New Milford, and then follows the Housatonic River northerly for the rest of its path in the study corridor. Throughout this course, the rail line crosses many tributary streams making their way to these rivers.

There are many floodplains, floodways, and SCELs associated with these waterways in the study corridor. These resources are subject to the DEP Flood Management and SCEL Programs. They are described more fully below and shown on Figure Nos. X-1 to X-14.

Floodplains and Floodways

Of the approximately 38 mile long corridor, 31 miles of track lie over and adjacent to floodplains. There are designated floodways along most of the waterways which cross or

parallel the study corridor. In many places, the tracks are elevated above the flood elevations and cross over the floodways and floodplains on bridges, so that flooding does not interrupt rail service. The floodplains and floodways in the Danbury Branch Improvements study corridor are described by community below. The extent of these resources, including their approximate locations by milepost (MP), is summarized in Table 1.

Norwalk

The rail corridor in Norwalk parallels the Norwalk River. Coastal floodplains occur next to the tracks where it runs along the Norwalk River estuary north of Norwalk Harbor. Above the estuary, the river narrows. From this point northerly, there is a floodway and floodplains along the entire length of the river in Norwalk. Floodplain elevations range from 11 feet along the estuary to near 122 feet at the Norwalk-Wilton town line.

Wilton

The rail corridor in Wilton also parallels the Norwalk River. There is a floodway along the entire length of the river in Wilton, and 100-year floodplains along the river much of the way. The floodplains along the Norwalk River in Wilton are narrow in places but broaden out in several locations near ponds and junctions of tributaries. Floodplain elevations range from approximately 122 feet at the Norwalk-Wilton town line to approximately 343 feet at the Wilton-Ridgefield town line.

Redding

In Redding, the Norwalk River is dammed, creating Factory Pond, which is mapped as a floodway and has floodplains along some of its shore. Below this former mill pond, there is a short stretch of river with no mapped floodway or floodplain. The remaining short stretch of the Norwalk River in Redding does have a narrow floodway and floodplains. Floodplain elevations range from approximately 305 feet at the Redding-Weston-Wilton town line to 333 feet above the dam at Factory Pond.

Ridgefield

The rail line parallels the Norwalk River in Ridgefield. The river has a mapped floodway and floodplains along its entire length in Ridgefield portion of the study corridor. Floodplain elevations range from approximately 343 feet at the Wilton-Ridgefield town line to 367 feet where the line crosses into Redding.

Bethel

In Bethel, the headwater ponds of Sympaug Brook lie along the rail line in the study corridor, and these have mapped floodplains for a portion of their length. As the ponds flow northerly and form Sympaug Brook, a floodway occurs along the brook and as it crosses the rail line, floodplains are also present. Near the Bethel-Danbury town line, a very large floodplain dominates the study corridor where Sympaug Brook, Bethel Reservoir Brook, and Chestnut

Brook all converge near the rail line. Both Sympaug Brook and Bethel Reservoir Brook have floodways in this area.

Floodplain elevations range from approximately 383 feet near the origin of Sympaug Brook to 360 feet at Bethel-Danbury town line.

Danbury

In Danbury, Sympaug Brook flows into the Still River, which lies along the tracks near the Danbury Railroad Station and intersects the corridor farther north close to the Danbury-Brookfield town line. A floodway and broad floodplain area lies along the Sympaug Brook in Danbury, and a narrow floodway and floodplain accompanies the Still River as it is channelized in the vicinity of the Station. The floodway and floodplains are much wider where the rail line crosses the Still River in northern Danbury.

The floodplain elevations along Sympaug Brook range from approximately 354 to 359 feet. The floodplain elevations along the Still River range from approximately 350 feet near the Danbury Station to 288 feet near the Danbury-Brookfield town line.

Brookfield

In Brookfield, the Still River lies on the west side of the rail line. In the southern portion of the study corridor in Brookfield, the broad floodplains of the river abut the west side of the tracks for over a mile. The river meanders next to and into the study corridor farther north in the vicinity of Ironworks Road, where the river floodway and floodplains occur within the corridor most of the distance to the Brookfield-New Milford town line.

Floodplain elevations along the Still River range from approximately 288 feet near the Danbury-Brookfield town line to 231 feet near the Brookfield-New Milford town line.

New Milford

Similar to northern Brookfield, the southern portion of the study corridor in New Milford is dominated by the broad floodplain of the Still River on the west side of the tracks. North of where the Still River flows into the Housatonic River, near the Lanesville Road rail crossing, the Housatonic River channel abuts the rail line. The river channel and its floodway lie on the east side of the tracks for about a mile, with a broad floodplain spreading on both sides of the line. The tracks then cross the river and the floodplain and floodplains shift to the west side of the tracks. The floodplain of the Housatonic River weaves in and out of the western side of the study corridor several more times in New Milford, as the line follows its northerly flow. Other floodways and floodplains in the New Milford corridor include a narrow floodway and floodplain along Great Brook, which crosses the corridor to join the Housatonic River just south of New Milford center. The West Aspetuck River, which crosses the corridor north of New Milford center, has a narrow floodway but the combined floodplains of this river and that of the Housatonic River create a very large floodplain area which takes up the width of the corridor.

Floodplain elevations along the Still River range from approximately 231 feet near the Brookfield-New Milford town line to 213 feet where the Still River joins the Housatonic River. Floodplain elevations along the Housatonic River range from approximately 213 feet near the Still River junction to 216 feet in the vicinity of the West Aspetuck River.

Stream Channel Encroachment Lines

The SCELs in the study corridor, as defined by the DEP, are described below and shown on Figures1 to 14. Their extent and locations in the corridor are also reflected in Table 1.

Norwalk

In the Norwalk portion of the study corridor, there is a mapped SCEL that originates along the Norwalk River at a point 200 feet below Wall Street (within the corridor near Milepost 1.4) and extends northwesterly until the river departing from the corridor in the vicinity of Milepost (MP) 1.8. The Norwalk River turns back into the corridor farther north in Norwalk, north of Deering Pond (near MP 3.0). From here all the way to the Norwalk-Wilton town line is a mapped SCEL along the river within the corridor.

Wilton

In Wilton, wherever the Norwalk River lies within the study corridor, there is a mapped SCEL associated with it. There is only one small area where the river leaves the corridor, in the vicinity of Danbury Road between MP 5.3 and MP 5.5. The SCEL in Wilton thus originates at the Norwalk-Wilton town line and essentially extends to the Wilton-Redding and Wilton-Ridgefield town lines. The SCEL typically includes the ponds lying adjacent to the river.

Redding

There are two segments of the Redding corridor with a mapped SCEL along the Norwalk River. One originates at the Wilton-Weston-Redding town line in the Georgetown section of Redding (near MP 11.6), continuing along the river and encompassing the Georgetown Ponds and Factory Pond. The river swings back into Wilton at the west end of Factory Pond (near MP 12.2). The second segment of SCEL along the Norwalk River is from the Ridgefield-Redding town line (near MP 13.3) to the vicinity of MP 13.9.

Ridgefield

There is a mapped SCEL along the Norwalk River within the Ridgefield portion of the study area from the Wilton-Ridgefield town line to the point where the river crosses into Redding near MP 13.3. Within this stretch, there is also a SCEL along the tributary to the Norwalk River from Candee's Pond, which meets the river in the corridor at approximately MP 12.8.

Bethel

There are no SCELs in the Bethel portion of the study corridor.

Danbury

There is a SCEL within the Danbury portion of the study corridor where the Still River crosses the corridor near MP 22.4. At this location, the SCEL extends between the Triangle Street Bridge (over the Still River) and the corridor limits east of Jansen Street.

Brookfield

There are no SCELs in the Brookfield portion of the study corridor.

New Milford

In the New Milford portion of the study corridor, there is a SCEL along the Housatonic River, from a point 300 feet south of the New York-New Haven-Hartford Railroad Bridge (near MP 37.0) to the northern end of the study corridor. The SCEL roughly parallels the western corridor boundary, lying just within the corridor all of the way except for one location near MP 38.0, where the SCEL boundary lies outside the corridor.

REFERENCES

Connecticut Department of Environmental Protection. (Undated). *Stream Channel Encroachment Lines: A listing of regulated areas in CT.*

FEMA National Flood Insurance Maps [CTDEP GIS Data Layers obtained March 2008; FEMA Q3 data]

Table 1: Floodplains and Floodways in Danbury Branch Study Corridor

Municipality	River or Water Body	Shown on Sheet	Floodplain Milepost Start	Floodplain Milepost Stop	Location Relative to Tracks	Associated Floodway in Corridor	Associated SCEL in Corridor	Other Notes (Mileposts [MP] are approximate)	Length (Miles)
Norwalk	Norwalk River	1 of 14	0.24	0.48	east side	No	No	Coastal Norwalk Harbor extends from MP 0 to MP 1.44	0.24
Norwalk	Norwalk River	1	0.68	1.40	both sides	No	No		0.72
Norwalk	Norwalk River	1	1.56	1.68	both sides	Yes	Yes		0.12
Norwalk	Norwalk River	1	1.68	1.82	west side	Yes	Yes		0.14
Norwalk	Norwalk River	2 of 14	2.84	3.36	both sides	Yes	Yes		0.52
Norwalk	Norwalk River	2	3.38	4.68	east side	Yes	Yes		1.30
Wilton	Norwalk River	2	4.68	5.32	east side	Yes	Yes		0.64
Wilton	Trib from Kent Hills	3 of 14	5.12	5.20	west side	No	No		0.08
Wilton	Trackside pond	3	5.32	5.52	west side	No	No	Large pond; outlet flows under tracks at MP 5.32	0.20
Wilton	Norwalk River	3	5.56	6.50	east side	Yes	Yes	Large ponding of river along e. side tracks most of this stretch	0.94
Wilton	Norwalk River	3	6.50	7.32	both sides	Yes	Yes		0.82
Wilton	Norwalk River	3-4 of 14	7.36	8.04	west side	Yes	Yes	River very close; Comstock Brook joins river at MP 7.38	0.68
Wilton	Norwalk River	4 of 14	8.04	8.76	both sides	Yes	Yes		0.72
Wilton	Norwalk River	4	8.76	9.44	east side	Yes	Yes	Mayapple Brook joins river e. side at MP 9.36	0.68

Table 1 (cont): Floodplains and Floodways in Danbury Branch Study Corridor

Municipality	River or Water Body	Shown on Sheet	Floodplain Milepost Start	Floodplain Milepost Stop	Location Relative to Tracks	Associated Floodway in Corridor	Associated SCEL in Corridor	Other Notes (Mileposts [MP] are approximate)	Length (Miles)
Wilton	Norwalk River	3-4 of 14	7.36	8.04	west side	Yes	Yes	River very close; Comstock Brook joins river at MP 7.38	0.68
Wilton	Norwalk River	4 of 14	8.04	8.76	both sides	Yes	Yes		0.72
Wilton	Norwalk River	4	8.76	9.44	east side	Yes	Yes	Mayapple Brook joins river e. side at MP 9.36	0.68
Wilton	Norwalk River	4	9.44	9.52	both sides	Yes	Yes		0.08
Wilton	Norwalk River	4	9.52	11.56	west side	Yes	Yes		2.04
Wilton-Weston- Redding	Norwalk River	5 of 14	11.56	11.92	east side	Yes	Yes	Georgetown ponds along track on e. side	0.36
Wilton-Redding	Norwalk River	5	12.12	12.24	both sides	Yes	Yes	Large Factory Pd abuts east side; trib joins pond in corridor	0.12
Wilton	Norwalk River	5	12.24	12.48	west side	Yes	Yes		0.24
Wilton- Ridgefield	Norwalk River	5	12.48	13.04	both sides	Yes	Yes		0.56
Ridgefield	Cooper Pond Brook	5	12.75	12.80	west side	Yes	Yes	brook joins Norwalk R. on west side of corridor	0.05

Table 1 (cont): Floodplains and Floodways in Danbury Branch Study Corridor

Municipality	River or Water Body	Shown on Sheet	Floodplain Milepost Start	Floodplain Milepost Stop	Location Relative to Tracks	Associated Floodway in Corridor	Associated SCEL in Corridor	Other Notes (Mileposts [MP] are approximate)	Length (Miles)
Ridgefield- Redding	Norwalk River	5-6 of 14	13.04	13.92	west side	Yes	Yes		0.88
Redding	Umpawaug Pond & Umpawaug Pond Brook	6 of 14	15.12	15.70	east side	No	No	Trib from Topstone Pd joins Umpawaug Pd from e. near MP 15.40	0.58
Redding	Umpawaug Pond Brook	6 of 14	15.70	15.86	both sides	No	No	Trib from Edge Pond flows in from NW on w. side tracks near MP 15.80	0.16
Redding	Umpawaug Pond Brook	6-7 of 14	15.86	16.32	east side	No	No		0.46
Redding	Umpawaug Pond Brook	7 of 14	16.32	16.50	both sides	No	No		0.18
Redding	Umpawaug Pond Brook	7	16.50	16.72	west side	No	No		0.22
Redding	Saugatuck River	7	16.98	17.06	west side	Yes	No	W. Redding Brook joins Saugatuck R. on w. edge of corridor at MP 17.06	0.08
Redding	Saugatuck River	7	17.06	17.24	east side	Yes	No		0.18
Redding	Hawley Pond Brook	7	17.16	17.20	west side	Yes	No	brook flows west to east and under tracks	0.04

Table 1 (cont): Floodplains and Floodways in Danbury Branch Study Corridor

Municipality	River or Water Body	Shown on Sheet	Floodplain Milepost Start	Floodplain Milepost Stop	Location Relative to Tracks	Associated Floodway in Corridor	Associated SCEL in Corridor	Other Notes (Mileposts [MP] are approximate)	Length (Miles)
Redding	Bogus Mountain Brook	7	17.42	17.52	east side	No	No		0.10
Redding	Bogus Mountain Brook	7	17.52	17.64	both sides	No	No		0.12
Redding	Bogus Mountain Brook	7	17.64	17.78	west side	No	No		0.14
Bethel	Sympaug Pond	7-8 of 14	18.36	19.24	east side	No	No		0.88
Bethel	Sympaug Brook	8 of 14	19.32	19.68	east side	Yes	No		0.36
Bethel	Sympaug Brook	8	19.68	20.20	both sides	Yes	No		0.52
Bethel	Sympaug Brook	8	20.20	20.36	west side	No	No		0.16
Bethel- Danbury	Sympaug Brook	8-9 of 14	21.05	21.56	both sides	Yes	No	Bethel Reservoir Brook flows from west and Chestnut Brook flows from east; both converge on tracks near MP 21.40	0.51
Danbury	Sympaug Brook	9 of 14	21.56	22.04	east side	Yes	No		0.48

Table 1 (cont): Floodplains and Floodways in Danbury Branch Study Corridor

			Floodplain	Floodplain	Location	Associated	Associated	Other Notes	
Municipality	River or Water Body	Shown on Sheet	Milepost Start	Milepost Stop	Relative to Tracks	Floodway in Corridor	SCEL in Corridor	(Mileposts [MP] are approximate)	Length (Miles)
Danbury	Sympaug	9	22.12	22.24	east side	Yes	No	appi oximate)	0.12
Danoury	Brook		22.12	22.24	cast side	103	140		0.12
Danbury	Still River	9	22.28	22.36	east side	Yes	Yes		0.12
Danbury	Still River	9	22.36	22.42	both sides	Yes	Yes	Rail crosses river at approx. MP 22.38	0.06
Danbury	Still River	9	22.90	23.44	north side	Yes	No	Rail crosses river at MP 22.90; then river runs along n. side tracks	0.54
Danbury	Still River	9	25.22	25.38	east side	Yes	No		0.16
Danbury	Still River	9	25.72	26.00	east side	Yes	No		0.28
Danbury	Still River	10 of 14	26.44	26.80	both sides	Yes	No	River crosses from east to west; crossing at MP 26.56	0.36
Brookfield	Still River	10	27.24	28.68	west side	No	No		1.44
Brookfield	Still River	11 of 14	30.88	31.04	west side	No	No		0.16
Brookfield	Still River	11-12 of 14	31.18	32.96	west side	Yes	No		1.78
New Milford	Still River	12-13 of 14	32.96	35.20	west side	Yes	No		2.24
New Milford	Still River	13	35.32	35.68	west side	Yes	No		0.36
New Milford	Still River	13-14 of 14	35.68	37.72	both sides	Yes	No	Rail crossing of Still R. at MP 35.90; river flows from w. to e. and joins Housatonic R. on e. side; Still R. ponds up along w. side tracks at crossing	2.04

Table 1 (cont): Floodplains and Floodways in Danbury Branch Study Corridor

Municipality	River or Water Body	Shown on Sheet	Floodplain Milepost Start	Floodplain Milepost Stop	Location Relative to Tracks	Associated Floodway in Corridor	Associated SCEL in Corridor	Other Notes (Mileposts [MP] are approximate)	Length (Miles)
New Milford	Housatonic River	13-14 of 14	35.90	37.48	both sides	Yes	Yes		1.58
New Milford	Housatonic River	13-14 of 14	37.48	37.88	west side	Yes	Yes		0.24
New Milford	Great Brook	14 of 14	37.74	37.78	east side	Yes	No	Brook flows e. to w. across corridor to join Housatonic River	0.04
New Milford	Housatonic River	14	38.08	38.64	west side	No - not in corridor	Yes		0.56
New Milford	West Aspetuck River	14	38.64	38.90	both sides	Yes	No	W. Aspetuck R. crosses from n. to s. side of corridor; crossing at MP 38.72	0.26
New Milford	Housatonic River	14	38.90	39.0+	south side	Yes	Yes	Rail lies along Housatonic as it continues w. and north	0.10+
Total					-	-	-		31.14

Notes: R = river; Trib = tributary; Pd = pond; e = east, w = west, n = north, s = south



























